

Ellenor Hospice, Gravesend

Environmental Noise Survey

Report 18/0538/R1

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Ellenor

Coldharbour Road
Northfleet
Kent
DA11 7HQ

Revision	Description	Date	Prepared	Approved
0	1 st Issue	13 November 2018	Adam Sharpe	Andy Emery

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Environmental Noise Survey

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18/0538/SP1

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Time history graphs illustrating unattended noise measurement results

 End of Section



Environmental Noise Survey

1 Introduction

- 1.1 Ellenor Hospice is embarking on a refurbishment and extension of its current facility to include a new single-storey extension for clinically compliant single in-patient en-suite rooms and a two-storey extension to accommodate office space.
- 1.2 Cole Jarman have undertaken an environmental noise survey at the site in order to establish the existing noise climate. This report sets out details of the survey methodology and results.

2 Site Description

- 2.1 The site, located at Coldharbour Road, Northfleet, Gravesend DA11 7HQ is a two storey hospice facility with adjoining carpark. The location of the site and its surrounds are shown on attached site plan 18/0538/SP1.
- 2.2 The building and its carpark is accessible through Coldharbour Road, which runs along the site's south-western boundary. Beyond this is a large car park and petrol station servicing a supermarket to the south west, with the A2 some 400m from the site to the south/southwest.
- 2.3 The area directly to the northeast of the site is occupied by Marks Square, which serves as access to several south-facing semi-detached residences. A large field currently takes up the area to the south/southeast of these residences, though it is noted that planning permission has been granted for the development of new residential housing within this area.
- 2.4 The area bounding the site to the north beyond the site carpark is occupied by Packham Road and Boucher Drive, both of which are accessible from Coldharbour Road. Beyond this are rows of semi-detached residential properties extending northwards along Boucher Drive.
- 2.5 Noise affecting the site comes primarily from distant traffic on the A2, with frequent traffic along Coldharbour Road elevating the noise levels when present. Some activity within the nearby supermarket carpark and petrol station was also perceived.
- 2.6 The site is within the jurisdiction of Gravesham Borough Council.

3 Noise Survey

3.1 Methodology

- 3.1.1 In order to establish the existing noise climate on site, an unattended noise survey was undertaken at the site between 1045 hours on Thursday 25th October and 1000 hours on 30th October 2018.



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- 3.1.2 Measurements of noise levels were taken from positions on the site's western and eastern boundaries. These have been illustrated as MP1 and MP2 respectively in attached site plan 18/0538/SP1.
- 3.1.3 These positions were selected to quantify existing noise levels from road traffic noise along Coldharbour Road as well as noise levels at the rear of the site.
- 3.1.4 Measurements of the L_{Aeq} , L_{Amax} and L_{A90} indices were recorded over consecutive 15-minute periods for the duration of the survey using the equipment listed within table T1 (see attached Glossary of Acoustic Terms for an explanation of the noise units used).

Item	Manufacturer	Type
Sound Level Analyser (x2)	Rion	NL-52
Acoustic Calibrator (x2)	Rion	NC-74
Weatherproof windshield (x2)	Rion	WS-15

T1 Equipment used during unattended noise survey.

- 3.1.5 The microphones were fitted with weatherproof enclosures, and the sound level meters were calibrated before and after the survey in order to confirm an acceptable level of accuracy. No significant drift was noted to have occurred.
- 3.1.6 The weather conditions when setting up the noise monitoring equipment were cool and clear with dry roads and still winds. When collecting the equipment, the weather was cold and clear with dry roads and some breeze. Through interrogation of publically available weather data, it is noted there were some periods of rain and/or high winds over the course of the survey, the noise data gathered during these periods will not therefore be used to form the basis of future noise assessment work. These periods are set out in table T2.

Date	Period Start	Period End
Fri 26/10/2018	0815	1000
Sun 28/10/2018	0115	1140
Mon 29/10/2018	0140	0245

T2 Periods affected by rain/high wind over survey duration



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3.2 Results

- 3.2.1 The results of the unattended noise measurements at MP1 and MP2 are presented in attached time history figures 18/0538/TH01 – 18/0538/TH02 respectively.
- 3.2.2 The noise climate on site was dominated by road traffic noise along Coldharbour Road, with elevated noise levels present during activity within the site carpark and grounds.
- 3.2.3 The resultant average day and night time period noise levels recorded at the measurement positions are presented in tables T3 and T4 below.
- 3.2.4 It should be noted that the switch from BST to GMT occurred over the survey duration on 28th October. As a result, the night time L_{Aeq} levels set out in the tables below for the night of the 27th October reflect a 9-hour period. This change has been illustrated on the attached time history graphs 18/0538/TH01 – 18/0538/TH02.

Date	Daytime 0700-2300	Night Time 2300-0700	
	$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	Typical ¹ L_{AFmax}
Thurs 25/10/2018	65 ²	59	74
Fri 26/10/2018	66	58	74
Sat 27/10/2018	65	58	77
Sun 28/10/2018	66	57	75
Mon 29/10/2018	65	57	74
Tues 30/10/2018	67 ²	-	-

T3 Average period noise levels at position MP1.

- 3.2.5 The worst-case rain/wind free 1-hour L_{Aeq} ambient noise levels for the day and night time periods at position MP1 have been calculated to be **68dB(A)** and **64dB(A)** respectively. These figures and their corresponding spectra will be factored in to future calculations.

¹ 10th Highest dB(A) value during any night time period

² Incomplete period



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Date	Daytime 0700-2300	Night Time 2300-0700	
	$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	Typical ¹ L_{AFmax}
Thurs 25/10/2018	57 ²	53	62
Fri 26/10/2018	56	50	61
Sat 27/10/2018	56	51	63
Sun 28/10/2018	56	50	60
Mon 29/10/2018	55	50	60
Tues 30/10/2018	57 ²	-	-

T4 Average period noise levels at position MP2.

3.2.6 The worst-case rain/wind free 1-hour L_{Aeq} ambient noise levels for the day and night time periods at position MP2 have been calculated to be **61dB(A)** and **57dB(A)** respectively.

3.2.7 The minimum background noise levels recorded during the day and night time measurement hours during the survey duration are set out in table T5 below:

Location	Minimum Background Noise Level, dB(A)	
	Daytime (0700-2300 only)	Night time (24-hour)
MP1 – Site western boundary	45	39
MP2 – Site eastern boundary	48	45

T5 Lowest measured background noise levels, L_{A90} .

■ End of Section



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Glossary of Acoustic Terms

L_{Aeq} :

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A) L_{eq} .

L_{Amax} :

The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the L_{Aeq} noise level. Unless described otherwise, L_{Amax} is measured using the “fast” sound level meter response.

L_{A10} & L_{A90} :

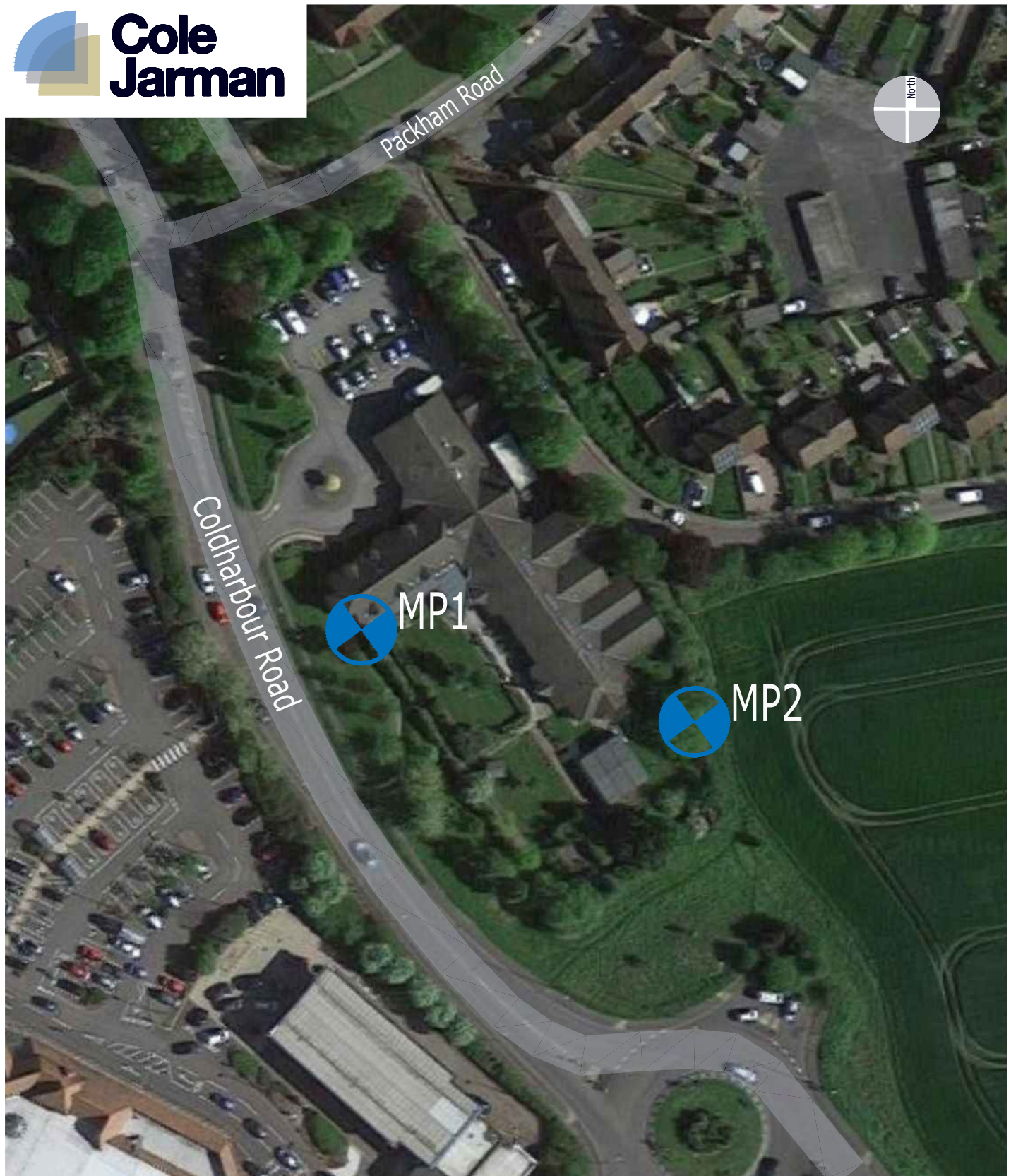
If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The L_{An} indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified. L_{A10} is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly L_{A90} gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

L_{A10} is commonly used to describe traffic noise. Values of dB L_{An} are sometimes written using the alternative expression dB(A) L_n .

L_{AX} , L_{AE} or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event. L_{AX} values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of L_{Aeq} for the total noise. The L_{AX} term can sometimes be referred to as Exposure Level (L_{AE}) or Single Event Level (SEL).

■ End of Section



Title: Site plan illustrating unattended noise measurement positions

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Scale: Not to scale

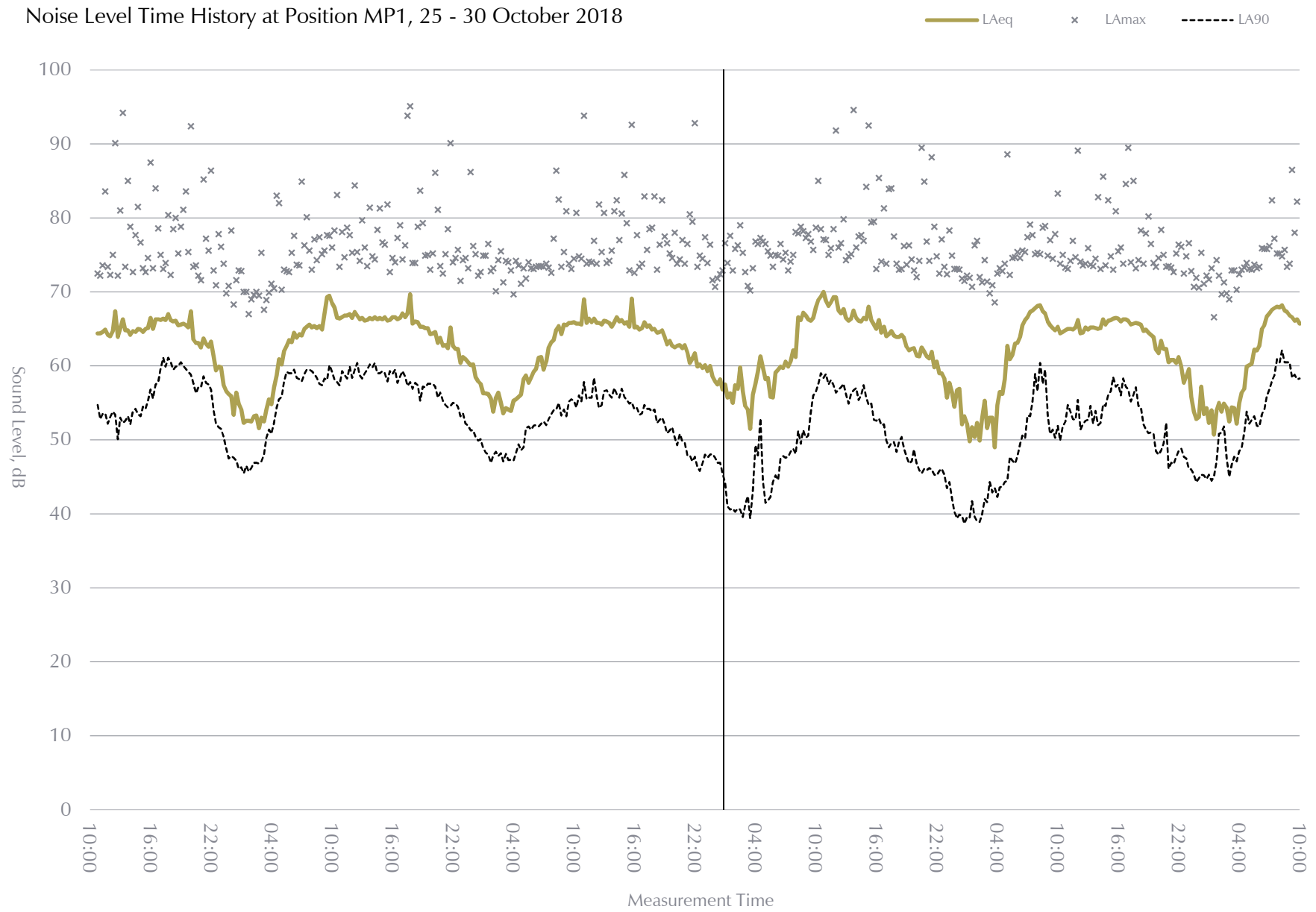
Figure 18/0538/SP1

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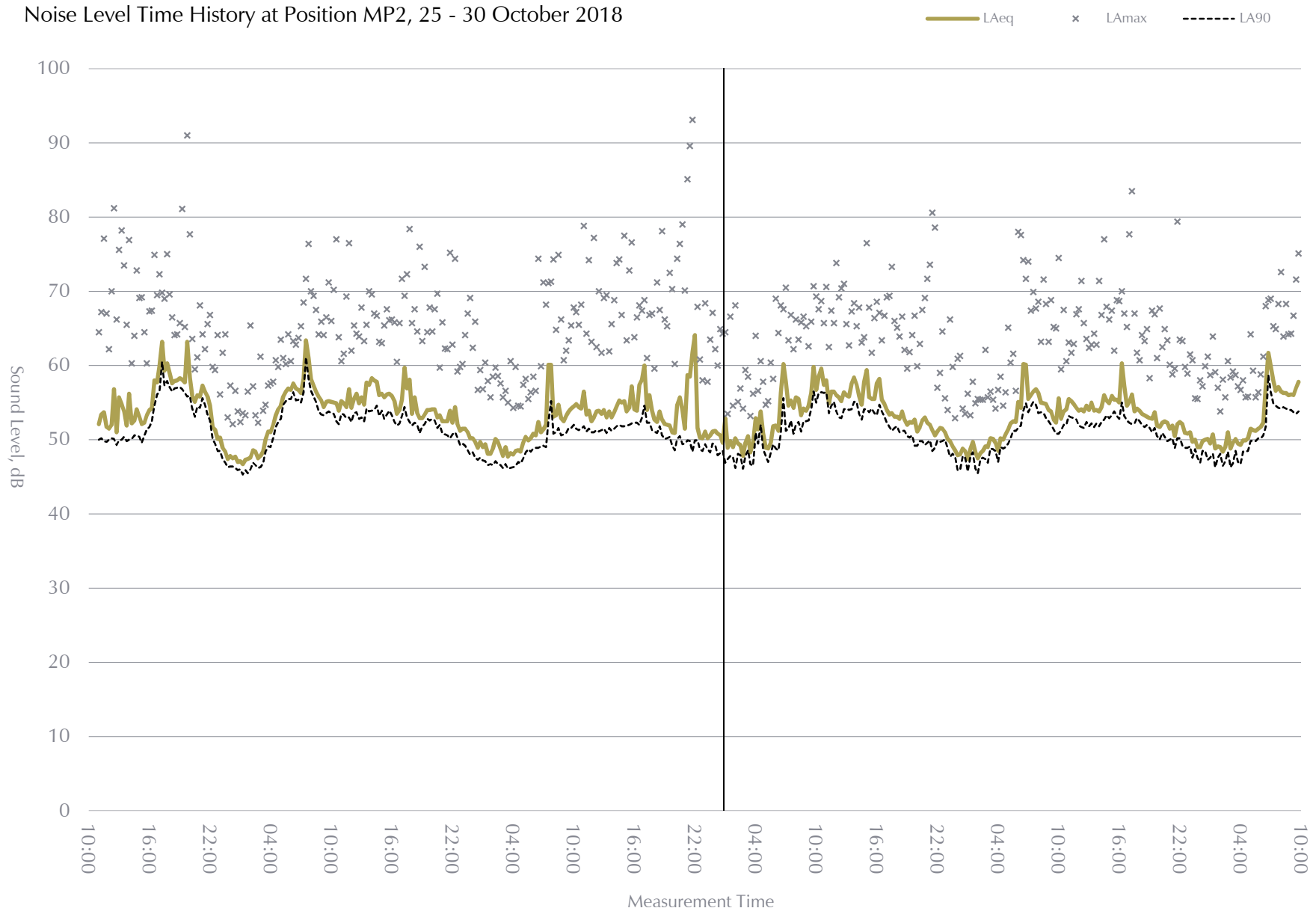
Figure 18/0538/TH01



NOTE: Black line illustrates change from BST to GMT.



Figure 18/0538/TH02



NOTE: Black line illustrates change from BST to GMT.



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