Adams Food Ingredients
Leek

ENVIRONMENTAL NOISE SURVEY
REPORT 16166/ENS1

For :

Adams Food Ingredients
Prince Street
Leek
Staffordshire
ST13 6DB

4 February 2010

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ATTACHMENTS

1.0 INTRODUCTION

This Report refers to the proposed development of the Adams Food Ingredients site on Sunnyhills Road, Leek. Noise associated with the development could potentially impact on nearby noise sensitive receptors without sufficient noise control measures in place.

Hann Tucker Associates have therefore been commissioned to undertake an environmental noise survey of the site with a view to undertaking a noise impact assessment on the proposed items of external plant at a later date.

This report presents the methodology and results of the environmental noise survey.

2.0 OBJECTIVES

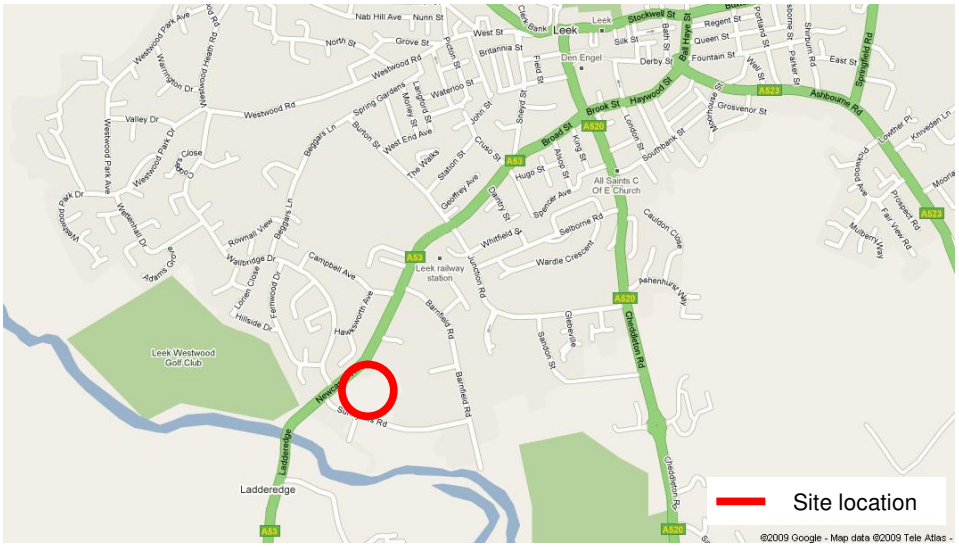
To establish, by means of detailed 7 day automated environmental noise monitoring, the existing A-weighted (dBA) L_{eq}, L_{90}, L_{10} and L_{max} environmental noise levels along with associated octave band spectra representative of the noise climate at the nearest noise sensitive receptors to the site.

The survey shall be undertaken in general accordance with BS 7445:1991 'Description & measurement of environmental noise'.

3.0 SITE DESCRIPTION

3.1 Location

The site is located off the A53 on the outskirts of Leek, Staffordshire, as indicated below, and falls within the jurisdiction of Staffordshire Moorlands District Council.

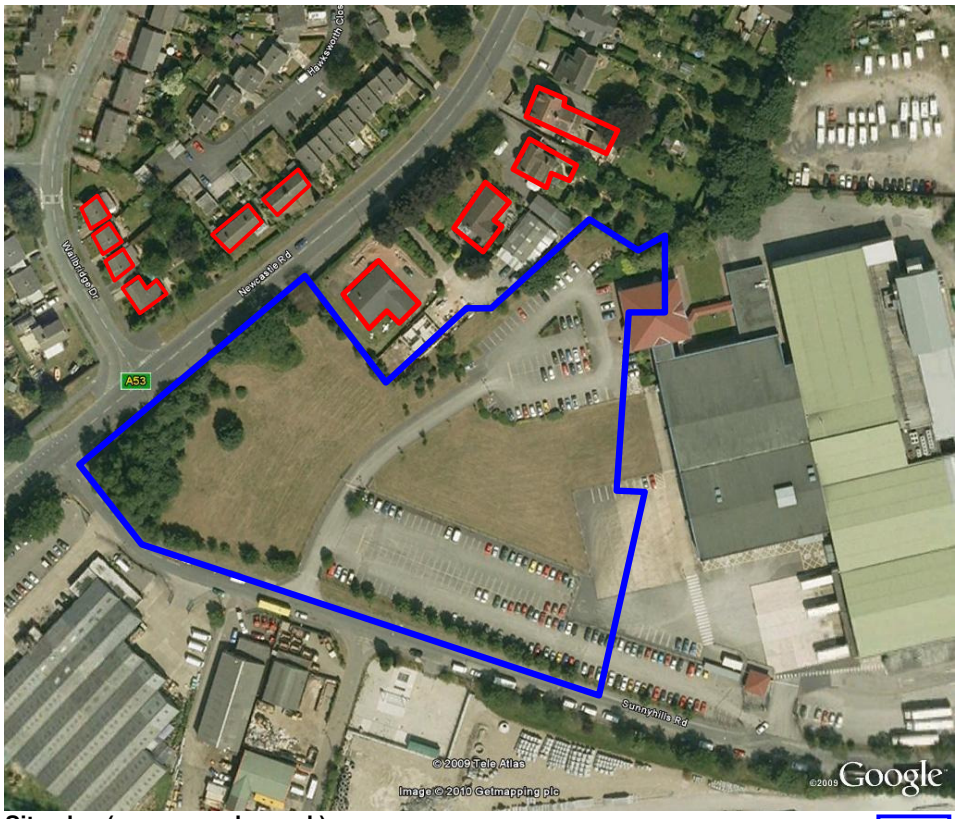


Location map (maps.google.co.uk)

3.2 Description

The site borders Sunnyhills Road to the North and Newcastle Road to the East and consists of grassland. To the East of the site lies the existing Kerrygold factory and head office. Industrial premises lie opposite the site on Sunnyhills Road to the South.

The nearest noise sensitive properties are located to the North and West of the site in the form of two storey houses. A site plan is provided below. **Note: The existing car parks within the site boundary indicated on the plan below are no longer present on site.**



Site plan (maps.google.co.uk)

Adams Food Ingredients Site

Noise Sensitive Properties

4.0 ACOUSTIC TERMINOLOGY

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

5.0 ENVIRONMENTAL NOISE SURVEY

5.1 Procedure

Fully automated environmental noise monitoring was undertaken from 16:30 hours on Tuesday 26 January 2010 to 16:30 hours on Tuesday 2 February 2010.

Due to the nature of the survey, i.e. unmanned, it is not possible to accurate comment on the weather conditions throughout the entire duration of the survey. However, at the beginning of the survey period, wind conditions were calm and the sky was generally overcast although there was no rainfall. Road surfaces appeared mainly dry. At the end of the survey period, wind conditions were breezy, with light sleet. We understand however that throughout the week there was no precipitation and road surfaces were mainly dry. These conditions are considered suitable for obtaining representative measurement results.

Measurements were taken of the A-weighted (dBA) L_{eq}, L_{90}, L_{10} and L_{max} sound pressure levels continuously over 15-minute intervals.

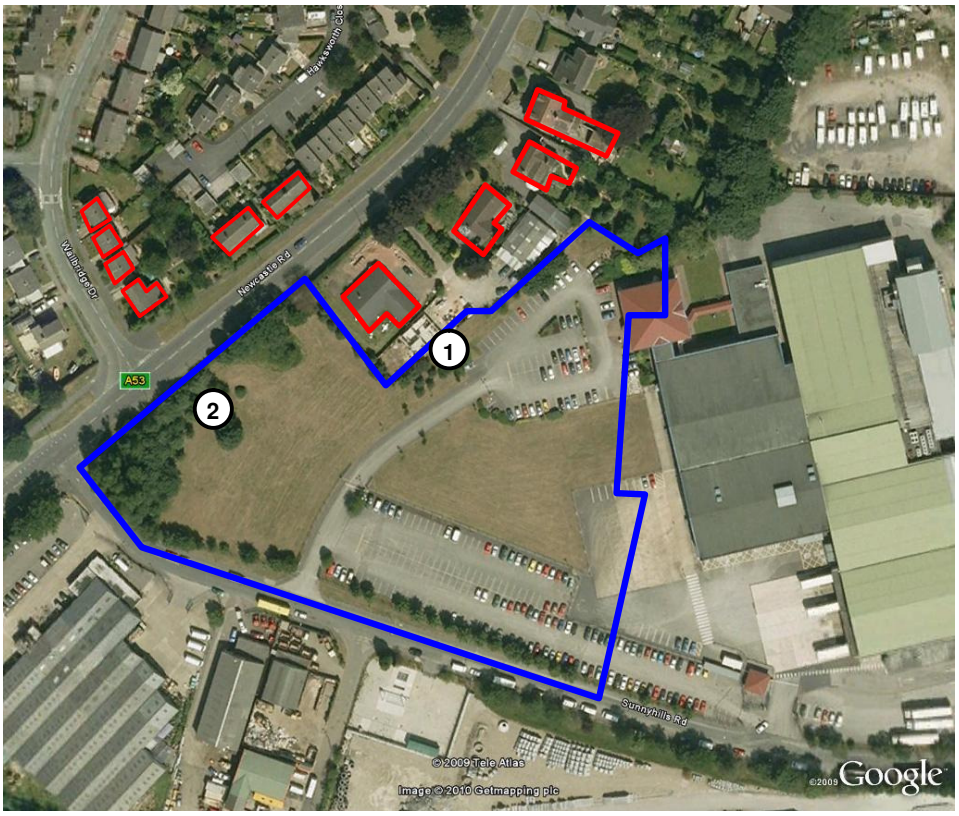
5.2 Measurement Positions

The noise level measurements were undertaken at 2No. positions around the development site. The measurement positions are described in the table below.

Position No	Description
1	The microphone was located at a height of approximately 2m close to the northern site boundary with the residential properties on Newcastle Road. The microphone was located approximately 55m from Newcastle Road
2	The microphone was located at a height of approximately 2m and approximately 15m from Newcastle Road.

The positions were selected in order to assess the lowest noise levels at the nearest noise sensitive façades for subsequent use in setting plant noise emission criteria and are shown on the plan below (maps.google.co.uk).

The measurement positions were considered suitable for obtaining representative measurement results at surrounding residential properties.



Site plan showing approximate measurement position (maps.google.co.uk)

Adams Food Ingredients Site

Noise Sensitive Properties

5.3 Instrumentation

The instrumentation used during the survey is presented in the Table below:

Description	Manufacturer	Type	Serial Number	Latest Verification
Type 1 Data Logging Sound Level Meter	Larson Davis	824	3701	18/03/2009
Type 1 Microphone	Larson Davis	4189	8523	18/03/2009
Type 1 Data Logging Sound Level Meter	Larson Davis	824	3780	17/09/2009
Type 1 Microphone	Larson Davis	4189	106753	17/09/2009
Type 1 Calibrator	Larson Davis	CAL200	3083	10/10/2009

Each sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable. The microphone was fitted with a Larson Davis windshield.

Each sound level meter, including the extension cable, was calibrated prior to and on completion of the surveys. No significant deviations occurred (no more than 0.1 dB).

5.4 Results

The results have been plotted on Time History Graphs 16166/TH1 to 16166/TH4 enclosed presenting the 15 minute A-weighted (dBA) L_{10}, L_{90}, L_{eq} and L_{max} levels at the measurement positions throughout the duration of the survey.

For the purpose of setting appropriate plant noise emissions criteria, the following Table details the minimum background A-weighted (dBA) $L_{90,15min}$ levels measured during daytime (07:00-23:00 hours) and night-time (23:00-07:00 hours) periods.

Measurement Position	Minimum Measured $L_{90,15min}$ (Background)Sound Level (dBA)	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
1	35	30
2	38	36

5.5 Discussion of Noise Climate

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period. However at the beginning and end of the survey period the dominant noise source was noted to be vehicular movements on Newcastle Road. It should be noted that as the site is located on an existing industrial park the residual background noise (i.e. the noise level when all intermittent sources (cars) of noise are absent) is likely to be dominated by noise associated with the operation of the nearby businesses.

6.0 CONCLUSION

A detailed 72 hour daytime and night-time fully automated environmental noise survey has been undertaken in order to establish the currently prevailing roof level environmental noise climate around the site.

The minimum background A-weighted (dBA) $L_{90,15min}$ levels measured during daytime (07:00-23:00 hours) and night-time (23:00-07:00 hours) periods have been identified

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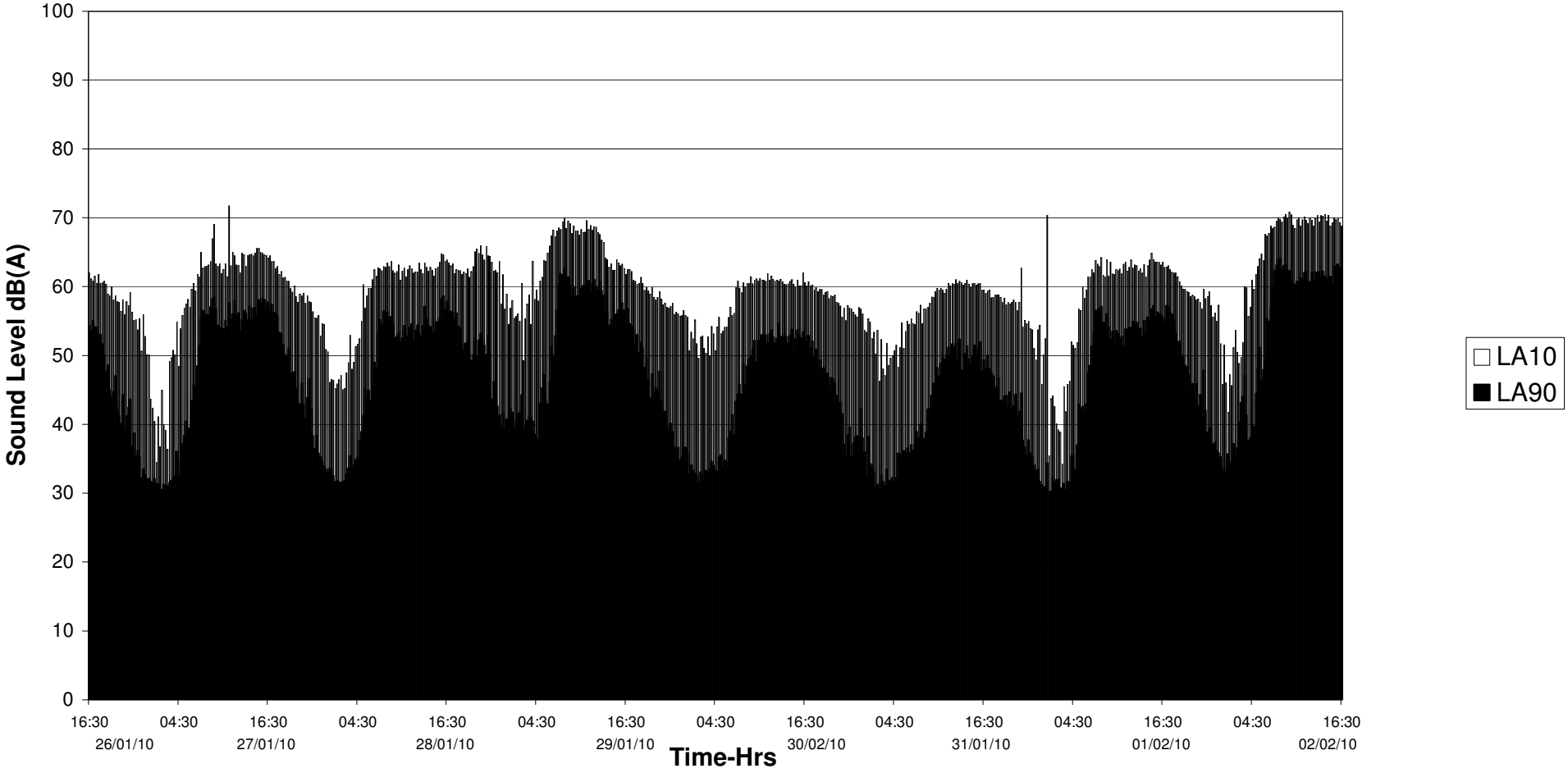
L_{A10} and L_{A90} Noise Levels - Position 1

Tuesday 26 January 2010 to Tuesday 2 February 2010



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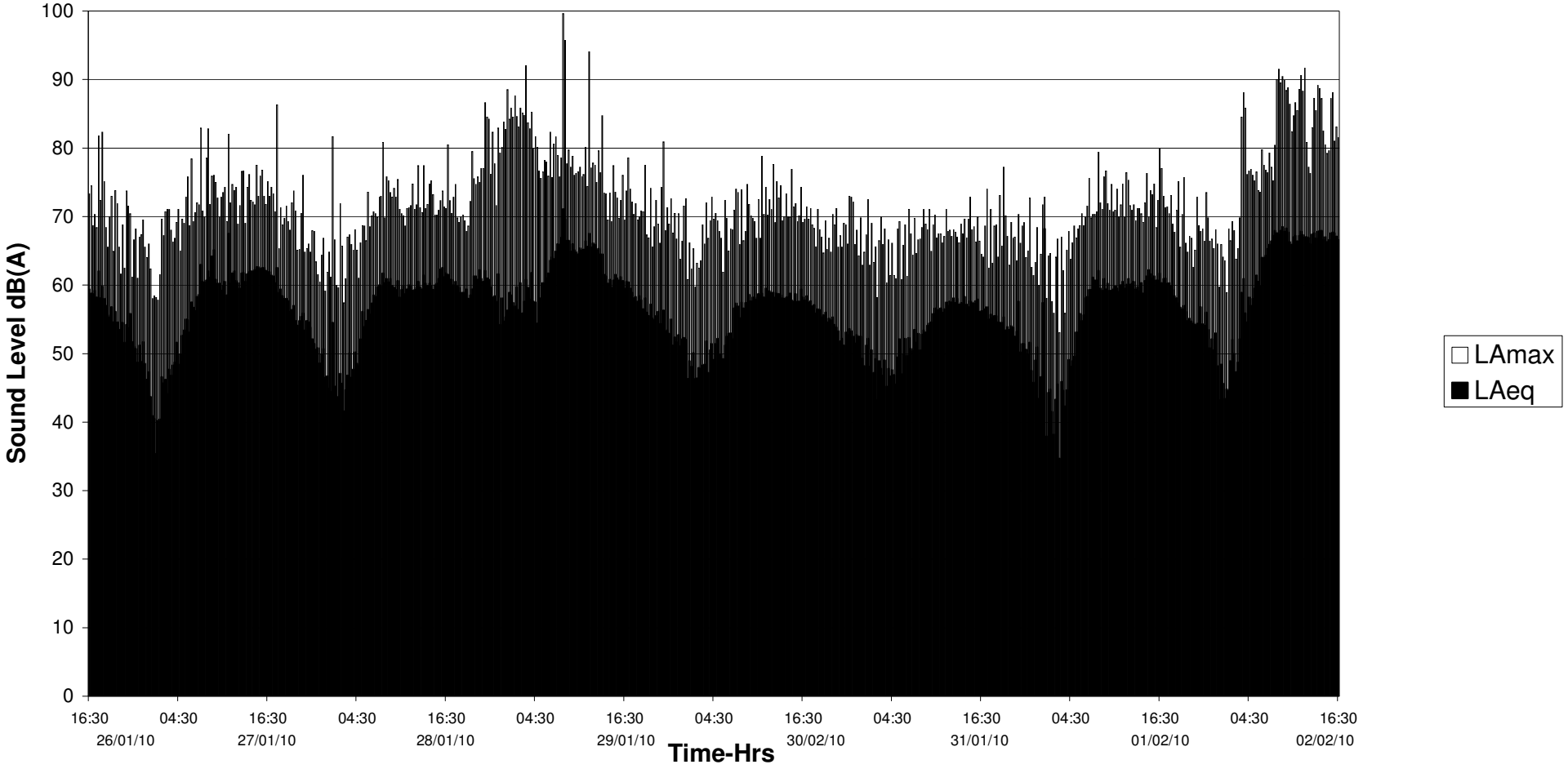
L_{Aeq} and L_{Amax} Noise Levels - Position 1

Tuesday 26 January 2010 to Tuesday 2 February 2010



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L_{A10} and L_{A90} Noise Levels - Position 2

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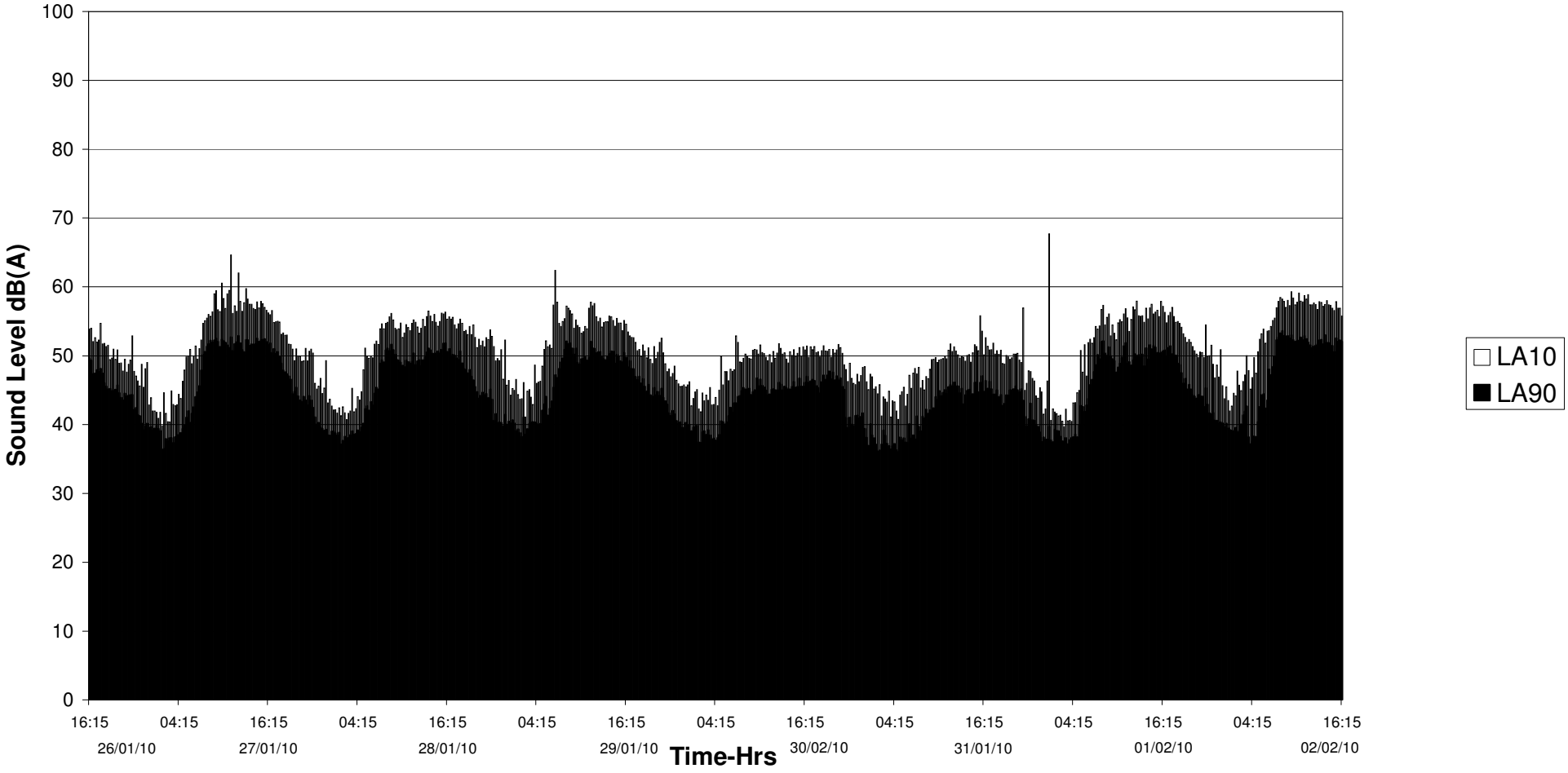

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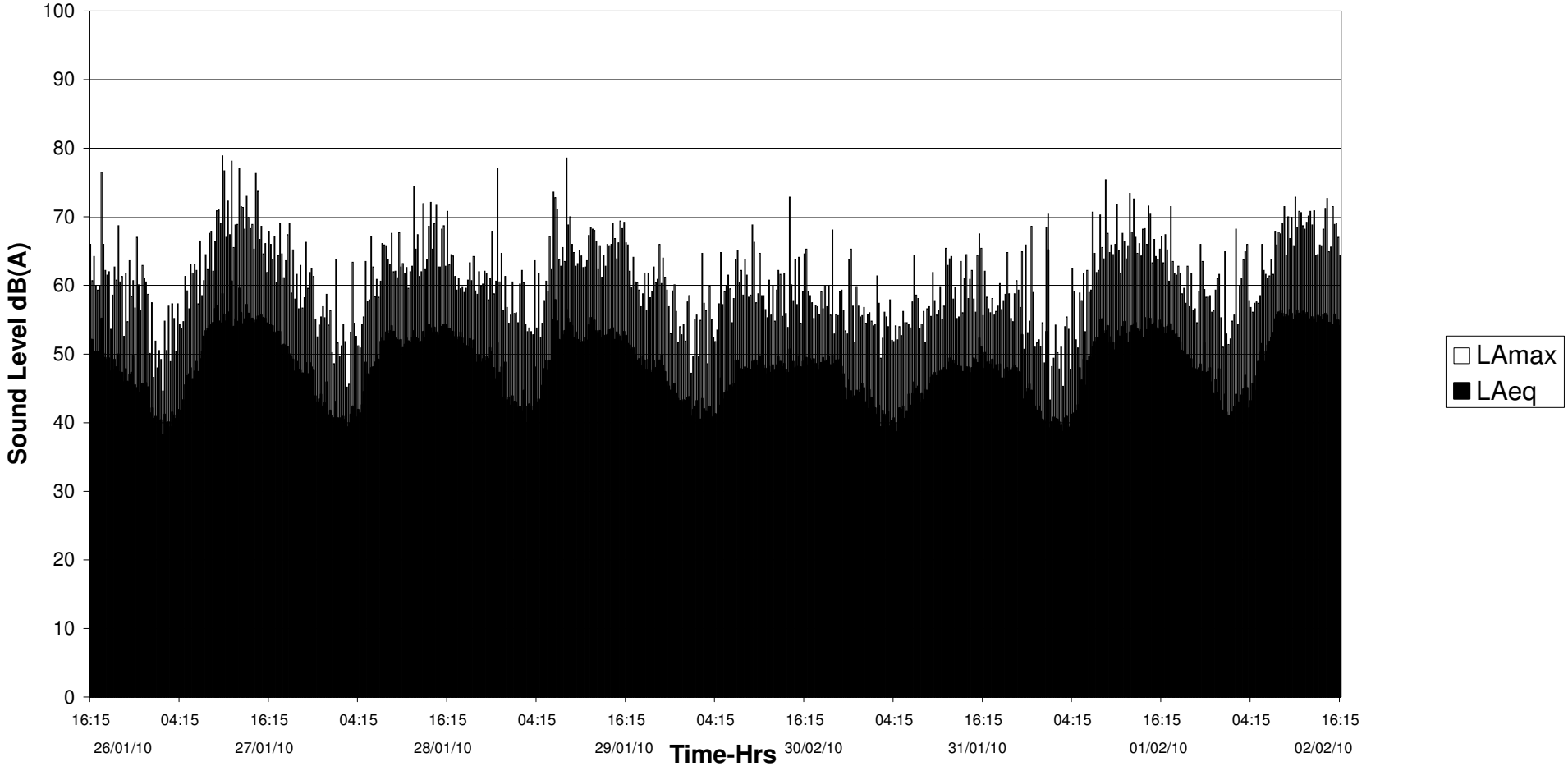
L_{Aeq} and L_{Amax} Noise Levels - Position 2

Tuesday 26 January 2010 to Tuesday 2 February 2010



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APPENDIX A

The acoustic terms used in this report are as follows:

dB : Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.

dB(A) : The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dB(A) level.

Because of being a logarithmic scale noise levels in dB(A) do not have a linear relationship to each other. For similar noises, a change in noise level of 10dB(A) represents a doubling or halving of subjective loudness. A change of 3dB(A) is just perceptible.

L_{10} & L_{90}: If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the average minimum level and is often used to describe the background noise.

It is common practice to use the L_{10} index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.

L_{eq} : The concept of L_{eq} (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.

L_{eq} is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 1 hour).

L_{max} : L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

Free-field : A sound level determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces.