



NOISE ASSESSMENT FOR PLANNING

Swalcliffe Equestrian Centre

Swalcliffe, Oxfordshire

October 2014

SUBMITTED TO:

Swalcliffe Equestrian Centre

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EXECUTIVE SUMMARY

Noise from the equestrian event on 21 September 2014 was below the generally accepted criterion for outdoor noise which is 55 dB $L_{Aeq,15min}$ at the nearest dwellings.

Calculated noise from the public address system is below the generally accepted criterion for outdoor noise.

Based on the results of our assessment and observations at an equestrian event held at the application site, noise does not give rise to significant disturbance, loss of amenity or create reasonable grounds for complaint at nearby dwellings.

We understand that the number of events similar to that which we attended on 21 September 2014 will be limited to 28 days per annum and these will generally be smaller-scale.

The character of the noise typically generated at these events, including the braying of horses, is in keeping with a rural environment.

1. INTRODUCTION

- 1.1 We have assessed noise from competitive equestrian events at Swalcliffe Park Equestrian Centre (SPE) in Oxfordshire.
- 1.2 We measured noise levels at the site on 14 September 2014 when the facility was not in use and again on 21 September 2014 during an event which included show jumping, dressage and cross-country.
- 1.3 We provide details of our surveys in Appendix A.
- 1.4 The relevant guidance and criteria are discussed in Appendix B.
- 1.5 Information which supports our assessment is given in Appendix C.
- 1.6 We provide a review of an existing report submitted by Walker Beak Mason in relation to application reference 14/00801/F. Our comments are provided in Appendix D.

2. ASSESSMENT

2.1 Our assessment includes the following:

- Establishing an appropriate noise criterion
- Calculation of sound from public address systems at nearby dwellings
- Comparative measurements of ambient noise ($\text{dB } L_{\text{Aeq,T}}$) at nearby dwellings for an event day and non-event day.

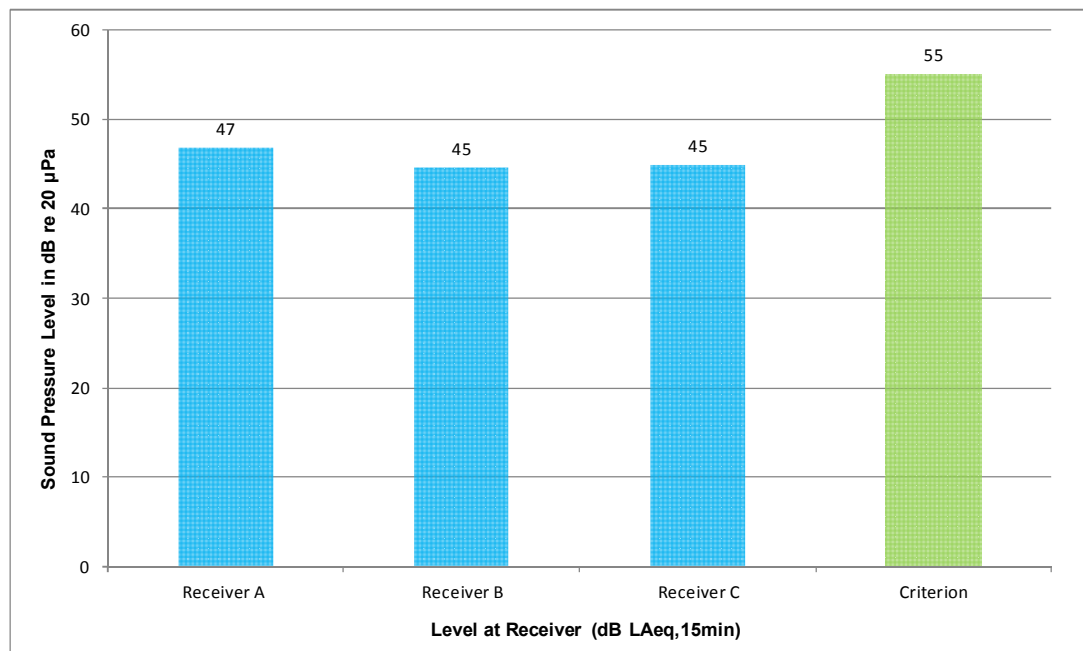
CRITERION

2.2 Based on guidance in BS 8233:1999, World Health Organization guidelines and The Noise Council recommendations for the control of noise from concerts, a noise level of $55 \text{ dB } L_{\text{Aeq,15min}}$ is appropriate, and we have adopted this as the criterion.

2.3 The rationale to support the selection of this assessment criterion is described in Appendix B.

PUBLIC ADDRESS SYSTEM

2.4 Noise from the public address system is shown below.



Calculated levels for public address system at nearby dwellings

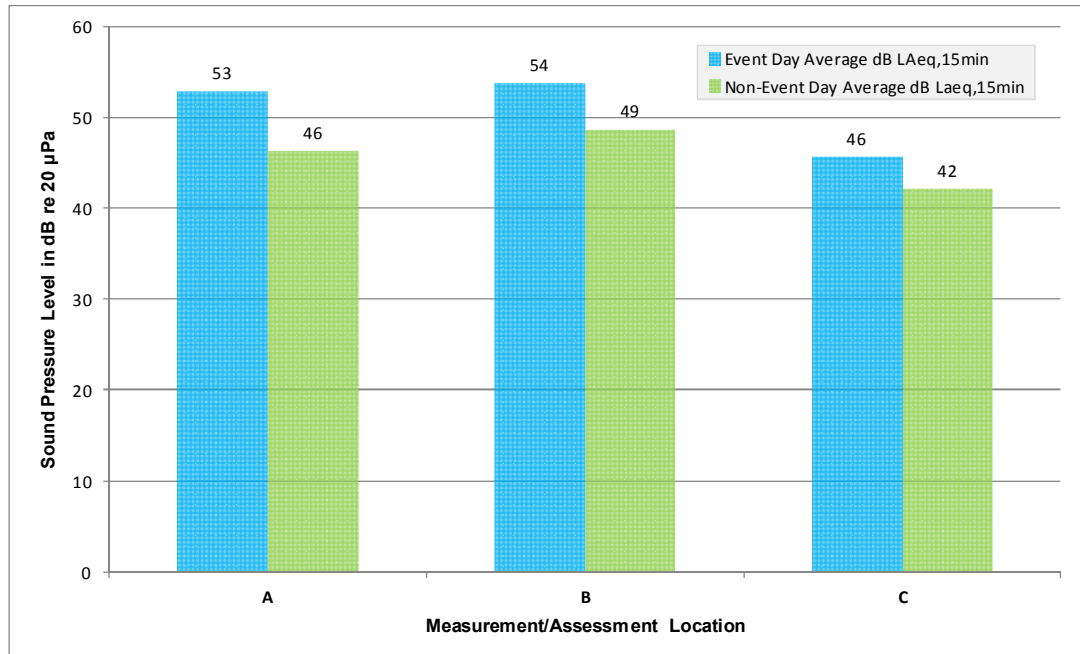
2.5 Assessment Locations (A, B and C) are representative of nearby dwellings, the locations of which are shown in Appendix C.

2.6 Our calculation of noise from the public address system is based on source levels which are shown in Appendix C. We use the higher of the two levels from these data (which is $93 \text{ dB } L_{\text{Aeq,15min}}$ measured on-axis to the horn loudspeaker). Noise levels at nearby dwellings that are off-axis to the loudspeakers would be lower than calculated here.

2.7 Noise from the public address system is lower than the reasonable criterion for outdoor noise which is $55 \text{ dB } L_{\text{Aeq,15min}}$ at nearby dwellings.

COMPARISON OF AMBIENT NOISE

- 2.8 We compare ambient noise levels (dB $L_{Aeq,T}$) measured at nearby dwellings on an event day (21 September 2014) and a non-event day (14 September 2014).



Noise levels measured at the application site on 14 and 21 September 2014

- 2.9 **Resulting ambient noise levels (dB $L_{Aeq,T}$) on the event-day are higher compared to a non-event day but are lower than the criterion for outdoor noise at nearby dwellings (55 dB $L_{Aeq,15min}$).**

DISCUSSION

- 2.10 Noise from the equestrian event on 21 September 2014 was below the criterion for outdoor noise at the nearest dwellings.
- 2.11 We understand that equestrian events of similar scale to that of 21 September 2014 are infrequent and generally the events are smaller. The character of noise generated during this event is typical to a rural environment, with the exception of public address noise which we have shown to be within reasonable limits.
- 2.12 Noise from the public address system used on 21 September 2014 was audible and occasionally intelligible at Location A.
- 2.13 At Location B and C, the public address system was occasionally audible but just noticeable.
- 2.14 Noise from the public address system was insignificant at all measurement locations in terms of level i.e. specific noise from public address would not be measureable, as distinct from calculable at nearby dwellings.
- 2.15 Noise measurements made at Location A were affected by a range of sources including road traffic on Grange Lane, light aircraft overhead, the activity of riders at the staging/parking area and the braying of horses.

- 2.16 The increase in noise levels measured at Location B was mainly due to road traffic flows associated with the event. The increase is within reasonable limits and the character of noise from vehicles used to transport horses is common in this rural setting.
- 2.17 Noise from the equestrian event did not significantly affect the measurements made at Location C which was closest to the area used for dressage.
- 2.18 Other sounds audible during the event day were bells and occasional car horns used to signify to riders the start of a particular event. These sounds were insignificant in terms of duration and level.
- 2.19 There was a public address system used at the show jumping area. Noise from this source was not significant at the nearest dwelling (A) compared to other sources.
- 2.20 A number of the events stalls used small generators to provide power. Noise from these was inaudible at the boundary of the application site.
- 2.21 Equestrian events held at the application site are run as part of an established business. In this respect, the National Planning Policy Framework (NPPF) paragraph 123. states that planning policies and decisions should aim to:
- 'recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land use since they were established.'*
- 2.22 Noise from equestrian events does not give rise to significant disturbance, loss of amenity or create reasonable grounds for complaint at nearby dwellings.**

APPENDIX A: SURVEYS

SITE AND SURROUNDINGS

The application site is near the village of Swalcliffe and is shown on the plan below with the nearest dwellings marked in blue and measurement locations in red.



Site boundary with significant locations shown

We have selected measurement locations to be representative of the nearest dwellings to the application site.

Measurement Location A

This location is adjacent to Grange Lane at the nearby dwelling. Noise levels at this location on the non-event day (14 September 2014) were determined mainly by road traffic including agricultural vehicles and light aircraft overhead.

Measurement Location B

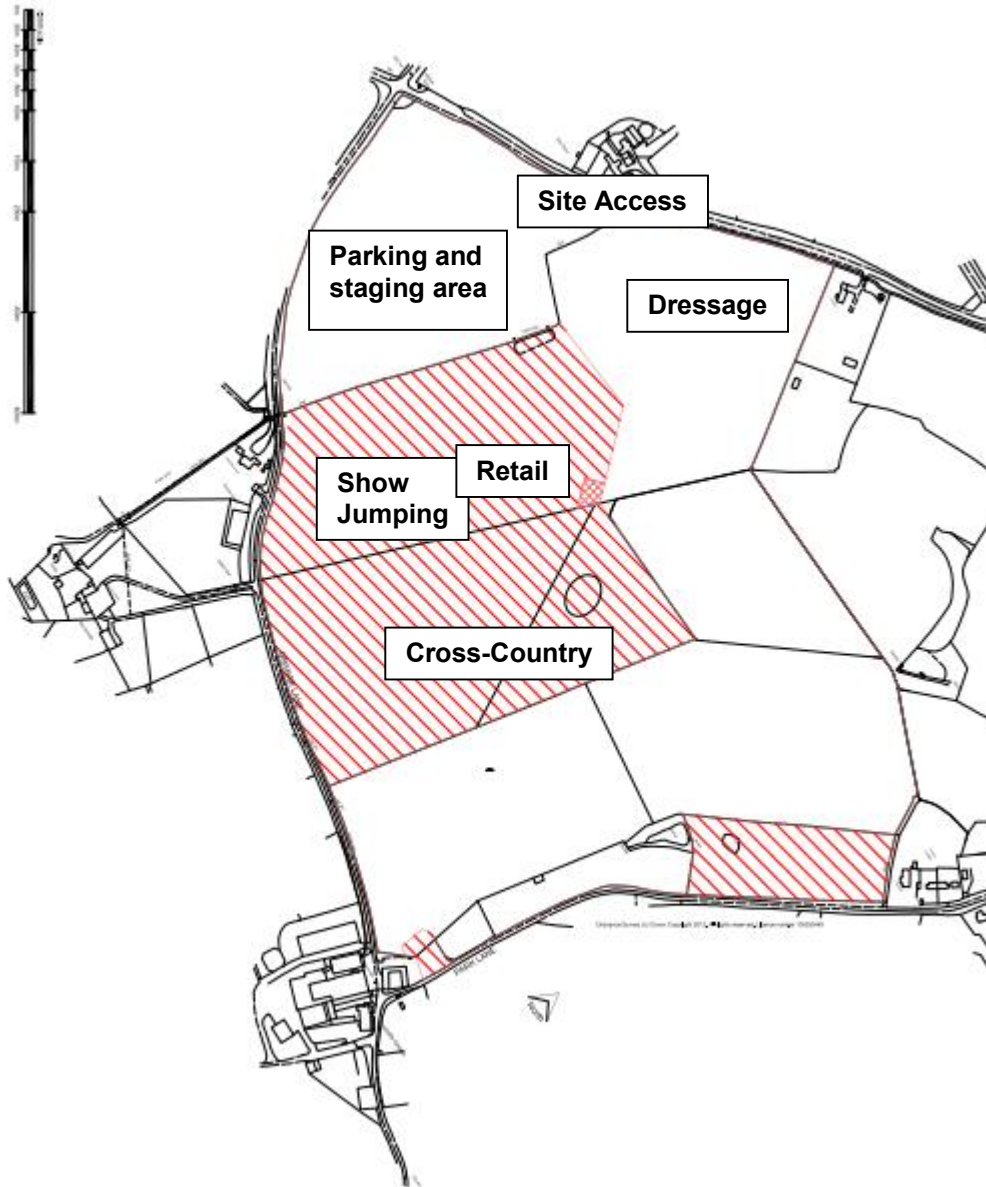
This location is adjacent to Main Street at the rear garden of the nearby dwelling. Noise levels at this location on the non-event day were determined mainly by road traffic including heavy agricultural vehicles and light aircraft overhead.

Measurement Location C

This location is adjacent set back Main Street at the nearby dwelling which is called Elm Farm. Noise levels at this location on the non-event day were determined mainly by road traffic including heavy agricultural vehicles and light aircraft overhead.

During the equestrian event of 21 September 2014 vehicles including vans, trailers and horse boxes arrived and exited the site via access off Main Street near to Elm Farm (Location B). These vehicles parked in the field towards the corner of Main Street Grange Lane. This traffic is similar in character to the type of agricultural vehicles observed during our survey of noise on a non-event day (14 September 2014).

The following plan shows the approximate locations of different events at the application site based on our observations on 21 September 2014 during an event.



Approximate location of different activities during event held on 21 September 2014

MEASUREMENT RESULTS

The following table shows noise measurement results for Location A.

Date	Start Time	Measurement Duration (T)	dB $L_{Aeq,T}$	dB L_{AFMax}	dB $L_{A10\%}$	dB $L_{A90\%}$
20140914	11:28	00:15:00	46.4	60.9	49.0	38.5
20140914	12:40	00:15:00	46.1	58.0	48.5	41.5
20140921	11:54	00:05:00	51.8	67.3	55.0	45.0
20140921	11:59	00:05:00	51.5	64.1	54.5	44.5
20140921	12:04	00:05:00	51.6	71.0	53.0	42.0
20140921	14:13	00:05:00	54.6	69.9	58.0	46.5
20140921	14:18	00:05:00	53.3	67.2	55.5	46.5
20140921	14:23	00:05:00	54.2	73.4	55.5	44.0
20140921	16:04	00:05:00	56.0	70.1	60.0	44.5
20140921	16:09	00:05:00	49.0	67.1	50.0	41.0
20140921	16:14	00:05:00	47.1	61.3	49.0	41.0
20140921	16:19	00:05:00	48.4	68.3	51.0	42.0
20140921	16:24	00:05:00	55.0	71.1	58.5	44.5
20140921	16:29	00:05:00	54.1	72.4	57.5	44.0

Levels measured at Location A

The next table shows noise measurement results for Location B.

Date	Start Time	Measurement Duration (T)	dB $L_{Aeq,T}$	dB L_{AFMax}	dB $L_{A10\%}$	dB $L_{A90\%}$
20140914	11:53	00:15:00	48	64.7	50.5	37.0
20140914	13:00	00:15:00	49	64.7	54.0	35.0
20140921	09:45	00:05:00	53	72.2	53.0	42.5
20140921	09:50	00:05:00	51	69.4	51.5	41.5
20140921	09:55	00:05:00	53	68.4	56.5	41.5
20140921	13:11	00:05:00	56	74.0	57.0	44.0
20140921	13:16	00:05:00	57	74.5	58.5	40.5
20140921	13:21	00:05:00	58	73.4	62.0	43.5
20140921	14:35	00:05:00	45	62.3	45.5	38.5
20140921	14:40	00:05:00	53	70.9	54.0	42.0
20140921	14:45	00:05:00	53	66.9	57.5	42.0

Levels measured at Location B

The next table shows noise measurement results for Location C.

Date	Start Time	Measurement Duration (T)	dB $L_{Aeq,T}$	dB L_{AFMax}	dB $L_{A10\%}$	dB $L_{A90\%}$
20140914	12:17	00:15:00	41.9	52.4	44.5	36.0
20140914	13:19	00:15:00	42.4	61.8	46.0	35.5
20140921	12:50	00:05:00	44.3	58.9	46.5	38.5
20140921	12:55	00:05:00	45.4	55.8	49.0	39.5
20140921	13:00	00:05:00	46.9	60.1	50.0	42.5
20140921	14:56	00:05:00	42.3	61.4	44.5	35.5
20140921	15:01	00:05:00	43.1	53.9	46.0	36.5
20140921	15:06	00:05:00	51.8	63.4	55.5	44.5
20140921	16:45	00:05:00	42.2	54.9	44.5	35.0
20140921	16:50	00:05:00	42.8	53.9	46.0	34.5
20140921	16:55	00:05:00	44.7	64.0	47.5	36.5

Levels measured at Location C

Full measurement data can be provided on request.

METHODOLOGY

We used the following equipment:

Equipment Item	Serial Number
B&K type 2238 sound level meter	2448204
B&K type 4231 sound calibrator	2450834

Equipment

The sensitivity of the sound level meter was checked at the start and end of each survey and no significant drift was observed. The accuracy of the calibrator can be traced to National Physical Laboratory standards.

Current calibration certificates can be provided on request.

Measurements were made in accordance with British Standard 7445-1:2003 '*Description and measurement of environmental noise – Part 1: Guide to quantities and procedures*'.

Weather conditions on 14 September 2014 were suitable for environmental noise measurements. The daytime temperature was approximately 19 °C. There was *moderate* north-westerly breeze and no rain.

Weather conditions on 21 September 2014 were suitable for environmental noise measurements. The daytime temperature was approximately 17 °C. There was a gentle north-westerly breeze with occasional gusts and no rain.

Weather conditions did not significantly affect the results of our surveys.

APPENDIX B: GUIDANCE AND CRITERIA

RATIONALE FOR SELECTION OF ASSESSMENT CRITERION

We have established a criterion based on the standards and guidance described here with particular focus on:

- BS 8233:1999
- WHO 'Guidelines for community noise'
- The Noise Council 'Code of practice on environmental noise control from concerts'

BS 8233 and WHO recommend a limit for daytime external noise which is 55 dB $L_{Aeq,T}$. Recommendations for the time period (T) are different in these two sets of guidance.

In WHO, the recommended time period is 16-hours which in the case of this assessment is unrepresentative and has potential to underestimate the calculated noise levels. In BS 8233, the recommendation is that the reference time period should be appropriate to the activity.

We also refer to guidance given in the The Noise Council 'Code of practice on environmental noise control from concerts' which is relevant to the assessment of noise from the public address system. In this instance, the relevant assessment criterion is that noise (typically music) should not exceed a level at nearby dwellings which is 15 dB above the background noise level (dB L_{A90}). For different locations at the application site, this corresponds to a level between 50 and 55 dB $L_{Aeq,T}$ with a recommended reference time period of 15 minutes.

Therefore, our conclusion is that 55 dB $L_{Aeq,15min}$ is an appropriate criterion for the assessment of noise from equestrian events.

BS 8233:1999

British Standard 8233:1999 'Sound insulation and noise reduction for buildings – Code of practice' provides recommendations in accordance with World Health Organization 'Guidelines for community noise' concerning noise affecting dwellings.

With reference to '7.6.1.2 design criteria and limits for intrusive external noise', BS 8233 says:

'For dwellings, the main criteria are reasonable resting sleeping conditions in bedrooms and good listening conditions in other rooms. Occupants will usually tolerate levels of anonymous noise such as that from road traffic, than noise from neighbours which may trigger complex emotional reactions that are disproportionate to the noise level.'

'... In gardens and balconies etc. it is desirable that the steady noise level does not exceed 50 dB $L_{Aeq,T}$ and 55 dB $L_{Aeq,T}$ should be regarded as the upper limit. The time period, T, should be appropriate to the activity.'

BS 8233 provides recommendations for indoor ambient noise levels in dwellings.

Criterion	Typical Situation	Design Range dB $L_{Aeq,T}$	
		Good	Reasonable
Reasonable resting/sleeping conditions	Living rooms	30	40
	Bedrooms	30	35

BS 8233 Recommendations for indoor ambient noise levels

WORLD HEALTH ORGANIZATION

World Health Organization ‘*Guidelines for community noise*’ includes the following:

‘Annoyance to community noise varies with the type of activity producing the noise. Speech communication, relaxation, listening to radio and TV are all examples of noise-producing activities. During the daytime [07:00-23:00], few people are seriously annoyed by activities with LAeq levels below 55 dB; or moderately annoyed with LAeq levels below 50 dB. Sound pressure levels during the evening and night should be 5-10 dB lower than during the day...It is emphasized that for intermittent noise it is necessary to take into account the maximum sound pressure level as well as the number of noise events. Guidelines or noise abatement measures should also take into account residential outdoor activities.’

CODE OF PRACTICE ON ENVIRONMENTAL NOISE CONTROL AT CONCERTS

The Noise Council ‘*Code of practice on noise control at concerts*’ provides guidance for noise from outside music events. The recommended limits for events held between 09:00 and 23:00 are shown in the table below. These criteria are defined in terms of the music noise level (MNL).

Concert days per calendar year, per venue	Venue Category	Guidelines
1 to 3	Urban stadia or arenas	The MNL should not exceed 75 dB(A) over a fifteen minute period
1 to 3	Other urban and rural venues	The MNL should not exceed 65 dB(A) over a 15 minute period
4 to 12	All venues	The MNL should not exceed the background noise level by more than 15 dB over a 15 minute period.

The Noise Council recommended limits for noise from concerts

The accompanying footnotes state: ‘*The use of inaudibility as a guideline is not universally accepted as an appropriate method of control*’.

This is especially relevant in the case of the Swalcliffe site where background noise levels are relatively low which means achieving inaudibility or levels close to inaudible is not practical.

It is significant in relation to the Swalcliffe site that measured background noise levels plus 15 dB (dB $L_{A90} + 15$ dB) is approximately equal to the WHO noise level limit of 55 dB $L_{Aeq,T}$. For this reason, we have selected the WHO limit, but with a 15 minute time base, as an appropriate criterion for this assessment.

NATIONAL PLANNING POLICY FRAMEWORK

The National Planning Policy Framework was introduced in March 2012. Paragraph 123 of the National Planning Policy Framework states that planning policies and decisions should aim to:

'avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;

mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;

recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;

identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.'

The National Planning Policy Framework also refers to the Noise Policy Statement for England.

BS 7445:2003

Our Measurements of noise at the application site were made in accordance with British Standard 7445-1:2003 'Description and measurement of environmental noise – Part 1: Guide to quantities and procedures'.

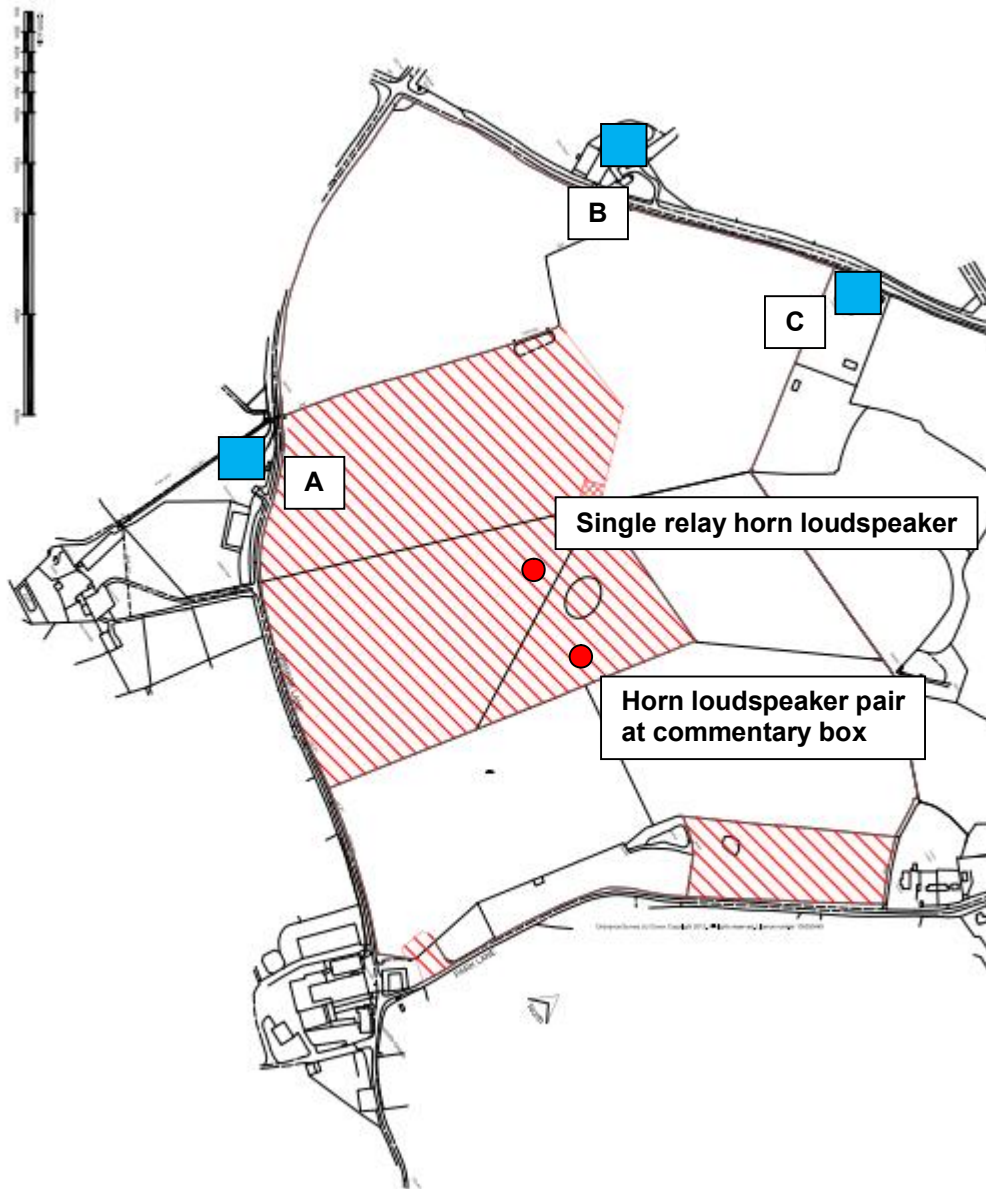
ISO 9613-2

Our calculations of noise propagation across the application site are in accordance with International Standard 9613-2 'Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of Calculation'.

APPENDIX C: SUPPORTING INFORMATION

ASSESSMENT LOCATIONS – SOURCE AND RECEIVER DISTANCES

Our assessment of noise from the public address system uses the following information regarding source locations and distances to the nearest dwellings. This information is based on our observations made during an equestrian event held at the application site.



Source and receiver locations used in our assessment

The horn loudspeaker locations shown above are based on our observations made during the event day of 21 September 2014.

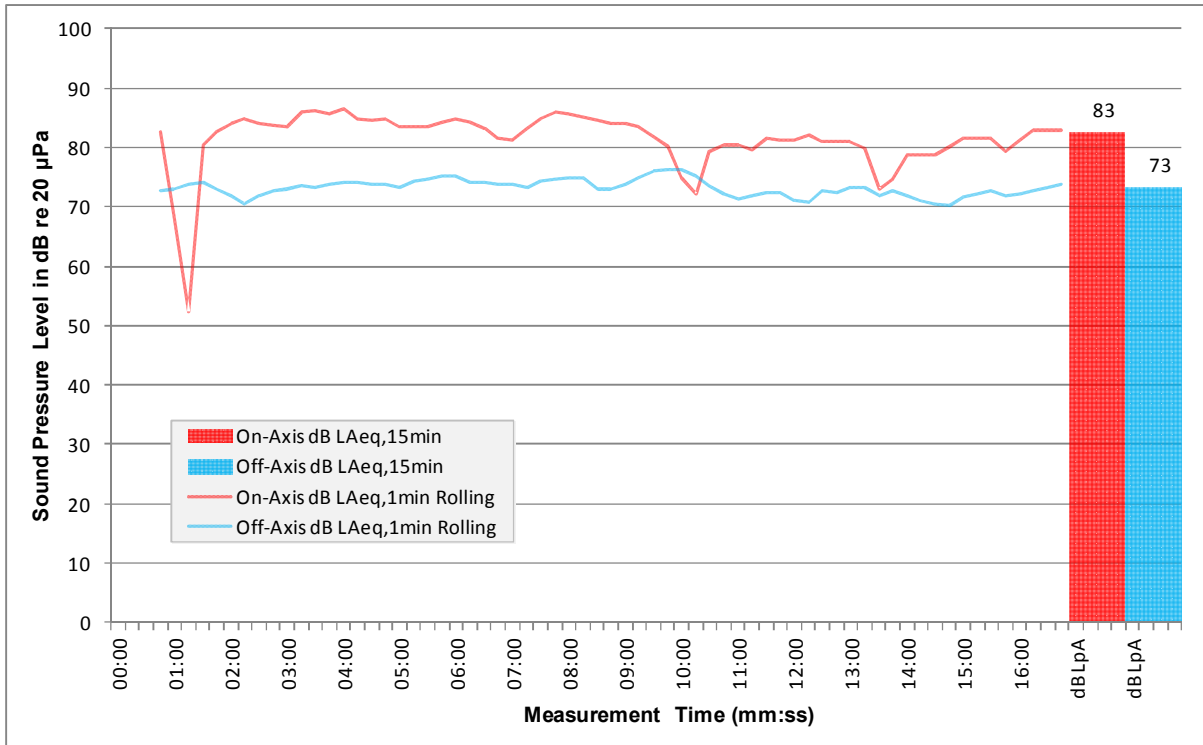
Our calculations use source receiver distances shown in the next table and which are based on measurements from the above plan.

Source	Assessment Location		
	A	B	C
Single relay horn loudspeaker	300 m	400 m	400 m
Horn loudspeaker pair at commentary box	360 m	470 m	430 m

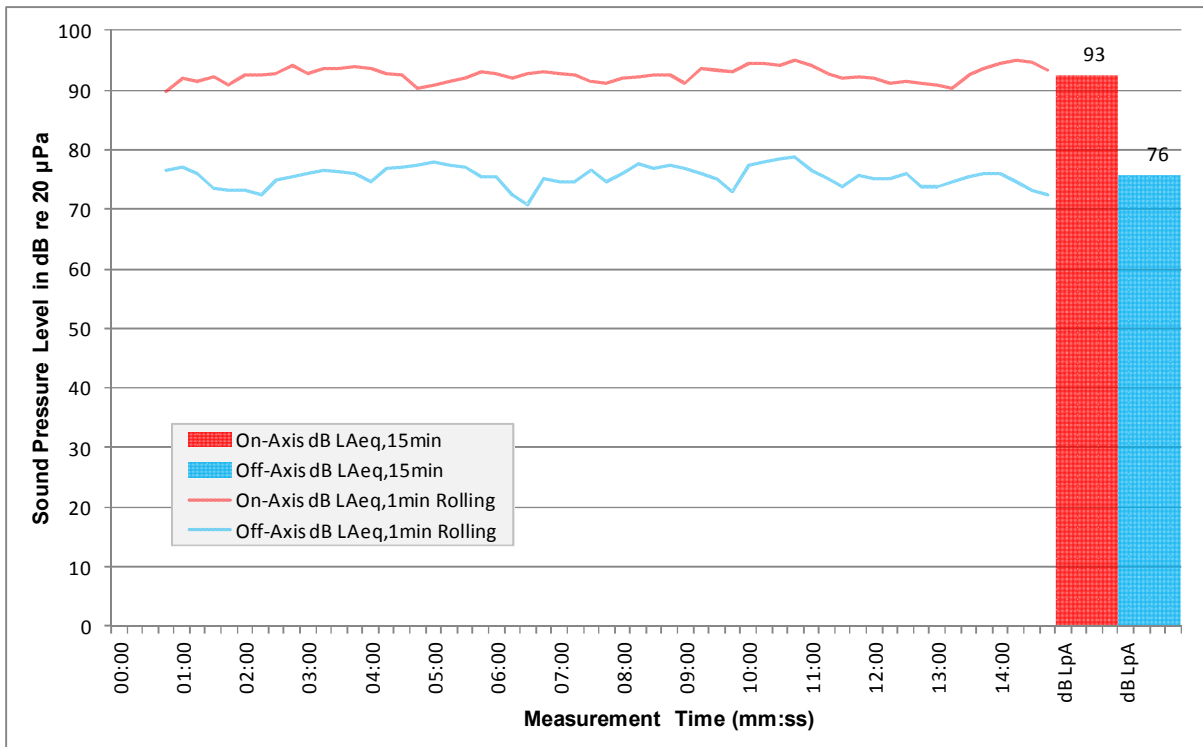
Calculation distances between source and receiver locations

SOURCE NOISE LEVELS – PUBLIC ADDRESS SYSTEM

We measured the following source noise levels for a public address system at the application site on 21 September 2014, close to a horn loudspeaker. These levels are used in our calculations.



Source levels from public address system at 10:26 on 21 September 2014 measured at 2 m



Source levels from public address system at 15:21 on 21 September 2014 measured at 2 m

APPENDIX D: WBM REPORT REVIEW

We have reviewed a report produced by Walker Beak Mason which was issued on 4 August 2014. This report was commissioned by a local resident who has submitted an objection to proposals in application reference: 14/00801/F.

Walker Beak Mason measured noise levels at nearby dwellings on two occasions including one event day and one non-event day.

The report provides a summary of the measured noise levels and subjective impressions of the noise from an equestrian event held at the site.

The noise levels reported by Walker Beak Mason are similar to those measured by us.

The report by Walker Beak Mason does not include details of an assessment nor a reasoned argument in objection to the proposed use of the application site in terms of noise.

The information provided by Walker Beak Mason can be used to support the findings of our assessment.