ACADEMY MUSIC GROUP

London Borough of Camden
Planning Advice and Information Services
2nd Floor, 5 Pancras Street
c/o Town Hall
Judd Street
London
WC1H 9JE
By Special Delivery and by email to
planning@camden.gov.uk

03 November 2016

Dear Sirs

Application Number 2016/5372/P - Demolition of existing buildings and redevelopment of site to provide two buildings containing a 2 storey basement with 4,312m² of self-storage; 1,803m² of office and 60 self-contained residential flats and other associated works

Highgate Centre and A&A Storage, Former Lensham House 19 - 37 Highgate Road and 19 Greenwood Place London NW5 1LB

We refer to the above planning application, a site which lies next to the O2 Forum Kentish Town ("**The Forum**"), separated by the Christ Apostolic Church. The Forum is owned by Academy Music Group Limited ("**AMG**"). We write due to our concern of the impact the proposed development could have on AMG's operation of The Forum, a very popular and lively music and entertainment venue.

The addition of new residential accommodation in the development would, if planning permission is granted, result in acoustically sensitive residential use being located in close proximity to The Forum. If noise levels from The Forum are audible inside the proposed development or exceed recommended noise levels then complaints from new residents are likely to arise. This could result in action being taken against AMG, which in turn would have a serious negative impact on the ongoing operation of The Forum.

Failure to fully assess the impact of the proposed development would breach the National Planning Policy Framework which states that existing businesses should not have restrictions placed upon them that could impact their business due to a change of use or new development in close proximity to their existing operations. The Forum is a long standing music and entertainment venue and, as a result, any new nearby developments should be appropriately mitigated to protect The Forum from complaints that may arise from incoming residents.

AMG has commissioned Gillieron Scott Acoustic Design to review the planning application referred to above. They produced a report dated 27 September 2016 ("**GSAD Report**") which ascertained the existing noise levels emanating from The Forum at the proposed development site. The GSAD Report confirmed that amendments need to be made to the design of the proposed development, including to the glazing used in certain areas of the development, in order to ensure that the noise levels would be acceptable to residents. Full noise mitigation recommendations are contained within the GSAD Report, a copy of which is enclosed.

AMG is currently in discussions with the planning permission applicant in order to ensure that the recommendations of the GSAD Report are fully taken into account and implemented during the construction programme of the proposed development. Such an agreement is necessary to ensure that the above development is undertaken in a manner that would allow the proposed development and The Forum to co-exist, notwithstanding the proximity of the two buildings.

However, until this agreement has been completed, AMG has no guarantee that the development would be undertaken in a way that is acceptable to AMG and its ongoing operations. Accordingly, AMG has no option but to maintain an objection to the proposed development, due to the impact that it could have on the use and operation of The Forum.

If you would like to discuss this matter, please do not hesitate to call Chris Lulic on 020 7009 3287 or email Chris.Lulic@livenation.co.uk .

Yours faithfully

Academy Music Group Limited

For and on behalf of
Academy Music Group Limited

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GILLIERON SCOTT
ACOUSTIC DESIGN

Report No:
02 Kentish Town A&A Self-Storage redevelopment Noise Assessment 27092016.pdf

For:
FAO Russ Duly
Academy Music Group

02 KENTISH TOWN FORUM & A&A SELF STORAGE REDEVELOPMENT

NOISE ASSESSMENT

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September 2016

Compiled by: ..... Ben Claridge MEng AMIOA Date: 27/09/2016

Checked by ..... Tim Scott BSc MIOA Date: 27/09/2016

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INTRODUCTION

Gillieron Scott Acoustic Design (GSAD) have been appointed by The Academy Group to review proposals that have been submitted to Camden Council for the Greenwood Place Development. The redevelopment of the 19-37 Highgate Road in Camden, London, NW5 1YJ which lies next to an existing music venue operated by The Academy Group, "The 02 Forum Kentish Town" (9-17 Highgate Road) separated by the Christ Apostolic Church.

Current proposals include changes from the existing use of the site as a Storage warehouse and Day Centre to incorporate a cafe area/self-storage unit on ground floor, overlooking Highgate Road, office space on second floor and residential dwellings between ground and ninth floor.

Hence, the proposals include the change of use of the neighbouring site from the current commercial operations to a more acoustically sensitive residential use between ground and ninth floors. If noise levels from the venue are audible inside the proposed development or exceed typically recommended external noise levels complaints may arise which could negatively impact on The 02 Forum operations.

GSAD have conducted acoustic surveys to determine whether existing entertainment noise break out from the venue into the development site could give rise to complaints from potential incoming residents.

The findings of this assessment are presented in the following sections of this report together with the supporting figures and appendices.

1.0 SUMMARY

Airborne noise levels were measured on the roof of the A&A storage building during a typical show in the 02 Forum, where the most critical residential façade will be located. Measurements were also carried out in parallel inside the 02 Forum to determine typical maximum operating levels.

The results show that the worst case noise from the venue at 1m from the new residential façade will be 54 dB L_{Aeq}.

Calculations have been made to predict the envelope glazing requirements for the residential portions of the new building. This is based on the measurements to ensure that with typical maximum noise levels inside the 02 Forum, the contribution of noise from the venue will be 10dB below BS8233:2014 limits for internal levels, approximately NR15. This has been shown on the mark up in Appendix B and is generally in line with the recommendations previously made by Hilson Moran in an earlier acoustic report.

GSAD recommend glazing in the worst case areas of R_w 43 dB with an SRI of 27 dB at 63 Hz and slightly less on other facades of the new development. It is predicted this can be achieved with 14.4mm laminated glass and 12mm standard glass with a 12mm void or similar.

2.0 NOISE ASSESSMENT CRITERIA

2.1 General Criteria and the NPPF

The National Planning Policy Framework (NPPF) indicates that existing businesses should not have restrictions placed upon them that could impact their business by a change of use or new development in close proximity to the existing operations.

An excerpt from the NPPF is given below;

"The potential effect of a new residential development being located close to an existing business that gives rise to noise should be carefully considered. This is because existing noise levels from the business even if intermittent (for example, a live music venue) may be regarded as unacceptable by the new residents and subject to enforcement action. To help avoid such instances, appropriate mitigation should be considered, including optimising the sound insulation provided by the new development's building envelope. In the case of an established business, the policy set out in the third bullet of paragraph 123 of the Framework should be followed."

Paragraph 123;

"Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts[27] on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts[27] 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;[28] and*
- *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 O2 Kentish Town Forum is a long standing theatre / entertainment venue and as a result any new developments should be appropriately mitigated to protect the venue from complaints that may arise from incoming residents resulting in potential enforcement action against the venue.

2.2 Entertainment noise

It is recommended that noise levels measured inside any room of any noise sensitive premises or dwelling, with the windows closed measured as L_{Aeq}, 1m (in the 63Hz and 125Hz Octave bands measured using the 'fast' time constant) with entertainment in the 02 Forum Kentish Town taking place should show no increase in dB as compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place in the 02 Forum Kentish Town.

This recommendation closely relates to typical London planning policies where residential dwellings are proposed in close proximity to existing entertainment venues.

2.3 British Standard BS8233:2014

British Standard BS 8233:2014 provides information on the design of internal acoustics in buildings. The document gives recommended internal noise levels in residential dwellings. The recommendations are shown below.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

The 2014 revision of BS 8233 has removed specific references to a recommended level from individual noise events (measured as L_{Amax}). The guidance from the World Health Organisation (WHO) will be used in lieu of a definitive steer in the BS 8233 document. A WHO 2000 document recommends the 45 dB L_{Amax} is not regularly exceeded in bedrooms at night. A further WHO document details that more than around 10 events a night would constitute as 'regularly exceeded'.

The above limits are based on research into the effect of noise on the health and quality of life of occupants subjected to noise. However, they do not account for entertainment noise as a sound source and are designed to mitigate against non-specific types of noise such as traffic. The likelihood of complaints is significantly higher from repetitive music noise intrusion than from traffic or similar random noise sources.

Typically a standard of NR15 is acceptable with local authorities to satisfy this criteria.

3.0 ACOUSTIC SURVEYS

3.1 Entertainment noise

Acoustic surveys were carried out to determine entertainment noise levels incident on the external façade of the proposed residential development at 19-37 Highgate Road and regenerated internally.

The survey methodology is defined below;

Visit the 02 Forum Kentish Town main house during the day and night of an event where typical internal noise levels are expected.

- Obtain L_{max} and L_{eq} octave band readings of internal noise levels with entertainment noise operating at maximum levels in several locations.

- Obtain L_{max} and L_{eq} octave band readings of external noise levels with and without entertainment noise at the site of the proposed development at the most critical facade.

Audio recordings were also taken at the residential location to confirm that the noise readings that defined the maximum noise levels at the façade were emanating from the venue.

4.0 SURVEY RESULTS

The following sections give details of the results of the acoustic tests for entertainment noise.

4.1 Sound System Levels

The highest recorded levels based on 5 minute measurements with a fast time constant from the night were taken. This was during a bass heavy electronic dance music show and is expected to be around the typical maximum internal noise levels of the 02 Forum Kentish Town.

Table 1 – Measured sound system levels at the control position

Average Levels (Leq)

$L_{Aeq,F}$	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz
106	115	112	102	101	102	96	92	88

Maximum levels (Lmax)

L_{Amax}	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz
118	126	122	113	114	114	107	106	107

The above tables have been compiled by taking the maximum levels from each octave band as measured during the survey and calculating the A weighted figures.

4.2 Receive levels 1m from the Walkabout south façade

Simultaneous measurements were undertaken in parallel externally on the roof of A&A storage which is expected to be where the most critical residential façade will be built.

Audio recordings were also taken at the residential location to confirm that the noise readings that defined the maximum noise levels at the façade were emanating from the venue.

4.3 Measured and predicted worst case internal noise levels in the proposed residential dwellings

A CadnaA noise map was then built of the surrounding site and the worst case noise level 1m from the façade of the development was matched to the survey and all other areas of the proposed development were predicted. The CadnaA noise map is shown in Appendix C

Table 2 – Predicted worst case noise levels emanating from the venue as measured at 1m from the proposed facade

dB(A)	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz
54	73.0	56.5	51.8	49.4	47.2	43.0	34.7	24.3

Table 3 – Typical glazing requirement on the south eastern façade to achieve NR15 or lower inside the living rooms / bedrooms

R_w	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz
43	27	26	32	42	45	47	59

A mark-up of the glazing requirements is shown in Appendix B

The glazed areas set out below should achieve the stated airborne sound insulation standards. Laboratory data for each glazing type should be submitted by the Supplier, measured according to BS EN 140 – 3:1995, from a UKAS certified laboratory. The Contractor is requested to provide acoustic test certificates of windows and frames combined to demonstrate compliance with the above specifications.
Glazing elements should be set in neoprene gaskets with no contact with frames.
All glazing/frames should be sealed airtight to building structure with silicone mastic.

All windows ratings should include a 3dB safety factor for onsite degradation.

Acoustic Specification for External Façade Wall Build ups
Wall build ups should be selected to be a minimum of Rw 5dB above the relevant window ratings.

Façade Ventilation
If the building will have natural supply air ventilation to the bedrooms via the external façade, acoustically attenuated trickle vents will be required. Acoustic ratings of trickle vents will need to be selected so as not to degrade the acoustic performance of the building fabric. Typically, GSAD recommend that the acoustic $D_{ne,w}$ ratings of trickle vents should match the specified sound reduction index R_w of the windows to ensure the performance is maintained.

5.0 DISCUSSION AND RECOMMENDATIONS

Airborne noise levels were measured on the roof of the A&A storage building during a typical show in the 02 Forum, where the most critical residential façade will be built. Measurements were also carried out in parallel inside the 02 Forum to determine typical maximum operating levels.

Calculations have been made to predict the envelope glazing requirements for the residential portions of the new building. This is based on the measurements to ensure that with typical maximum noise levels inside the 02 Forum, the contribution of noise from the venue will be 10dB below BS8233:2014 limits for internal levels. This has been shown on the mark up in Appendix B.

GSAD's minimum glazing recommendations are R_w 43dB on the south eastern façade with an SRI of 27dB at 63Hz, R_w 42dB on the south western façade, R_w 23dB on the north western façade, R_w 27dB on the north eastern façade. This is generally in line with the recommendations made by Hilson Moran. It is critical to ensure the performance of the glazing at low frequencies is built into the design and construction degradations are factored into this. It is predicted this can be achieved with 14.4mm laminated glass and 12mm standard glass with a 12mm void.
It is recommended that full mechanical ventilation systems are provided in all dwellings to ensure that the external envelope performs as required. It should be possible for occupants to keep windows closed whilst adequate fresh air and heating/cooling is provided.

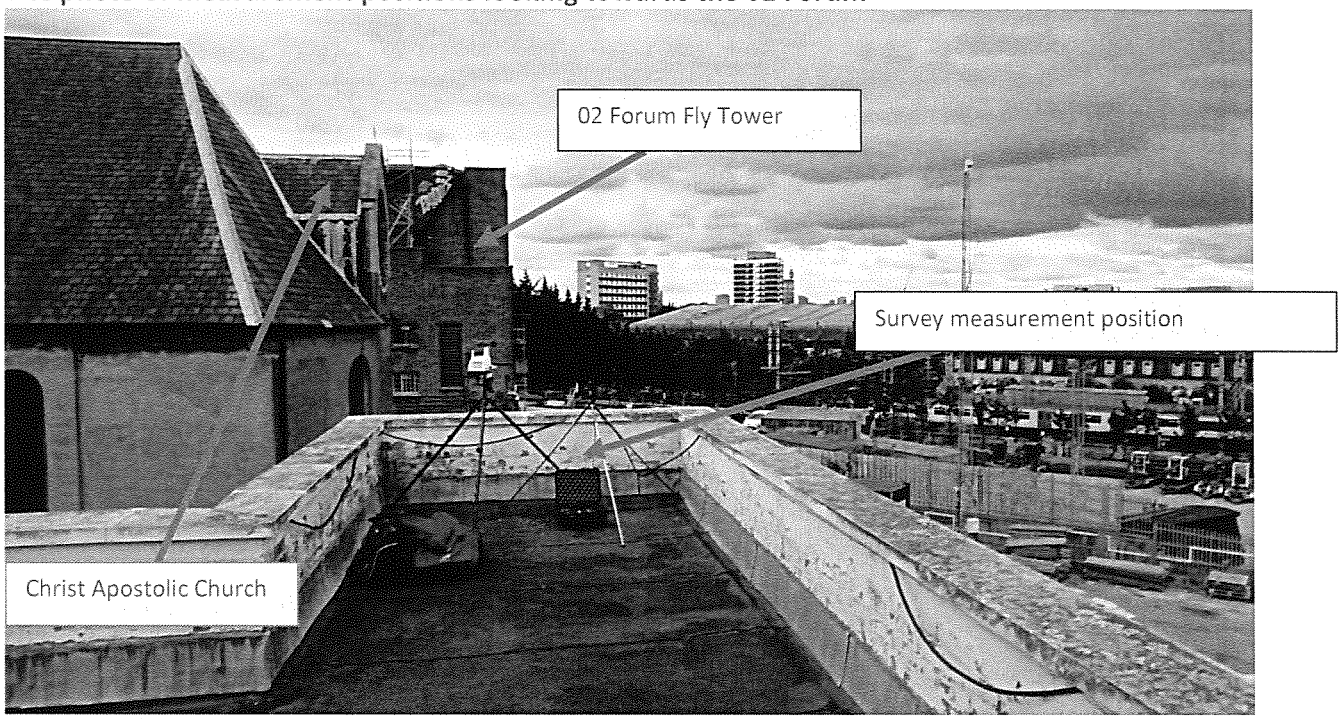
GSAD can review or design any further mitigation as required.

APPENDICES

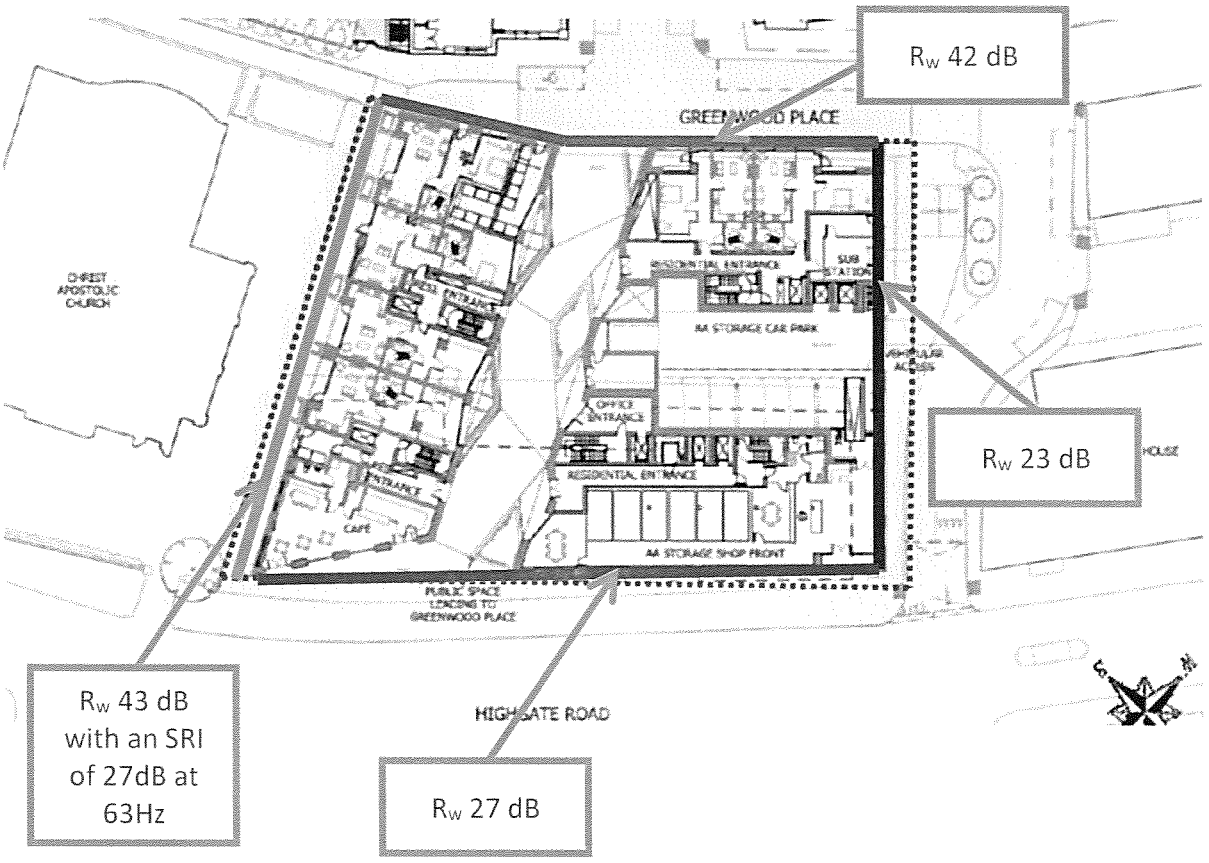
APPENDIX A: Site photographs

Site overview (Aerial photograph courtesy of Google Maps)

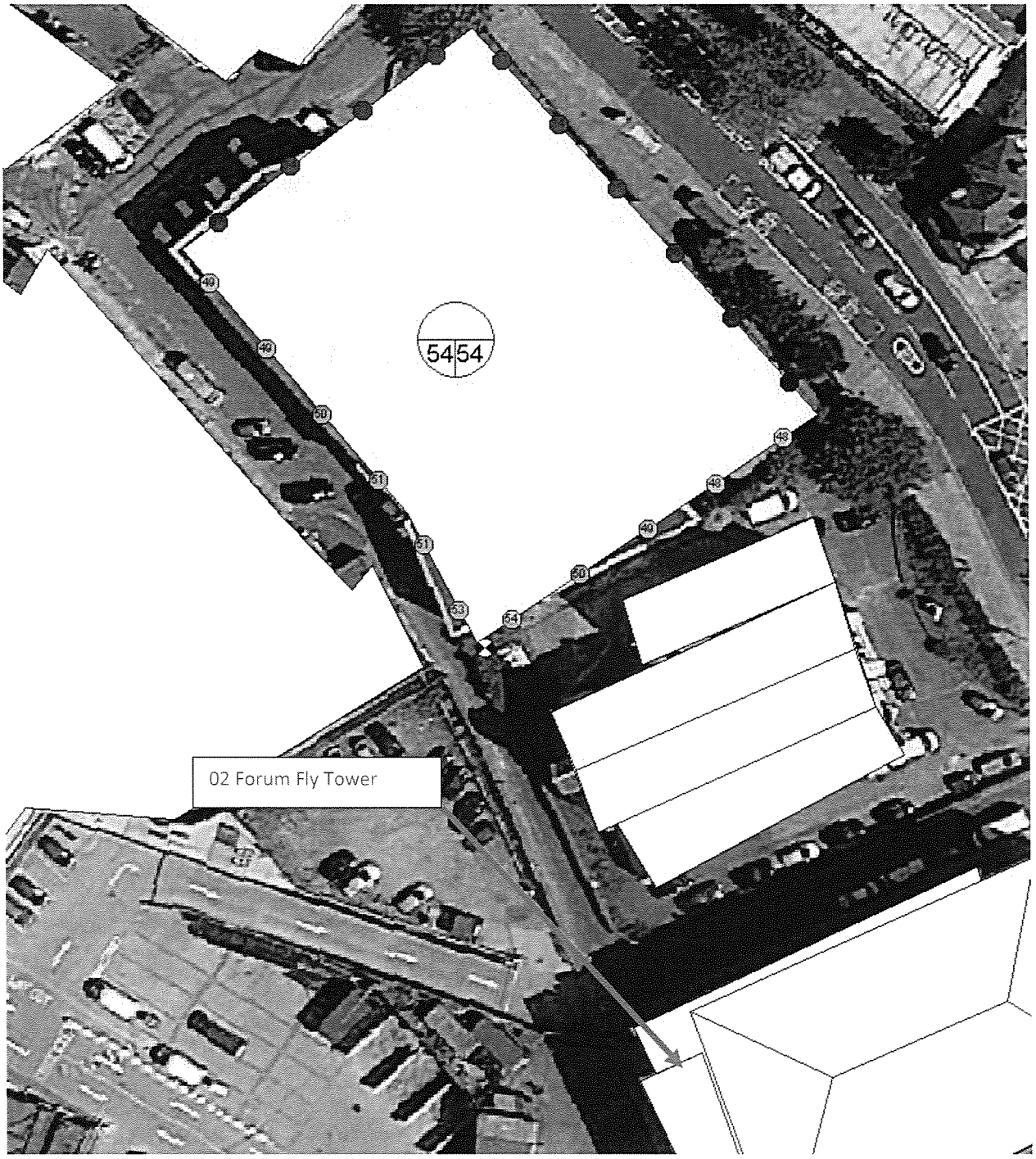
Site photo of measurement positions looking towards the 02 Forum



APPENDIX B: Glazing Mark-up



APPENDIX C: CadnaA Noise Map



APPENDIX D: Equipment and Procedure

Airborne Noise Survey

Noise levels have been measured over a 71-hour period between 15:25 on Friday 29th July and 14:05 on Monday 1st August 2016.

The measurement position indicated in the Appendix A was chosen as a representative position for the noise levels of the nearest noise sensitive façade.

The weather conditions were generally calm and clear during the measurements.

The equipment was set up to integrate sound levels over 5-minute intervals and the levels were recorded as A-weighted and octave band L_{eq}, L_{max} and L_{90} using the following equipment.

Norsonic 118 Real Time Analyser
Norsonic 1251 Calibrator
Norsonic outdoor microphone kit 1212

The equipment was calibrated before and after the survey and no drift from calibration was found.

Other equipment used;

Bosch GLM 80 laser distance meter

APPENDIX E: Survey results from A&A storage roof

Date	Time	LAeq	LAmax	L_{Aeq}	LA90
29/07/2016	15:26:38	59.5	73.7	60.7	52.3
29/07/2016	15:30:00	58.7	76.7	59.4	49.7
29/07/2016	15:35:00	55.8	76.4	57.7	49.6
29/07/2016	15:40:00	69.9	93.1	59.3	50.2
29/07/2016	15:45:00	59.4	75.7	61.3	51.8
29/07/2016	15:50:00	58.7	78.4	58.8	49.9
29/07/2016	15:55:00	60.2	78.6	58.2	48.3
29/07/2016	16:00:00	60.5	85.5	57.8	48.7
29/07/2016	16:05:00	53.3	64.6	56.2	48.0
29/07/2016	16:10:00	59.0	74.7	57.8	47.3
29/07/2016	16:15:00	60.8	77.1	61.5	47.7
29/07/2016	16:20:00	52.3	59.9	55.3	46.8
29/07/2016	16:25:00	60.2	77.5	61.4	48.8
29/07/2016	16:30:00	61.7	79.4	56.2	47.8
29/07/2016	16:35:00	53.6	66.6	56.6	48.0
29/07/2016	16:40:00	52.9	63.5	57.0	45.2
29/07/2016	16:45:00	57.5	76.1	57.1	46.6
29/07/2016	16:50:00	51.7	62.3	54.3	47.3
29/07/2016	16:55:00	60.2	77.1	60.4	47.2
29/07/2016	17:00:00	59.9	76.9	54.6	47.9
29/07/2016	17:05:00	58.5	73.6	60.4	48.6
29/07/2016	17:10:00	54.9	67.7	57.5	50.1
29/07/2016	17:15:00	57.8	70.2	62.3	48.1
29/07/2016	17:20:00	59.2	74.3	63.0	48.5
29/07/2016	17:25:00	60.8	73.6	64.4	48.2
29/07/2016	17:30:00	60.7	78.5	59.3	47.5
29/07/2016	17:35:00	54.5	61.6	57.1	51.3
29/07/2016	17:40:00	56.0	65.9	58.4	52.3
29/07/2016	17:45:00	61.9	76.5	62.8	51.6
29/07/2016	17:50:00	58.0	74.1	59.7	51.1
29/07/2016	17:55:00	62.6	76.4	65.5	49.8
29/07/2016	18:00:00	62.4	79.1	58.4	49.8
29/07/2016	18:05:00	53.4	69.7	55.5	49.3
29/07/2016	18:10:00	58.9	74.9	59.6	49.2
29/07/2016	18:15:00	61.7	77.6	58.4	50.1
29/07/2016	18:20:00	56.4	70.9	58.6	49.9
29/07/2016	18:25:00	61.2	76.4	61.4	51.1
29/07/2016	18:30:00	61.5	78.6	57.6	50.3
29/07/2016	18:35:00	69.0	92.8	60.2	49.7
29/07/2016	18:40:00	55.2	73.7	56.7	49.4
29/07/2016	18:45:00	56.3	71.7	59.2	50.5
29/07/2016	18:50:00	57.9	73.2	60.2	50.1

29/07/2016	18:55:00	60.7	76.8	62.0	51.9
29/07/2016	19:00:00	62.8	75.7	67.0	53.0
29/07/2016	19:05:00	53.8	69.4	55.8	49.6
29/07/2016	19:10:00	53.0	59.6	56.2	48.9
29/07/2016	19:15:00	58.8	77.8	57.6	47.8
29/07/2016	19:20:00	55.6	72.1	56.7	48.5
29/07/2016	19:25:00	60.2	79.3	58.2	48.0
29/07/2016	19:30:00	60.9	76.1	61.1	47.0
29/07/2016	19:35:00	53.2	71.5	55.6	49.1
29/07/2016	19:40:00	53.9	67.1	56.2	47.8
29/07/2016	19:45:00	53.7	72.3	56.3	48.5
29/07/2016	19:50:00	57.1	74.5	58.1	48.8
29/07/2016	19:55:00	59.5	75.1	59.2	47.6
29/07/2016	20:00:00	63.4	79.9	60.7	48.1
29/07/2016	20:05:00	52.6	73.6	53.5	48.4
29/07/2016	20:10:00	53.7	71.0	55.7	49.0
29/07/2016	20:15:00	59.6	78.2	57.1	48.9
29/07/2016	20:20:00	54.3	72.8	56.4	48.5
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29/07/2016	20:45:00	52.2	65.8	55.0	46.0
29/07/2016	20:50:00	52.0	66.0	55.3	47.0
29/07/2016	20:55:00	59.0	76.0	60.0	47.8
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29/07/2016	21:10:00	52.6	68.8	56.0	47.5
29/07/2016	21:15:00	51.7	63.9	54.2	45.6
29/07/2016	21:20:00	56.2	75.6	56.4	47.3
29/07/2016	21:25:00	60.6	79.4	59.8	47.3
29/07/2016	21:30:00	57.9	76.7	53.1	44.4
29/07/2016	21:35:00	50.7	66.6	53.6	44.8
29/07/2016	21:40:00	48.3	59.7	50.9	44.1
29/07/2016	21:45:00	53.5	67.5	53.5	44.4
29/07/2016	21:50:00	52.8	67.6	54.2	45.1
29/07/2016	21:55:00	51.9	65.4	56.0	45.1
29/07/2016	22:00:00	60.2	76.1	59.7	44.7
29/07/2016	22:05:00	49.6	62.3	52.7	44.9
29/07/2016	22:10:00	50.0	61.3	54.1	43.4
29/07/2016	22:15:00	59.5	78.5	60.7	44.4
29/07/2016	22:20:00	55.8	79.9	54.9	46.2
29/07/2016	22:25:00	59.4	75.7	59.0	46.4
29/07/2016	22:30:00	52.0	66.2	54.9	47.2
29/07/2016	22:35:00	49.9	67.0	52.9	43.3
29/07/2016	22:40:00	55.6	67.2	57.2	47.3
29/07/2016	22:45:00	49.2	60.5	51.6	44.6

29/07/2016	22:50:00	55.7	73.7	55.4	45.3
29/07/2016	22:55:00	50.1	65.1	52.1	44.8
29/07/2016	23:00:00	50.6	63.7	54.0	43.1
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29/07/2016	23:10:00	47.8	60.6	50.1	43.7
29/07/2016	23:15:00	57.0	74.7	53.7	44.2
29/07/2016	23:20:00	51.6	62.9	55.4	45.8
29/07/2016	23:25:00	54.6	72.5	54.1	43.5
29/07/2016	23:30:00	52.3	65.0	55.8	45.2
29/07/2016	23:35:00	52.6	68.7	57.5	44.2
29/07/2016	23:40:00	49.8	64.9	52.3	45.3
29/07/2016	23:45:00	49.9	67.4	52.4	44.5
29/07/2016	23:50:00	48.5	64.7	51.6	42.3
29/07/2016	23:55:00	48.2	60.5	51.6	41.6
30/07/2016	00:00:00	51.2	63.7	54.8	43.4
30/07/2016	00:05:00	52.6	66.5	53.3	42.1
30/07/2016	00:10:00	50.1	66.0	51.8	43.4
30/07/2016	00:15:00	50.2	63.3	53.4	43.4
30/07/2016	00:20:00	53.3	66.8	56.5	43.2
30/07/2016	00:25:00	49.2	62.4	52.2	43.8
30/07/2016	00:30:00	49.1	67.3	52.1	42.2
30/07/2016	00:35:00	48.9	64.6	52.0	42.2
30/07/2016	00:40:00	50.7	61.7	54.7	42.9
30/07/2016	00:45:00	48.1	58.9	51.4	41.0
30/07/2016	00:50:00	47.9	64.2	51.4	40.5
30/07/2016	00:55:00	52.1	70.0	54.8	44.6
30/07/2016	01:00:00	48.8	63.3	52.4	39.8
30/07/2016	01:05:00	48.4	61.9	52.3	39.7
30/07/2016	01:10:00	51.9	62.9	55.6	40.8
30/07/2016	01:15:00	47.9	64.1	51.6	40.4
30/07/2016	01:20:00	47.8	61.5	50.8	40.7
30/07/2016	01:25:00	50.5	69.8	53.1	44.5
30/07/2016	01:30:00	45.1	61.3	48.4	39.1
30/07/2016	01:35:00	45.5	59.9	48.9	38.9
30/07/2016	01:40:00	50.9	58.6	55.0	40.2
30/07/2016	01:45:00	45.9	55.7	49.6	40.2
30/07/2016	01:50:00	49.6	60.7	53.2	39.3
30/07/2016	01:55:00	52.3	67.4	55.8	41.9
30/07/2016	02:00:00	54.3	73.3	54.0	38.7
30/07/2016	02:05:00	45.1	56.9	48.5	37.5
30/07/2016	02:10:00	49.1	62.1	53.2	39.4
30/07/2016	02:15:00	46.7	57.9	51.5	38.6
30/07/2016	02:20:00	44.4	54.5	47.9	38.0
30/07/2016	02:25:00	49.6	63.5	54.2	39.7
30/07/2016	02:30:00	45.7	55.8	49.4	38.5
30/07/2016	02:35:00	45.8	58.9	49.6	38.8
30/07/2016	02:40:00	43.7	58.3	47.3	37.3

30/07/2016	02:45:00	44.4	55.3	48.0	38.5
30/07/2016	02:50:00	48.4	64.1	52.5	38.0
30/07/2016	02:55:00	48.3	66.6	50.0	40.3
30/07/2016	03:00:00	50.5	66.7	52.8	41.3
30/07/2016	03:05:00	46.5	60.0	49.3	42.5
30/07/2016	03:10:00	45.5	56.8	48.4	39.1
30/07/2016	03:15:00	45.1	58.0	47.4	41.0
30/07/2016	03:20:00	46.5	59.6	49.5	40.5
30/07/2016	03:25:00	47.9	56.6	52.7	39.4
30/07/2016	03:30:00	45.8	59.4	49.2	38.1
30/07/2016	03:35:00	43.8	54.2	47.8	37.6
30/07/2016	03:40:00	48.2	57.1	51.6	41.0
30/07/2016	03:45:00	60.0	75.6	56.9	40.0
30/07/2016	03:50:00	46.9	58.7	50.3	37.8
30/07/2016	03:55:00	43.5	61.4	46.0	35.4
30/07/2016	04:00:00	46.1	57.5	50.5	37.7
30/07/2016	04:05:00	47.6	59.8	51.1	39.9
30/07/2016	04:10:00	46.5	66.5	49.4	39.7
30/07/2016	04:15:00	50.6	61.9	55.2	40.3
30/07/2016	04:20:00	48.8	59.8	53.3	40.7
30/07/2016	04:25:00	47.3	57.5	51.6	39.5
30/07/2016	04:30:00	49.3	56.5	53.5	39.5
30/07/2016	04:35:00	49.6	56.7	53.5	43.9
30/07/2016	04:40:00	51.9	75.0	53.7	40.6
30/07/2016	04:45:00	50.9	61.7	54.8	44.5
30/07/2016	04:50:00	47.7	59.2	51.7	40.1
30/07/2016	04:55:00	46.1	63.0	48.8	37.6
30/07/2016	05:00:00	46.0	55.8	49.9	39.5
30/07/2016	05:05:00	50.9	62.5	56.0	38.4
30/07/2016	05:10:00	48.3	58.7	51.4	40.6
30/07/2016	05:15:00	50.3	65.3	54.1	41.4
30/07/2016	05:20:00	48.7	61.8	52.6	40.2
30/07/2016	05:25:00	45.2	58.7	48.5	39.3
30/07/2016	05:30:00	48.0	57.9	51.1	41.8
30/07/2016	05:35:00	46.6	61.9	49.8	39.2
30/07/2016	05:40:00	46.9	57.6	50.9	37.8
30/07/2016	05:45:00	49.2	62.5	53.3	40.3
30/07/2016	05:50:00	54.6	78.4	55.9	40.5
30/07/2016	05:55:00	51.8	61.3	56.2	42.7
30/07/2016	06:00:00	47.6	57.4	51.0	39.2
30/07/2016	06:05:00	53.0	63.5	57.2	43.3
30/07/2016	06:10:00	54.4	71.9	54.8	42.8
30/07/2016	06:15:00	55.1	70.0	55.0	44.5
30/07/2016	06:20:00	50.0	69.3	52.1	44.4
30/07/2016	06:25:00	58.4	76.9	59.3	46.3
30/07/2016	06:30:00	49.7	58.1	53.1	42.5
30/07/2016	06:35:00	57.4	77.5	52.1	40.3

30/07/2016	06:40:00	47.9	58.4	52.0	40.7
30/07/2016	06:45:00	55.1	72.2	54.5	42.0
30/07/2016	06:50:00	57.1	77.2	53.9	42.0
30/07/2016	06:55:00	48.6	61.1	51.8	41.9
30/07/2016	07:00:00	56.6	75.6	54.0	46.0
30/07/2016	07:05:00	52.6	65.7	56.0	46.2
30/07/2016	07:10:00	59.3	74.9	58.4	50.7
30/07/2016	07:15:00	51.8	65.5	54.0	47.4
30/07/2016	07:20:00	57.2	73.9	59.9	51.1
30/07/2016	07:25:00	56.6	73.4	56.8	49.7
30/07/2016	07:30:00	57.7	74.8	56.4	49.9
30/07/2016	07:35:00	58.4	71.7	59.5	49.2
30/07/2016	07:40:00	53.5	65.4	56.0	48.3
30/07/2016	07:45:00	52.3	61.0	54.9	46.7
30/07/2016	07:50:00	54.0	70.3	54.4	44.5
30/07/2016	07:55:00	56.5	75.4	54.8	44.5
30/07/2016	08:00:00	58.0	78.6	54.2	44.4
30/07/2016	08:05:00	58.1	73.6	56.5	43.8
30/07/2016	08:10:00	52.7	64.8	55.8	45.7
30/07/2016	08:15:00	57.1	75.0	57.2	47.3
30/07/2016	08:20:00	56.9	71.1	58.8	47.9
30/07/2016	08:25:00	56.2	74.4	55.5	45.4
30/07/2016	08:30:00	57.1	76.4	55.1	46.5
30/07/2016	08:35:00	55.4	66.8	57.5	50.3
30/07/2016	08:40:00	55.2	67.2	58.2	48.9
30/07/2016	08:45:00	53.4	66.0	57.0	46.4
30/07/2016	08:50:00	56.7	72.8	57.8	49.2
30/07/2016	08:55:00	55.1	73.8	54.3	46.6
30/07/2016	09:00:00	57.9	76.6	53.7	46.1
30/07/2016	09:05:00	56.5	77.2	53.2	43.7
30/07/2016	09:10:00	53.1	64.3	55.6	46.3
30/07/2016	09:15:00	61.7	75.3	64.9	46.2
30/07/2016	09:20:00	57.8	73.3	56.5	46.7
30/07/2016	09:25:00	57.5	77.8	55.5	47.3
30/07/2016	09:30:00	65.2	83.8	59.1	48.6
30/07/2016	09:35:00	50.2	64.6	52.9	45.4
30/07/2016	09:40:00	52.9	67.8	54.9	46.4
30/07/2016	09:45:00	56.0	73.6	56.5	48.2
30/07/2016	09:50:00	53.6	72.6	55.6	48.2
30/07/2016	09:55:00	58.9	77.0	57.9	48.2
30/07/2016	10:00:00	57.9	77.2	56.1	45.3
30/07/2016	10:05:00	57.7	70.6	60.2	48.0
30/07/2016	10:10:00	53.1	62.9	55.7	48.6
30/07/2016	10:15:00	59.7	75.9	58.9	46.4
30/07/2016	10:20:00	55.2	73.5	53.9	46.5
30/07/2016	10:25:00	58.0	74.9	56.1	46.4
30/07/2016	10:30:00	57.0	76.7	55.0	45.9

30/07/2016	10:35:00	53.7	68.5	56.4	48.1
30/07/2016	10:40:00	52.1	64.7	54.3	47.1
30/07/2016	10:45:00	51.1	62.2	54.0	45.6
30/07/2016	10:50:00	71.9	91.1	64.0	47.4
30/07/2016	10:55:00	53.0	64.1	55.5	48.2
30/07/2016	11:00:00	59.6	76.3	56.0	48.2
30/07/2016	11:05:00	58.2	74.2	55.4	47.9
30/07/2016	11:10:00	53.1	67.3	56.7	47.4
30/07/2016	11:15:00	60.3	76.2	57.6	46.4
30/07/2016	11:20:00	54.4	71.9	55.9	44.1
30/07/2016	11:25:00	57.9	74.3	58.5	45.0
30/07/2016	11:30:00	57.2	76.4	55.5	45.2
30/07/2016	11:35:00	49.6	62.1	52.4	44.5
30/07/2016	11:40:00	53.1	72.0	55.4	46.7
30/07/2016	11:45:00	50.8	64.9	53.7	46.0
30/07/2016	11:50:00	51.5	62.2	54.6	46.8
30/07/2016	11:55:00	57.8	75.8	54.9	47.6
30/07/2016	12:00:00	71.4	97.8	65.8	50.2
30/07/2016	12:05:00	53.7	71.0	54.0	46.0
30/07/2016	12:10:00	57.4	73.0	56.2	47.0
30/07/2016	12:15:00	59.8	76.3	56.5	45.4
30/07/2016	12:20:00	56.3	72.5	59.2	46.4
30/07/2016	12:25:00	57.5	76.1	56.4	45.3
30/07/2016	12:30:00	55.5	74.3	54.9	46.5
30/07/2016	12:35:00	51.4	65.4	53.9	46.1
30/07/2016	12:40:00	52.7	60.9	55.6	46.2
30/07/2016	12:45:00	55.4	73.8	54.9	43.9
30/07/2016	12:50:00	55.1	73.3	54.1	45.5
30/07/2016	12:55:00	62.9	85.4	58.8	46.6
30/07/2016	13:00:00	57.2	77.4	52.1	43.5
30/07/2016	13:05:00	51.6	65.2	54.6	46.7
30/07/2016	13:10:00	57.5	72.2	57.8	47.4
30/07/2016	13:15:00	56.9	71.2	57.7	45.0
30/07/2016	13:20:00	56.5	72.5	58.8	45.3
30/07/2016	13:25:00	59.3	77.1	56.4	44.8
30/07/2016	13:30:00	59.4	77.5	56.4	45.8
30/07/2016	13:35:00	52.7	65.3	55.7	46.3
30/07/2016	13:40:00	51.8	60.3	54.8	46.6
30/07/2016	13:45:00	47.9	55.7	50.7	42.9
30/07/2016	13:50:00	51.9	68.7	54.0	45.0
30/07/2016	13:55:00	58.1	74.3	55.6	45.4
30/07/2016	14:00:00	57.9	75.4	58.0	45.2
30/07/2016	14:05:00	59.3	81.7	57.9	45.4
30/07/2016	14:10:00	50.6	61.8	54.4	44.0
30/07/2016	14:15:00	58.7	74.3	55.4	45.5
30/07/2016	14:20:00	56.6	72.8	54.8	44.3
30/07/2016	14:25:00	56.9	76.3	54.0	47.1

30/07/2016	14:30:00	56.1	75.3	55.3	47.2
30/07/2016	14:35:00	71.2	96.6	65.9	47.0
30/07/2016	14:40:00	50.4	62.5	53.5	45.7
30/07/2016	14:45:00	54.9	71.9	54.8	44.2
30/07/2016	14:50:00	55.1	73.7	54.8	44.3
30/07/2016	14:55:00	49.4	62.4	52.5	44.5
30/07/2016	15:00:00	61.3	77.6	59.1	44.4
30/07/2016	15:05:00	53.0	73.4	53.2	46.1
30/07/2016	15:10:00	50.9	58.1	53.9	45.8
30/07/2016	15:15:00	59.3	74.8	59.0	47.7
30/07/2016	15:20:00	56.8	73.0	56.2	45.6
30/07/2016	15:25:00	58.4	78.0	58.2	46.9
30/07/2016	15:30:00	56.8	74.9	57.9	46.3
30/07/2016	15:35:00	54.2	64.5	57.2	47.9
30/07/2016	15:40:00	54.2	66.5	57.1	47.2
30/07/2016	15:45:00	51.7	61.8	55.2	45.2
30/07/2016	15:50:00	57.3	73.8	56.2	45.1
30/07/2016	15:55:00	51.5	60.8	54.7	46.2
30/07/2016	16:00:00	61.7	79.4	59.5	48.4
30/07/2016	16:05:00	58.8	73.6	58.4	48.7
30/07/2016	16:10:00	52.7	64.3	55.3	47.5
30/07/2016	16:15:00	59.8	74.0	61.1	45.1
30/07/2016	16:20:00	58.1	77.3	55.9	47.0
30/07/2016	16:25:00	55.9	75.8	54.6	46.2
30/07/2016	16:30:00	57.6	77.6	53.7	45.3
30/07/2016	16:35:00	52.3	68.8	55.3	46.3
30/07/2016	16:40:00	54.5	66.8	57.8	47.7
30/07/2016	16:45:00	52.8	65.2	55.7	46.7
30/07/2016	16:50:00	56.1	72.8	55.3	45.8
30/07/2016	16:55:00	54.9	69.2	57.0	49.9
30/07/2016	17:00:00	60.4	77.0	59.7	47.2
30/07/2016	17:05:00	51.2	65.7	54.3	42.8
30/07/2016	17:10:00	55.8	72.5	53.9	42.8
30/07/2016	17:15:00	57.1	70.8	56.5	45.2
30/07/2016	17:20:00	52.7	70.0	53.5	43.0
30/07/2016	17:25:00	58.0	77.4	56.9	43.6
30/07/2016	17:30:00	55.9	76.2	54.3	41.9
30/07/2016	17:35:00	50.3	61.6	53.1	44.8
30/07/2016	17:40:00	50.7	61.5	54.2	44.1
30/07/2016	17:45:00	55.5	74.3	55.1	44.7
30/07/2016	17:50:00	53.0	70.0	54.0	43.7
30/07/2016	17:55:00	51.0	59.3	53.5	46.1
30/07/2016	18:00:00	59.8	76.6	58.1	44.3
30/07/2016	18:05:00	57.8	73.4	56.0	47.0
30/07/2016	18:10:00	50.0	57.3	53.1	45.2
30/07/2016	18:15:00	59.4	73.0	61.2	44.6
30/07/2016	18:20:00	55.4	72.6	56.7	45.7

30/07/2016	18:25:00	54.3	72.2	56.0	46.6
30/07/2016	18:30:00	55.6	71.7	56.3	44.4
30/07/2016	18:35:00	53.5	73.9	56.0	44.8
30/07/2016	18:40:00	49.8	58.1	53.4	42.5
30/07/2016	18:45:00	53.8	61.7	56.8	46.7
30/07/2016	18:50:00	54.6	72.1	53.6	44.6
30/07/2016	18:55:00	59.7	77.7	58.7	45.6
30/07/2016	19:00:00	59.5	77.0	59.9	47.0
30/07/2016	19:05:00	57.5	73.8	54.7	46.2
30/07/2016	19:10:00	53.4	64.6	57.1	44.9
30/07/2016	19:15:00	58.7	73.3	58.2	45.7
30/07/2016	19:20:00	55.1	72.1	54.8	46.1
30/07/2016	19:25:00	59.6	77.3	57.8	45.7
30/07/2016	19:30:00	56.0	75.2	54.0	44.0
30/07/2016	19:35:00	70.5	95.9	60.1	46.8
30/07/2016	19:40:00	51.3	60.1	54.5	46.3
30/07/2016	19:45:00	52.4	63.3	55.9	44.2
30/07/2016	19:50:00	54.9	72.9	53.6	46.2
30/07/2016	19:55:00	55.4	72.6	56.7	43.1
30/07/2016	20:00:00	61.6	82.2	62.7	44.9
30/07/2016	20:05:00	59.9	74.4	59.8	52.3
30/07/2016	20:10:00	54.3	65.4	57.8	46.2
30/07/2016	20:15:00	58.2	74.9	56.5	45.2
30/07/2016	20:20:00	55.7	71.0	57.7	48.0
30/07/2016	20:25:00	57.3	76.9	55.8	44.4
30/07/2016	20:30:00	56.4	75.0	55.9	44.6
30/07/2016	20:35:00	51.9	68.4	54.5	43.6
30/07/2016	20:40:00	51.4	61.1	54.4	45.2
30/07/2016	20:45:00	55.0	73.4	53.0	43.9
30/07/2016	20:50:00	49.0	59.6	52.4	42.2
30/07/2016	20:55:00	57.2	75.8	57.1	44.1
30/07/2016	21:00:00	59.0	71.9	62.3	43.6
30/07/2016	21:05:00	51.5	60.4	54.8	43.8
30/07/2016	21:10:00	56.7	75.2	56.4	46.7
30/07/2016	21:15:00	50.1	64.0	53.0	43.2
30/07/2016	21:20:00	54.5	72.4	54.6	43.3
30/07/2016	21:25:00	59.0	76.0	60.9	44.2
30/07/2016	21:30:00	56.7	77.5	54.7	43.6
30/07/2016	21:35:00	50.1	62.1	52.9	45.3
30/07/2016	21:40:00	50.1	63.6	53.2	42.5
30/07/2016	21:45:00	51.8	71.6	55.0	42.9
30/07/2016	21:50:00	69.3	89.8	58.7	44.5
30/07/2016	21:55:00	49.7	65.5	52.4	43.5
30/07/2016	22:00:00	48.5	58.9	51.5	42.7
30/07/2016	22:05:00	49.4	58.6	52.4	44.1
30/07/2016	22:10:00	59.4	82.6	54.6	46.6
30/07/2016	22:15:00	54.0	73.4	53.0	44.7

30/07/2016	22:20:00	55.2	72.5	55.1	46.5
30/07/2016	22:25:00	51.4	64.6	54.6	45.4
30/07/2016	22:30:00	70.6	90.7	68.3	45.4
30/07/2016	22:35:00	51.0	60.1	53.8	46.5
30/07/2016	22:40:00	50.3	58.0	53.0	46.5
30/07/2016	22:45:00	49.5	55.8	51.7	46.1
30/07/2016	22:50:00	62.5	85.8	56.2	45.8
30/07/2016	22:55:00	50.1	59.3	53.3	44.3
30/07/2016	23:00:00	50.2	70.5	52.3	45.4
30/07/2016	23:05:00	50.3	58.1	52.9	46.7
30/07/2016	23:10:00	53.9	71.7	53.4	45.4
30/07/2016	23:15:00	57.9	80.6	53.1	45.8
30/07/2016	23:20:00	50.9	59.7	53.2	46.8
30/07/2016	23:25:00	49.9	67.3	52.0	44.9
30/07/2016	23:30:00	49.9	61.9	52.7	45.0
30/07/2016	23:35:00	52.0	69.4	54.7	45.7
30/07/2016	23:40:00	50.4	58.3	52.8	46.7
30/07/2016	23:45:00	51.0	61.1	53.7	46.8
30/07/2016	23:50:00	50.9	63.9	53.4	46.5
30/07/2016	23:55:00	50.9	65.7	53.0	47.4
31/07/2016	00:00:00	51.1	61.8	53.3	47.4
31/07/2016	00:05:00	51.8	60.0	54.6	48.0
31/07/2016	00:10:00	51.7	60.4	53.7	48.7
31/07/2016	00:15:00	52.4	59.7	54.6	49.0
31/07/2016	00:20:00	57.3	78.2	57.1	50.7
31/07/2016	00:25:00	51.5	61.0	53.3	48.6
31/07/2016	00:30:00	51.7	58.9	54.3	48.2
31/07/2016	00:35:00	52.4	63.0	54.4	49.0
31/07/2016	00:40:00	53.1	63.0	55.8	49.6
31/07/2016	00:45:00	52.3	60.1	54.2	49.5
31/07/2016	00:50:00	52.9	60.1	54.7	50.1
31/07/2016	00:55:00	54.6	67.4	56.4	51.4
31/07/2016	01:00:00	53.5	60.0	55.6	50.6
31/07/2016	01:05:00	55.5	67.4	57.4	51.5
31/07/2016	01:10:00	54.8	62.3	56.7	52.2
31/07/2016	01:15:00	54.7	63.7	56.9	51.5
31/07/2016	01:20:00	52.8	64.1	54.7	50.0
31/07/2016	01:25:00	53.8	68.8	55.2	47.6
31/07/2016	01:30:00	51.6	71.2	53.4	47.6
31/07/2016	01:35:00	51.1	58.8	53.8	47.4
31/07/2016	01:40:00	52.5	63.0	54.6	48.9
31/07/2016	01:45:00	53.4	60.6	55.1	50.7
31/07/2016	01:50:00	53.3	65.5	55.0	50.0
31/07/2016	01:55:00	54.2	72.8	55.4	51.0
31/07/2016	02:00:00	52.7	59.0	54.6	50.0
31/07/2016	02:05:00	52.3	64.0	54.1	49.6
31/07/2016	02:10:00	52.7	65.1	54.8	49.3

31/07/2016	02:15:00	55.7	68.0	58.6	48.9
31/07/2016	02:20:00	51.6	66.8	53.0	47.9
31/07/2016	02:25:00	50.2	60.4	52.5	46.4
31/07/2016	02:30:00	55.0	68.0	58.4	46.8
31/07/2016	02:35:00	51.1	61.9	53.5	47.1
31/07/2016	02:40:00	51.7	62.2	53.8	48.3
31/07/2016	02:45:00	52.3	66.2	54.0	48.6
31/07/2016	02:50:00	53.2	65.7	55.2	49.8
31/07/2016	02:55:00	53.5	61.1	55.8	50.5
31/07/2016	03:00:00	53.0	63.8	55.4	49.1
31/07/2016	03:05:00	53.4	67.1	55.7	48.5
31/07/2016	03:10:00	52.9	68.4	53.9	47.7
31/07/2016	03:15:00	53.8	69.7	56.3	46.8
31/07/2016	03:20:00	53.8	66.6	57.3	46.3
31/07/2016	03:25:00	47.8	56.9	50.0	44.3
31/07/2016	03:30:00	49.6	67.6	52.0	45.1
31/07/2016	03:35:00	49.5	62.1	51.8	45.8
31/07/2016	03:40:00	48.7	60.7	51.4	44.2
31/07/2016	03:45:00	46.4	57.2	49.3	41.5
31/07/2016	03:50:00	46.8	62.3	49.3	42.1
31/07/2016	03:55:00	47.8	56.0	51.7	40.6
31/07/2016	04:00:00	48.9	70.2	51.3	40.6
31/07/2016	04:05:00	46.9	70.1	49.3	39.3
31/07/2016	04:10:00	46.0	60.2	50.0	38.5
31/07/2016	04:15:00	45.4	59.4	49.0	37.3
31/07/2016	04:20:00	47.2	64.8	49.6	40.8
31/07/2016	04:25:00	45.7	60.1	49.0	39.3
31/07/2016	04:30:00	45.4	63.3	48.5	38.6
31/07/2016	04:35:00	46.1	58.3	49.4	39.2
31/07/2016	04:40:00	46.9	60.7	50.1	39.3
31/07/2016	04:45:00	49.3	63.3	53.0	40.5
31/07/2016	04:50:00	51.3	62.2	55.0	42.7
31/07/2016	04:55:00	51.0	70.6	54.1	37.9
31/07/2016	05:00:00	47.6	64.2	50.6	37.6
31/07/2016	05:05:00	44.4	57.6	47.7	37.4
31/07/2016	05:10:00	44.2	57.6	47.7	37.4
31/07/2016	05:15:00	46.5	65.8	49.2	38.3
31/07/2016	05:20:00	52.6	77.0	55.1	39.9
31/07/2016	05:25:00	52.3	71.4	53.9	38.1
31/07/2016	05:30:00	47.0	60.0	51.4	38.3
31/07/2016	05:35:00	44.3	57.8	48.6	36.9
31/07/2016	05:40:00	45.3	61.3	48.9	36.5
31/07/2016	05:45:00	43.8	57.3	47.2	36.3
31/07/2016	05:50:00	49.8	74.0	51.7	38.0
31/07/2016	05:55:00	55.7	67.6	61.0	40.7
31/07/2016	06:00:00	50.1	75.1	51.6	39.6
31/07/2016	06:05:00	55.9	74.1	58.2	38.8

31/07/2016	06:10:00	49.3	69.7	51.9	40.0
31/07/2016	06:15:00	51.9	66.2	54.6	43.7
31/07/2016	06:20:00	49.9	66.9	53.3	39.6
31/07/2016	06:25:00	52.2	67.2	56.1	39.9
31/07/2016	06:30:00	48.1	60.5	51.8	39.7
31/07/2016	06:35:00	47.0	59.5	50.4	40.3
31/07/2016	06:40:00	45.2	59.4	48.5	38.2
31/07/2016	06:45:00	49.6	59.6	53.1	42.0
31/07/2016	06:50:00	47.2	59.3	51.2	38.7
31/07/2016	06:55:00	45.7	56.6	49.6	39.1
31/07/2016	07:00:00	48.7	63.2	52.4	39.8
31/07/2016	07:05:00	46.8	62.1	49.9	40.3
31/07/2016	07:10:00	47.4	57.3	51.3	39.9
31/07/2016	07:15:00	48.5	60.3	52.3	40.6
31/07/2016	07:20:00	49.7	58.8	53.4	41.2
31/07/2016	07:25:00	49.5	69.7	52.9	40.5
31/07/2016	07:30:00	49.6	65.0	53.4	40.8
31/07/2016	07:35:00	47.2	58.4	51.8	37.5
31/07/2016	07:40:00	48.1	60.0	52.3	37.4
31/07/2016	07:45:00	45.8	57.5	49.6	37.7
31/07/2016	07:50:00	51.5	70.2	53.1	42.1
31/07/2016	07:55:00	51.6	71.1	54.5	43.4
31/07/2016	08:00:00	49.2	64.3	52.5	41.9
31/07/2016	08:05:00	47.2	62.1	51.2	38.8
31/07/2016	08:10:00	52.3	67.0	54.2	43.1
31/07/2016	08:15:00	47.4	56.8	51.4	39.0
31/07/2016	08:20:00	48.0	63.7	50.5	38.7
31/07/2016	08:25:00	48.8	64.0	52.8	40.1
31/07/2016	08:30:00	49.3	58.6	52.9	41.3
31/07/2016	08:35:00	47.7	58.2	51.3	40.0
31/07/2016	08:40:00	50.3	67.7	52.6	41.7
31/07/2016	08:45:00	55.9	63.0	60.1	45.0
31/07/2016	08:50:00	56.3	77.6	57.4	42.0
31/07/2016	08:55:00	49.3	60.9	53.1	41.1
31/07/2016	09:00:00	54.1	69.2	56.8	40.7
31/07/2016	09:05:00	52.6	70.3	53.5	41.5
31/07/2016	09:10:00	69.1	90.3	57.0	42.0
31/07/2016	09:15:00	50.2	64.1	54.3	40.2
31/07/2016	09:20:00	47.0	55.3	51.2	39.1
31/07/2016	09:25:00	48.3	58.2	51.9	40.0
31/07/2016	09:30:00	54.7	68.0	55.8	44.3
31/07/2016	09:35:00	52.6	69.6	53.2	45.0
31/07/2016	09:40:00	49.0	58.9	52.4	42.9
31/07/2016	09:45:00	51.2	67.3	54.0	42.2
31/07/2016	09:50:00	49.5	63.8	52.3	43.3
31/07/2016	09:55:00	50.4	65.3	53.1	42.9
31/07/2016	10:00:00	55.1	74.9	56.6	47.4

31/07/2016	10:05:00	54.1	70.3	55.2	45.8
31/07/2016	10:10:00	49.9	64.2	53.2	43.9
31/07/2016	10:15:00	51.7	60.3	55.1	45.4
31/07/2016	10:20:00	58.4	76.7	56.3	47.1
31/07/2016	10:25:00	50.3	66.7	52.9	45.1
31/07/2016	10:30:00	54.4	68.3	54.7	44.3
31/07/2016	10:35:00	55.6	78.6	54.6	46.3
31/07/2016	10:40:00	49.1	58.6	52.5	43.5
31/07/2016	10:45:00	50.4	58.3	53.4	44.7
31/07/2016	10:50:00	52.6	61.4	55.5	47.3
31/07/2016	10:55:00	50.5	62.0	53.6	44.9
31/07/2016	11:00:00	55.1	69.2	57.3	45.4
31/07/2016	11:05:00	57.1	71.8	59.7	44.8
31/07/2016	11:10:00	54.2	60.9	55.6	52.0
31/07/2016	11:15:00	55.3	60.8	57.0	52.5
31/07/2016	11:20:00	55.2	75.0	56.3	48.5
31/07/2016	11:25:00	52.1	64.4	55.8	43.6
31/07/2016	11:30:00	55.9	73.2	56.5	49.6
31/07/2016	11:35:00	56.5	69.9	58.0	47.6
31/07/2016	11:40:00	50.6	59.7	53.2	45.1
31/07/2016	11:45:00	52.7	64.7	55.3	47.8
31/07/2016	11:50:00	49.5	64.6	52.2	44.1
31/07/2016	11:55:00	50.4	59.0	52.8	46.3
31/07/2016	12:00:00	52.1	64.8	55.1	46.5
31/07/2016	12:05:00	58.5	72.2	61.1	47.6
31/07/2016	12:10:00	50.0	60.6	52.3	45.4
31/07/2016	12:15:00	49.5	63.4	52.3	43.3
31/07/2016	12:20:00	51.4	63.6	54.1	45.5
31/07/2016	12:25:00	50.3	63.0	52.6	44.3
31/07/2016	12:30:00	58.8	73.7	58.5	43.3
31/07/2016	12:35:00	50.4	59.7	52.8	45.9
31/07/2016	12:40:00	57.5	73.3	56.8	45.1
31/07/2016	12:45:00	50.0	59.0	53.5	43.9
31/07/2016	12:50:00	50.6	63.3	53.8	44.1
31/07/2016	12:55:00	52.0	63.1	55.9	44.1
31/07/2016	13:00:00	55.0	71.5	55.4	45.4
31/07/2016	13:05:00	52.2	65.5	53.3	42.5
31/07/2016	13:10:00	49.5	73.1	51.4	44.3
31/07/2016	13:15:00	51.1	59.9	53.9	45.3
31/07/2016	13:20:00	51.1	64.3	54.0	43.6
31/07/2016	13:25:00	49.8	69.1	52.5	42.1
31/07/2016	13:30:00	50.8	64.5	54.2	44.7
31/07/2016	13:35:00	56.5	69.9	58.7	45.2
31/07/2016	13:40:00	52.3	71.8	53.3	44.7
31/07/2016	13:45:00	69.6	91.1	59.9	47.2
31/07/2016	13:50:00	50.8	58.4	53.9	45.1
31/07/2016	13:55:00	51.9	65.8	55.1	46.3

31/07/2016	14:00:00	56.3	66.9	59.0	52.2
31/07/2016	14:05:00	55.4	68.2	55.4	49.0
31/07/2016	14:10:00	52.9	61.6	54.9	49.9
31/07/2016	14:15:00	52.4	61.5	55.1	45.8
31/07/2016	14:20:00	49.0	58.2	52.1	43.1
31/07/2016	14:25:00	48.7	59.4	51.6	43.5
31/07/2016	14:30:00	49.6	60.6	53.1	44.4
31/07/2016	14:35:00	56.3	72.4	54.2	45.0
31/07/2016	14:40:00	59.4	72.6	65.0	44.9
31/07/2016	14:45:00	71.3	91.6	61.8	44.4
31/07/2016	14:50:00	50.4	59.8	53.7	43.6
31/07/2016	14:55:00	57.6	73.0	56.0	45.6
31/07/2016	15:00:00	53.2	67.8	55.4	43.1
31/07/2016	15:05:00	58.9	73.9	59.7	47.6
31/07/2016	15:10:00	49.7	59.4	52.5	44.1
31/07/2016	15:15:00	50.1	59.9	53.0	44.8
31/07/2016	15:20:00	50.6	61.8	53.5	44.4
31/07/2016	15:25:00	49.5	64.9	52.8	42.7
31/07/2016	15:30:00	55.9	72.1	53.8	44.2
31/07/2016	15:35:00	56.6	70.3	58.5	41.8
31/07/2016	15:40:00	58.1	79.1	58.6	43.9
31/07/2016	15:45:00	51.7	59.3	54.8	45.2
31/07/2016	15:50:00	50.2	61.2	53.4	43.6
31/07/2016	15:55:00	56.8	73.1	53.7	44.9
31/07/2016	16:00:00	49.6	57.8	53.0	43.4
31/07/2016	16:05:00	52.4	64.3	54.4	43.1
31/07/2016	16:10:00	48.2	63.9	51.7	41.2
31/07/2016	16:15:00	55.8	71.9	55.7	43.6
31/07/2016	16:20:00	50.1	59.5	53.7	41.8
31/07/2016	16:25:00	49.6	59.6	53.2	42.2
31/07/2016	16:30:00	51.1	59.5	54.6	44.6
31/07/2016	16:35:00	49.5	60.5	52.1	43.7
31/07/2016	16:40:00	57.7	70.8	60.5	47.2
31/07/2016	16:45:00	50.3	58.9	53.3	45.2
31/07/2016	16:50:00	55.7	71.2	55.1	46.2
31/07/2016	16:55:00	54.6	75.4	53.7	42.4
31/07/2016	17:00:00	51.4	65.2	55.1	43.7
31/07/2016	17:05:00	53.9	66.3	55.5	44.1
31/07/2016	17:10:00	55.1	71.9	54.7	43.5
31/07/2016	17:15:00	50.4	58.8	53.5	44.6
31/07/2016	17:20:00	49.9	59.4	53.4	43.4
31/07/2016	17:25:00	48.8	57.7	52.0	43.1
31/07/2016	17:30:00	51.4	63.3	54.7	44.8
31/07/2016	17:35:00	53.7	67.1	54.0	43.9
31/07/2016	17:40:00	51.1	62.0	53.8	46.1
31/07/2016	17:45:00	56.5	72.0	56.6	46.2
31/07/2016	17:50:00	49.8	60.6	52.5	45.1

31/07/2016	17:55:00	51.1	66.6	53.2	46.6
31/07/2016	18:00:00	52.0	63.6	55.2	46.7
31/07/2016	18:05:00	50.0	57.3	53.2	44.8
31/07/2016	18:10:00	54.6	69.5	55.3	45.4
31/07/2016	18:15:00	55.9	69.8	56.4	45.4
31/07/2016	18:20:00	50.0	58.6	53.0	44.6
31/07/2016	18:25:00	51.6	61.8	54.9	44.7
31/07/2016	18:30:00	51.2	64.3	53.2	44.7
31/07/2016	18:35:00	58.1	73.0	60.7	42.1
31/07/2016	18:40:00	50.3	65.9	52.2	42.6
31/07/2016	18:45:00	50.7	59.8	53.7	45.5
31/07/2016	18:50:00	55.4	72.5	54.3	41.6
31/07/2016	18:55:00	50.7	63.8	54.0	42.5
31/07/2016	19:00:00	49.5	59.6	52.8	42.7
31/07/2016	19:05:00	54.5	66.9	55.6	42.3
31/07/2016	19:10:00	56.2	72.6	54.2	43.4
31/07/2016	19:15:00	48.1	56.6	51.1	42.7
31/07/2016	19:20:00	51.0	62.0	53.6	45.9
31/07/2016	19:25:00	50.3	61.2	53.7	43.2
31/07/2016	19:30:00	52.3	67.4	54.7	45.7
31/07/2016	19:35:00	57.7	78.0	56.3	45.6
31/07/2016	19:40:00	51.5	64.4	54.4	44.9
31/07/2016	19:45:00	52.6	63.6	55.5	46.6
31/07/2016	19:50:00	56.1	72.7	55.2	44.3
31/07/2016	19:55:00	51.2	62.6	54.7	44.1
31/07/2016	20:00:00	51.4	62.9	54.7	45.0
31/07/2016	20:05:00	53.8	67.9	54.2	43.3
31/07/2016	20:10:00	50.2	61.6	53.8	44.6
31/07/2016	20:15:00	71.2	91.8	56.9	44.1
31/07/2016	20:20:00	54.9	71.5	56.8	43.9
31/07/2016	20:25:00	49.0	61.6	51.8	43.4
31/07/2016	20:30:00	57.8	73.9	55.0	45.4
31/07/2016	20:35:00	51.9	65.6	54.5	46.1
31/07/2016	20:40:00	50.9	61.9	54.4	43.5
31/07/2016	20:45:00	49.1	60.2	52.1	43.2
31/07/2016	20:50:00	58.5	72.9	59.1	43.0
31/07/2016	20:55:00	68.9	93.0	57.8	44.2
31/07/2016	21:00:00	51.4	60.0	54.7	43.9
31/07/2016	21:05:00	61.2	81.5	56.0	45.8
31/07/2016	21:10:00	54.9	70.4	54.5	42.7
31/07/2016	21:15:00	54.0	70.6	57.8	40.8
31/07/2016	21:20:00	54.7	71.1	55.2	41.2
31/07/2016	21:25:00	48.5	58.2	52.2	41.1
31/07/2016	21:30:00	55.3	69.4	55.1	41.6
31/07/2016	21:35:00	47.6	56.1	51.2	41.7
31/07/2016	21:40:00	51.4	66.5	54.1	42.3
31/07/2016	21:45:00	47.7	60.7	50.1	42.3

31/07/2016	21:50:00	56.8	72.7	55.5	44.5
31/07/2016	21:55:00	49.8	63.3	52.6	42.7
31/07/2016	22:00:00	54.8	65.9	58.9	45.4
31/07/2016	22:05:00	47.9	59.3	50.9	41.7
31/07/2016	22:10:00	58.2	74.0	59.3	42.9
31/07/2016	22:15:00	47.4	63.1	50.7	41.1
31/07/2016	22:20:00	50.7	65.9	52.9	42.6
31/07/2016	22:25:00	47.1	55.8	50.3	40.9
31/07/2016	22:30:00	54.7	69.5	55.4	42.6
31/07/2016	22:35:00	47.9	56.6	51.4	41.9
31/07/2016	22:40:00	56.6	72.2	54.5	40.6
31/07/2016	22:45:00	46.5	61.3	50.1	39.8
31/07/2016	22:50:00	45.6	54.9	49.1	39.8
31/07/2016	22:55:00	47.7	57.7	51.2	39.4
31/07/2016	23:00:00	57.1	71.7	59.4	41.2
31/07/2016	23:05:00	46.9	56.8	50.1	41.4
31/07/2016	23:10:00	48.4	57.4	52.5	40.5
31/07/2016	23:15:00	53.4	71.4	54.4	40.7
31/07/2016	23:20:00	48.3	59.0	52.0	40.6
31/07/2016	23:25:00	46.5	61.0	49.3	38.5
31/07/2016	23:30:00	46.9	56.2	50.1	40.3
31/07/2016	23:35:00	47.7	56.2	51.6	39.0
31/07/2016	23:40:00	45.3	55.9	49.5	37.6
31/07/2016	23:45:00	44.7	56.9	48.6	38.2
31/07/2016	23:50:00	45.7	56.1	49.6	38.6
31/07/2016	23:55:00	45.6	59.8	49.1	36.5
01/08/2016	00:00:00	45.2	56.6	48.6	37.5
01/08/2016	00:05:00	45.8	58.0	50.1	36.9
01/08/2016	00:10:00	45.7	57.6	49.4	37.9
01/08/2016	00:15:00	44.4	55.4	48.1	38.0
01/08/2016	00:20:00	44.4	56.5	48.2	37.9
01/08/2016	00:25:00	44.9	58.8	49.0	37.9
01/08/2016	00:30:00	45.1	58.1	48.5	37.7
01/08/2016	00:35:00	45.1	55.9	48.7	38.1
01/08/2016	00:40:00	42.9	53.9	46.3	36.6
01/08/2016	00:45:00	48.8	59.9	54.2	37.4
01/08/2016	00:50:00	43.2	59.0	47.1	36.7
01/08/2016	00:55:00	45.0	59.2	48.6	38.5
01/08/2016	01:00:00	43.0	56.7	46.6	37.1
01/08/2016	01:05:00	45.5	63.7	48.6	37.0
01/08/2016	01:10:00	43.9	57.0	47.4	37.2
01/08/2016	01:15:00	45.2	61.1	48.5	38.1
01/08/2016	01:20:00	44.1	60.7	47.2	36.8
01/08/2016	01:25:00	68.3	90.3	55.8	36.8
01/08/2016	01:30:00	42.2	55.7	45.5	36.1
01/08/2016	01:35:00	47.6	66.7	50.9	37.7
01/08/2016	01:40:00	44.7	55.3	48.7	37.0

01/08/2016	01:45:00	43.2	56.7	46.6	36.4
01/08/2016	01:50:00	42.7	56.0	46.3	36.7
01/08/2016	01:55:00	44.5	60.3	47.4	37.3
01/08/2016	02:00:00	42.7	55.8	45.8	37.1
01/08/2016	02:05:00	46.9	56.5	51.4	37.1
01/08/2016	02:10:00	43.3	57.3	46.9	36.4
01/08/2016	02:15:00	47.4	59.0	50.5	36.7
01/08/2016	02:20:00	44.6	59.3	47.8	37.3
01/08/2016	02:25:00	49.4	66.2	51.8	35.6
01/08/2016	02:30:00	47.6	59.1	51.5	38.2
01/08/2016	02:35:00	42.6	60.7	45.7	35.7
01/08/2016	02:40:00	44.8	60.6	47.8	37.4
01/08/2016	02:45:00	43.5	56.8	46.3	37.9
01/08/2016	02:50:00	47.1	57.8	49.6	42.9
01/08/2016	02:55:00	48.1	67.6	46.9	43.6
01/08/2016	03:00:00	47.1	58.9	49.8	43.8
01/08/2016	03:05:00	48.8	57.8	52.6	43.1
01/08/2016	03:10:00	50.1	61.2	55.3	43.4
01/08/2016	03:15:00	49.5	60.6	52.2	42.9
01/08/2016	03:20:00	51.3	61.4	55.8	44.2
01/08/2016	03:25:00	47.6	57.5	50.2	44.1
01/08/2016	03:30:00	48.0	58.8	51.6	43.1
01/08/2016	03:35:00	45.5	52.6	46.9	43.9
01/08/2016	03:40:00	46.9	58.2	49.0	44.1
01/08/2016	03:45:00	48.0	58.7	52.1	42.8
01/08/2016	03:50:00	49.6	67.3	51.1	43.3
01/08/2016	03:55:00	47.5	60.5	50.5	42.5
01/08/2016	04:00:00	46.5	58.0	48.7	43.5
01/08/2016	04:05:00	45.6	57.2	47.7	43.7
01/08/2016	04:10:00	47.5	61.5	49.2	44.7
01/08/2016	04:15:00	50.9	64.3	54.5	44.1
01/08/2016	04:20:00	46.7	59.0	48.5	44.4
01/08/2016	04:25:00	49.7	63.2	52.7	44.7
01/08/2016	04:30:00	49.4	66.6	52.2	44.4
01/08/2016	04:35:00	48.0	65.9	49.7	45.0
01/08/2016	04:40:00	52.2	63.0	54.8	46.9
01/08/2016	04:45:00	50.9	64.7	54.2	45.3
01/08/2016	04:50:00	54.6	68.1	57.4	45.8
01/08/2016	04:55:00	50.8	61.3	53.4	44.1
01/08/2016	05:00:00	50.1	64.5	53.0	45.0
01/08/2016	05:05:00	47.8	55.7	50.3	45.3
01/08/2016	05:10:00	49.7	58.3	52.6	45.3
01/08/2016	05:15:00	48.5	61.0	50.4	44.2
01/08/2016	05:20:00	49.3	58.8	52.7	44.7
01/08/2016	05:25:00	49.9	66.2	52.6	44.4
01/08/2016	05:30:00	49.9	61.5	53.8	43.0
01/08/2016	05:35:00	52.4	59.8	55.1	47.6

01/08/2016	05:40:00	49.5	65.6	52.7	44.9
01/08/2016	05:45:00	57.6	72.2	60.3	46.3
01/08/2016	05:50:00	53.8	64.2	57.9	44.9
01/08/2016	05:55:00	52.0	63.6	55.1	44.1
01/08/2016	06:00:00	53.1	73.8	54.4	47.0
01/08/2016	06:05:00	54.2	75.3	56.1	47.1
01/08/2016	06:10:00	56.7	72.9	57.5	46.5
01/08/2016	06:15:00	53.3	64.2	56.4	46.8
01/08/2016	06:20:00	52.8	60.6	56.0	46.3
01/08/2016	06:25:00	52.1	64.0	55.5	46.6
01/08/2016	06:30:00	59.5	77.5	58.6	46.9
01/08/2016	06:35:00	51.5	64.7	54.5	45.7
01/08/2016	06:40:00	54.6	67.5	56.6	47.2
01/08/2016	06:45:00	52.5	66.0	55.2	47.1
01/08/2016	06:50:00	58.8	78.4	55.8	46.1
01/08/2016	06:55:00	61.5	77.4	59.5	46.5
01/08/2016	07:00:00	55.4	66.8	57.9	48.1
01/08/2016	07:05:00	51.9	73.0	53.6	46.8
01/08/2016	07:10:00	56.5	74.2	55.9	49.2
01/08/2016	07:15:00	54.3	68.6	56.7	49.5
01/08/2016	07:20:00	56.4	75.9	59.4	50.6
01/08/2016	07:25:00	61.3	77.0	62.4	51.1
01/08/2016	07:30:00	58.6	76.4	59.0	50.6
01/08/2016	07:35:00	53.3	62.3	55.5	50.0
01/08/2016	07:40:00	56.2	68.4	57.8	53.9
01/08/2016	07:45:00	56.3	70.8	58.1	51.9
01/08/2016	07:50:00	56.1	70.9	58.2	51.1
01/08/2016	07:55:00	62.3	77.4	65.4	50.8
01/08/2016	08:00:00	61.4	75.8	62.7	50.0
01/08/2016	08:05:00	60.8	88.6	58.4	50.4
01/08/2016	08:10:00	54.7	70.6	57.0	49.2
01/08/2016	08:15:00	62.4	79.6	62.7	50.3
01/08/2016	08:20:00	55.4	73.1	57.9	49.9
01/08/2016	08:25:00	59.2	77.5	59.8	50.5
01/08/2016	08:30:00	59.2	75.7	61.7	48.9
01/08/2016	08:35:00	60.0	79.9	62.8	48.9
01/08/2016	08:40:00	58.7	82.4	58.3	50.9
01/08/2016	08:45:00	54.5	67.1	56.8	50.3
01/08/2016	08:50:00	54.0	66.5	56.8	49.7
01/08/2016	08:55:00	62.9	76.4	66.6	48.8
01/08/2016	09:00:00	62.5	76.6	66.8	49.5
01/08/2016	09:05:00	59.2	73.0	60.9	50.0
01/08/2016	09:10:00	56.2	69.3	58.5	50.4
01/08/2016	09:15:00	59.9	73.3	63.4	51.6
01/08/2016	09:20:00	62.4	78.0	60.4	50.1
01/08/2016	09:25:00	61.3	79.9	59.9	49.8
01/08/2016	09:30:00	60.6	78.5	59.8	48.8

01/08/2016	09:35:00	53.8	72.4	56.0	49.8
01/08/2016	09:40:00	56.2	70.0	60.0	50.3
01/08/2016	09:45:00	55.0	70.1	57.8	49.5
01/08/2016	09:50:00	57.9	73.2	60.8	48.6
01/08/2016	09:55:00	57.9	74.1	56.3	49.4
01/08/2016	10:00:00	62.5	79.1	62.9	49.3
01/08/2016	10:05:00	59.1	76.4	59.0	53.0
01/08/2016	10:10:00	56.6	70.3	58.6	53.3
01/08/2016	10:15:00	61.6	77.2	62.1	50.4
01/08/2016	10:20:00	58.0	74.2	59.1	50.9
01/08/2016	10:25:00	62.0	81.2	60.5	51.0
01/08/2016	10:30:00	58.4	75.4	59.1	51.9
01/08/2016	10:35:00	56.4	66.9	59.4	50.9
01/08/2016	10:40:00	55.0	77.6	56.3	49.6
01/08/2016	10:45:00	56.3	66.9	59.5	50.7
01/08/2016	10:50:00	55.6	71.3	57.0	49.1
01/08/2016	10:55:00	56.8	72.5	60.2	48.4
01/08/2016	11:00:00	59.4	75.6	62.4	49.2
01/08/2016	11:05:00	54.6	70.4	56.3	47.8
01/08/2016	11:10:00	53.3	62.0	56.0	49.2
01/08/2016	11:15:00	61.0	74.5	64.7	49.0
01/08/2016	11:20:00	58.4	75.1	60.2	48.5
01/08/2016	11:25:00	57.6	72.4	58.3	48.7
01/08/2016	11:30:00	58.9	76.4	58.1	49.7
01/08/2016	11:35:00	56.7	70.1	60.7	48.0
01/08/2016	11:40:00	56.0	83.3	56.3	47.7
01/08/2016	11:45:00	57.0	75.4	57.3	48.5
01/08/2016	11:50:00	53.4	63.6	56.2	49.0
01/08/2016	11:55:00	62.0	76.8	64.2	50.1
01/08/2016	12:00:00	59.6	76.9	58.7	50.2
01/08/2016	12:05:00	55.2	78.6	58.1	49.7
01/08/2016	12:10:00	58.6	73.4	58.7	49.6
01/08/2016	12:15:00	52.0	60.7	54.0	49.1
01/08/2016	12:20:00	54.5	62.6	56.9	49.7
01/08/2016	12:25:00	60.7	78.7	61.3	50.6
01/08/2016	12:30:00	63.8	82.2	66.8	48.3
01/08/2016	12:35:00	55.2	64.6	58.5	48.9
01/08/2016	12:40:00	52.7	70.4	55.1	48.9
01/08/2016	12:45:00	53.8	64.1	55.9	50.7
01/08/2016	12:50:00	55.4	72.8	55.3	48.1
01/08/2016	12:55:00	56.5	75.3	57.4	49.2
01/08/2016	13:00:00	63.0	84.5	58.3	47.7
01/08/2016	13:05:00	60.8	76.7	61.5	47.5
01/08/2016	13:10:00	58.2	80.4	56.8	48.3
01/08/2016	13:15:00	61.5	76.8	59.8	51.8
01/08/2016	13:20:00	57.2	74.1	56.9	50.3
01/08/2016	13:25:00	61.0	76.8	61.7	50.0

01/08/2016	13:30:00	58.2	77.6	56.7	49.2
01/08/2016	13:35:00	55.0	69.1	57.4	50.6
01/08/2016	13:40:00	54.4	65.5	57.3	49.9
01/08/2016	13:45:00	53.5	62.1	55.8	49.7
01/08/2016	13:50:00	56.3	69.3	58.9	50.0
01/08/2016	13:55:00	60.8	77.8	61.2	52.4
01/08/2016	14:00:00	59.4	77.8	58.8	51.3
01/08/2016	14:05:00	57.0	65.2	59.7	53.2

APPENDIX F: Glossary of acoustic terms

DECIBEL (dB) - A unit of sound pressure measurement
Sound Pressure Level in dB (Lp) = 20 log (Measured sound pressure/Reference sound pressure = 20 μPa)

dB(A) - The A -weighted sound pressure level, the weighting network reduces low frequency sound in a similar way to the human ear.

REVERBERATION TIME (RT or T) – decay of sound in rooms
The time taken for a sound, once terminated, to fall through 60dB i.e. to one millionth of its original sound intensity. T30 – RT for first 30dB of decay. RT_{500} - Mid frequency RT.
HERTZ (Hz) - a unit of frequency measurement. The normal range of hearing is from 20Hz to about 15kHz.

ABSORPTION COEFFICIENT – degree to which a material absorbs sound.
The ratio of absorbed to incident sound energy (perfect absorber = 1)

SOUND REDUCTION INDEX R – quantity which describes a material's ability to reduce the sound pressure level across it (e.g. a wall or floor)

$R = L1 - L2 + 10\log (S/A)$

L1 - Average sound pressure level in source room (averaged from 100 Hz – 3150 Hz)
L2 - Average sound pressure level in receiving room (averaged from 100 Hz – 3150 Hz)
S – Wall Area (m^2)
A – Total absorption in receiving room (m^2 units)

Rw – weighted sound reduction index

AVERAGE ROOM TO ROOM LEVEL DIFFERENCE – D, dB = L1 – L2, averaged 1/3 octave bands from 100Hz – 3150kHz.

Dw – weighted value of D (usually 2 - 3dB higher)

DnT, w – Dw corrected for reverberation time of receiving room

NOISE RATING CURVES (NR CURVES) – set of curves used to describe optimum background noise levels for different tasks.

L10/90 LEVEL (dB) - The level in dB of a time varying sound pressured level (e.g. traffic) exceeded for 10%/90% of the time of measurement.
L90 is usually called the BACKGROUND NOISE LEVEL.

Leq AVERAGE SOUND PRESSURE LEVEL – level dB of a time varying sound pressure level with equal amounts of energy above and below it, for the time of measurement.

TONAL NOISE – noise of a single frequency (or a narrow band of frequencies that can be perceived as a tone), audible above the broad band noise background. Noise which is at least 5dB above the average of the 1/3 octave band sound pressure levels immediately on either side of it.