

SHARPS REDMORE

ACOUSTIC CONSULTANTS



Report

Ruabon Park, Wrexham

Noise Assessment

Prepared by

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1.0 Introduction

- 1.1 Sharps Redmore (SR) has been instructed by Wynnstay Farming Company Ltd., to produce a Noise Assessment for an outline planning application for the proposed development at the site known as Ruabon Park, Wrexham, located to the south of the A539 at Ruabon. The proposed mixed-use development comprises a foodstore with petrol filling station and associated car parking, Public House/Restaurant, Industrial (B1/B8) units, extra-care facility, residential use and land reserved for a Primary School. Primary access is to be taken off the A539 and B5605.
- 1.2 The application site is located to the south of Ruabon, near Wrexham. SR has been asked to review the proposal with respect to noise resulting from the operation of the development, including commercial and industrial operations and noise impacts on the proposed residential development from existing and future noise sources.
- 1.3 The existing noise climate is dominated by road traffic noise.
- 1.4 The nearest existing noise sensitive areas are situated to the north of the site (properties at Edge of The Woods and The Small Woods) beyond the A539, to the east of the site (properties associated with the James's Touring Caravan Park), to the west of the site fronting on to the B5605 and isolated farm properties to the south and south west (a location plan showing the nearest residential receptors is included at Annex A).
- 1.5 The assessment is based on the NRAP Architects outline Masterplan, topography data, and on site observations.
- 1.6 Source levels have been determined from SoundPLAN library data and from SR's measurement data and experience of assessing mixed-use developments such as this.

2.0 Assessment methodology and criteria

2.1 It is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of a certain noise source may be determined by several methods, as follows:

- *The effect may be determined by reference to guideline noise values. British Standard (BS) 8233:1999 and World Health Organisation (WHO) "Guidelines for Community Noise" contain such guidelines.*
- *Alternatively, the impact may be determined by considering the change in noise level that would result from the proposal, in an appropriate noise index for the characteristic of the noise in question. There are various criteria linking change in noise level to effect. This is the method that is suited to, for example, the assessment of noise from road traffic because it is capable of displaying impact to all properties adjacent to a road link irrespective of their distance from the road.*
- *Another method is to compare the resultant noise level against the background noise level (L_{A90}) of the area. This is the method employed by BS 4142:1997 to determine the likelihood of complaint from noise of an industrial nature. It is best suited to the assessment of steady or pseudo-steady noise.*

Guideline noise values

- 2.2 There are a number of guidance documents that contain recommended guideline noise values. These are discussed below
- 2.3 British Standard 8233:1999 is principally intended to assist in the design of new dwellings; however, the Standard does state that it may be used in the assessment of noise from new sources being brought to existing dwellings.
- 2.4 BS 8233:1999 was based on the advice contained in a draft of World Health Organisation document "Guidelines for Community Noise". This document was released in final form in 2000.
- 2.5 The WHO advice is the most useful, comprehensive, and pertinent advice in this case, because it is not specific to the circumstances of the assessment. Instead, it provides guidance on acceptable limits in, for example, schools, dwellings and offices.
- 2.6 The WHO guideline values are appropriate to what are termed "critical health effects". This means that the limits are at the lowest noise level that would result in any psychological, physiological or sociological effect. They are set at the Lowest Observed Adverse Effect Level (LOAEL), but do not define the level above which effects are significant (the SOAEL). Compliance with the LOAEL should, therefore, be seen as a robust aim.

2.7 The WHO LOAEL guideline values are summarised in the following table:

Value	Guidance	Location
$L_{AeqT} = 55$ dB	Few seriously annoyed, Daytime and evening.	Continuous noise, outdoor living areas
$L_{AeqT} = 50$ dB	Few moderately annoyed, Daytime and evening.	Continuous noise, outdoor living areas
$L_{AeqT} = 35$ dB	Acceptable level to avoid speech interference, daytime and evening.	Continuous noise, Dwellings, indoors
$L_{AeqT} = 45$ dB	To avoid sleep disturbance, window open at night.	Continuous noise, outside bedrooms, outdoor values
$L_{AeqT} = 30$ dB	To avoid sleep disturbance at night.	Continuous noise, Bedrooms, indoors
$L_{AMAX} = 60$ dB	To avoid sleep disturbance, window open at night.	Noise peaks, outside bedrooms, Outdoor values
$L_{AMAX} = 45$ dB	To avoid sleep disturbance at night.	Noise peaks, Bedrooms, indoors

2.8 For L_{AeqT} criteria the time base (T) given in the documents is 16 hours for daytime limits and 8 hours for night time limits. When assessing impact, this has the tendency to smooth out the hourly variations in noise level. As such, our calculations are carried out to a 1 hour time base, which is a more stringent assessment than is given in the guidance documents.

2.9 Where the existing ambient noise level is already above the criteria developed from the various guidance documents, it may be considered unreasonable to adopt such criteria. It would be reasonable, however, to consider criteria which do not exceed the existing noise climate, thus not giving rise to an overall 3 dB increase i.e. the minimum perceptible.

2.10 With the above comments in mind the noise sources will be assessed as follows;

- Car Parking/Vehicle movements/deliveries/operational noise - guideline values and the existing noise climate.
- Mechanical Services Plant – BS 4142

3.0 Noise survey

- 3.1 SR has undertaken noise surveys at the site between 3rd and 4th December 2013. Noise measurements were taken at a locations representative of the nearest existing residential dwellings to the proposed development, and at locations to represent the exposure of the future proposed dwellings to noise from the A539. All measurements were undertaken using Norsonic 118 precision sound level meters (SLM).
- 3.2 The meters were calibrated at the start and at the end of the survey. The equipment used, and the measurement procedures employed, complied with the requirements of BS 4142:1997. Weather conditions were dry, and clear, with a light breeze (<5m/s).
- 3.3 The measurement locations were towards the northern boundary of the site with the A539, the eastern boundary of the site with James's Caravan Park and the south western boundary of the site towards the isolated farm dwellings to the south (See Annex A). Continuous measurements were taken over a 24 hour period.
- 3.4 The existing noise climate in the vicinity of the nearest dwellings was found to be dominated primarily by noise from local road traffic. The survey results are summarised below, the full results are included in Annex D.

Survey Results Summary

Period*	1 – North			2 – East			3 – South-west		
	L _{Aeq} (5min)	L _{A90} (5min)	L _{Amax}	L _{Aeq} (5min)	L _{A90} (5min)	L _{Amax}	L _{Aeq} (5min)	L _{A90} (5min)	L _{Amax}
Daytime	62-68	54-62	69-95	42-63	37-47	47-82	52-57	50-56	56-79
Evening	55-63	38-56	67-82	37-47	32-41	43-62	43-56	37-52	50-76
Night	36-63	28-55	45-78	29-46	25-43	39-66	39-53	30-51	47-62

All results are dB

*Measurement periods are daytime 0700 to 1900, evening 1900 to 2300 and night 2300 to 0700.

4.0 Assessment of potential noise impact

- 4.1 SR has used SoundPLAN 7.2 noise modelling software package, to predict the levels at the nearest dwellings.
- 4.2 SoundPLAN calculates noise levels at defined receptors in accordance with the appropriate standards. The calculation is based on a number of input parameters, including; source noise level data, building construction, barriers, receptor positions, and topography and intervening ground conditions.
- 4.3 The noise contours can be plotted at defined intervals, and height above ground level.
- 4.4 For noise sources other than road traffic, the software uses the ISO 9613 method to predict the noise levels at the nearest dwellings to the proposed activity. Road traffic noise is calculated using the methodology in the "Calculation of Road Traffic Noise" document.
- 4.5 The location and dimensions of the physical elements of the model such as location and dimensions of buildings, have been taken directly from drawings, and satellite images; and from on-site observations.
- 4.6 The source noise levels for the proposed activities have been input directly from SoundPLAN library data, supplemented by SR's own database of commercial and industrial noise sources. The data used is included in Annex B. The following noise sources have been included in the models:
 - Foodstore car park
 - Foodstore delivery (including HGV arrival and departure)
 - Public House car park
 - Public House beer garden
 - Petrol Filling Station forecourt
 - Petrol Filling Station car wash
 - Industrial Units car parking areas
 - Industrial Units delivery
 - Industrial Units internal noise emissions (façade and roof break-out)
- 4.7 For the purpose of the assessment we have assumed a worst case peak hour with all activities occurring simultaneously and continuously. Information on customer activity levels and traffic flows has been obtained from the transport assessment by Connect Consultants Ltd.

Development Activity – Absolute Noise Levels

- 4.8 The predicted cumulative overall noise levels from the proposed activities at the nearest dwellings are shown in the following table. The resultant noise maps (including a plan showing the modelling receptor locations, existing dwellings at locations A to F and future residences at locations 1 to 10) are included in Annex C.

**Cumulative predicted noise levels from all proposed activities
Worst-case, peak hour.**

Receptor	L _{Aeq(1hour)} dB	L _{AMAX} dB
A	40.9	41.2
B	48.9	63.6
C	51.2	58.7
D	45.3	51.2
E	43.4	52.6
F	38.1	35.4

- 4.9 It can be seen that the noise levels from development activity would comply with the World Health Organisation Guidelines by some margin. An exception is the marginal exceedance of the L_{AMAX} sleep disturbance threshold value (60 dB) at Receptor B. Analysis of the results indicates this peak level is generated by a delivery vehicle arrival, and should be set into context with far higher levels generated by traffic (including HGVs) on the A539 at that receptor location (to the north of the dual carriageway). Furthermore, it is not expected that deliveries to the foodstore or PFS would be received at night in any case.
- 4.10 The relative contribution from each of the proposed activities at the nearest dwellings has also been calculated, the results are shown in the table, also generated by the SoundPLAN software - "Source Level Contribution," at Annex C.

Development Activity – Contextual Assessment

- 4.11 In order to assess development noise levels in context with the existing noise environment, SoundPLAN modelling has also been undertaken to include road traffic on surrounding roads. The SoundPLAN models are displayed in Annex C.
- 4.12 A comparison of the future (2023 baseline) noise environment without the development with the future (2023) noise environment with the complete development shows that the change in noise environment, at any receptor, resulting from development activity noise and any changes in road traffic noise are negligible – being less than 3 dB at any existing receptor location.
- 4.13 In other words, the development will have no discernible effect on the existing noise environment, either in relation to development activity, or traffic generation.

Noise at Proposed Dwellings

- 4.14 The “with development” SoundPLAN models have been interrogated to provide noise levels at the facades of a selection of the dwellings shown in the outline Masterplan. This exercise provides an indication as to the level of noise mitigation that may be required to provide acceptable internal noise levels at those dwellings in future. The models used for this exercise include noise emissions from the development itself, so take account of noise from the commercial and industrial elements of the scheme as well as existing (and future) road traffic noise levels.
- 4.15 The results are as follows:

Receptor	L _{Aeq} (Peak Hour) dBA	L _{AMAX} dBA
1	66.1	61.2
2	65.7	47.6
3	59.1	49.7
4	54.8	44.9
5	60.3	57.6
6	56	55.3
7	57.7	55.1
8	49.2	52.3
9	48.6	53.2
10	49.8	48.3

- 4.16 These are “peak hour” (and therefore worst case) noise levels based on the highest level of activity expected, both at the development and on the surrounding road network. The resultant levels indicate that, at locations 1 to 7 during the day and 1 to 10 at night (based on L_{AMAX} levels), some mitigation would be necessary. This would normally take the form of acoustic double-glazing, with ventilation by alternative (acoustically treated) methods such as acoustic air-bricks, or mechanical or passive whole-house ventilation systems.
- 4.17 The receptor locations selected for the purposes of this assessment provide the worst-case results around the exposed edges of the development site, in that they are the nearest receptors to a) the A539, b) the future industrial units and c) the commercial elements (the foodstore car park in particular). Other residential facades internal to the development would be exposed to lower noise levels and the mitigation requirements would not be any more onerous than normal thermal-double glazing.
- 4.18 Given the outline nature of this application, it is considered that details of a scheme of sound insulation for the new dwellings would, as a matter of course, be submitted with any reserved matters/detailed planning application in future. This can be required by planning condition if felt necessary.

5.0 Noise from mechanical services plant

- 5.1 With regard to the assessment of industrial noise sources from commercial premises, British Standard 4142:1997 'Method for Rating industrial noise affecting mixed residential and industrial areas' enables the resultant noise level from proposed new equipment to be compared against the existing background noise level (L_{A90}) of an area to assess the likelihood of complaints.
- 5.2 This standard uses comparisons between the measured background levels at a location representative of the nearest residential properties and the anticipated noise levels from the proposed activities or in this case new plant.
- 5.3 BS 4142:1997 states *"The greater the difference the greater the likelihood of complaints. A difference of around +10 dB or more indicates that complaints are likely. A difference of around +5 dB is of marginal significance. If the rating level is more than 10 dB below the measured background noise level then this is a positive indication that complaints are unlikely."*
- 5.4 The World Health Organisation also provides guideline values for community noise, and recommends levels should not exceed 45 dBA $L_{Aeq(T)}$ outside bedrooms at night, in order to prevent the onset of sleep disturbance.
- 5.5 Based upon the results of the noise survey SR would recommend the following condition should form part of the planning permission:

"The rating level of the noise emitted from all fixed plant shall not exceed 35 dB at any time.

The noise levels shall be determined by measurement or calculation at the nearest existing noise sensitive premises. The measurements and assessment shall be made according to BS 4142:1997. No new fixed plant and/or machinery shall come into operation until details of the fixed plant and machinery serving the development hereby permitted, and any mitigation measures to achieve this condition, are submitted to and approved in writing by the local planning authority"

- 5.6 These limits would apply at existing receptors. Any mitigation measures included within the design of the new residential receptors would also more than adequately control mechanical service noise inside dwellings, and it is not necessary for a noise limit for mechanical services noise to be applied at those dwellings on that basis.

6.0 Conclusions and recommendations

- 6.1 SR has carried out an objective assessment of the likely noise impact from a proposal to create a mixed use development at Ruabon Park, Wrexham.
- 6.2 The predicted worst case ambient (L_{Aeq}) and peak (L_{AMAX}) noise levels from the proposed activity at the nearest existing dwellings would be compliant with the strict WHO guideline values and would not have a significant effect on the existing noise climate at any time. The change in noise environment as a result of the development (including any traffic noise increases) would be negligible.
- 6.3 Noise from both from existing and future (i.e. the development itself) noise sources affecting the proposed residential elements of the development can be mitigated through a scheme of sound insulation, the detailed design of which can be determined at reserved matters stage.
- 6.4 Therefore it is concluded that the site could operate effectively and the development could proceed without any adverse noise impact upon nearby existing residential dwellings or the proposed dwellings within the development itself.

ANNEX A

SITE LOCATION PLAN SHOWING NOISE MEASUREMENT POSITIONS



ANNEX B

SoundPLAN INPUT DATA

Source	SrcType	Lw dB(A)	LwMax dB(A)
Industrial Car Park A	Parking lot	91.91	93
Industrial Car Park B	Parking lot	91.91	93
Industrial Car Park C	Parking lot	87.02	93
Industrial Car Park D	Parking lot	87.02	93
Industrial Car Park E	Parking lot	87.02	93
Pub Car Park	Parking lot	89.3	93
Retail Car Park	Parking lot	101.77	93
Beer Garden	Area	101.57	93
Carwash	Point	84.55	93
PFS1	Point	84.47	93
PFS2	Point	84.47	93
PFS3	Point	84.47	93
PFS4	Point	84.47	93
PFS5	Point	84.47	93
PFS6	Point	84.47	100
PFS ACCESS	Line	70.56	100
Retail Deliver Departure	Line	73.12	108
Retail Delivery Arrival	Line	76.11	108
Retail Delivery Unloading	Point	99.83	100
INDUSTRIAL UNIT Delivery	Line	80.38	103
INDUSTRIAL UNIT Delivery	Line	80.7	103
INDUSTRIAL UNIT Delivery	Line	80.38	103
INDUSTRIAL UNIT Delivery	Line	77.94	103
INDUSTRIAL UNIT Delivery	Line	77.51	103
INDUSTRIAL UNIT Delivery	Line	81.03	103
Roof	Area	89.49	
Roof	Area	89.76	
Roof	Area	91.36	
Roof	Area	87.38	
Roof	Area	89.49	
Roof	Area	90.16	
Roof	Area	89.49	
Roof	Area	88.65	
Facade 1	Area	83.15	
Facade 1	Area	79.17	
Facade 1	Area	80.04	
Facade 1	Area	83.15	
Facade 1	Area	85.37	
Facade 1	Area	78.38	
Facade 1	Area	79.17	
Facade 1	Area	83.15	
Facade 2	Area	86.64	
Facade 2	Area	81.99	
Facade 2	Area	81.99	
Facade 2	Area	84.25	
Facade 2	Area	83.86	

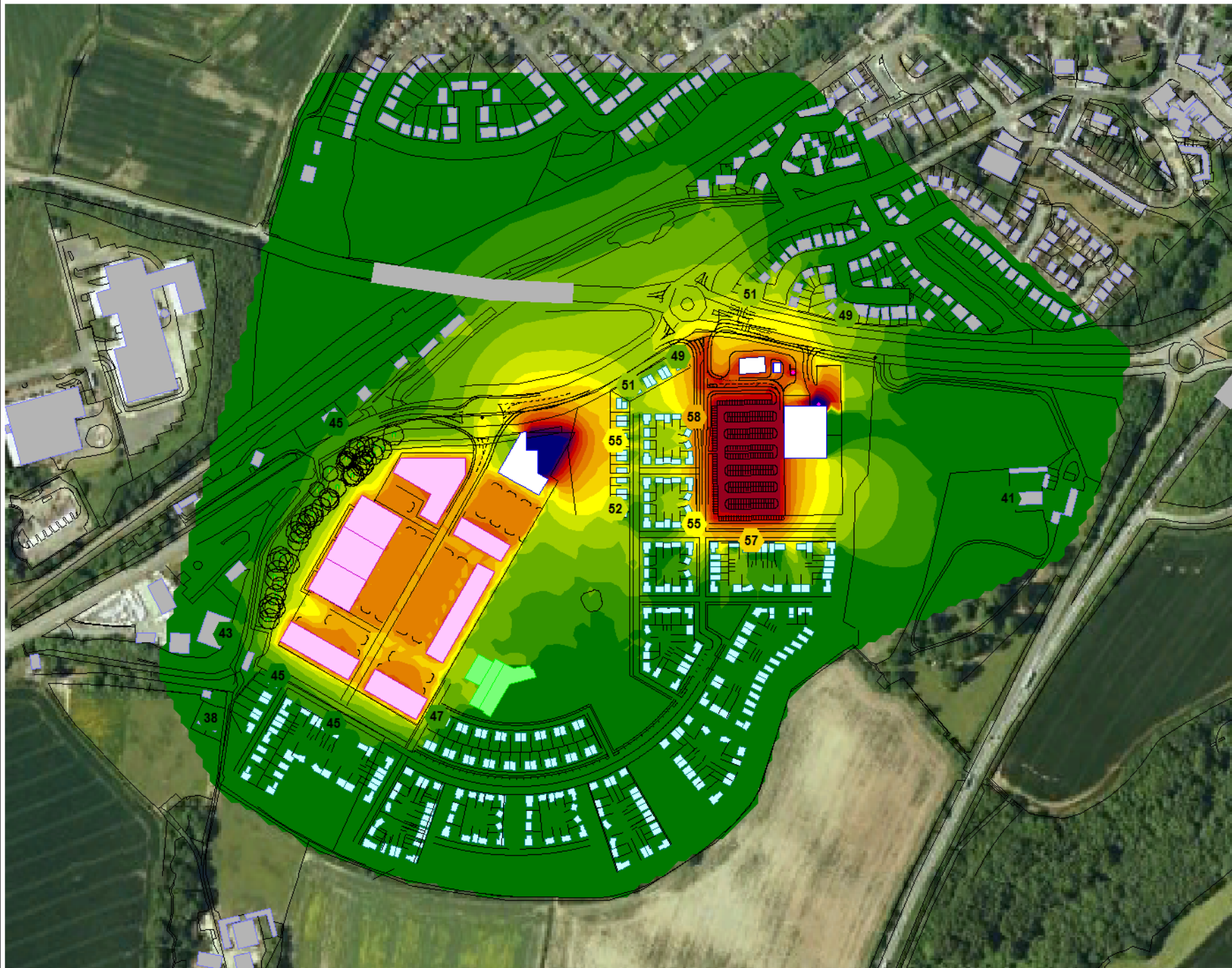
Source	SrcType	Lw dB(A)	LwMax dB(A)
Facade 2	Area	75.57	
Facade 2	Area	81.99	
Facade 2	Area	80.04	
Facade 3	Area	80.04	
Facade 3	Area	79.38	
Facade 3	Area	79.17	
Facade 3	Area	85.37	
Facade 3	Area	79.17	
Facade 3	Area	83.15	
Facade 3	Area	83.15	
Facade 3	Area	83.15	
Facade 4	Area	81.99	
Facade 4	Area	84.25	
Facade 4	Area	83.86	
Facade 4	Area	81.87	
Facade 4	Area	80.04	
Facade 4	Area	81.99	
Facade 4	Area	86.64	
Facade 4	Area	81.99	
Facade 5	Area	79.88	
Facade 6	Area	78.77	
Facade 7	Area	83.87	
Facade 8	Area	75.78	
Facade 9	Area	78.49	
Facade 10	Area	82.9	

ANNEX C

SoundPLAN Noise Models

SoundPLAN Receptor Locations





Noise level
LAeq(T)
(dB)

<= 45	<= 45
45 <	<= 47
47 <	<= 49
49 <	<= 51
51 <	<= 53
53 <	<= 55
55 <	<= 57
57 <	<= 59
59 <	<= 61
61 <	<= 63
63 <	<= 65
65 <	<= 67
67 <	<= 69
69 <	<= 71
71 <	<= 73
73 <	

- Point source
- Residential building
- Proposed Residential
- Wall
- Proposed Ind building
- Point source
- Point receiver
- Proposed School
- Proposed Retail Stor

Ruabon Park

Noise levels from
Proposed Development
LAeq(Peak Hour)

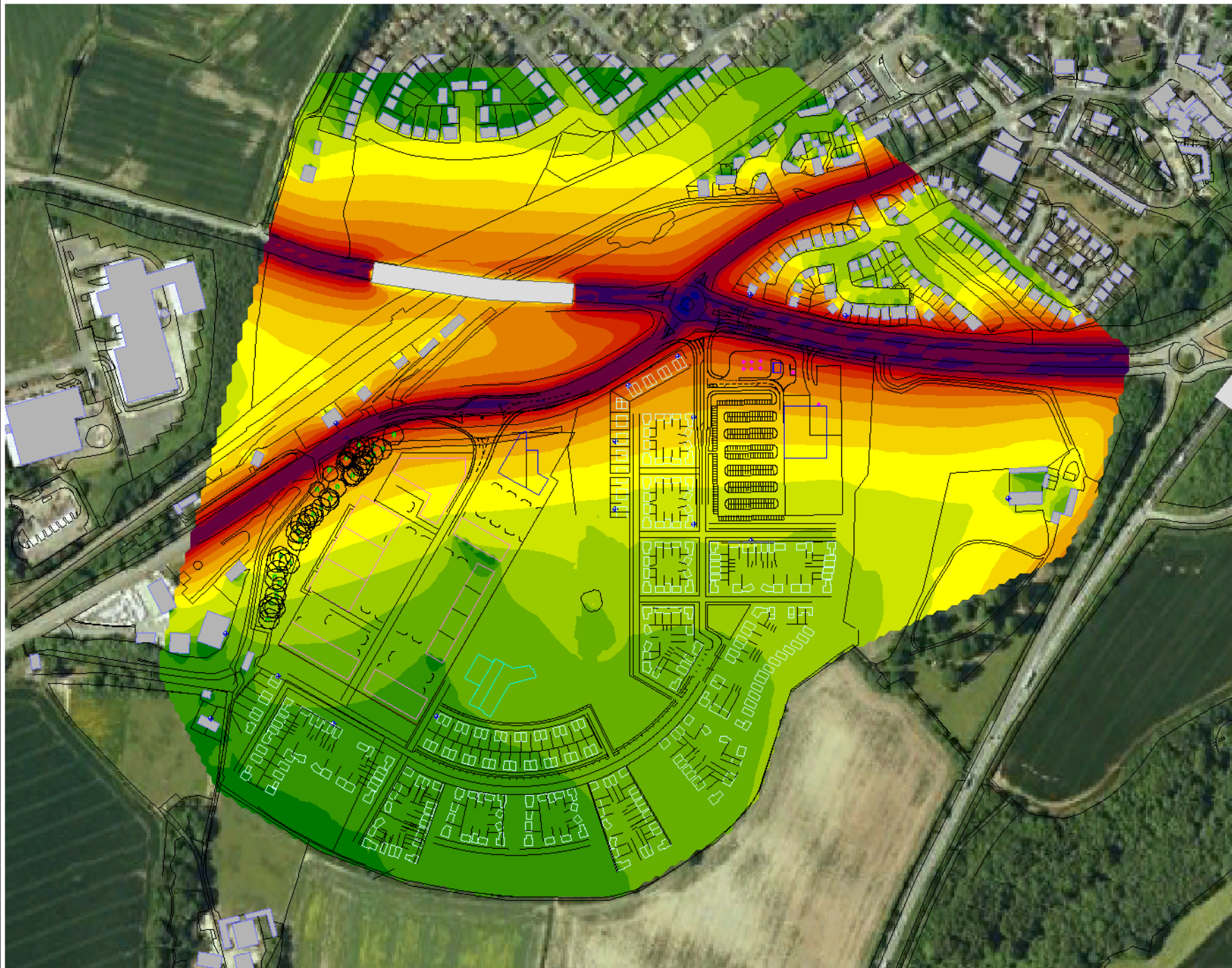
Date: 11.12.2013

Project No:

Consultant:

Scale 1:5000

0 20 40 80 120 160
m



Noise level
LAeq(T)
(dB)

<= 45	<= 45
45 <	<= 47
47 <	<= 49
49 <	<= 51
51 <	<= 53
53 <	<= 55
55 <	<= 57
57 <	<= 59
59 <	<= 61
61 <	<= 63
63 <	<= 65
65 <	<= 67
67 <	<= 69
69 <	<= 71
71 <	<= 73
73 <	

- Point source
- Residential building
- Proposed Residential
- Wall
- Proposed Ind building
- Point source
- Point receiver
- Proposed School
- Proposed Retail Stor

Ruabon Park

2023 Baseline
LAeq(Peak Hour)

Date: 11.12.2013

Project No:

Consultant:

Scale 1:5000

0 20 40 80 120 160 m



Noise level
LAeq(T)
(dB)

<=	45
45 <	<= 47
47 <	<= 49
49 <	<= 51
51 <	<= 53
53 <	<= 55
55 <	<= 57
57 <	<= 59
59 <	<= 61
61 <	<= 63
63 <	<= 65
65 <	<= 67
67 <	<= 69
69 <	<= 71
71 <	<= 73

- Point source
- Residential building
- Proposed Residential
- Wall
- Proposed Ind building
- Point source
- Point receiver
- Proposed School
- Proposed Retail Store

Ruabon Park

2023 With Development
LAeq(Peak Hour)

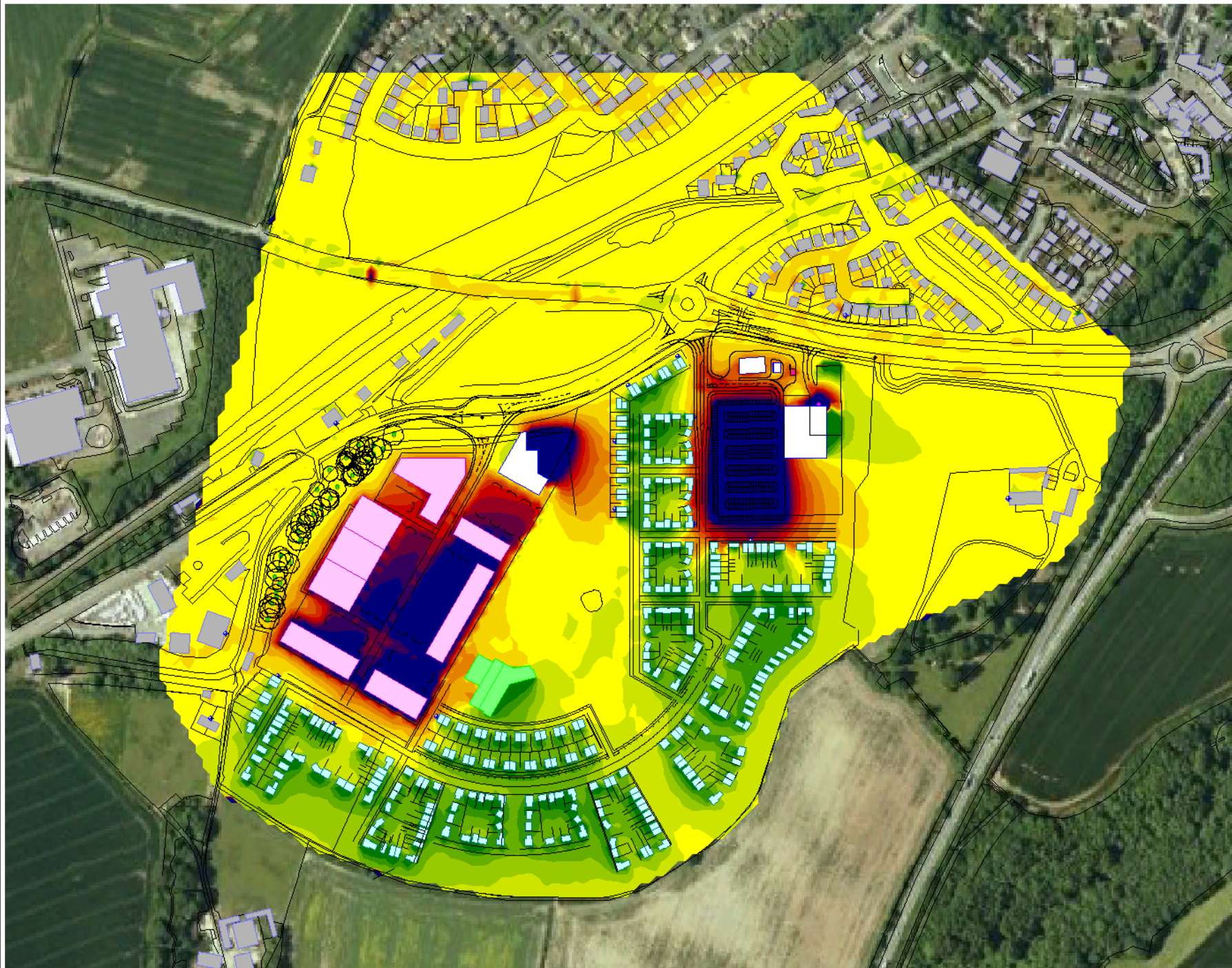
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Project No:

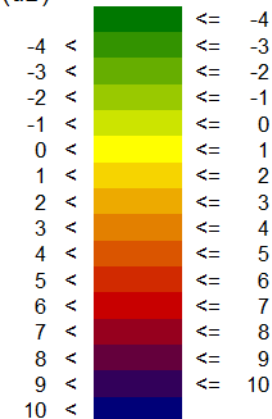
Consultant:

Scale 1:5000

0 20 40 80 120 160 m



Noise level
LAeq(T)
(dB)



- Point source
- Residential building
- Proposed Residential
- Wall
- Proposed Ind buildir
- Point source
- Point receiver
- Proposed School
- Proposed Retail Stor

Ruabon Park

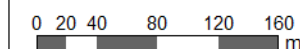
Change in Noise Level
2023 Baseline Vs
2023 With Development
LAeq(Peak Hour)

Date: 11.12.2013

Project No:

Consultant:

Scale 1:5000



Receptor	A		B		C		D		E		F	
Source	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz
Carwash	15.9	24.3	35.0	43.4	31.9	40.3	11.6	20.0	1.8	10.3	0.0	7.4
Beer Garden	35.6	28.5	39.0	33.1	40.8	35.8	32.2	34.9	20.3	14.7	18.6	13.3
Retail Car Park	38.6	30.5	44.2	39.8	47.2	40.4	35.0	26.9	28.9	19.7	26.4	16.3
Retail Delivery Unloading	23.3	23.5	43.8	43.9	44.7	44.9	27.1	27.2	10.6	10.8	9.3	9.5
Retail Delivery Arrival	3.4	41.2	25.0	63.6	21.9	57.2	5.2	39.0	0.0	27.2	0.0	24.2
Retail Deliver Departure	2.3	39.9	24.9	63.0	21.6	58.7	3.1	38.1	-7.3	29.3	0.0	25.0
Pub Car Park	19.2	22.6	19.5	23.8	20.9	24.8	23.7	26.3	18.4	22.6	16.5	21.1
PFS6	11.2	26.7	29.1	44.6	33.5	49.0	15.1	30.7	4.8	20.3	2.3	17.9
PFS5	12.5	21.0	29.9	38.4	33.7	42.2	15.3	23.9	5.3	13.8	2.3	10.9
PFS4	16.8	25.3	30.8	39.3	33.6	42.1	16.0	24.5	4.8	13.3	2.1	10.7
PFS3	15.0	23.5	29.4	37.9	34.4	42.9	15.1	23.6	5.3	13.8	2.6	11.1
PFS2	16.5	25.0	30.0	38.6	34.6	43.1	15.1	23.6	5.6	14.1	2.3	10.9
PFS1	12.2	20.8	30.9	39.5	34.5	43.0	14.7	23.2	6.2	14.7	3.1	11.6
PFS ACCESS	21.8	33.2	39.4	50.0	42.8	51.2	24.4	30.8	13.9	20.0	12.0	17.5
INDUSTRIAL UNIT Delivery	0.6	28.6	3.8	33.2	9.5	40.6	20.2	51.2	5.7	33.9	1.7	30.7
INDUSTRIAL UNIT Delivery	1.8	28.6	4.9	33.2	9.9	40.6	20.4	51.2	17.6	52.6	2.9	30.2
INDUSTRIAL UNIT Delivery	0.6	28.6	3.8	33.2	9.5	40.6	20.2	51.2	5.7	33.9	1.7	30.7
INDUSTRIAL UNIT Delivery	0.1	29.8	3.5	33.2	9.7	40.6	19.5	51.2	0.8	29.9	0.0	25.6
INDUSTRIAL UNIT Delivery	-1.0	30.1	3.1	33.2	9.4	40.6	20.1	51.2	0.0	29.2	0.0	26.4
INDUSTRIAL UNIT Delivery	0.2	28.6	4.7	33.2	10.0	40.6	20.3	51.2	7.1	33.7	2.5	27.8
Industrial Car Park E	9.3	17.1	10.8	18.9	11.5	19.4	19.4	26.8	16.7	25.2	12.6	20.7
Industrial Car Park D	11.1	18.3	12.8	20.8	13.4	21.4	20.0	35.5	28.5	43.6	17.4	35.4
Industrial Car Park C	6.6	17.1	9.4	18.2	10.6	19.6	35.7	33.3	15.0	35.5	11.0	30.2
Industrial Car Park B	16.5	18.6	17.5	20.3	18.0	21.9	28.5	37.9	24.5	31.4	20.5	24.6
Industrial Car Park A	13.9	18.4	16.0	19.4	16.5	19.5	29.6	35.4	25.6	29.9	20.4	23.2
Facade 9	0.0		0.0		3.9		30.3		16.2		8.8	
Facade 8	0.0		8.5		11.1		27.1		3.8		0.0	
Facade 7	4.4		16.5		20.2		32.4		9.0		6.2	
Facade 6	8.1		11.8		15.0		12.5		2.9		0.4	
Facade 5	9.9		12.4		14.6		11.5		6.7		2.2	
Facade 4	11.1		12.5		13.6		16.3		10.3		7.0	
Facade 4	12.4		13.2		14.0		20.6		13.4		11.5	
Facade 4	8.5		7.6		8.1		15.9		19.3		16.7	
Facade 4	12.7		14.4		15.9		16.3		8.4		4.9	
Facade 4	7.9		9.6		10.5		7.5		17.3		12.6	
Facade 4	10.4		12.3		13.6		11.4		15.4		10.1	
Facade 4	16.5		18.5		19.8		15.3		14.3		11.7	
Facade 4	10.9		12.8		13.9		15.5		12.1		8.3	
Facade 3	8.4		9.9		11.1		4.4		8.5		6.3	

Receptor	A		B		C		D		E		F	
Source	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz	LAeq(PkHr)	LAmaz
Facade 3	-1.7		0.2		1.6		23.2		14.3		12.2	
Facade 3	6.6		6.5		6.9		15.5		13.8		11.9	
Facade 3	1.8		3.0		3.8		12.5		35.8		30.1	
Facade 3	-2.7		-1.5		4.9		4.7		15.0		12.6	
Facade 3	1.5		-33.6		3.2		14.7		24.6		19.0	
Facade 3	0.8		-44.5		3.9		16.9		22.1		17.1	
Facade 3	0.0		1.4		2.8		17.8		31.2		23.3	
Facade 2	5.2		6.8		8.0		26.6		23.8		19.4	
Facade 2	-0.6		0.5		1.8		27.1		29.6		23.3	
Facade 2	-0.8		1.0		2.5		29.3		26.9		21.0	
Facade 2	1.4		2.4		3.2		8.8		27.0		21.0	
Facade 2	15.0		16.8		17.7		21.2		8.1		6.1	
Facade 2	-5.9		-3.8		-2.3		24.7		11.0		8.4	
Facade 2	-0.3		1.6		3.3		32.2		25.2		19.4	
Facade 2	-3.8		-2.5		-1.2		21.9		33.9		26.3	
Facade 10	1.4		3.6		7.3		27.3		18.7		14.1	
Facade 1	11.3		13.7		15.1		33.2		12.9		8.9	
Facade 1	10.9		12.7		13.8		6.5		3.9		1.3	
Facade 1	0.2		-1.4		-0.7		16.0		20.9		17.4	
Facade 1	10.6		-33.6		13.4		24.4		14.4		9.9	
Facade 1	12.6		13.9		14.8		23.8		27.1		18.7	
Facade 1	-3.0		-0.7		1.0		26.1		12.4		9.9	
Facade 1	9.8		6.8		6.7		17.6		3.8		1.9	
Facade 1	10.1		-44.5		14.0		26.3		12.2		8.2	
Roof	16.5		18.7		20.1		33.6		27.6		22.5	
Roof	15.4		17.2		18.2		26.8		35.0		30.8	
Roof	19.3		22.0		23.8		35.3		26.3		22.6	
Roof	16.5		18.5		19.3		25.6		21.4		19.1	
Roof	16.2		18.2		19.5		31.5		29.3		24.2	
Roof	18.4		20.0		20.8		27.4		24.8		21.8	
Roof	15.8		17.7		18.8		29.6		32.0		26.5	
Roof	15.6		16.7		17.4		23.7		26.7		22.6	

ANNEX D

Noise Survey Data

Date & Time	LOCATION 1			LOCATION 2			LOCATION 3		
	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90
(2013/12/03 14:00:29.00)	67.7	95.1	54.5						
(2013/12/03 14:05:00.00)	65.9	87.4	57.1						
(2013/12/03 14:10:00.00)	64.4	71.6	57.7						
(2013/12/03 14:15:00.00)	64.0	75.0	57.1						
(2013/12/03 14:20:00.00)	64.4	72.7	57.0				54.9	65.7	53.1
(2013/12/03 14:25:00.00)	63.0	71.8	55.8				53.5	61.5	52.0
(2013/12/03 14:30:00.00)	63.6	72.6	56.9				54.2	60.7	52.2
(2013/12/03 14:35:00.00)	65.2	74.6	58.3				54.6	64.3	52.2
(2013/12/03 14:40:00.00)	65.4	76.8	57.9				54.7	68.8	52.7
(2013/12/03 14:45:00.00)	65.2	78.0	58.7	63.1	81.6	42.6	55.0	62.1	52.7
(2013/12/03 14:50:00.00)	63.4	70.9	57.4	53.4	74.2	42.4	54.5	63.6	52.7
(2013/12/03 14:55:00.00)	64.0	72.4	57.5	49.1	69.9	42.8	54.4	65.4	52.2
(2013/12/03 15:00:00.00)	64.3	72.7	57.4	57.3	76.3	41.5	55.0	68.8	53.1
(2013/12/03 15:05:00.00)	64.3	76.9	57.2	45.1	59.1	42.6	55.6	71.2	53.8
(2013/12/03 15:10:00.00)	64.0	71.9	58.1	44.6	59.9	42.0	54.0	60.2	52.4
(2013/12/03 15:15:00.00)	64.9	76.2	59.0	44.4	50.1	42.4	55.2	62.6	53.8
(2013/12/03 15:20:00.00)	64.6	74.6	58.6	45.4	66.3	40.7	54.9	70.1	53.4
(2013/12/03 15:25:00.00)	65.1	78.1	59.1	44.4	67.2	41.6	55.0	61.1	53.5
(2013/12/03 15:30:00.00)	64.2	73.9	58.4	45.5	61.3	42.3	54.4	61.5	52.9
(2013/12/03 15:35:00.00)	64.1	71.0	57.6	45.5	68.4	40.7	54.1	59.1	52.6
(2013/12/03 15:40:00.00)	64.3	72.4	57.8	45.1	58.8	42.5	53.5	59.3	52.1
(2013/12/03 15:45:00.00)	65.3	73.9	58.0	47.3	70.9	42.4	54.6	68.8	52.3
(2013/12/03 15:50:00.00)	64.7	72.5	58.7	44.0	55.0	41.1	53.6	58.7	51.9
(2013/12/03 15:55:00.00)	65.4	82.6	57.3	46.8	61.1	41.5	54.3	61.1	52.8
(2013/12/03 16:00:00.00)	64.8	72.3	56.9	45.1	68.8	41.5	54.6	60.7	53.2
(2013/12/03 16:05:00.00)	63.8	71.3	58.0	45.5	57.5	41.6	53.8	61.3	52.0
(2013/12/03 16:10:00.00)	66.0	74.3	61.1	45.0	53.8	42.5	55.1	67.9	53.3
(2013/12/03 16:15:00.00)	64.7	72.3	59.1	45.8	56.4	42.8	54.0	60.4	52.6
(2013/12/03 16:20:00.00)	65.0	71.1	59.4	46.0	58.7	42.5	53.6	59.9	52.2
(2013/12/03 16:25:00.00)	64.2	71.9	57.7	57.2	81.9	42.4	53.0	56.8	51.7
(2013/12/03 16:30:00.00)	65.3	71.8	59.4	50.3	67.5	42.6	53.7	58.4	52.3
(2013/12/03 16:35:00.00)	64.6	75.7	57.1	50.8	71.0	42.7	53.4	57.9	51.5
(2013/12/03 16:40:00.00)	65.0	71.6	60.0	43.7	49.0	41.7	53.5	58.4	52.0
(2013/12/03 16:45:00.00)	64.4	71.0	58.3	52.4	71.7	41.3	53.5	57.4	52.2
(2013/12/03 16:50:00.00)	64.7	73.6	60.1	45.1	67.6	41.5	54.1	58.7	52.8
(2013/12/03 16:55:00.00)	64.3	70.9	58.7	45.0	65.6	42.6	54.0	57.7	52.3
(2013/12/03 17:00:00.00)	65.1	73.0	59.5	44.3	49.0	41.7	54.3	58.8	52.8
(2013/12/03 17:05:00.00)	64.8	72.1	59.2	45.7	71.6	42.2	54.6	59.3	53.2
(2013/12/03 17:10:00.00)	65.1	72.9	60.8	45.7	49.6	43.7	55.1	59.6	53.4
(2013/12/03 17:15:00.00)	65.6	72.2	61.6	45.6	50.4	43.9	55.0	58.7	53.6
(2013/12/03 17:20:00.00)	65.0	72.1	60.3	44.8	49.0	42.9	54.2	58.4	53.0
(2013/12/03 17:25:00.00)	65.3	77.1	60.3	45.0	53.8	43.3	54.4	59.4	52.9
(2013/12/03 17:30:00.00)	63.7	70.1	57.7	44.6	48.8	41.8	54.2	63.2	52.4
(2013/12/03 17:35:00.00)	64.5	71.1	59.3	44.5	67.7	39.6	53.9	57.8	52.1
(2013/12/03 17:40:00.00)	64.4	71.6	58.6	44.7	53.0	41.6	54.5	60.3	53.0
(2013/12/03 17:45:00.00)	64.6	71.4	58.2	43.0	48.3	41.3	53.6	57.5	51.7
(2013/12/03 17:50:00.00)	64.9	72.2	58.5	43.8	50.5	41.3	54.1	60.5	52.7
(2013/12/03 17:55:00.00)	63.9	72.1	57.5	43.8	46.6	42.4	53.8	57.5	52.3
(2013/12/03 18:00:00.00)	64.8	81.6	58.2	43.5	51.2	40.9	53.3	56.8	51.5
(2013/12/03 18:05:00.00)	63.9	70.2	58.1	44.3	58.6	41.3	53.9	58.2	52.5
(2013/12/03 18:10:00.00)	63.4	71.5	57.1	43.2	48.0	39.3	53.0	56.3	51.4
(2013/12/03 18:15:00.00)	64.4	70.9	57.1	44.0	50.8	41.4	53.6	57.3	51.8
(2013/12/03 18:20:00.00)	64.2	73.8	57.0	42.9	46.9	39.9	53.2	57.3	51.8
(2013/12/03 18:25:00.00)	62.7	72.3	55.8	44.0	55.4	39.9	53.4	57.3	51.9
(2013/12/03 18:30:00.00)	62.7	69.1	55.7	42.8	48.0	37.3	52.9	57.7	51.1
(2013/12/03 18:35:00.00)	63.7	72.4	56.1	44.4	56.2	40.8	53.3	57.5	51.9
(2013/12/03 18:40:00.00)	63.5	71.7	55.8	43.7	51.7	41.3	53.3	57.2	52.0
(2013/12/03 18:45:00.00)	62.3	69.2	55.6	42.5	53.5	40.1	52.7	55.5	51.1
(2013/12/03 18:50:00.00)	62.8	70.9	55.2	42.1	49.5	38.9	52.1	56.0	50.7
(2013/12/03 18:55:00.00)	63.2	71.9	55.3	41.9	47.9	39.0	52.3	60.9	50.2
(2013/12/03 19:00:00.00)	63.2	73.3	54.0	41.1	47.6	37.6	51.8	55.6	50.1

Date & Time	LOCATION 1			LOCATION 2			LOCATION 3		
	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90
(2013/12/03 19:05:00.00)	62.5	71.0	54.6	40.8	45.9	37.9	51.7	56.0	50.0
(2013/12/03 19:10:00.00)	63.3	74.7	55.4	43.2	54.4	38.6	52.1	56.7	50.4
(2013/12/03 19:15:00.00)	61.8	72.9	54.2	46.5	61.7	40.7	52.2	57.1	50.0
(2013/12/03 19:20:00.00)	62.0	76.0	53.6	41.0	45.7	38.7	52.0	58.0	49.6
(2013/12/03 19:25:00.00)	62.1	71.6	52.6	41.2	46.6	37.6	52.1	59.4	49.5
(2013/12/03 19:30:00.00)	62.3	73.1	55.0	41.3	46.4	38.6	52.0	57.9	49.6
(2013/12/03 19:35:00.00)	60.4	70.2	51.7	41.4	46.6	38.8	51.0	56.7	48.2
(2013/12/03 19:40:00.00)	62.5	71.2	52.1	41.5	46.0	39.1	51.8	55.7	50.2
(2013/12/03 19:45:00.00)	62.2	70.2	54.8	40.0	44.9	37.1	50.5	55.4	48.5
(2013/12/03 19:50:00.00)	63.0	72.7	54.6	40.7	44.7	38.4	51.3	59.4	49.4
(2013/12/03 19:55:00.00)	61.6	75.8	51.4	40.3	46.5	37.3	50.5	57.0	47.5
(2013/12/03 20:00:00.00)	61.9	71.9	54.3	41.3	47.8	38.2	50.8	55.5	48.7
(2013/12/03 20:05:00.00)	62.3	70.8	52.8	42.3	49.8	38.9	51.2	56.5	47.9
(2013/12/03 20:10:00.00)	63.1	71.4	55.9	42.7	52.6	37.8	51.9	57.0	49.8
(2013/12/03 20:15:00.00)	62.0	71.2	54.5	43.1	49.4	39.7	51.6	59.0	48.9
(2013/12/03 20:20:00.00)	60.6	70.2	52.4	42.5	48.4	38.0	51.2	58.0	48.0
(2013/12/03 20:25:00.00)	60.0	70.1	52.6	40.4	47.7	37.4	51.2	59.8	48.4
(2013/12/03 20:30:00.00)	59.4	67.9	52.2	41.5	46.9	38.6	52.4	60.2	49.8
(2013/12/03 20:35:00.00)	61.2	73.5	52.7	42.5	50.6	39.2	53.5	76.0	50.3
(2013/12/03 20:40:00.00)	61.7	77.9	51.9	41.6	46.7	38.7	52.4	71.1	49.5
(2013/12/03 20:45:00.00)	60.2	69.2	52.4	42.8	53.2	37.9	51.6	56.9	49.2
(2013/12/03 20:50:00.00)	61.6	78.1	49.7	43.7	50.9	41.1	56.2	66.4	51.3
(2013/12/03 20:55:00.00)	60.4	69.5	50.0	44.0	50.8	41.0	55.2	61.3	52.0
(2013/12/03 21:00:00.00)	61.5	74.5	53.4	41.9	47.3	38.5	53.0	58.9	50.8
(2013/12/03 21:05:00.00)	59.8	69.5	51.2	42.7	50.2	39.0	51.9	58.4	49.4
(2013/12/03 21:10:00.00)	59.5	71.7	50.1	40.1	46.0	37.1	52.9	59.2	50.1
(2013/12/03 21:15:00.00)	59.4	69.5	50.7	40.7	48.2	34.1	50.5	59.3	47.8
(2013/12/03 21:20:00.00)	59.1	71.4	44.6	41.6	51.7	35.8	49.0	57.1	44.7
(2013/12/03 21:25:00.00)	60.4	70.2	52.2	38.5	45.6	34.2	48.4	52.9	46.1
(2013/12/03 21:30:00.00)	57.5	69.7	45.2	37.8	45.1	31.9	47.5	55.0	42.8
(2013/12/03 21:35:00.00)	57.9	72.4	45.7	38.6	45.7	34.0	47.7	55.5	43.1
(2013/12/03 21:40:00.00)	58.2	71.1	46.4	38.7	45.5	35.5	47.0	51.8	42.3
(2013/12/03 21:45:00.00)	58.0	73.6	43.6	39.3	46.0	35.5	47.1	51.8	42.8
(2013/12/03 21:50:00.00)	57.8	70.8	45.0	39.6	45.7	36.4	47.6	51.3	44.4
(2013/12/03 21:55:00.00)	56.6	68.9	42.3	40.3	47.8	36.6	46.3	52.1	42.7
(2013/12/03 22:00:00.00)	59.7	71.1	46.1	39.1	45.6	35.5	46.4	51.9	42.0
(2013/12/03 22:05:00.00)	59.1	72.2	46.8	39.9	47.1	34.8	46.1	50.4	42.8
(2013/12/03 22:10:00.00)	59.7	71.4	47.5	39.4	46.8	36.7	46.3	52.7	43.3
(2013/12/03 22:15:00.00)	59.1	69.4	45.9	40.5	51.0	36.3	46.2	50.8	42.1
(2013/12/03 22:20:00.00)	54.9	66.5	43.4	41.4	51.8	36.9	44.9	50.4	40.3
(2013/12/03 22:25:00.00)	56.3	67.8	44.6	40.2	50.0	37.3	45.6	49.8	42.1
(2013/12/03 22:30:00.00)	57.9	68.8	42.2	42.0	50.5	37.6	45.4	51.3	40.2
(2013/12/03 22:35:00.00)	54.9	71.8	39.1	40.3	47.6	35.8	45.2	52.0	40.8
(2013/12/03 22:40:00.00)	58.1	73.0	41.5	39.4	46.9	35.6	44.7	50.5	39.9
(2013/12/03 22:45:00.00)	61.5	81.8	37.7	36.9	47.1	32.6	42.6	51.2	36.7
(2013/12/03 22:50:00.00)	57.2	70.2	38.3	38.6	54.9	35.4	46.0	57.0	37.8
(2013/12/03 22:55:00.00)	57.2	69.6	42.3	37.6	43.2	34.3	44.7	50.7	40.3
(2013/12/03 23:00:00.00)	57.7	68.7	46.4	36.9	46.1	34.1	43.7	51.0	36.8
(2013/12/03 23:05:00.00)	54.9	66.9	41.9	39.2	48.6	34.9	43.8	49.9	38.2
(2013/12/03 23:10:00.00)	59.9	72.0	45.0	41.5	50.7	37.8	45.4	51.0	39.7
(2013/12/03 23:15:00.00)	55.2	69.3	37.2	40.8	51.3	36.6	42.8	53.4	34.8
(2013/12/03 23:20:00.00)	49.2	62.5	38.9	39.7	53.5	34.9	43.5	49.9	35.1
(2013/12/03 23:25:00.00)	56.0	68.1	42.2	39.6	48.5	35.8	44.0	50.0	37.1
(2013/12/03 23:30:00.00)	54.5	68.1	39.5	38.7	46.6	35.4	44.3	50.2	38.7
(2013/12/03 23:35:00.00)	50.1	64.4	36.6	36.5	43.6	32.9	43.2	49.0	38.1
(2013/12/03 23:40:00.00)	55.5	70.1	40.2	38.2	47.5	32.5	42.4	50.1	37.3
(2013/12/03 23:45:00.00)	52.9	67.3	39.6	39.3	52.5	31.5	43.4	49.9	38.9
(2013/12/03 23:50:00.00)	53.1	65.8	39.2	38.6	50.9	32.4	43.3	53.0	38.5
(2013/12/03 23:55:00.00)	51.0	68.6	36.6	41.0	65.6	33.4	44.6	52.1	39.2
(2013/12/04 00:00:00.00)	54.4	67.5	41.2	35.4	49.9	31.0	43.2	50.5	36.9
(2013/12/04 00:05:00.00)	51.8	65.0	38.6	36.7	50.9	31.2	44.2	50.7	38.2

Date & Time	LOCATION 1			LOCATION 2			LOCATION 3		
	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90
(2013/12/04 00:10:00.00)	53.4	69.7	39.0	35.4	45.3	31.4	43.6	52.8	38.1
(2013/12/04 00:15:00.00)	51.0	66.7	34.0	36.0	45.3	29.4	45.1	54.5	35.9
(2013/12/04 00:20:00.00)	52.8	70.4	37.5	32.7	43.7	29.5	43.7	50.7	39.7
(2013/12/04 00:25:00.00)	45.3	60.4	36.5	33.6	43.0	28.4	43.7	52.8	38.5
(2013/12/04 00:30:00.00)	49.5	68.8	34.5	32.6	41.2	28.2	43.4	56.2	38.7
(2013/12/04 00:35:00.00)	51.6	67.6	34.3	33.1	44.8	28.0	43.0	49.6	35.5
(2013/12/04 00:40:00.00)	50.5	68.5	29.8	32.3	41.0	27.8	42.3	53.3	36.4
(2013/12/04 00:45:00.00)	42.0	59.5	32.3	33.3	42.5	27.4	43.6	52.5	32.1
(2013/12/04 00:50:00.00)	57.0	74.2	32.5	31.6	56.2	28.0	40.0	58.0	33.1
(2013/12/04 00:55:00.00)	52.6	73.7	34.7	34.6	46.9	28.8	45.0	54.0	40.7
(2013/12/04 01:00:00.00)	49.3	70.6	31.8	33.9	44.3	29.6	40.6	47.8	33.5
(2013/12/04 01:05:00.00)	52.5	72.8	34.8	32.4	45.1	26.9	41.1	52.1	35.1
(2013/12/04 01:10:00.00)	42.6	57.3	35.5	33.1	48.8	28.5	44.5	54.3	38.7
(2013/12/04 01:15:00.00)	50.0	67.1	32.2	33.5	45.7	28.8	44.5	55.2	37.7
(2013/12/04 01:20:00.00)	47.5	66.7	33.7	32.0	47.7	28.1	43.5	55.4	37.3
(2013/12/04 01:25:00.00)	39.0	51.9	33.1	31.6	38.9	28.9	41.0	49.0	34.0
(2013/12/04 01:30:00.00)	50.5	64.1	31.4	34.1	50.1	28.1	41.5	55.3	32.1
(2013/12/04 01:35:00.00)	46.8	66.1	32.0	32.1	45.4	27.3	40.3	50.2	33.4
(2013/12/04 01:40:00.00)	48.2	66.4	33.6	32.4	42.5	28.9	42.7	49.6	35.2
(2013/12/04 01:45:00.00)	50.8	70.8	28.7	30.7	38.9	27.1	41.1	49.7	33.4
(2013/12/04 01:50:00.00)	49.7	68.2	33.5	38.0	52.5	25.6	43.4	53.3	35.1
(2013/12/04 01:55:00.00)	35.6	44.5	29.5	34.1	46.2	26.8	43.1	54.3	37.4
(2013/12/04 02:00:00.00)	46.3	63.6	29.3	31.1	39.5	27.4	42.2	48.8	35.9
(2013/12/04 02:05:00.00)	49.1	69.8	27.5	31.9	44.8	27.2	39.6	49.1	31.2
(2013/12/04 02:10:00.00)	52.6	68.4	34.5	30.2	41.2	25.5	38.6	46.6	31.0
(2013/12/04 02:15:00.00)	44.3	59.8	28.3	30.9	41.2	28.0	41.6	49.7	33.8
(2013/12/04 02:20:00.00)	55.0	74.2	32.2	29.2	43.2	24.6	41.1	56.0	30.0
(2013/12/04 02:25:00.00)	49.7	67.1	36.2	34.7	61.1	29.7	41.8	49.5	32.1
(2013/12/04 02:30:00.00)	50.1	69.0	33.6	33.8	40.7	31.6	43.2	51.2	34.3
(2013/12/04 02:35:00.00)	50.2	69.5	33.3	34.5	44.1	28.6	41.5	50.1	33.0
(2013/12/04 02:40:00.00)	42.5	58.5	28.4	33.1	45.1	25.6	39.9	49.5	31.2
(2013/12/04 02:45:00.00)	47.9	66.6	33.4	32.9	41.7	26.6	44.2	51.9	31.5
(2013/12/04 02:50:00.00)	49.7	66.9	32.5	34.7	45.6	30.0	41.1	47.9	32.9
(2013/12/04 02:55:00.00)	49.8	63.2	34.6	36.1	46.6	28.8	42.5	52.2	35.4
(2013/12/04 03:00:00.00)	48.7	64.9	35.5	33.0	44.5	28.3	42.2	50.6	31.8
(2013/12/04 03:05:00.00)	55.2	71.4	36.4	33.3	42.5	30.0	44.1	51.6	36.1
(2013/12/04 03:10:00.00)	52.5	72.1	31.8	34.0	43.7	27.8	41.9	49.7	35.6
(2013/12/04 03:15:00.00)	52.2	68.6	34.7	39.3	48.2	26.5	48.1	59.9	32.3
(2013/12/04 03:20:00.00)	48.7	63.0	32.7	37.5	50.0	30.6	46.1	52.9	40.6
(2013/12/04 03:25:00.00)	48.7	69.0	33.7	38.9	66.1	31.5	44.0	56.4	39.0
(2013/12/04 03:30:00.00)	54.7	76.9	36.3	37.4	51.2	31.9	48.4	57.5	44.0
(2013/12/04 03:35:00.00)	38.5	60.8	33.8	39.9	53.6	32.1	45.9	54.4	40.2
(2013/12/04 03:40:00.00)	50.3	69.5	33.6	36.5	47.6	32.1	46.0	57.0	39.5
(2013/12/04 03:45:00.00)	51.8	66.5	34.6	38.3	54.0	33.8	46.4	54.4	41.8
(2013/12/04 03:50:00.00)	46.1	65.5	33.9	35.3	49.9	31.2	46.2	57.2	41.8
(2013/12/04 03:55:00.00)	43.6	57.5	34.7	39.1	53.1	31.0	45.7	52.1	41.7
(2013/12/04 04:00:00.00)	51.6	66.2	33.5	39.1	52.3	30.9	47.2	56.2	39.2
(2013/12/04 04:05:00.00)	50.2	65.0	33.8	38.2	49.8	33.5	47.2	55.4	41.4
(2013/12/04 04:10:00.00)	46.2	63.1	32.5	33.3	40.0	31.0	45.4	51.9	40.5
(2013/12/04 04:15:00.00)	50.6	64.2	33.8	33.8	41.6	31.0	46.4	53.6	39.5
(2013/12/04 04:20:00.00)	49.2	66.8	34.2	36.0	42.8	32.7	46.5	53.5	42.4
(2013/12/04 04:25:00.00)	48.1	61.2	32.1	36.2	46.9	31.5	45.0	51.7	41.2
(2013/12/04 04:30:00.00)	47.9	60.2	31.2	34.3	41.4	29.8	46.9	54.8	39.7
(2013/12/04 04:35:00.00)	47.8	63.0	32.0	37.3	49.6	30.4	45.7	53.9	40.7
(2013/12/04 04:40:00.00)	54.5	70.4	33.1	37.0	51.8	30.4	45.7	55.1	39.9
(2013/12/04 04:45:00.00)	50.4	68.5	34.0	37.9	50.5	32.8	45.7	53.5	40.6
(2013/12/04 04:50:00.00)	54.9	69.3	38.1	37.5	45.3	33.0	47.0	57.2	42.0
(2013/12/04 04:55:00.00)	53.4	68.7	33.2	38.6	49.6	34.1	45.6	52.9	39.4
(2013/12/04 05:00:00.00)	48.9	64.8	34.3	34.7	42.6	32.1	45.3	51.7	40.8
(2013/12/04 05:05:00.00)	56.4	69.5	43.1	38.2	46.6	33.8	47.0	54.2	41.0
(2013/12/04 05:10:00.00)	56.9	71.9	41.9	35.9	42.3	33.8	47.8	54.5	43.5

Date & Time	LOCATION 1			LOCATION 2			LOCATION 3		
	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90
(2013/12/04 05:15:00.00)	54.5	66.8	40.3	37.0	46.8	31.7	46.2	56.6	39.8
(2013/12/04 05:20:00.00)	59.7	78.0	47.8	39.0	45.9	32.9	49.2	57.5	45.4
(2013/12/04 05:25:00.00)	54.8	66.6	39.2	37.7	44.0	33.0	47.3	57.0	42.2
(2013/12/04 05:30:00.00)	58.9	69.2	49.6	39.1	45.9	34.6	47.4	54.2	41.3
(2013/12/04 05:35:00.00)	52.9	66.6	38.5	39.7	46.6	36.2	47.1	52.7	42.5
(2013/12/04 05:40:00.00)	57.4	71.9	47.6	38.5	46.4	35.5	48.8	55.2	45.4
(2013/12/04 05:45:00.00)	56.0	69.8	43.3	40.0	46.3	36.1	48.3	55.8	42.8
(2013/12/04 05:50:00.00)	55.2	70.7	39.0	41.3	51.0	35.3	47.3	58.6	42.6
(2013/12/04 05:55:00.00)	56.7	68.1	45.0	38.4	43.9	35.2	48.8	62.1	44.4
(2013/12/04 06:00:00.00)	56.3	71.7	40.2	37.9	44.6	33.1	47.6	56.4	42.6
(2013/12/04 06:05:00.00)	58.8	69.9	42.9	37.2	45.5	33.0	48.7	53.8	45.0
(2013/12/04 06:10:00.00)	60.0	75.0	49.9	38.1	46.4	34.2	49.6	54.8	44.9
(2013/12/04 06:15:00.00)	60.0	72.4	49.8	37.7	45.7	32.9	49.1	54.1	46.3
(2013/12/04 06:20:00.00)	59.0	68.8	50.8	39.6	46.6	34.4	49.8	58.3	46.8
(2013/12/04 06:25:00.00)	59.8	71.0	45.5	39.3	44.6	35.0	50.4	57.0	46.6
(2013/12/04 06:30:00.00)	60.2	71.0	51.7	38.6	43.7	35.7	50.9	56.5	47.7
(2013/12/04 06:35:00.00)	61.5	70.0	53.8	41.9	49.9	36.1	51.3	55.4	48.7
(2013/12/04 06:40:00.00)	61.5	71.7	54.5	42.2	47.0	39.1	52.3	56.8	50.3
(2013/12/04 06:45:00.00)	61.7	72.2	52.3	42.6	47.4	40.1	52.0	55.9	50.5
(2013/12/04 06:50:00.00)	60.3	71.0	53.5	44.7	65.9	40.8	51.7	56.1	49.5
(2013/12/04 06:55:00.00)	63.0	72.4	55.2	45.6	50.0	42.8	53.3	56.2	51.1
(2013/12/04 07:00:00.00)	63.6	81.2	54.3	46.5	53.1	43.8	54.8	63.9	52.7
(2013/12/04 07:05:00.00)	64.2	71.9	58.7	48.2	57.6	44.3	55.1	63.2	53.1
(2013/12/04 07:10:00.00)	62.8	70.9	56.6	45.8	51.4	43.5	54.8	59.4	53.4
(2013/12/04 07:15:00.00)	64.0	76.6	57.9	47.4	69.4	43.5	54.8	60.3	53.3
(2013/12/04 07:20:00.00)	63.5	71.7	57.8	46.6	64.8	44.0	54.6	60.5	52.8
(2013/12/04 07:25:00.00)	62.7	71.8	55.1	47.2	69.3	41.7	53.9	58.9	52.0
(2013/12/04 07:30:00.00)	64.3	82.6	59.5	48.3	63.8	43.6	55.7	70.5	53.2
(2013/12/04 07:35:00.00)	64.1	71.2	58.2	49.1	67.0	45.0	55.5	70.1	53.7
(2013/12/04 07:40:00.00)	65.0	72.4	59.9	49.6	60.4	46.6	55.9	62.0	54.2
(2013/12/04 07:45:00.00)	65.0	73.0	59.2	49.3	64.0	46.3	55.0	58.8	53.7
(2013/12/04 07:50:00.00)	65.6	71.8	61.0	46.9	58.3	44.7	55.1	72.1	53.4
(2013/12/04 07:55:00.00)	65.9	75.8	59.9	48.1	72.1	44.5	55.2	62.4	54.0
(2013/12/04 08:00:00.00)	65.4	72.9	59.5	48.1	64.6	46.2	54.9	62.2	53.8
(2013/12/04 08:05:00.00)	65.5	72.4	60.4	46.7	56.1	42.9	55.7	70.3	53.8
(2013/12/04 08:10:00.00)	65.6	74.0	59.7	46.3	58.1	44.1	55.8	70.6	53.7
(2013/12/04 08:15:00.00)	65.5	72.2	59.8	46.6	66.5	43.9	54.9	61.9	53.8
(2013/12/04 08:20:00.00)	65.7	72.7	59.3	46.9	56.3	44.2	57.1	78.6	54.2
(2013/12/04 08:25:00.00)	66.8	76.8	60.6	47.1	62.4	44.6	56.3	66.3	54.9
(2013/12/04 08:30:00.00)	66.1	73.6	61.4	49.1	62.9	45.9	56.9	64.3	55.2
(2013/12/04 08:35:00.00)	65.5	71.3	61.2	46.5	55.6	44.3	56.7	60.6	55.5
(2013/12/04 08:40:00.00)	65.8	73.4	60.7	46.2	57.2	43.1	57.4	62.4	55.9
(2013/12/04 08:45:00.00)	66.0	81.7	61.0	47.5	57.0	44.2	56.9	63.9	55.2
(2013/12/04 08:50:00.00)	65.8	73.5	60.4	49.1	71.1	44.0	56.0	60.4	54.6
(2013/12/04 08:55:00.00)	66.0	77.4	60.3	46.7	61.1	43.9	56.2	77.8	53.7
(2013/12/04 09:00:00.00)	65.8	71.7	60.3	46.0	55.6	43.3	55.8	64.0	53.7
(2013/12/04 09:05:00.00)	65.3	73.2	60.8	46.1	58.1	42.8	55.3	59.2	53.8
(2013/12/04 09:10:00.00)	63.6	72.7	57.8	45.7	59.3	43.2	55.3	60.0	53.7
(2013/12/04 09:15:00.00)	64.8	75.7	59.7	53.1	77.3	42.1	55.4	69.6	53.9
(2013/12/04 09:20:00.00)	65.2	76.9	59.2	45.8	59.5	43.6	55.1	59.0	53.7
(2013/12/04 09:25:00.00)	65.6	76.4	59.6	45.6	51.6	43.6	55.8	64.2	54.3
(2013/12/04 09:30:00.00)	63.8	71.5	58.2	46.0	59.5	40.6	56.7	69.1	53.7
(2013/12/04 09:35:00.00)	63.8	72.9	58.4	43.7	54.1	40.6	55.1	62.9	53.5
(2013/12/04 09:40:00.00)	64.9	75.2	58.0	47.0	58.1	41.6	55.4	65.2	53.7
(2013/12/04 09:45:00.00)	63.8	70.2	58.4	44.3	61.1	41.6	55.2	61.4	53.7
(2013/12/04 09:50:00.00)	64.8	73.1	59.7	44.9	53.8	42.3	55.6	62.9	53.6
(2013/12/04 09:55:00.00)	65.0	79.6	56.9	45.2	57.6	41.6	54.5	60.1	52.5
(2013/12/04 10:00:00.00)	64.8	72.1	57.8	46.3	70.8	41.8	54.6	58.8	52.7
(2013/12/04 10:05:00.00)	63.5	72.4	55.8	43.0	56.1	40.3	53.7	62.2	51.8
(2013/12/04 10:10:00.00)	63.0	70.8	57.2	44.6	54.2	40.4	53.7	58.3	52.1
(2013/12/04 10:15:00.00)	64.0	73.5	56.8	43.9	50.8	40.4	54.0	63.4	51.2

Date & Time	LOCATION 1			LOCATION 2			LOCATION 3		
	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90	LAeq	LAMAX	LA90
(2013/12/04 10:20:00.00)	63.2	70.4	56.8	43.6	55.3	40.0	53.2	58.1	51.2
(2013/12/04 10:25:00.00)	64.8	75.9	57.5	42.8	52.3	39.0	53.5	58.4	51.2
(2013/12/04 10:30:00.00)	63.2	72.7	56.6	46.1	65.5	41.8	54.4	69.3	51.7
(2013/12/04 10:35:00.00)	64.3	72.7	57.9	46.4	71.3	41.3	54.1	61.4	52.4
(2013/12/04 10:40:00.00)	63.3	71.5	56.5	46.8	60.0	41.9	53.9	63.3	52.1
(2013/12/04 10:45:00.00)	64.3	74.5	58.6	44.7	56.6	40.7	54.6	60.3	52.7
(2013/12/04 10:50:00.00)	63.7	70.9	56.6	44.1	69.9	40.0	54.4	60.7	52.6
(2013/12/04 10:55:00.00)	65.5	77.5	58.1	44.3	56.1	41.3	55.2	62.3	53.1
(2013/12/04 11:00:00.00)	64.0	71.4	57.6	44.1	58.0	41.8	54.9	66.5	52.5
(2013/12/04 11:05:00.00)				44.6	53.4	41.9	54.2	64.3	52.5
(2013/12/04 11:10:00.00)				43.5	48.2	40.6	54.6	69.4	51.7
(2013/12/04 11:15:00.00)				45.6	59.3	41.1			
(2013/12/04 11:20:00.00)				42.5	48.5	39.8			
(2013/12/04 11:25:00.00)				43.0	50.4	39.3			
(2013/12/04 11:30:00.00)				43.1	55.9	39.7			
(2013/12/04 11:35:00.00)				43.6	52.8	40.0			