

20 February 2012
Ref: Lifehouse 02 AY

Attn: Mr. Alan Bright
Director
Metropolitan and Regional Projects South
Department of Planning
22-33 Bridge St,
Sydney NSW 2000

CC: Mr. Eric Bailey, McKenzie Group Consulting, Principle Certifying Authority

Dear Mr. Bright,

The Chris O'Brien Lifehouse at RPA project – Consent Condition D3 – Hours of Work

Reference is made to Major Project No. MP10_0036, being the Chris O'Brien Lifehouse at RPA Project in Camperdown.

We wish to apply for an amendment to the approved working hours (Consent Condition D3). We kindly request the Departments consideration in extending the working hours by half an hour in the morning and half an hour at the end of the day, Monday to Friday. The proposed working hours are:

Monday to Friday: 7:00am to 6:00pm
Saturday: 7:30am to 3:00pm (remains unchanged)

To assist with the Departments assessment of the proposal, we attach a noise impact report from an Acoustic Engineering Consultant which assesses the impacts of the extended Construction hours. The report concludes that the proposed working hours:

- are in keeping with the City Of Sydney Council Criteria for Construction noise
- have the support of the immediate neighbour, Royal Prince Alfred (RPA) Hospital
- will have no perceptible difference to the background noise during the proposed extended period

We look forward to your earliest response. Should you have any queries concerning this application, please do not hesitate to contact the under signed.

Yours sincerely,

Simon Trimnell-Ritchard



Project Manager
Brookfield Multiplex Limited
Level 22, 135 King St,



Sydney NSW 2000

T +61 (02) 9322 2660 M 0412 925 547 F +61 (02) 9322 2001

Email: simon.ritchard@brookfieldmultiplex.com

MANAGING DIRECTORS
MATTHEW PALAVIDIS
VICTOR FATTORETTO

DIRECTORS
MATTHEW SHIELDS
BEN WHITE



Lifhouse at Royal Prince Alfred Hospital

Assessment of Extended Construction Hours

SYDNEY
A: 9 Sarah St Mascot NSW 2020
T: (02) 8339 8000
F: (02) 8338 8399

SYDNEY MELBOURNE BRISBANE CANBERRA
LONDON DUBAI SINGAPORE GREECE

www.acousticlogic.com.au
ABN: 11 068 954 343

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1 INTRODUCTION

This report has been prepared for the purpose of supporting a submission to council for the extension of approved construction hours for Chris O'Brien Lifehouse Development at the Royal Prince Alfred Hospital in Camperdown. The document outlines the result of a noise impact assessment of construction operations at site that are proposed to occur outside of the currently approved operating hours.

It is proposed that the hours of construction be extended by half an hour each weekday morning and afternoon. The current approved construction hours are: Monday-Friday 7.30am to 5.30pm and Saturday 7.30am to 3.00pm. The new proposed times are Monday to Friday 7.00am to 6.00pm and Saturday 7.30 to 3.00pm.

Brookfield Multiplex is seeking to undertake normal construction work outside of the currently approved hours in accordance with the criteria as outlined in Sydney City Council criteria for construction noise.

2 NOISE IMPACT ASSESSMENT PROCEDURE





This assessment will be conducted in accordance with the requirements set out in Sydney City Council's "Code of Practice for Construction Hours/Noise within the Central Business District". Noise from construction activities have been predicted at sensitive receivers for the periods outside working hours and assessed in accordance with Council's guidelines.

3 SITE DESCRIPTION

The subject site is located at 119 – 143 Missenden Road, Camperdown. The site and position of background noise monitoring is detailed in the figure below.



Figure 1 – Site and Measurement Locations

-  Unattended noise monitoring location
-  Life House Site
-  Nearest Commercial Receivers
-  Nearest Residential Receivers

4 POTENTIALLY AFFECTED RECEIVERS

The following potentially impacted receivers have been identified:

- Commercial occupancies directly to the south the west of the site.
- Residential occupancies within the St Andrew's College Main Building located to the east of the site across Missenden Road. The nearest potentially affected façade is approximately 50m from the subject site southern facade.

Immediate commercial neighbours (RPA) have been approached regarding an extended hours permit and are supportive of extended hours proposal. (See support letter attached appendix 1)

5 NOISE GOALS

5.1 COUNCIL'S "CODE OF PRACTICE FOR CONSTRUCTION HOURS/NOISE WITHIN THE CENTRAL BUSINESS DISTRICT"

The noise goals for construction activities on this project are aimed at minimising adverse impacts within the residential/hotel buildings. The noise goals adopted by the code of practice are outlined below:

Table 1 – City of Sydney Council Construction Noise Criteria

DAY	TIME ZONE	CATEGORY	NOISE CRITERIA
Monday to Friday	07:00 to 08:00	1	Background + 5dB(A)
	08:00 to 19:00	1	Background + 10dB(A)
Saturday	07:00 to 08:00	1	Background + 5dB(A)
	08:00 to 19:00	1	Background + 10dB(A)

5.1.1 Australian Standard 2436-1981 "Guide to Noise Control on Construction Maintenance and Demolition Site".

Where compliance with City of Sydney Council requirements cannot be achieved, noise emissions to be managed in accordance with principles in AS2436:

- That reasonable suitable noise criterion is established.
- That all practicable measures be taken on the building site to regulate noise emissions, including the siting of noisy static processes on parts of the site where they can be shielded, selecting less noisy processes, and if required regulating construction hours.
- The undertaking of noise monitoring where non-compliance occurs to assist in the management and control of noise emission from the building site.

Based on these the following procedure will be used to assess noise emissions:

- Predict noise levels produced by typical construction activities at the sensitive receivers.
- If noise levels exceed "background + 10 dB(A)" noise goal at sensitive receiver locations, investigate and implement all practical and cost effective techniques to limit noise emissions. A background + 10 dB(A) criterion has been applied because, due to the size of the whole site, impacts at any one sensitive receiver are unlikely to occur for a greater period than 6 months.
- If the noise goal is still exceeded after applying all practical engineering controls to limit noise emissions investigate management and other techniques to mitigate noise emissions.

6 NOISE EMISSION GOALS

Noise generated by plant and equipment throughout the duration of the project will be managed to generally comply with the background + 10dB criterion, and where this noise goal may be exceeded, noise levels will be managed in strict compliance with AS2436.

Unattended noise measurements were conducted by noise logger located on site as detailed in the Figure above. Unattended Noise measurements were obtained using an Acoustic Research Laboratories Pty Ltd noise logger. The logger was programmed to store 15-minute statistical noise levels throughout the monitoring period. The noise monitor was calibrated at the beginning and the end of the measurement period using a Rion NC-73 sound level calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode. There were no significant periods of adverse weather conditions during the measurement period.

Table 2 – External Noise Objectives for All Receivers during Standard Construction Hours

Measurement Location	Day time 7am-6pm Extended Construction Hours Background Noise Level dB(A) $L_{90}(\text{period})$	Noise Goal dB(A) $L_{eq}(\text{period})$
119 – 143 Missenden Road, Camperdown	54	BG +10= 64 dB(A)

7 ACTIVITIES TO BE CONDUCTED AND ASSOCIATED NOISE SOURCES

7.1 CONSTRUCTION STAGE

This stage will be broken down into further parts for the description but will be categorized as one part for our assessment.

- *Site Establishment*

Erection of a façade protective scaffold etc. This will occur over a relatively short period and the expected activities are not intensive. Consequently, noise or vibration emissions from these activities are not expected to produce adverse impacts.

- *Erection of the new structure.*

- *Installation of new services and internal finishes and Project Completion*

This phase of the project involves final internal fit-outs. The main noise sources may include;

- Internal works including:

- ◆ Hammering
- ◆ Drilling
- ◆ Electric Saws
- ◆ Angle Grinders

8 NOISE EMISSION ASSESSMENT

Noise generated by plant and equipment will be managed to generally comply with the nominated acoustic criteria, and where this noise goal may be exceeded, noise will be managed based on principles consistent with Australian Standard 2436/DECCW guidelines.

Predictions of noise levels at the sensitive receivers identified have been made of the construction processes with the potential to produce significant noise.

It is noted that:

- Many of the noise sources are present over a small period of the day or may be present for a few days with a significant intervening period before the activity occurs again.
- The distance between the noise source and the receiver.
- The screening effect provided by any remaining building structure or building shell. In particular, noise from works done on higher level will be substantially screened by the remaining building structure to receivers located on lower levels.

Acoustic data used in our assessment is summarised below:

Table 3 – Sound Power Levels

EQUIPMENT /PROCESS	SOUND POWER LEVEL dB(A)
Construction	
Truck	108
Trailers	118
Drilling	94*
Hammering	120*
Angle grinders	114*
Electric Saw	111*
Impact drill	105*
Concrete Pump	112
Concrete Truck	110

* - includes 5 dB(A) addition for characteristics of noise source. The noise levels presented in the above table are derived from the following sources:

1. On-site measurements
2. Table D2 of Australian Standard 2436-1981
3. Data held by this office from other similar studies.

8.1 RESIDENTIAL RECEIVERS

Residential Receivers - The residential receivers are located across Missenden road. The receiver is located approximately 20m from their respective façades of the site. Predicted noise levels are as follows:

Table 4 - Predicted Noise Level

Equipment / Process	Noise Goal dB(A) Leq (15,min) (Background+10 dB(A))	Predicted Level at Receiver dB(A)	Complies
Construction Stage			
Truck	64	54 – 64	Yes
Trailers	64	54 – 64	Yes
Drilling	64	54 – prior to the construction of building shell 34 – after construction of building shell	Yes
Hammering	64	73 – prior to the construction of building shell 53 – after construction of building shell	Marginal exceedences predicted, however will generally occur over limited periods and predominantly during internal works, when it will comply.
Angle grinders	64	73 – prior to the construction of building shell 53 – after construction of building shell	Exceeds Criteria, however will generally occur over limited periods and predominantly during internal works, when it will comply
Electric Saw	64	63 – prior to the construction of building shell 43 – after construction of building shell	Yes
Impact drill	64	63 – prior to the construction of building shell 43 – after construction of building shell	Yes
Concrete Pump	64	68 – 74	Exceedences. See recommendations in section 9 below.
Concrete Truck	64	64 – 76	Exceedences. See recommendations in section 9 below.

The predictions indicate that in worst case situations, a number of processes / activities will exceed the noise goal at the residential receivers. Some of the exceedences are a result of equipment / processes which are intermittent in nature and would generally occur for limited periods. Refer to ameliorative measures recommended in section 9.

8.2 NEAREST COMMERCIAL RECEIVERS

The nearest commercial receivers are located approximately 10m to the west and south of the site. Predicted noise levels are as follows:

Table 5 - Predicted Noise Level – Commercial Receivers

Equipment / Process	External Noise Goal dB(A) L_{eq} (15min) (Background+10 dB(A))	Predicted Level at Receiver dB(A)	Complies
Construction Stage			
Truck	64	71 – 77	No. See recommendations in section 9 below.
Trailers	64	73 – 78	No. See recommendation in section 9 below.
Drilling	64	60 – prior to the construction of building shell 40 – after construction of building shell	Yes
Hammering	64	81– prior to the construction of building shell 61 – after construction of building shell	Exceeds Criteria, however will generally occur over limited periods and predominantly during internal works, when it will comply.
Angle grinders	64	80 – prior to the construction of building shell 60 – after construction of building shell	Exceeds Criteria, however will generally occur over limited periods and predominantly during internal works, when it will comply.
Electric Saw	64	75 – prior to the construction of building shell 55 – after construction of building shell	Exceeds Criteria, however will generally occur over limited periods and predominantly during internal works, when it will comply.
Impact drill	64	66 – prior to the construction of building shell 46 – after construction of building shell	Exceeds Criteria, however will generally occur over limited periods and predominantly during internal works, when it will comply.
Concrete Pump	64	68 – 80	Exceeds Criteria. See recommendations in section 9 below.
Concrete Truck	64	76 – 88	Exceeds Criteria. See recommendations in section 9 below.

The predictions indicate that in worst case situations, a number of processes / activities will exceed the noise goal at the commercial receivers. Some of the exceedences are a result of equipment / processes which are intermittent in nature and would generally occur for limited periods. Refer to ameliorative measures recommended in section 9.

9 DISCUSSION

All processes generally comply with noise emissions goals, with some minor exceedences. However, these activities are intermittent in nature, would occur for limited periods.

A review of the background noise levels at the potentially affected receivers was undertaken. The background noise levels were found to be 54dB(A) L_{90} at 7:00am and 55dB(A) L_{90} at 7:30am. In the afternoon period there was no difference in the background noise levels between 5.30pm and 6pm Mon-Fri.

Given there is no perceptible difference in the background noise during the proposed extended construction hours, there will be no change in the noise emission goals in accordance with Sydney City Council in the "Code of Practice for Construction Hours/Noise within the Central Business District". Hence, it is ALC's professional opinion that noise emissions will not cause any further adverse impacts on nearby affected receivers from these proposed hours of construction.

9.1 STATEMENT OF INTENT TO COMPLY

On-going compliance monitoring will ensure that the criteria and management plans set out by the SCC Code and this report are undertaken.

In addition, a contact number of the Site Manager will be advertised outside the building site, so that residents and other interested parties may contact him, should they believe a noise breach is occurring.

It is acknowledged that in order for the site to successfully work during the proposed extended hours a careful and structured work methodology needs to be developed and implemented to ensure on site workers understand the conditions which allow for works to be conducted during the extended hours periods. The calculated levels assume that such a noise management plan is implemented. The measures, which need to be observed and rigorously followed, are outlined clearly under each calculation table.

It is further acknowledged that a programme of close consultation with representatives of the potentially affected receiver locations will need to be established and maintained throughout the duration of the project. It is noted that this has already been undertaken with the Royal Prince Alfred Hospital and they have provided a letter of support, including in Appendix A.

9.2 RESULTING NOISE IMPACT

During this investigation the potential for noise impact on the surrounding receivers to the Lifehouse development with construction activities was investigated for the proposed extended hours period. The extended hours a criterion detailed by Sydney City Council has been developed to ensure the amenity of existing residence and commercial/hospital receivers is preserved. As the proposed extended hour's works generally comply with Sydney City Council criteria (detailed in this report) the acoustic amenity for surrounding receivers will be acceptable.

10 CONCLUSION

The finding of this document indicates that noise levels from the proposed out of hours construction activities, as identified in the report, will not cause any further adverse impact on nearby affected receivers.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'MA' or 'MS' with a stylized flourish.

Acoustic Logic Consultancy Pty Ltd
Muhammad Ahmed Shah

APPENDIX A – SUPPORT LETTER



Health
Sydney
Local Health District

SF11/305
SD12/27
SD211/26

Simon Ritchard
Project Manager
Brookfield Multiplex
Level 22 135 King Street
Sydney NSW 2000

Dear Mr Ritchard

Extension of construction hours for Brookfield Multiplex on the Lifehouse Project

I write in response to an application by Brookfield Multiplex to extend the hours of construction on the Lifehouse Project.

It is proposed that the hours of construction be extended by half an hour each weekday morning and afternoon. The current approved construction hours are: Monday to Friday 7.30am to 5.30pm and Saturday 7.30am to 3.00pm. The new proposed times are Monday to Friday 7.00am to 6.00pm and Saturday 7.30am to 3.00pm.

I am pleased to advise that Sydney Local Health District supports the proposal by Brookfield Multiplex to extend their hours of construction on the Lifehouse project.

If you require any further information, please do not hesitate to contact Ken Cahill, Executive Director, RPAH on ph. 9515 6888 or email: ken.cahill@sswahs.nsw.gov.au.

Yours sincerely

Dr Teresa Anderson
Chief Executive

Date: 16.1.12

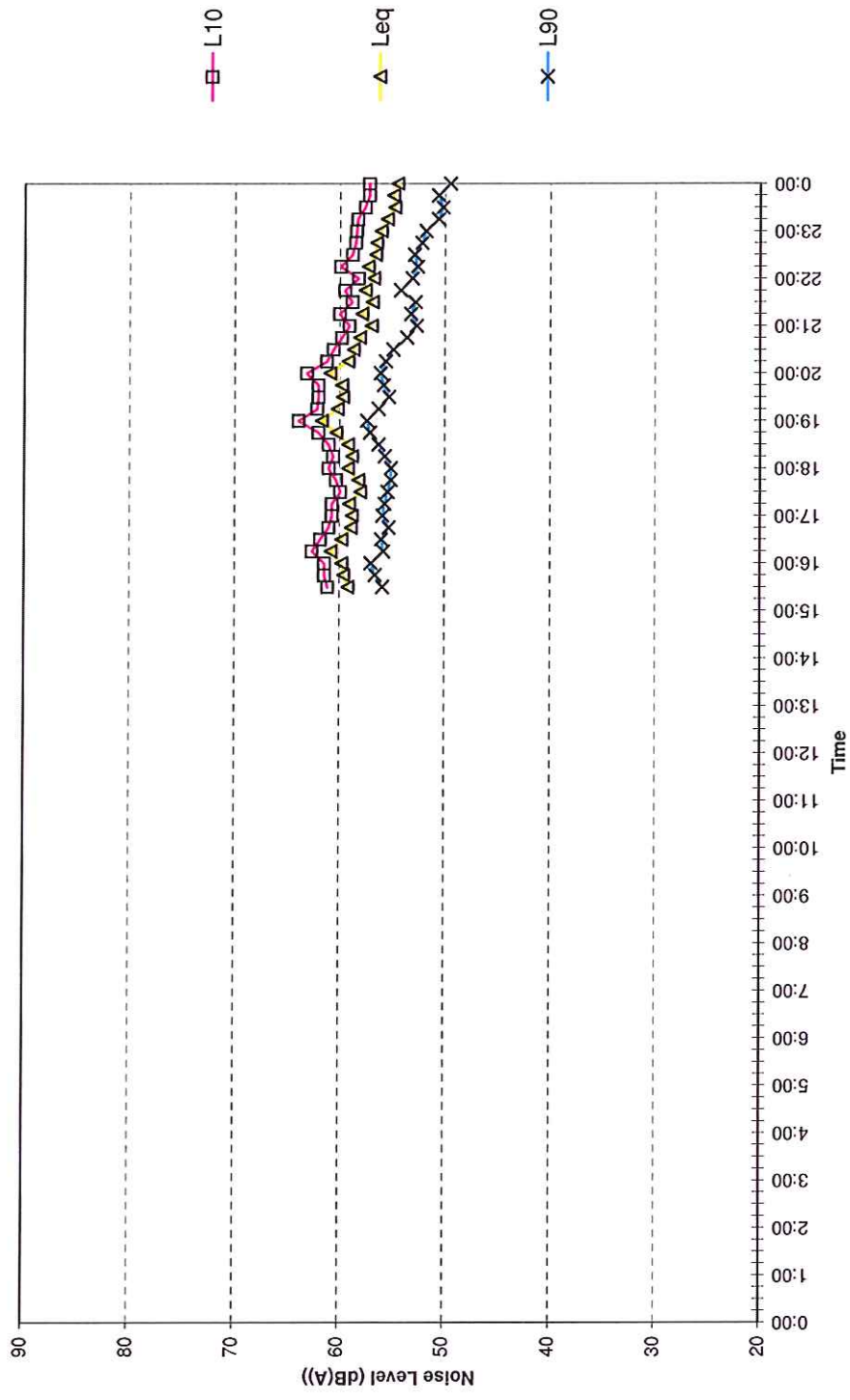
General Correspondence
PO Box M30
Missenden Road, NSW, 2050
Email: slhn.esu@sswahs.nsw.gov.au
Website: www.health.nsw.gov.au/sydlhn/

Sydney Local Health District
ABN 17 520 269 052
Level 11 North, King George V Building
83 Missenden Rd
CAMPERDOWN, NSW, 2050
Tel 612 9515 9600 Fax 612 9515 9610

APPENDIX B – BACKGROUND NOISE DATA

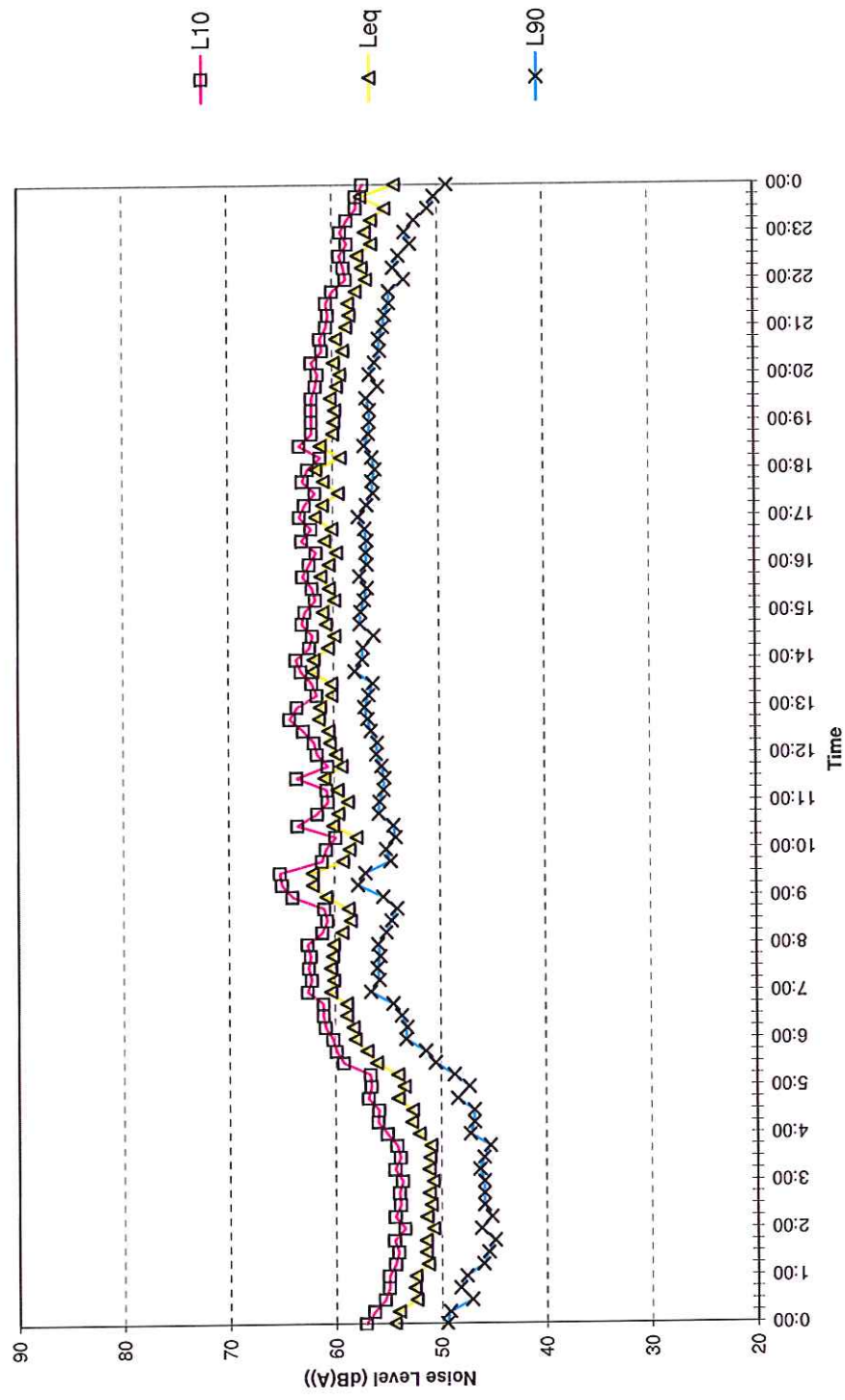
Life House - Background

Monday October 3, 2011



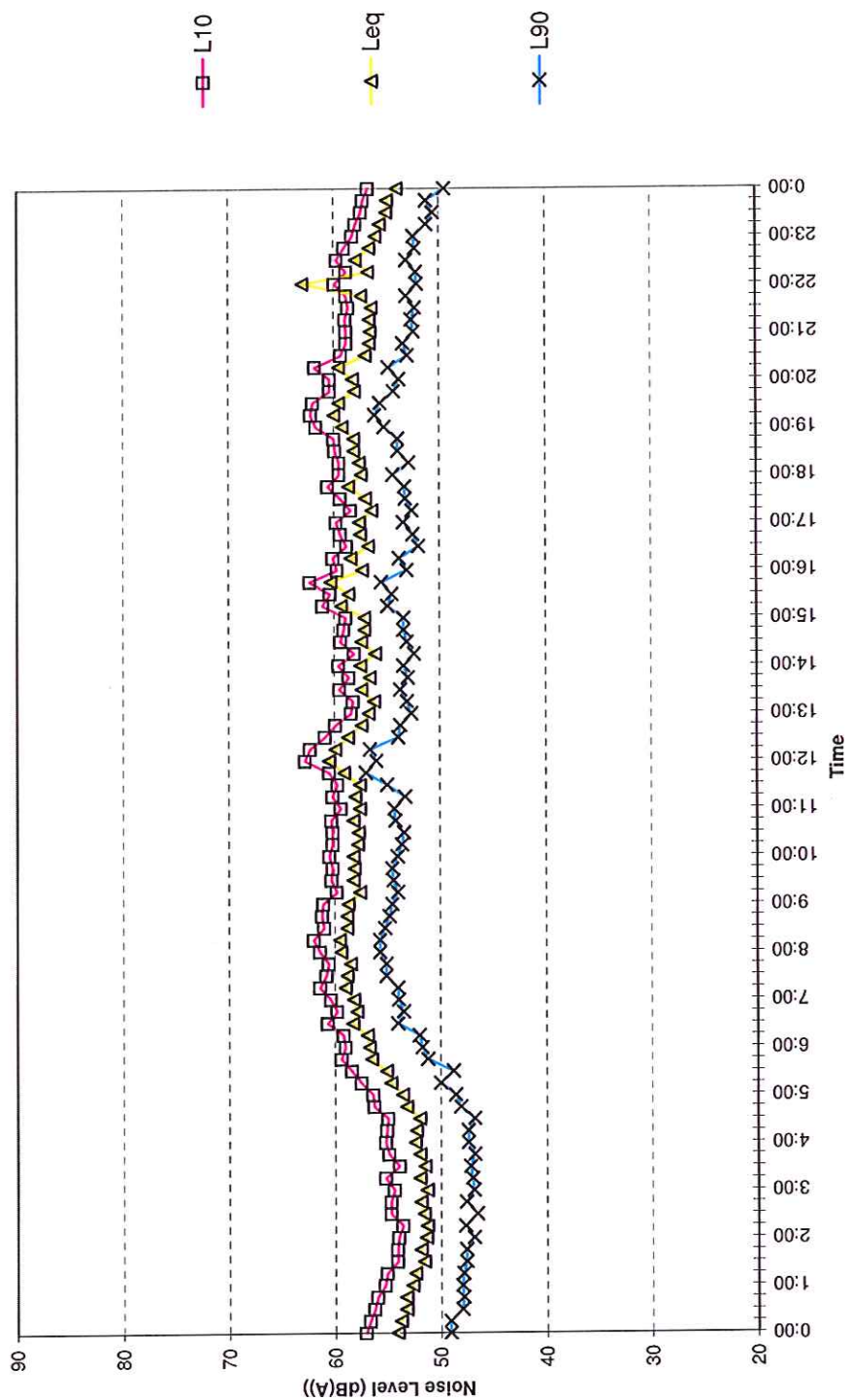
Life House - Background

Tuesday October 4, 2011



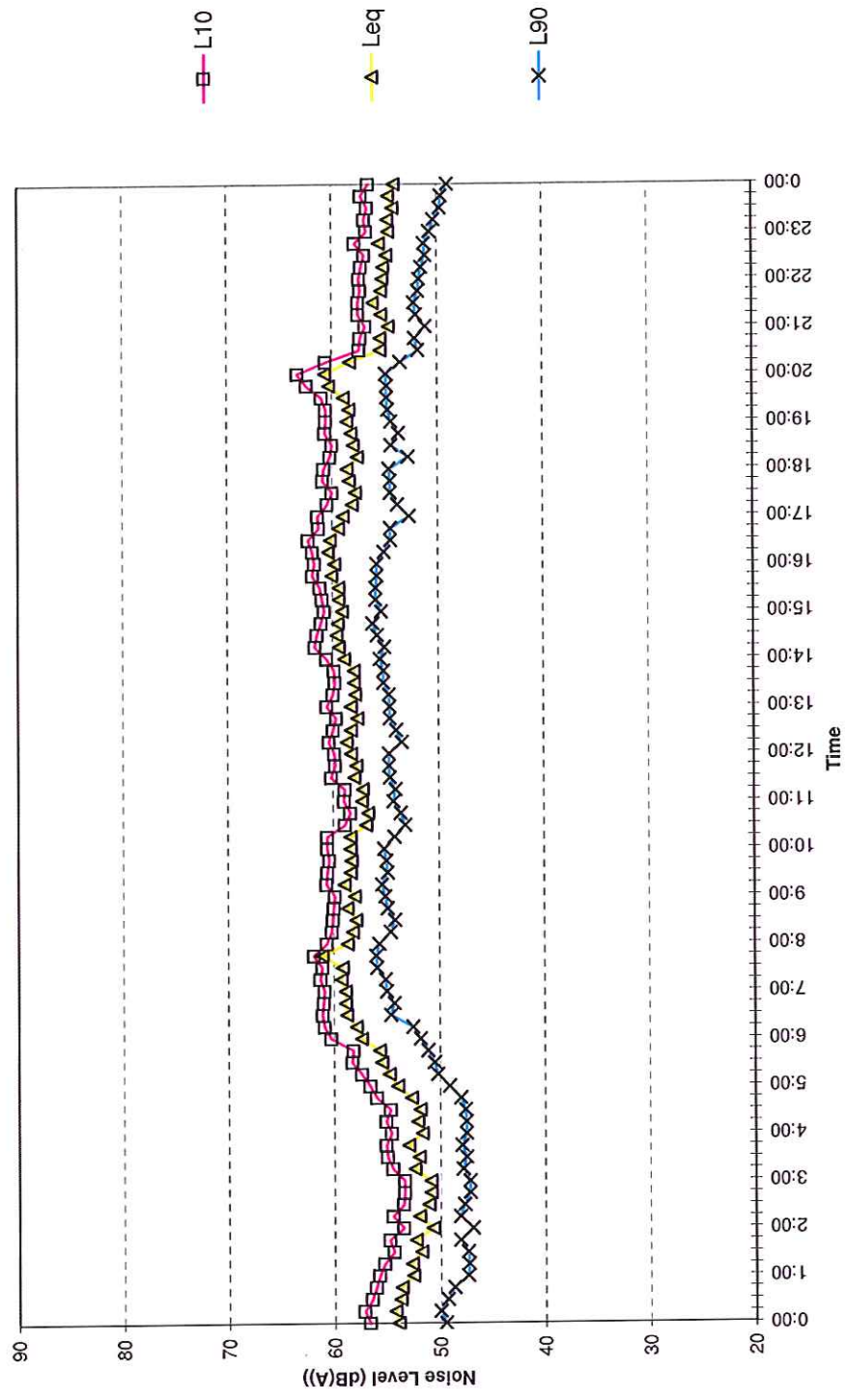
Life House - Background

Wednesday October 5, 2011



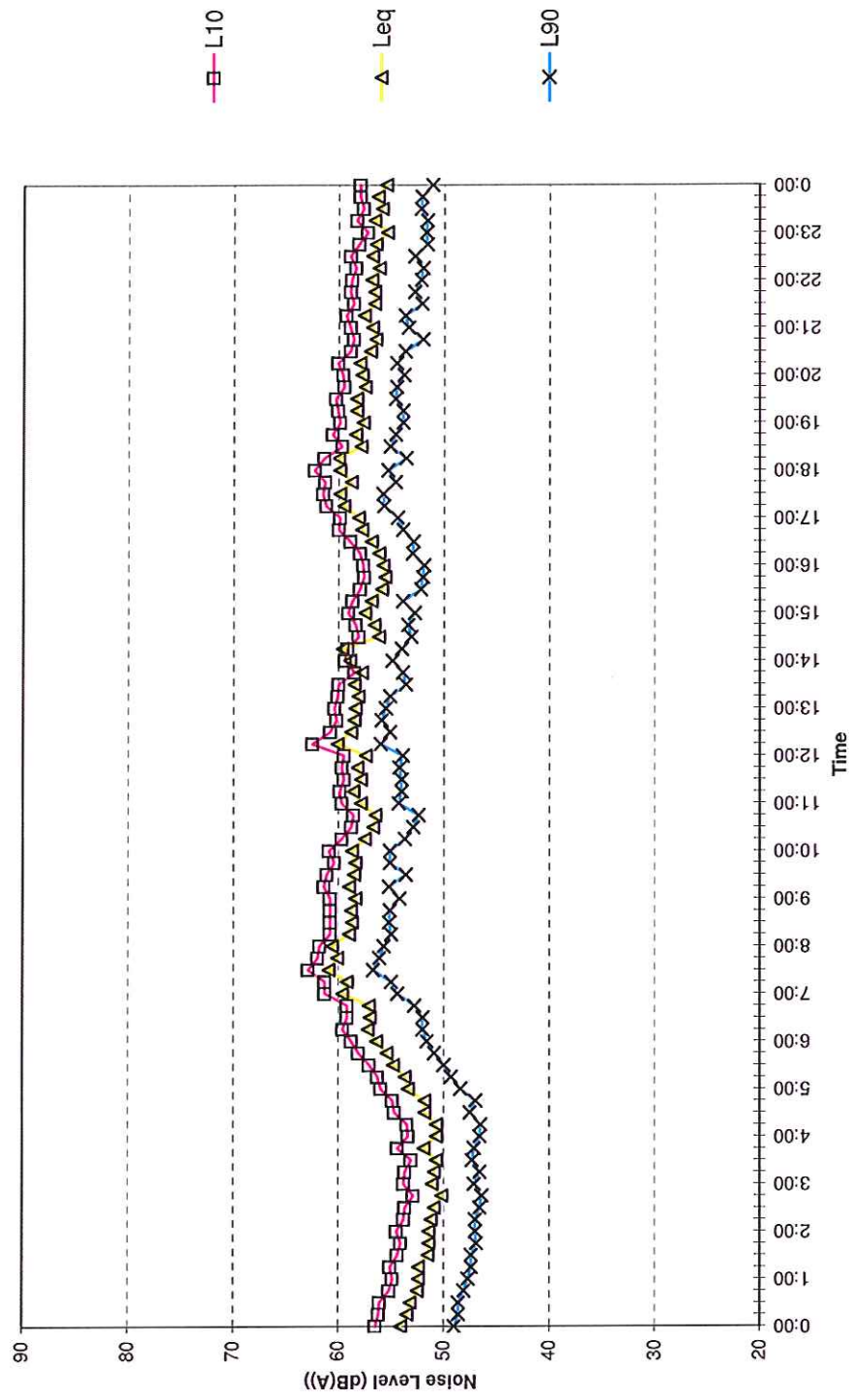
Life House - Background

Thursday October 6, 2011



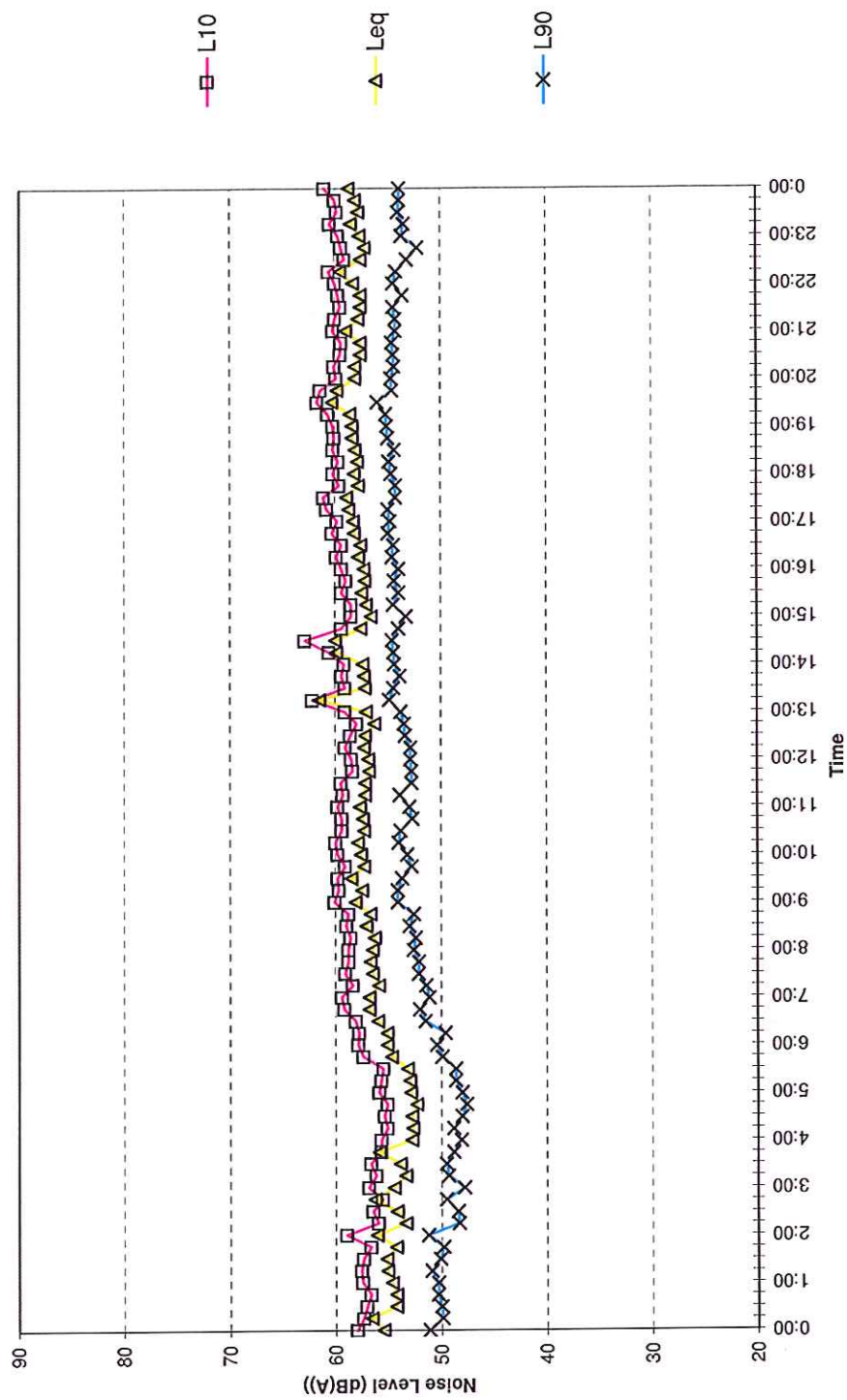
Life House - Background

Friday October 7, 2011

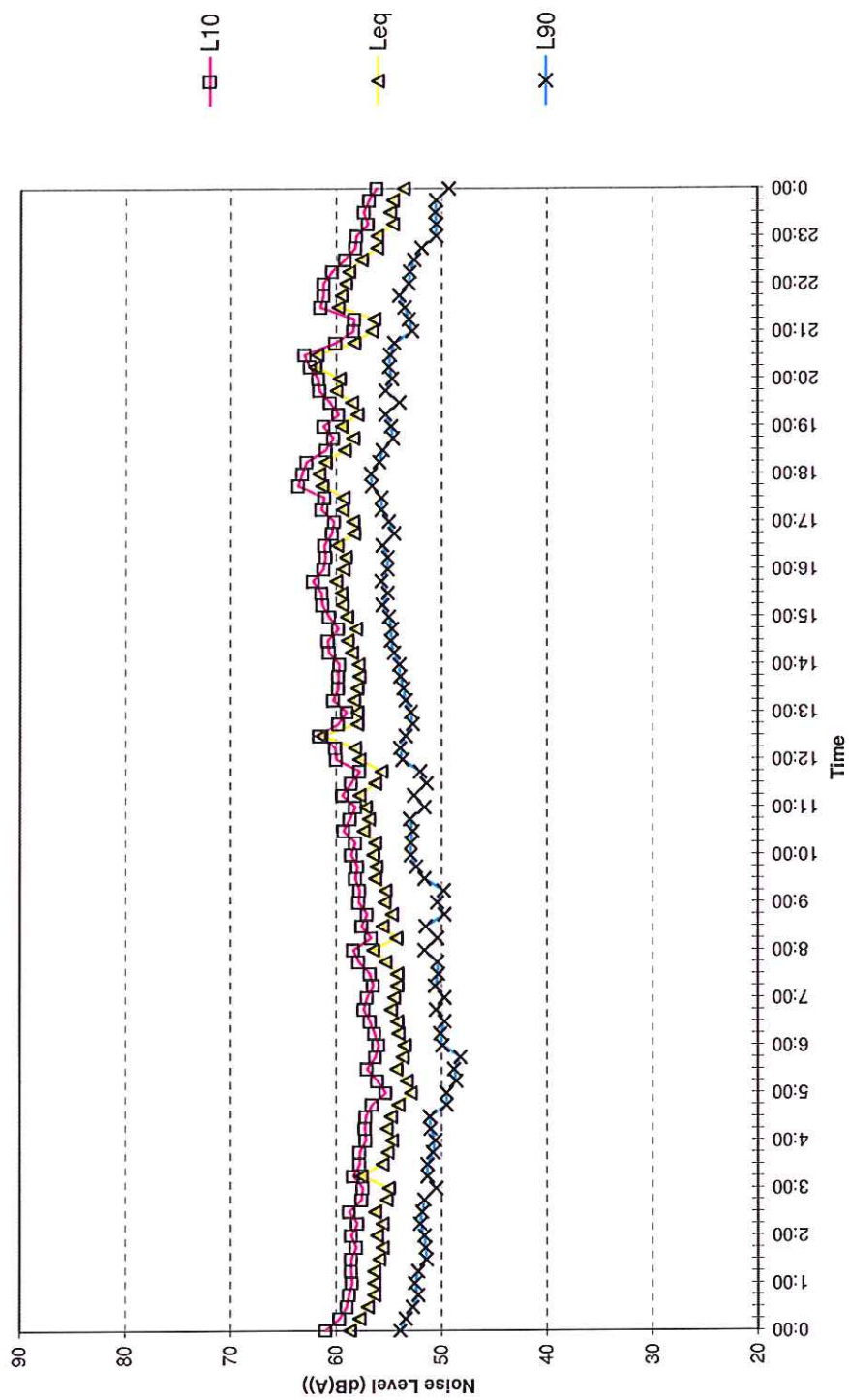


Life House - Background

Saturday October 8, 2011



Life House - Background
Sunday October 9, 2011



Life House - Background

Monday October 10, 2011

