

PC 8 & 22 Noise Assessment Report



159 - 161 Iverson Road, West Hampstead
January 2016

REPORT REF: NA/IR/20160105-RK





NRG Consulting— Studio 7, Third Floor, 138-148 Cambridge Heath Road London, E1 5QJ

T:0207 998 6481

CONTENTS:

DOCUMENT CONTROL SHEET:	2
Executive Summary	1
Introduction	2
Assessment Criteria	2
Planning Condition 8	2
Planning Condition 22	2
Noise Emission Assessment	2
Conclusion	6
Appendix A	7
Appendix B	8

DOCUMENT CONTROL SHEET:

<u>Rev.</u>	<u>Issue Purpose</u>	<u>Author</u>	<u>Signature</u>	<u>Checked</u>	<u>Signature</u>	<u>Date</u>
A	For Issue	Robert Kimber		Ryan Thrower		18/12/2015
B	For Issue	Robert Kimber		Ryan Thrower		05/01/2016

Executive Summary

This document presents the assessment of noise emission from the development as required by Planning Condition 22 given in the permission for application 2013/7505/P dated 21 February 2014. The information requirements of Planning Condition 8 are also presented.

The assessment shows the proposed scheme will satisfy the requirements of Planning Condition 22.

Introduction

This report has been produced to assess the Consented Development at 159 – 161 Iverson Road in accordance with the requirements of Planning Condition 22 for application 2013/7505/P dated 21 February 2014. The development is two buildings ranging between one and six stories, comprising 19 residential units (Class C3), and 164sqm of employment floor space (Class B1c). The information requirements of Planning Condition 8 is also presented.

Within this document is a reproduction of the relevant Planning Condition wording, summary of environmental noise data used and summary of calculation used to determined plant noise levels.

The environmental noise survey data used in the assessments are from the planning stage noise assessment report 13P282 JT R1260-188A Aⁱ. The noise survey detailed in that report was conducted by Aulos Acoustics in October and November 2013. Given that the minimum background noise level is most significantly influenced by the wider road and rail network, use of the values presented will give a robust assessment.

Assessment Criteria

Planning Condition 8

The exact wording of Planning Condition 8 has been reproduced below for ease of reference.

Prior to commencement on the relevant part of the development details of all internal/external plant, including an acoustic report which demonstrates that the equipment will comply with the requirements of condition 22 shall be submitted to and approved in writing by the local planning authority. The development shall be carried out in accordance the details thus approved and shall thereafter be maintained in effective order to the reasonable satisfaction of the Council.

Planning Condition 22

The exact wording of Planning Condition 22 has been reproduced below for ease of reference.

Noise levels at a point 1 metre external to sensitive facades shall be at least 5dB(A) less than the existing background measurement (LA90), expressed in dB(A) when all plant/equipment (or any part of it) is in operation unless the plant/equipment hereby permitted will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps), then the noise levels from that piece of plant/equipment at any sensitive façade shall be at least 10dB(A) below the LA90, expressed in dB(A).

Noise Emission Assessment

The development will include a plant room that is fitted with utility meters and an irrigation system, utility meters and a water tank. There is are no further communal plant items and no plant items serving the commercial space. The apartments are fitted with mechanical extract ventilation and trickle ventilation. The mechanical extract draws moist air from the kitchen and bathroom, expelling it through a duct in the external wall.

The noise emission from the combined operation of the building services plant has been calculated for the nearest residential neighbour to the site. An assessment has been made in regards to the requirement of Planning Condition 22 by comparison with the existing measured background noise levels.

The ambient background noise level is not expected to have significantly changed since the noise survey conducted in October and November 2013, given that the minimum background noise level is most significantly influenced by the wider road and rail network.

The minimum $L_{A90, 5min}$ dB values measured were presented in Table 3 of report "13P282 JT R1260-188A"ⁱⁱ available on the London Borough of Camden planning portal. This information is presented as Table 1 below.

Table 1: Measured ambient background noise levels

Period	Existing minimum $L_{A90, 5min}$ dB noise level
Day time 07:00 – 19:00	40.6 dB (A)
Evening 19:00 – 23:00	41.5 dB (A)
Night time 23:00 – 07:00	33.3 dB (A)

The measurement location used in the survey can be seen on Figure 1 in Appendix A. A graphical time history of the measured noise levels is given in Appendix B.

The apartments will be fitted with Vent Axia LoCarbon Multivent MVDC-MSH mechanical ventilation units. These will extract from the bathroom and kitchen. The closest termination to atmosphere of the extract ventilation fans to the off-site noise sensitive receptors has been assessed. This is on the east façade of the development, and at a distance of 8.3m from the west façade of 163 Iverson Road, 1m is subtracted for the assessment location. A correction for façade effect has not been made as it is assumed that the ambient background will also be reflected from the façade, as the measurements were made in free field conditions, both values would be increased by 3 dB so the difference would stay the same.

The specific noise levels for the closest apartment on each floor of 163 Iverson Road have been determined. A summary of the calculation is shown in Table 2 below.

Table 2: Summary of specific noise level calculation for air source heat pumps

Receiver name (163 Iverson Road)	Source flat name (159 – 161 Iverson Road)	Distance (1m before façade)	A_{div} dB (distance attenuation)	MVDC-MSH exhaust at 1m before façade L_{Ap} dB
G.01	0.03	7.27 m	-22.2 dB (A)	14.8 dB (A)
G.01	1.03	8.16 m	-23.2 dB (A)	13.8 dB (A)
G.01	2.03	9.84 m	-26.1 dB (A)	10.9 dB (A)
G.01	3.03	11.96 m	-29.5 dB (A)	7.5 dB (A)
G.01	4.03	14.34 m	-31.1 dB (A)	5.9 dB (A)
1.01	0.03	7.43 m	-22.4 dB (A)	14.6 dB (A)
1.01	1.03	7.27 m	-22.2 dB (A)	14.8 dB (A)
1.01	2.03	8.16 m	-24.5 dB (A)	12.5 dB (A)
1.01	3.03	9.84 m	-27.8 dB (A)	9.2 dB (A)
1.01	4.03	11.96 m	-29.5 dB (A)	7.5 dB (A)
2.03	0.03	8.60 m	-23.7 dB (A)	13.3 dB (A)
2.03	1.03	7.43 m	-22.4 dB (A)	14.6 dB (A)
2.03	2.03	7.27 m	-23.4 dB (A)	13.6 dB (A)
2.03	3.03	8.16 m	-26.2 dB (A)	10.8 dB (A)
2.03	4.03	9.84 m	-27.8 dB (A)	9.2 dB (A)
3.03	0.03	10.43 m	-25.3 dB (A)	11.7 dB (A)
3.03	1.03	8.60 m	-23.7 dB (A)	13.3 dB (A)

3.03	2.03	7.43 m	-23.6 dB (A)	13.4 dB (A)
3.03	3.03	7.27 m	-25.2 dB (A)	11.8 dB (A)
3.03	4.03	8.16 m	-26.2 dB (A)	10.8 dB (A)
4.03	0.03	12.65 m	-27.0 dB (A)	10.0 dB (A)
4.03	1.03	10.43 m	-25.3 dB (A)	11.7 dB (A)
4.03	2.03	8.60 m	-24.9 dB (A)	12.1 dB (A)
4.03	3.03	7.43 m	-25.4 dB (A)	11.6 dB (A)
4.03	4.03	7.27 m	-25.2 dB (A)	11.8 dB (A)

The combined noise levels for simultaneous operation of the mechanical ventilation plant on the ground, to fourth floor at each of the neighboring facades has been calculated. The predicted combined noise levels are compared with the existing measured background noise levels. It is unlikely that the mechanical extract ventilation will emit any distinct tonality, a correction has therefore not been applied.

Table 3: Comparison of predicted specific mechanical ventilation noise levels with existing background noise levels

	Period	1 m from façade of G.01 dB (A)	1 m from façade of 1.01 dB (A)	1 m from façade of 2.03 dB (A)	1 m from façade of 3.03 dB (A)	1 m from façade of 4.03 dB (A)
Background L _{A90} dB	Day 7- 19hrs	40.6	40.6	40.6	40.6	40.6
Background L _{A90} dB	Evening 19 -23hrs	41.5	41.5	41.5	41.5	41.5
Background L _{A90} dB	Night 23- 7hrs	33.3	33.3	33.3	33.3	33.3
Specific L _{Ap} dB	Day 7- 19hrs	18.8	19.6	19.7	19.3	18.5
Specific L _{Ap} dB	Evening 19 -23hrs	18.8	19.6	19.7	19.3	18.5
Specific L _{Ap} dB	Night 23- 7hrs	18.8	19.6	19.7	19.3	18.5
Difference L _{Ap} - L _{A90} dB	Day 7- 19hrs	-21.8	-21.0	-20.9	-21.3	-22.1
Difference L _{Ap} - L _{A90} dB	Evening 19 -23hrs	-22.7	-21.9	-21.8	-22.2	-23.0
Difference L _{Ap} - L _{A90} dB	Night 23- 7hrs	-14.5	-13.7	-13.6	-14.0	-14.8

The specific noise level of the mechanical extract ventilation is predicted to be at least 13 dB below the minimum measured L_{A90} dB noise levels during daytime, evening and night time periods. Planning Condition 22 requires that the specific noise level is 5 dB or more below the background noise level; the results show a margin of compliance of more than 8 dB with the requirement.

The plant room will house a water tank with submerged pump that serves the apartments. There will be a further water tank with submerge pump that will serve the irrigation system for the living walls. The opening to the plant room is on the west side of the development. The nearest off site receptors with direct line of site are 40m away on the opposite side of Iverson Road including property number 178 - 182. The offsite receptors at 163 Iverson Road will benefit from barrier attenuation due to Blocks A and B of the development. The noise emission is expected to be negligible due to the nature of submersed pumps, the assessment is shown below.

Table 4: Predicted specific noise level at nearest receptors to the plant room

	Receptors at 182 Iverson Road	Receptors at 163 Iverson Road
Reverberant plant room Combined operation of pumps	56 dB (A)	56 dB (A)
Emission from plant room openings	44 dB (A)	44 dB (A)
Adiv	32 dB (A)	27 dB (A)
Abar	0 dB (A)	8 dB (A)
Specific level	12 dB (A)	9 dB (A)

The predicted specific noise level does not include a tonal correction. It is unlikely that submerged pumps will emit any distinct tones. The specific noise level is compared with the existing background noise levels in Table 5 below.

Table 5: Comparison of predicted specific plant room noise levels with existing background noise levels

	Period	1 m from façade of 182 Iverson Road	1 m from façade of flat 2.01 163 Iverson Road
Background L_{A90} dB	Day 7- 19hrs	40.6 dB (A)	40.6 dB (A)
Background L_{A90} dB	Evening 19 -23hrs	41.5 dB (A)	41.5 dB (A)
Background L_{A90} dB	Night 23- 7hrs	33.3 dB (A)	33.3 dB (A)
Specific L_{Ap} dB	Day 7- 19hrs	12 dB (A)	9 dB (A)
Specific L_{Ap} dB	Evening 19 -23hrs	12 dB (A)	9 dB (A)
Specific L_{Ap} dB	Night 23- 7hrs	12 dB (A)	9 dB (A)
Difference $L_{Ap} - L_{A90}$ dB	Day 7- 19hrs	-28.6 dB (A)	-31.6 dB (A)
Difference $L_{Ap} - L_{A90}$ dB	Evening 19 -23hrs	-29.5 dB (A)	-32.5 dB (A)
Difference $L_{Ap} - L_{A90}$ dB	Night 23- 7hrs	-21.3 dB (A)	-24.3 dB (A)

The specific noise level of the submerged pumps in the plant room is predicted be at least 21 dB (A) below the background noise level, giving a 16 dB (A) margin of compliance with the requirement of Planning Condition 22.

Conclusion

NRG Consulting has carried out an assessment of the Consented Development at 159 – 161 Iverson Road, in accordance with the requirements of Condition 22 of permission dated 21 February 2014 of Application 2013/7505/P. The environmental noise levels used in assessment for Planning Condition 22 have been determined from reports 13P282 JT R1260-188A Aⁱⁱⁱ. Information required by Planning Condition 8 has been presented.

The assessment has shown that noise emission due to plant associated with the development will not cause noise levels in excess of 5 dB (A) above the background noise levels, as required by Planning Condition 22.

In view of the above the information presented with regard to the imposed Planning Conditions 22 is considered acceptable for discharge, in our opinion.

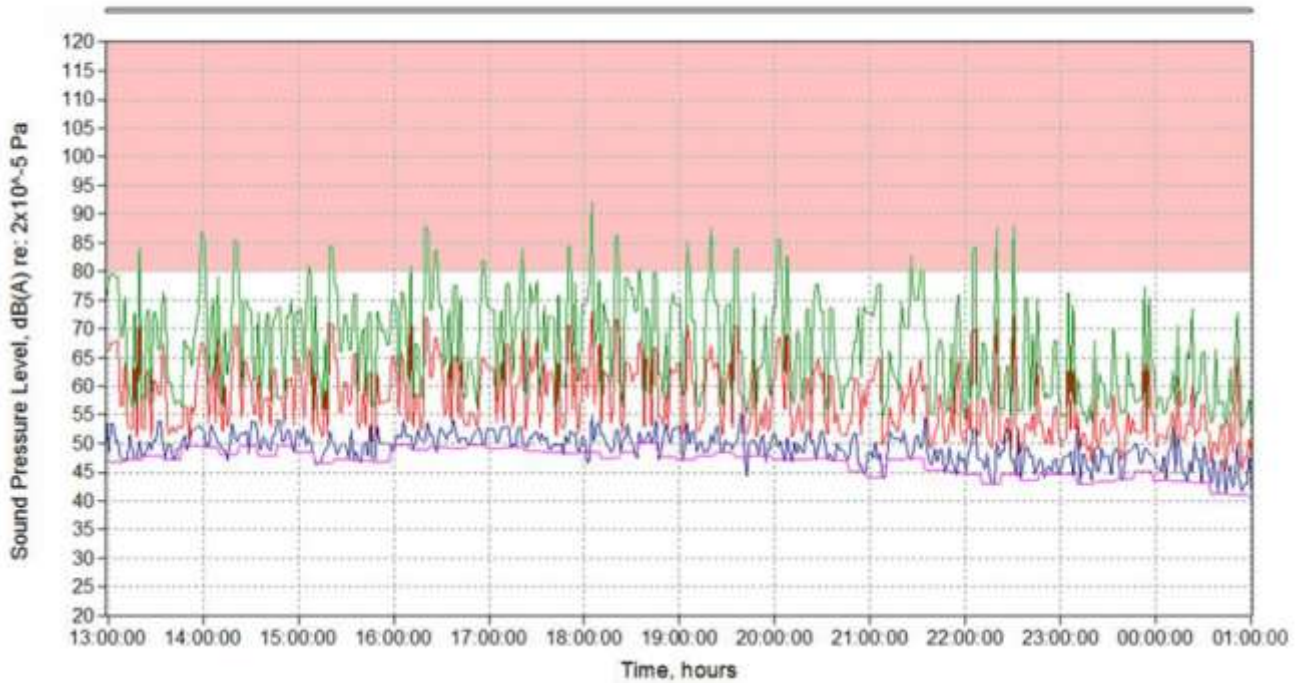
Appendix A



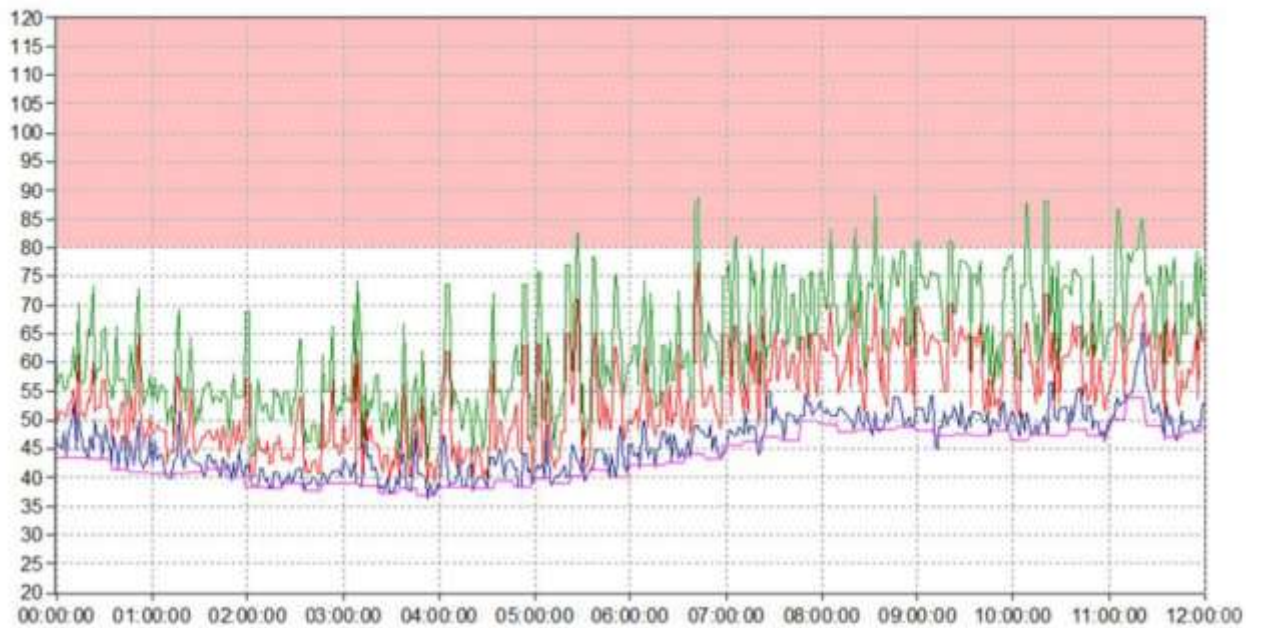
Figure 1: Noise level measurement position

Appendix B

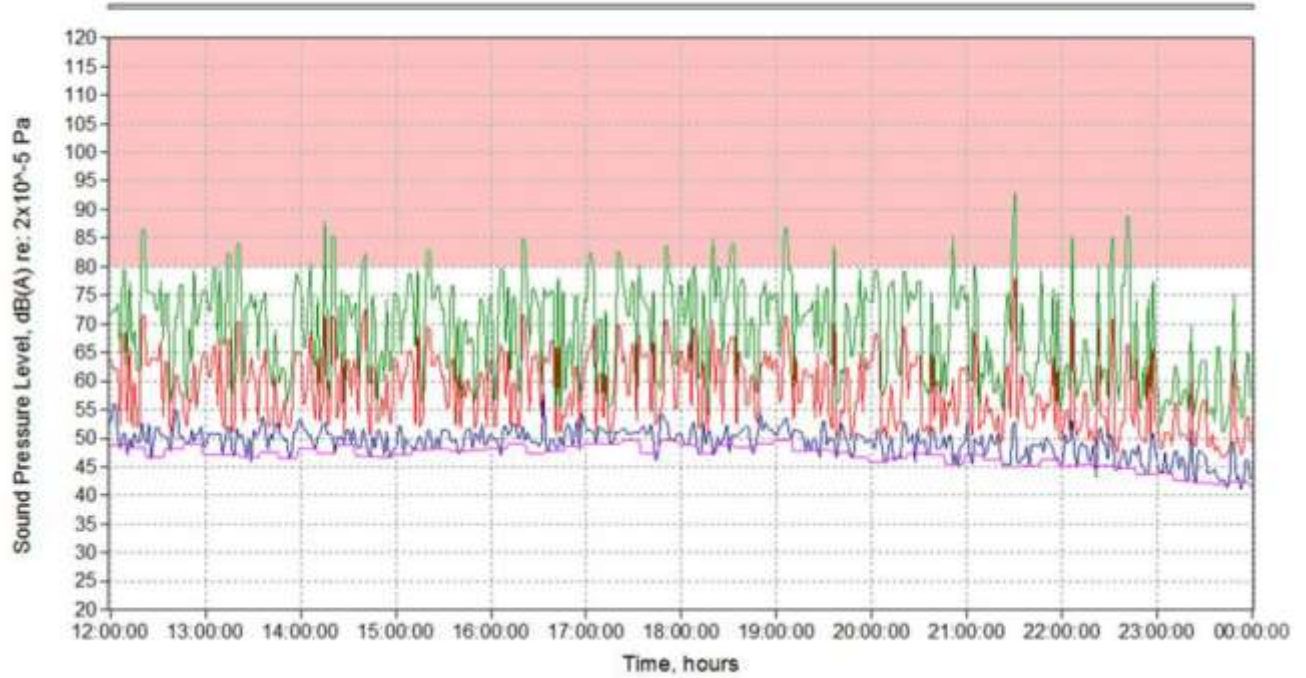
30 October 2013 PM



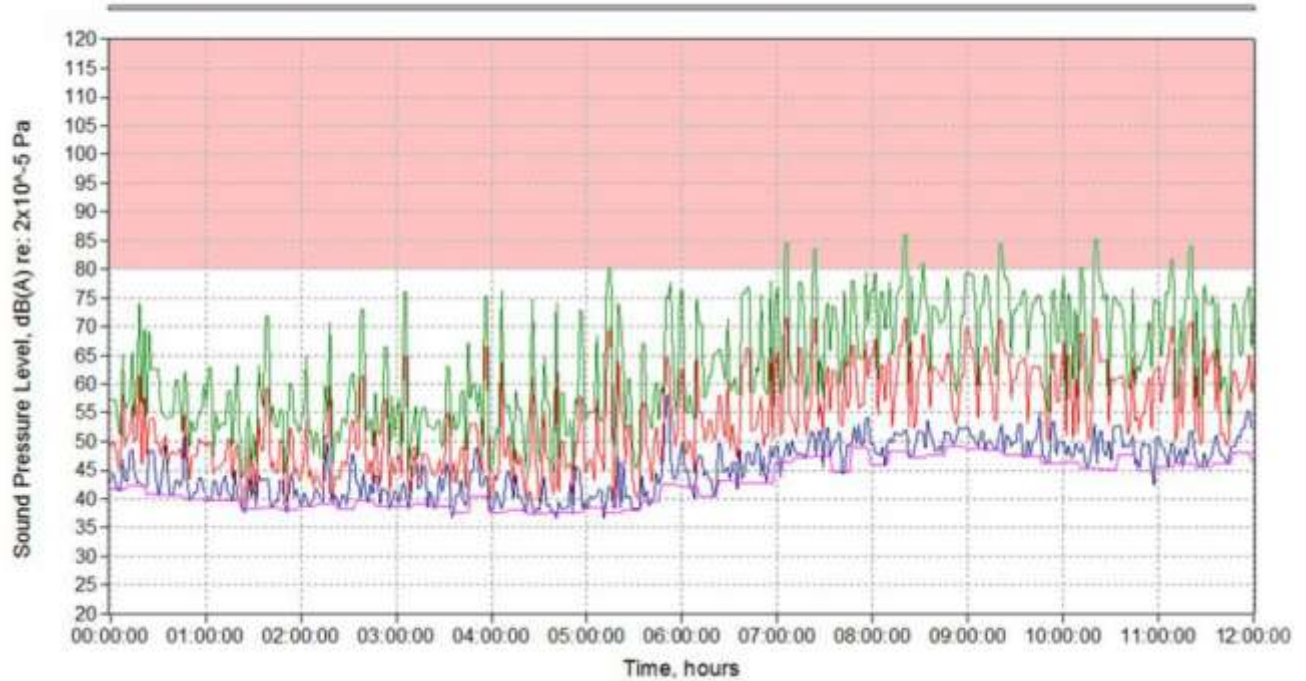
31 October 2013 AM



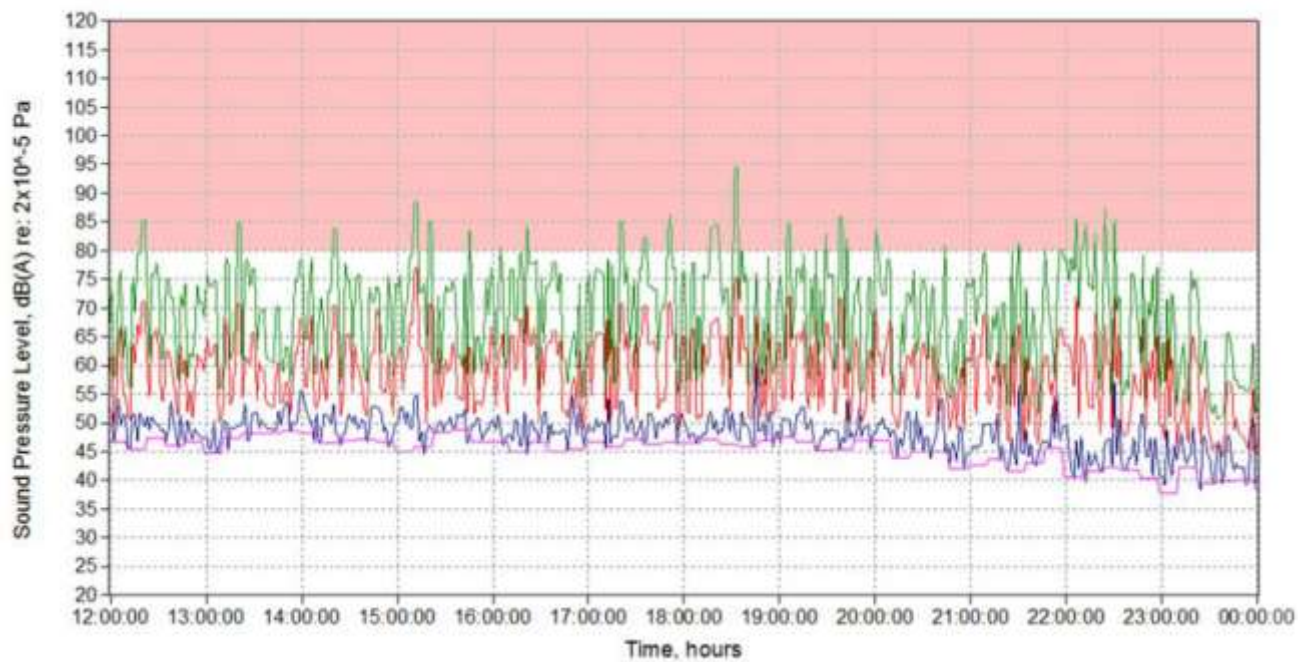
31 October 2013 PM



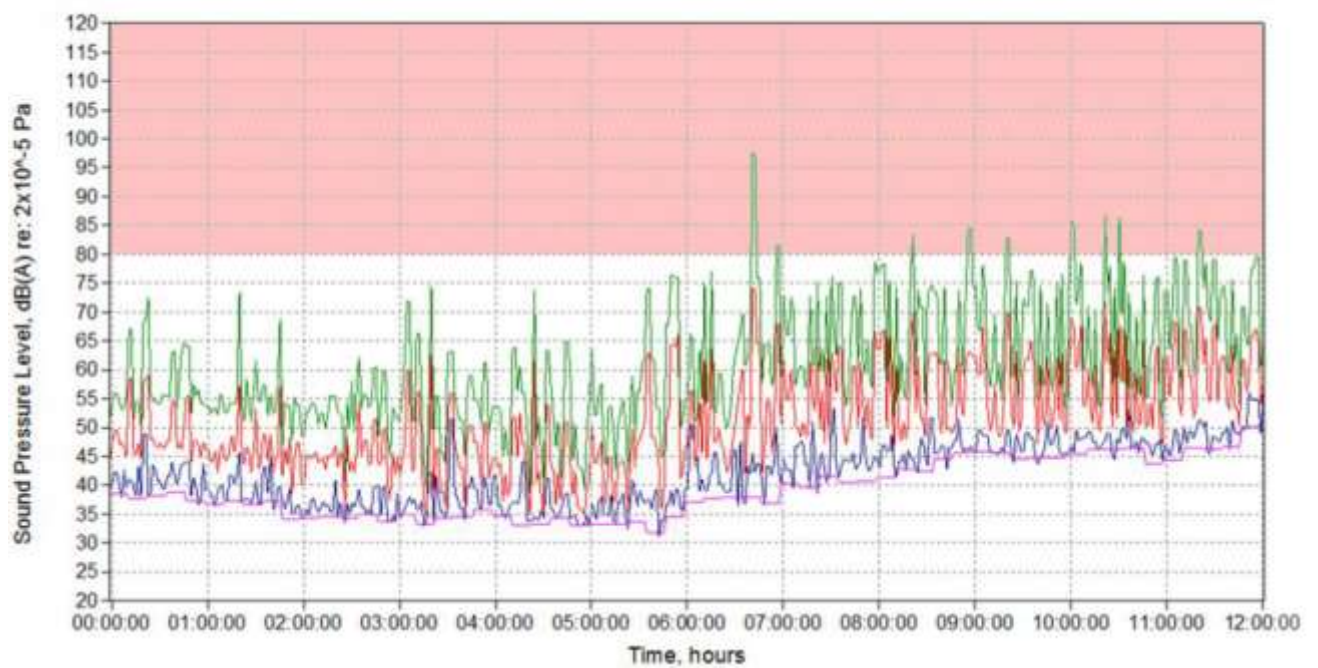
01 November 2013 AM



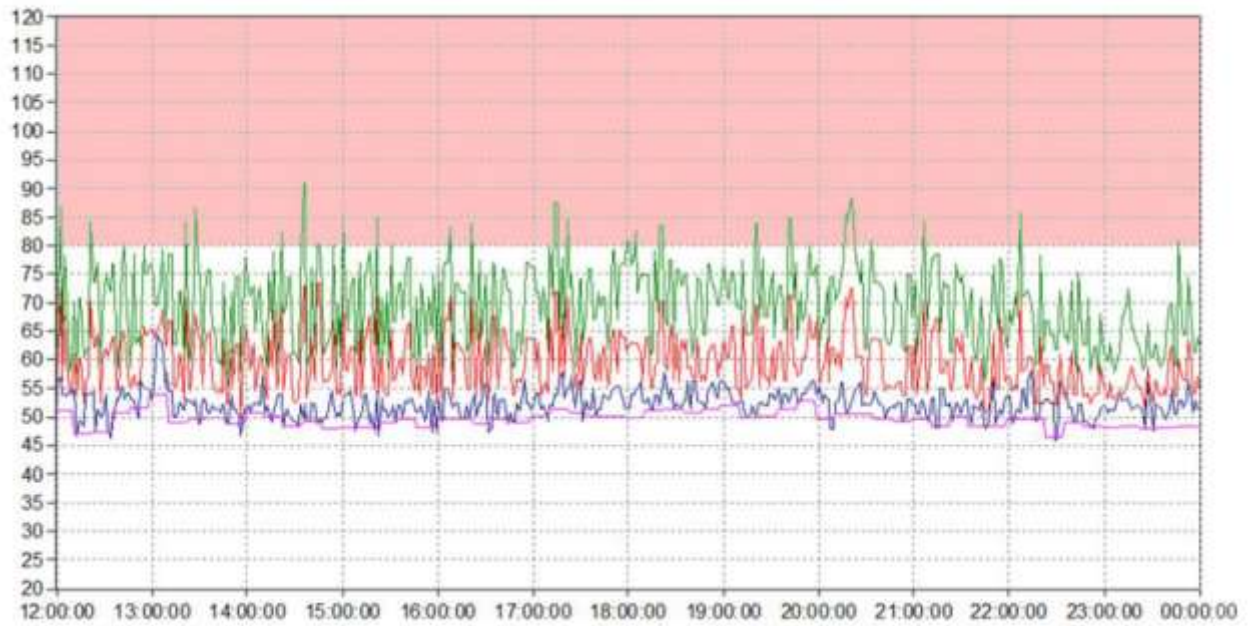
01 November 2013 PM



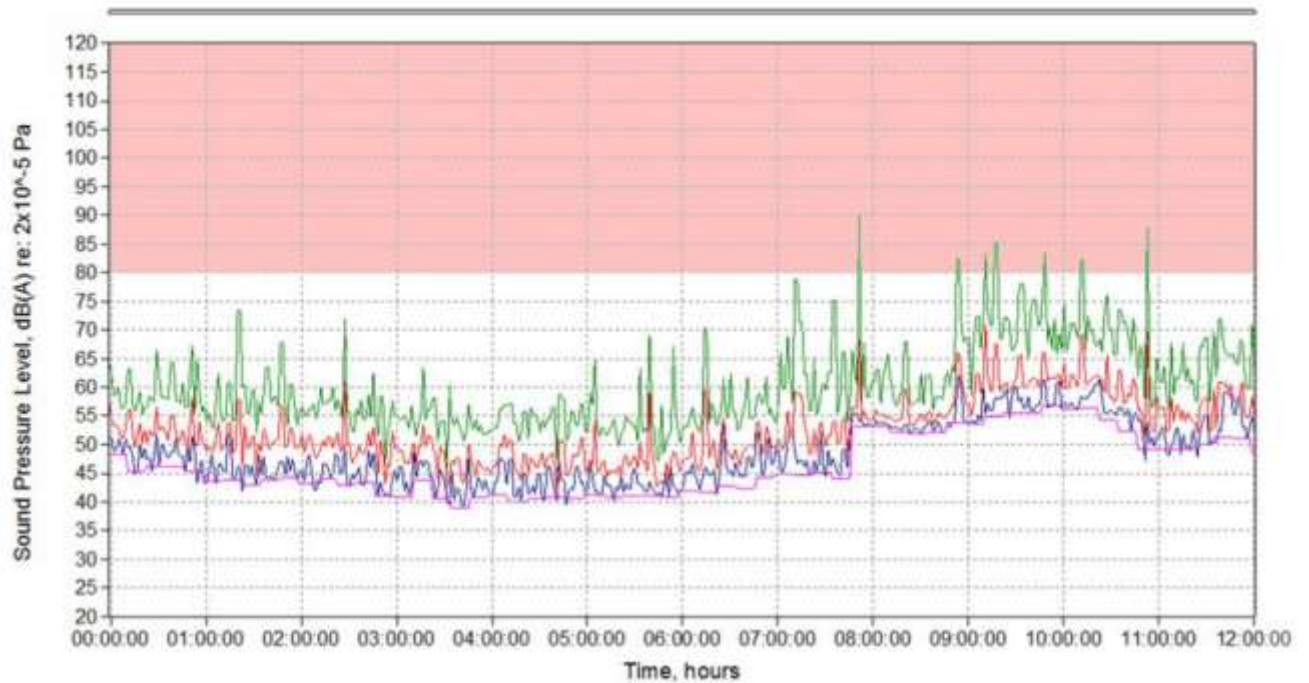
02 November 2013 AM



02 November 2013 PM



03 November 2013 AM



References

- ⁱ Environmental Noise Assessment Report, Aulos Acoustics, November 2013
- ⁱⁱ Environmental Noise Assessment Report, Aulos Acoustics, November 2013
- ⁱⁱⁱ Environmental Noise Assessment Report, Aulos Acoustics, November 2013