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Lidl Food Store
Botwell Lane, Hayes
Middlesex

Environmental Noise Report

Reference: 6085/P/BL/pw **October 2015**

Lidl Food Store, Botwell Lane, Hayes
Environmental Noise Report

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1.0 INTRODUCTION

Lidl UK Limited appointed Acoustic Consultants Limited to undertake a noise survey and an assessment of noise from the plant, delivery operation and car park activities for the proposed Lidl Food Store, Botwell Lane, Hayes in support of a planning application.

This report is based on the information and layout contained on the Poole & Pattle Architects drawings entitled "Proposed Site Layout LOF Store" with the drawing number 3176 402 Revision P.

This report is an updated noise assessment based on the revised scheme, British Standard 4142:2014 and the new site layout.

The report has been prepared in good faith, with all reasonable skill and care, based on information provided or available at the time of its preparation and within the scope of work agreement with the Client. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

2.0 PROPOSED SCHEME

The Lidl Food Store is to be located on the former site of a public swimming baths which have now been demolished leaving a vacant site. The site is on the corner of Botwell Lane and Central Avenue.

The proposal is for a new build two storey Lidl Food Store on the site. The store will have the retail area/warehouse at ground level with offices/welfare spaces on the upper floor. The Lidl Food Store will have a number of refrigeration and air handling plant. The Lidl plant will be located on the northern elevations of the building adjacent to the delivery bay.

The most sensitive residential properties, in terms of plant and delivery noise are the existing dwellings along Holmbury Gardens (Location R1) to the north approximately 65 metres to the north of the proposed plant and delivery bay location.

The proposed opening hours of the store are between 07:00 and 22:00 hours Monday to Saturday and 10:00 to 18:00 hours Sundays and Bank Holidays. The proposed delivery hours are twenty four hours a day and include up to two articulated delivery vehicle per day.

A planning application was submitted and approved by the local authority with conditions on the 11th September 2014 with the application reference 1942/APP/2013/3565. The scheme has now changed and it is proposed to submit a new application to the Local Authority.

3.0 ASSESSMENT CRITERIA

3.1 National Planning Policy Framework

The National Planning Policy Framework was published in March 2012 and replaces Planning Policy Guidance Document 24. This is a significantly shortened document. Section 11 entitled 'Conserving and enhancing the natural environment' addresses noise as a requirement of planning.

Paragraph 109 states:

"109. The planning system should contribute to and enhance the natural and local environment by:

- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability."*

Paragraph 123 states:

"123. 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; 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 document does not prescribe any assessment methodology or criteria to assess the adverse affect of noise.

3.2 Noise Policy Statement for England

The NPPF refers to the Noise Policy Statement for England (NPSE). This was published in March 2010 by DEFRA and aims to provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion. It applies to all forms of noise including environmental noise, neighbour noise and neighbourhood noise.

The NPSE introduces the concept of "Significant Adverse" and "Adverse" impacts of noise. These are applied as follows:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

The NPSE does not provide any assessment criteria for the noted effect levels.

3.3 National Planning Practice Guidance, Noise

The National Planning Practice Guidance on noise referred to here is based on the current version as provided on the Planning Guidance Website.

It states that *"Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. In both cases, the potential noise impact needs to be addressed. Opportunities should also be taken, where possible, to achieve improvements to the acoustic environment".*

It provides generic guidance on how to determine the noise impact and what factors could be a concern.

It includes the option types to mitigate any adverse effects of noise stating that there are four broad types of mitigation. These are engineering, layout, using planning conditions or obligations and noise insulation.

This document does not provide any assessment criteria.

3.4 British Standard 4142:2014 – Plant Noise

The British Standard 4142:2014 entitled "Method for rating and assessing industrial and commercial sound" was published on the 31st October 2014 and replaced British Standard 4142:1997. British Standard 4142:2014 describes methods for rating and assessing sound of an industrial and/or commercial nature. We would consider plant noise to be of an industrial/commercial nature.

The methods described in the British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon. The principle is that of establishing the "difference" between the “rating level” and the “background sound level”.

The “rating level” is the “specific noise level” of the source over a period of 1 hour during the day (07:00 to 23:00 hours) and over a period of 15 minutes during the night (23:00 to 07:00 hours). Section 9 entitled “Rating Level” states:

“Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level.”

An acoustic character correction should be added to the “specific noise level” if the “specific noise level” exhibits any tonality, impulsivity, other specific characteristics and/or intermittency at the assessment location. The value of the character correction varies dependant on the prominence of the character of the noise source at the assessment location. In Section 11 of the Standard, under "Assessment of the Impacts", it states:

*“Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level (see Clause **8**) from the rating level (see Clause **9**), and consider the following.*

a) Typically, the greater this difference, the greater the magnitude of the impact.
b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”

As such where assessments differences of 0 dB or less the impact is likely to be low depending on the context.

3.5 Delivery Noise

The main source of noise from delivery operation is the movement of the delivery vehicle. The character of this noise is similar to road traffic and not specifically of an industrial nature.

The number of delivery movements per day is negligible in comparison with traffic on the surrounding highway network although should be considered so as not to adversely affect the amenity of neighbouring residential properties.

This report outlines the delivery methodology and the proposed noise mitigation and control measures to reduce the impact on nearby receptors.

3.6 Car Park Activities

There is no specific planning guidance as such it is appropriate to use a common sense approach.

Generally acceptable levels are achieved if the equivalent noise level from the proposed car park activity are of the same order as the current equivalent noise levels experienced around the site.

3.7 Local Authority Comments

A planning application was submitted and approved by the local authority with conditions on the 11th September 2014 with the application reference 1942/APP/2013/3565. The scheme has now changed slightly and it is proposed to submit a new application to the Local Authority.

The former application had the following plant related planning conditions:

"11 The rating level of noise emitted from plant and/or machinery at the development shall be at least 5dB below the existing background noise level. The noise levels shall be determined at the nearest residential property. The measurements and assessment shall be made in accordance with British Standard 4142 "Method for rating industrial noise affecting mixed residential and industrial areas".

REASON
To safeguard the amenity of the surrounding area in accordance with policy OE1 of the Hillingdon Local Plan: Part Two Saved UDP Policies (November 2012)".

Therefore we have worked on the basis that plant noise should be at least -5 dB below the background sound level. This is more onerous than the typical British Standard 4142:2014 requirements.

4.0 NOISE MEASUREMENTS

4.1 Monitoring Equipment

A noise survey was undertaken following the methodology of British Standard 4142:1997 in October 2013. Since that date a new British Standard 4142:2014 has been replaced. The former survey methodology is similar to the survey methodology of the new standard. We consider the former noise data to be robust enough to undertake a BS 4142:2014 assessment.

Sound Pressure Levels were measured using a CEL 593 Sound Level Meter with half-inch condenser microphones using the "fast" setting.

The equipment is checked annually using a Quality System meeting the requirements of British Standard EN ISO/IEC 17025:2005 and in accordance with British Standard EN 10012:2003 and traceable to the National Standards. This equipment was checked and calibrated as noted below and the certificates are available for inspection. The table below provides the equipment and calibration status:

Table 1: Monitoring Equipment

Equipment Description / Manufacturer / Type	Serial number	Date of calibration	Calibration Certification Number
Real Time Analyser, CEL, Type 593	0271040	09/09/13	K043915
Pre-Amplifier, CEL, Type 527	3/0221937	09/09/13	K043915
Microphone, CEL, Type 250	4951	09/09/13	K043915
Calibrator, CEL, Type 284/2	3/02716829	09/09/13	K043916

The measuring systems were checked for calibration before and after the tests and no significant drift was detected.

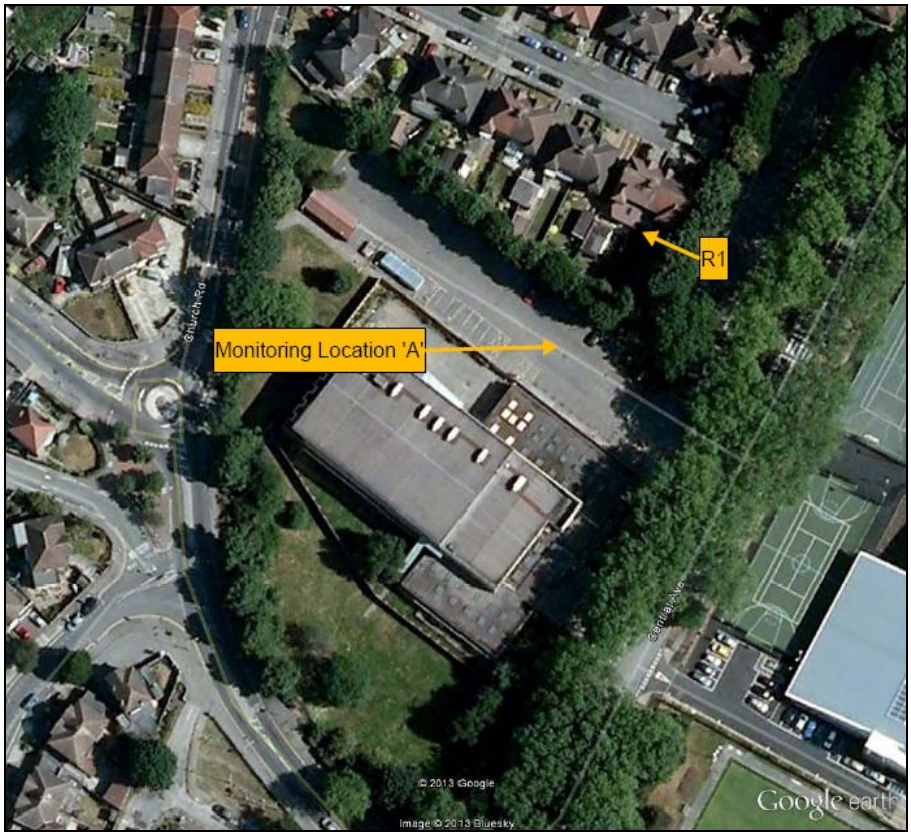
The monitoring was carried out in overcast conditions with a daytime air temperature of about 14 degrees Centigrade with little or no wind. These conditions are not expected to have a significant adverse effect on the measured levels. During the night time there were occasional rain showers, these have been omitted from the noise assessments.

4.2 Monitoring Procedure

An assessment to British Standard 4142 requires that the "Background Sound Level" typical for the area, be established. The plant operates 24-hours a day according to demand. As such, a long term noise monitoring exercise was carried out to determine the baseline noise conditions.

Noise monitoring was undertaken for a twenty four hour period commencing at 10:30 hours on 31st October 2013. The monitoring location was at ground level in a free field position to the north of the site. The monitoring location was partially shielded from the main roads around the site by the site hoarding and considered representative of the sensitive receivers in the vicinity.

Figure 1: Monitoring Location & Existing Noise Sensitive Receiver Location



The measured baseline noise levels were determined by road traffic on the surrounding highway network and aircraft overhead.

4.3 Measured Data

The measured data consists of the Equivalent Noise Level ($L_{Aeq\ (5minute)}$), maximum noise level ($L_{Amax(fast)}$) and Background Sound Level ($L_{A90\ (5minute)}$) in dB (A). The results are provided in Appendix 1/6085 for 5-minute measurement time intervals and are free field levels.

The lowest measured daytime background sound level (between 07:00 and 23:00 hours) is 45 dB $L_{A90(1\ hour)}$ (free field level) and the night-time background sound level is 39 dB $L_{A90(5\ minutes)}$ (free field level).

It is appropriate to assess the impact of the car park operation over a one hour period. Appendix 2/6085 provides the one hour equivalent noise level ($L_{Aeq(1hr)}$) over the daytime period. The proposed car park hours are between 07:00 hours and 23:00 hours. From the measurement data the range of one hour equivalent noise level during this period is 48-51 dB $L_{Aeq\ (1\ hour)}$ (free field level).

5.0 CONDENSER PLANT NOISE EMISSION

5.1 Proposed Plant

The plant is to be located on the northern elevation of the store adjacent to the delivery bay. The following table provides a schedule of the proposed plant along with the individual unit sound pressure level at a given distance in a free-hemispherical field. The noise data is taken directly from the manufacturer's noise data as supplied by Lidl.

Table 2: Proposed Plant

Plant Type	Manufacturer	Model Number	Quantity	Height Above Ground (metres)	Individual Unit Sound Pressure Level $L_{Aeq(T)}$
Refrigeration	Guntner	GFW 090.1/3-E(J)-F4/04/6P	1	2	37 dB at 10 metres
Bakery	Rivacold Deutschland	THCL145Z-ZF13-EVI	1	1	41 dB at 10 metres
Air conditioning	Mitsubishi	FDC200VS	1	3	57 dB at 1 metre
Air conditioning	Mitsubishi	FDC250VS	2	3	58 dB at 1 metre
Air conditioning	Mitsubishi	FDC112KXEN6	1	3	54 dB at 1 metre

Any alternative plant should have an equal or lower noise emission level (dB) in a hemispherical free-field.

All plant will be operational 24 hours a day according to demand. There will be a lower demand during the night-time period as such the plant will only operate when the ambient temperature is very high.

5.2 Predicted Noise Level

Plant noise levels at the nearby residential properties have been predicted based on the plant noise levels and distance correction of a point source.

The most sensitive residential properties are the dwellings along Holmbury Gardens 65 metres to the north of the site.

The noise sources will include reflections off the building which will increase the noise emission level by about 3 dB.

The following tables provide the corrections to the stated manufacturer's noise levels to determine plant noise levels at the nearby residential properties.

Table 3: Predicted noise levels at R1

Unit	Manufacturers Sound Pressure Level $L_{Aeq(T)}$	Distance Correction To R1	Reflection	Barrier Correction	Predicted Level at R1 $L_{Aeq\ (15\ minutes)}$
Refrigeration Plant	37 dB(A) @ 10m	-16 dB	+3 dB	0 dB	24 dB(A)
FDC200VS	57 dB(A) @ 1m	-36 dB	+3 dB	0 dB	24 dB(A)
FDC250VS	58 dB(A) @ 1m	-36 dB	+3 dB	0 dB	25 dB(A)
FDC250VS	58 dB(A) @ 1m	-36 dB	+3 dB	0 dB	25 dB(A)
FDC112KXEN6	54 dB(A) @ 1m	-36 dB	+3 dB	0 dB	21 dB(A)
Bakery Plant	41 dB(A) @ 10m	-16 dB	+3 dB	0 dB	28 dB(A)

This results in a predicted cumulative free-field specific noise level of 33 dB $L_{Aeq\ (15\ minutes)}$ at R1 which is very low.

5.3 Plant Noise Assessment

The plant will operate on a 24-hour basis according to demand. A night-time British Standard 4142:2014 assessment has been undertaken at the sensitive receivers around the site at the worse case time with all plant continuously operating.

Due to the nature of Lidl plant this is worse case assumption and normally not all plant will operate continuously.

The predicted specific noise is at least 6 dB lower than the background sound level and as such we would expect any tonality, intermittency impulsivity of the plant will not be distinguishable at the sensitive receivers and a character correction is not applicable in this case.

The British Standard 4142:2014 assessment is as follows:

Table 5: British Standard 4142:2014 Assessment

	Location R1
Background Level, $L_{A90\ 15minutes}$	39 dB
Specific Noise Level, $L_{Aeq\ 15minutes}$	33 dB
Acoustic Character Correction	+0 dB
Rating Level	33 dB
Excess of rating over background level	-6 dB

This means that the plant rating noise level will result in a British Standard 4142:2014 assessment "difference" of -6 dB at the receiver R1 during worse case time and as such it is indication that noise from the plant will be of a low impact on the noise sensitive receivers in the area.

In addition the planning condition imposed on the former scheme of -5 dB below the background noise level will also be achieved.

The difference between the rating level and background sound level is -6 dB and as such the uncertainty in the measurements and assessment will not have a significant impact to the outcome of the assessment.

All other residential dwellings are either at a further distance away from the plant or shielded from the noise by the store and as such will experience lower levels of noise from the proposed plant.

In environmental noise terms (affecting the residential premises in the vicinity) the proposals are considered acceptable in terms of noise emission to the dwellings in the vicinity.

6.0 DELIVERY OPERATION NOISE EMISSION

We understand that the deliveries are contained in no more than two vehicles per day. The vehicle includes a refrigerated section with condensing unit. This can normally be turned off during the delivery operation. The vehicle arrives on site and reverses up to the enclosed loading bay dock. The engine is then turned off and the goods are moved internally from the trailer into the store. The goods are mostly on pallets and an electric pallet truck is used. The operation takes place internally and the vehicle departs after about one hour.

The delivery vehicles will enter the site and drive south into the car park. The vehicle will then reverse turning parallel to the north east façade of the building down the sunken loading bay entrance.

When the vehicle enters the site it is proposed that all reversing beepers are turned off.

For a large part of the reversing operation the trailer will create a barrier between the noise generating engine of the lorry and the noise sensitive residential properties.

It is proposed to install a 1.8 metre acoustic fence along the length of the delivery bay to reduce noise from the lorry engine and brakes.

It is advised that consideration is made to providing adequate lighting designed to specifically assist the driver of the vehicle when reversing into the loading bay. This will reduce the need for additional manoeuvring.

The delivery bay includes a curtain that will enclose the rear of the delivery trailer reducing the breakout of sound and light.

Once the delivery is complete the orientation of the loading bay is such that the vehicle can directly exit the site without the need for significant manoeuvring thus reducing the time and noise generated on site.

7.0 CAR PARK ACTIVITIES

The proposed car park opening hours are 07:00 hours to 23:00 hours, one hour after the store opening hours. From the measurement data the range of one hour equivalent noise level during this period is 48-51 dB $L_{Aeq\ (1\ hour)}$ (free field level).

Generally acceptable levels are achieved if the equivalent noise level from the proposed car park activity are of the same order as the current equivalent noise levels experienced around the site, or the increase is not more than 3 decibels.

The nearest noise sensitive properties to car park activity are residential dwellings to the north (R1).

The car park is located to the north and west of the proposed store, the entrance to the store is on the south west corner and we would expect this to be the busiest area of the car park.

From our experience and noise measurements recorded over a number of years of car parking in a number of different car parks, we have established that the equivalent noise levels due to car park activity at the boundary of car park sites are about 45 to 50 $L_{Aeq(1\ hour)}$ decibels. This includes parking, manoeuvring and closing doors and does not appear to be very sensitive to the number of movements.

The residential dwellings to the north of the site (R1) are approximately 30 metres from the closest car parking space with the majority of spaces further away.

Due to the increased distance from the site boundary the equivalent noise level due to car park activity is expected to be reduced by about 10 decibels resulting in car park noise levels of approximately 40 $L_{Aeq(1\ hour)}$ decibels (free field) at the residential properties.

The predicted car park noise level at the noise sensitive residential properties is considerably lower than the existing equivalent noise levels on site during the proposed hours of use.

As such car park noise is not expected to result in an increase in the equivalent noise level at the façade of the residential properties and is considered acceptable.

8.0 LIMITATIONS

The report limits itself to addressing solely on the noise control and acoustic aspects as included in this report. We provide advice only in relation to noise and acoustics.

The report has been prepared in good faith, with all reasonable skill and care, based on information provided or available at the time of its preparation and within the scope of work agreement with the Client. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

The report is provided for the sole use of the named Client and is confidential to them and their professional advisors. No responsibility is accepted to other parties.

It should be noted that noise predictions are based on the current information as we understand it and on the performances noted in this report. Any modification to these parameters can alter the predicted level. All predictions are in any event subject to a degree of tolerance of normally plus or minus three decibels. If this tolerance is not acceptable, then it would be necessary to consider further measures.

9.0 SUMMARY AND CONCLUSIONS

Lidl UK Limited appointed Acoustic Consultants Limited to undertake a noise survey and an assessment of noise from the plant, delivery operation and car park activities for the proposed Lidl Food Store, Botwell Lane, Hayes in support of a planning application.

A noise survey was undertaken to determine the existing baseline noise climate. In addition a noise modelling exercise has been undertaken to determine the plant noise levels at the façade of the nearby noise sensitive receivers.

Plant noise levels at the nearest existing and proposed noise sensitive residential properties have been predicted. The condenser noise level will result in a British Standard 4142 assessment “difference” of -6 decibel at the most noise sensitive receivers R1. As such in terms of a British Standard 4142:2014 assessment the impact will be low at the most sensitive receiver.

In addition the planning condition criteria (a plant rating level no more than -5dB above the background noise level) imposed on the old application is achieved with this application.

The main source of noise from delivery operation is the movement of the delivery vehicle. The character of this noise is similar to road traffic and not specifically of an industrial nature. Advice is provided to minimise noise emission from delivery activities. This includes the use of an acoustic barrier along the edge of the loading bay ramp.

Noise from car park activities has also been considered. The predicted noise levels due to car park activity is not expected to result in an increase in the equivalent noise level at the façade of the residential properties and is considered acceptable.

In environmental noise terms (affecting the residential premises in the vicinity) the proposed plant, delivery operation and car park activities is considered acceptable in terms of noise emission to the dwellings in the vicinity.

Appendix 1/6085 Measured Noise Levels at Monitoring Location 'A'

Date and Time	$L_{Aeq(5\ minutes)}$ dB	$L_{A90(5\ minutes)}$ dB
31/10/2013 10:30	55.6	45
31/10/2013 10:35	54.5	45
31/10/2013 10:40	45.9	44
31/10/2013 10:45	46.3	44
31/10/2013 10:50	46.8	45
31/10/2013 10:55	46.6	45
31/10/2013 11:00	47.5	44
31/10/2013 11:05	47.4	45
31/10/2013 11:10	47.6	45
31/10/2013 11:15	49.2	47
31/10/2013 11:20	47.3	45
31/10/2013 11:25	46.9	45
31/10/2013 11:30	47.4	45
31/10/2013 11:35	46.7	45
31/10/2013 11:40	47.2	45
31/10/2013 11:45	48.2	45
31/10/2013 11:50	47	45
31/10/2013 11:55	48.7	46
31/10/2013 12:00	54.5	47
31/10/2013 12:05	49.3	46
31/10/2013 12:10	48.3	46
31/10/2013 12:15	49.6	47
31/10/2013 12:20	47.6	46
31/10/2013 12:25	47.4	46
31/10/2013 12:30	48.2	46
31/10/2013 12:35	47.2	45
31/10/2013 12:40	49.4	46
31/10/2013 12:45	48.4	46
31/10/2013 12:50	47.6	46
31/10/2013 12:55	47.9	46
31/10/2013 13:00	50	46
31/10/2013 13:05	49.1	47
31/10/2013 13:10	49.2	46
31/10/2013 13:15	48.6	47
31/10/2013 13:20	48.7	47
31/10/2013 13:25	48.4	46
31/10/2013 13:30	49.2	46
31/10/2013 13:35	55.8	47
31/10/2013 13:40	54.7	47
31/10/2013 13:45	49	47
31/10/2013 13:50	48.3	46
31/10/2013 13:55	49.8	47

31/10/2013 14:00	51	47
31/10/2013 14:05	51.5	46
31/10/2013 14:10	53.7	47
31/10/2013 14:15	52.2	47
31/10/2013 14:20	49.4	47
31/10/2013 14:25	51	48
31/10/2013 14:30	54	47
31/10/2013 14:35	50.7	48
31/10/2013 14:40	51.1	48
31/10/2013 14:45	50	47
31/10/2013 14:50	51.5	47
31/10/2013 14:55	50	48
31/10/2013 15:00	53.2	47
31/10/2013 15:05	48.6	47
31/10/2013 15:10	49.5	48
31/10/2013 15:15	49.8	47
31/10/2013 15:20	53.3	47
31/10/2013 15:25	56.7	48
31/10/2013 15:30	50.6	48
31/10/2013 15:35	54.6	48
31/10/2013 15:40	50.1	48
31/10/2013 15:45	51.9	48
31/10/2013 15:50	50.5	47
31/10/2013 15:55	50.4	48
31/10/2013 16:00	51.1	47
31/10/2013 16:05	55.8	48
31/10/2013 16:10	51.2	48
31/10/2013 16:15	52.7	48
31/10/2013 16:20	51.2	48
31/10/2013 16:25	50	47
31/10/2013 16:30	52.3	48
31/10/2013 16:35	54.2	48
31/10/2013 16:40	50.6	48
31/10/2013 16:45	49.7	48
31/10/2013 16:50	52.6	47
31/10/2013 16:55	52.2	48
31/10/2013 17:00	53	48
31/10/2013 17:05	52.3	48
31/10/2013 17:10	56	49
31/10/2013 17:15	50.5	48
31/10/2013 17:20	50.8	48
31/10/2013 17:25	51.2	48
31/10/2013 17:30	50.6	49
31/10/2013 17:35	51.2	48
31/10/2013 17:40	51.7	49

31/10/2013 17:45	51.1	48
31/10/2013 17:50	51.7	48
31/10/2013 17:55	53.7	49
31/10/2013 18:00	54.3	49
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31/10/2013 18:15	54.6	48
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31/10/2013 18:25	52.5	48
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31/10/2013 18:50	52.5	48
31/10/2013 18:55	50.8	48
31/10/2013 19:00	54.2	48
31/10/2013 19:05	51.8	48
31/10/2013 19:10	52.3	47
31/10/2013 19:15	50.6	48
31/10/2013 19:20	50.7	48
31/10/2013 19:25	51	47
31/10/2013 19:30	51.2	48
31/10/2013 19:35	53.1	49
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31/10/2013 20:05	55	48
31/10/2013 20:10	54.9	48
31/10/2013 20:15	53.9	47
31/10/2013 20:20	53.1	48
31/10/2013 20:25	50.2	48
31/10/2013 20:30	51	47
31/10/2013 20:35	52	48
31/10/2013 20:40	51.6	49
31/10/2013 20:45	52	48
31/10/2013 20:50	52.6	48
31/10/2013 20:55	57.4	47
31/10/2013 21:00	55.1	48
31/10/2013 21:05	52.1	47
31/10/2013 21:10	51.5	47
31/10/2013 21:15	53.6	47
31/10/2013 21:20	54	47
31/10/2013 21:25	54	48

31/10/2013 21:30	52.3	48
31/10/2013 21:35	50.9	47
31/10/2013 21:40	50.3	47
31/10/2013 21:45	53.4	47
31/10/2013 21:50	51.7	48
31/10/2013 21:55	50.3	47
31/10/2013 22:00	51.5	47
31/10/2013 22:05	50	47
31/10/2013 22:10	50.5	46
31/10/2013 22:15	52.4	47
31/10/2013 22:20	47.9	46
31/10/2013 22:25	50.7	46
31/10/2013 22:30	48.8	46
31/10/2013 22:35	52.3	47
31/10/2013 22:40	52.8	47
31/10/2013 22:45	50.2	46
31/10/2013 22:50	51.5	46
31/10/2013 22:55	46.9	44
31/10/2013 23:00	50.9	44
31/10/2013 23:05	47.5	45
31/10/2013 23:10	46.6	44
31/10/2013 23:15	48.8	44
31/10/2013 23:20	47.6	45
31/10/2013 23:25	45.9	44
31/10/2013 23:30	47.2	44
31/10/2013 23:35	50.2	45
31/10/2013 23:40	45.8	44
31/10/2013 23:45	44.7	44
31/10/2013 23:50	44.5	43
31/10/2013 23:55	45.6	43
01/11/2013 00:00	44.9	43
01/11/2013 00:05	44.2	43
01/11/2013 00:10	44.1	43
01/11/2013 00:15	50.1	43
01/11/2013 00:20	49.6	44
01/11/2013 00:25	44.5	42
01/11/2013 00:30	43.4	42
01/11/2013 00:35	44.2	42
01/11/2013 00:40	46.1	42
01/11/2013 00:45	51.1	42
01/11/2013 00:50	53.6	41
01/11/2013 00:55	54.4	41
01/11/2013 01:00	45.3	41
01/11/2013 01:05	44.4	42
01/11/2013 01:10	48.3	42

01/11/2013 01:15	42.3	41
01/11/2013 01:20	43.2	41
01/11/2013 01:25	45.5	41
01/11/2013 01:30	45.1	42
01/11/2013 01:35	49	41
01/11/2013 01:40	45.5	42
01/11/2013 01:45	44.8	41
01/11/2013 01:50	44.7	41
01/11/2013 01:55	44.3	41
01/11/2013 02:00	46.3	41
01/11/2013 02:05	52	42
01/11/2013 02:10	49.9	42
01/11/2013 02:15	52.7	42
01/11/2013 02:20	49.7	41
01/11/2013 02:25	50.1	41
01/11/2013 02:30	49.2	40
01/11/2013 02:35	49.8	41
01/11/2013 02:40	51	41
01/11/2013 02:45	54.6	41
01/11/2013 02:50	42.9	39
01/11/2013 02:55	42.1	39
01/11/2013 03:00	49.4	39
01/11/2013 03:05	49.8	40
01/11/2013 03:10	45.2	40
01/11/2013 03:15	46.8	39
01/11/2013 03:20	47.9	39
01/11/2013 03:25	43.7	40
01/11/2013 03:30	50.5	40
01/11/2013 03:35	46.8	39
01/11/2013 03:40	47.1	39
01/11/2013 03:45	56.2	41
01/11/2013 03:50	59.8	44
01/11/2013 03:55	54.6	40
01/11/2013 04:00	51.1	39
01/11/2013 04:05	49.8	39
01/11/2013 04:10	43	39
01/11/2013 04:15	53.1	39
01/11/2013 04:20	46.4	40
01/11/2013 04:25	45.3	39
01/11/2013 04:30	43.6	40
01/11/2013 04:35	43.7	40
01/11/2013 04:40	51	40
01/11/2013 04:45	42.7	39
01/11/2013 04:50	47.8	39
01/11/2013 04:55	47.5	41

01/11/2013 05:00	44.5	41
01/11/2013 05:05	47	41
01/11/2013 05:10	53.3	41
01/11/2013 05:15	50.5	41
01/11/2013 05:20	45.8	42
01/11/2013 05:25	49.2	42
01/11/2013 05:30	47.4	42
01/11/2013 05:35	46.3	44
01/11/2013 05:40	48.2	43
01/11/2013 05:45	46.3	44
01/11/2013 05:50	45.1	44
01/11/2013 05:55	45.7	44
01/11/2013 06:00	48.1	44
01/11/2013 06:05	46.5	45
01/11/2013 06:10	47.6	46
01/11/2013 06:15	47.3	46
01/11/2013 06:20	46.9	46
01/11/2013 06:25	48.3	46
01/11/2013 06:30	47.7	46
01/11/2013 06:35	49.8	46
01/11/2013 06:40	50.7	47
01/11/2013 06:45	48.9	47
01/11/2013 06:50	50.1	47
01/11/2013 06:55	49.7	47
01/11/2013 07:00	50.3	47
01/11/2013 07:05	49.3	47
01/11/2013 07:10	49.8	47
01/11/2013 07:15	48.6	47
01/11/2013 07:20	49.4	47
01/11/2013 07:25	49.9	48
01/11/2013 07:30	48.3	46
01/11/2013 07:35	49.4	47
01/11/2013 07:40	48.8	47
01/11/2013 07:45	48.7	47
01/11/2013 07:50	49.6	48
01/11/2013 07:55	49.6	49
01/11/2013 08:00	50.8	48
01/11/2013 08:05	49.5	47
01/11/2013 08:10	51	49
01/11/2013 08:15	50.2	49
01/11/2013 08:20	51.7	48
01/11/2013 08:25	51.8	49
01/11/2013 08:30	49.6	48
01/11/2013 08:35	51.1	49
01/11/2013 08:40	50.1	48

01/11/2013 08:45	50.3	48
01/11/2013 08:50	50.3	48
01/11/2013 08:55	52.9	49
01/11/2013 09:00	51.9	49
01/11/2013 09:05	51.7	48
01/11/2013 09:10	50.3	48
01/11/2013 09:15	50.9	48
01/11/2013 09:20	52	48
01/11/2013 09:25	50.3	48
01/11/2013 09:30	50.2	48
01/11/2013 09:35	50.6	48
01/11/2013 09:40	49.9	48
01/11/2013 09:45	49.9	47
01/11/2013 09:50	50	48
01/11/2013 09:55	49	48
01/11/2013 10:00	52.3	48
01/11/2013 10:05	51.2	48
01/11/2013 10:10	49	46
01/11/2013 10:15	49.6	46
01/11/2013 10:20	51.6	47
01/11/2013 10:25	50.8	48

Appendix 2/6085 – Measured One Hour Daytime Equivalent Noise Levels

Date and Time	$L_{Aeq(1\ hour)}$ dB
31/10/2013 11:00	47.7
31/10/2013 12:00	49.3
31/10/2013 13:00	50.9
31/10/2013 14:00	51.6
31/10/2013 15:00	52.3
31/10/2013 16:00	52.3
31/10/2013 17:00	52.3
31/10/2013 18:00	52.6
31/10/2013 19:00	52.3
31/10/2013 20:00	53.4
31/10/2013 21:00	52.7
31/10/2013 22:00	50.8
01/11/2013 07:00	49.3
01/11/2013 08:00	50.9
01/11/2013 09:00	50.6