

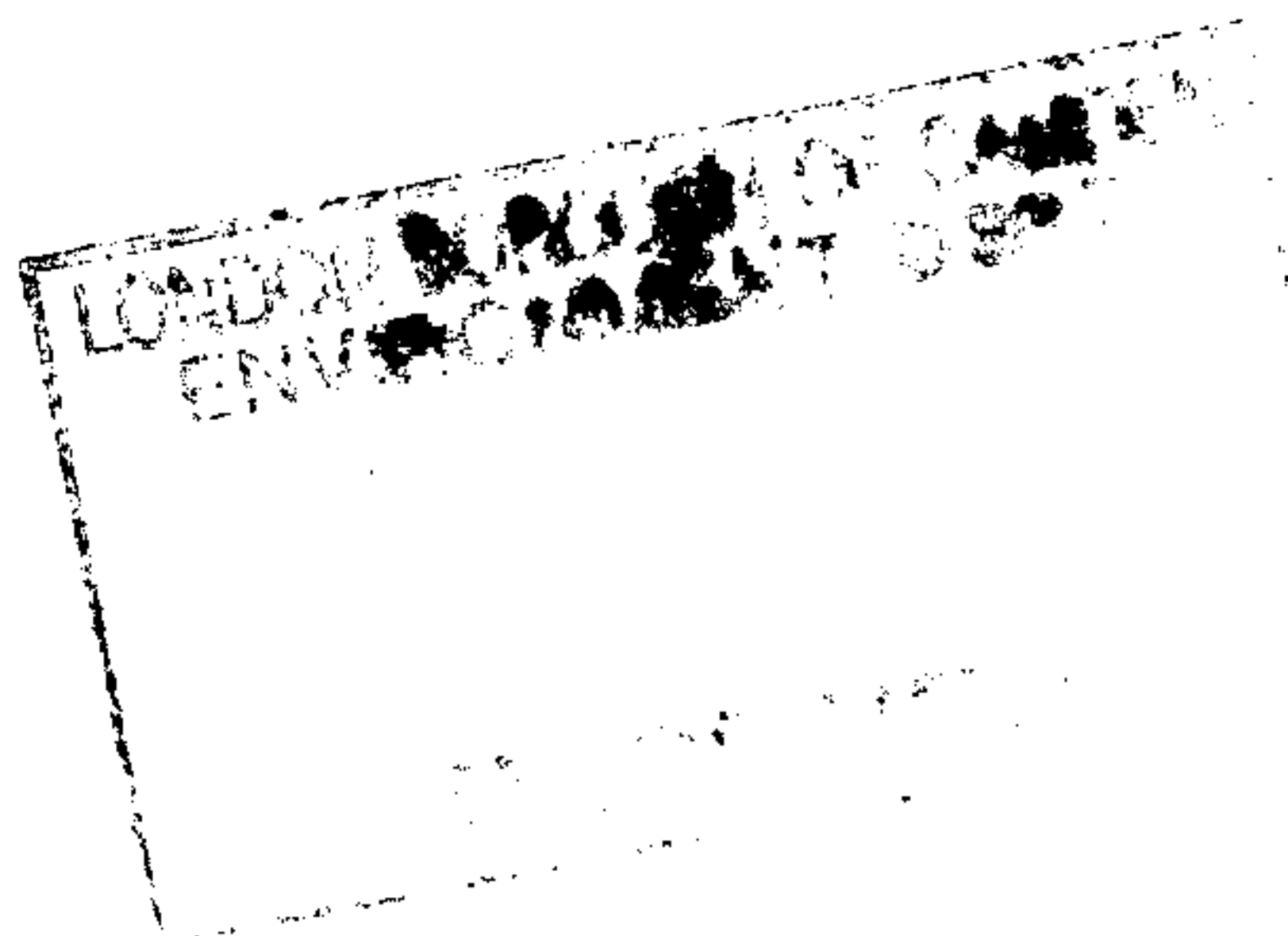
RNTNE Hospital, Grays Inn Road, London

Noise Survey Report

Report 04055/R1

**Anglo Canadian Clinics Ltd
5th Floor
Regina House
124 Finchley Road
London NE3 5HT**

March 2004



**Cole Jarman Associates
95 The Street
West Horsley
Surrey KT24 6DD
Tel: 01483 281381
Fax: 01483 281717**

Table of Contents-

1. INTRODUCTION AND AIMS..... 1

2. SITE DESCRIPTION..... 1

3. NOISE SURVEY 1

4. RESULTS 3

5. OPERATIONAL PLANT NOISE LIMITS..... 3

6. CONCLUSIONS 5

Figures

04055-SP1 Site plan indicating the location of noise survey measurement positions

Schedules

04055/Sch 1 Night time noise levels at positions 1-4
 4055/Sch 2 Night time L₉₀ spectra at positions 1-4

Appendices

Appendix A Noise Units

Issue	1 st Issue	Revision1	Revision 2	Revision 3
Date	08/03/2004			
Prepared by	Philip Hankin			
Checked by	Tim Street			

1. INTRODUCTION AND AIMS

- 1.1 Planning permission is being sought by Anglo Canadian Clinics Ltd. for the construction of a new building on part of the site of the existing RNTNE Hospital on Grays Inn Road, London. The new building would house a number of new operating theatres, together with associated patient recovery rooms and ancillary areas.
- 1.2 In this report, the results of evening and night time environmental noise measurements at the site for the proposed replacement facility are presented. Measurements were undertaken in order to quantify the existing noise climate on and around the site, to enable suitable noise emission limits to be derived for new mechanical services plant to be installed as part of the development.
- 1.3 Suitable noise limits for mechanical services plant are proposed, so as to be consistent with achieving the requirements of Camden Council for new plant installations.

2. SITE DESCRIPTION

- 2.1 The site is located to the rear of the existing hospital complex, as indicated in the attached figure 04055-SP1. The existing RNTNE hospital fronts onto Grays Inn Road, but extends east in between Swinton Street and Wicklow Street, the rear boundary of the site is formed by a railway line in cutting.
- 2.2 The site for the new building is presently used partly as a car park, and partly to accommodate two buildings used for storage and a workshop. The current plans for the scheme would see these two buildings demolished, and the car park reduced in size to make way for the new building, which would extend to four storeys in height, with a plant room for mechanical services on the roof.
- 2.3 In terms of nearby noise sensitive properties, there are a number of blocks of residential flats fronting onto Wicklow Street to the north east of the site, there are further properties to the east of the site beyond the railway cutting. The main other area of residential properties lies to the south and south east of the site, in terms of various properties which front onto Swinton Street.
- 2.4 Existing hospital buildings lie to the immediate south and west of the site, as can be seen in the attached figure 04055-SP1.

3. NOISE SURVEY

- 3.1 The noise survey was undertaken over an 8 hour period starting at 2100 hours on Thursday 4th March 2004, and ending at 0500 hours the following morning. This time period was chosen so as to enable the lowest existing background noise levels to be recorded during a typical daytime (0700-2300 hours) and night time (2300-0700 hours) period.

3.2 The survey methodology was agreed in advance with Lee Sandford of the Camden Council Pollution and Public Health Team, as being suitable to assess the existing background noise climate in the area. Data from the survey was to be used for setting suitable limits for noise emissions from mechanical services plant to be installed as part of the development, at nearby noise sensitive premises.

3.3 During the survey, measurements were made using the following equipment:

CEL	Sound Level Analyser	Type 593
Bruel & Kjaer	Acoustic Calibrator	Type 4231

The sound level analyser was fitted with a windshield and was calibrated before and after the survey found not to have drifted by any significant amount.

3.4 Weather conditions during the survey were still, overcast, cool and dry throughout.

3.5 Measurements were made at a total of four positions as indicated in the attached site plan figure 04055-SP1, details of each position were as follows:

1. 1m from the façade of flats at 39-53 Wicklow Street, to the north east of the site
2. 1m from the façade of the existing Hospital Audiology Building, directly to the south of the site
3. 1m from the façade of the residential property adjacent to No.29 Swinton Street, to the south east of the site
4. 1m from the rear façade of properties in Swinton Place, due south of the site.

These positions were selected so as to be representative of the closest noise sensitive premises to the site, and most likely to be affected by noise from the proposed development.

3.6 Measurements were taken during each hour of the survey period, with the exception of position 4, where measurements were made during alternate hours. All measurements were made over 10-15 minute periods in terms of L_{Amax} , L_{Aeq} , L_{A10} and L_{A90} (see attached Appendix A for an explanation of noise units used). In addition, typical octave band L_{90} noise spectra were taken during the survey at each position.

3.7 The noise climate at positions 1 and 2 was controlled by a mixture of traffic on Swinton Street to the south (although both positions were screened from this road), and noise from train pass-bys on the railway line in cutting. There was little traffic along Wicklow Street itself during any hour of the survey. Train pass-bys ceased by 0100 hours, although there was a period of intermittent noise from some engineering works on the line between 0200 and 0300 hours. Traffic on other roads in the area was audible in the distance throughout the survey.

- 3.8 At measurement position 3, the noise climate was controlled almost entirely by traffic on Swinton Street. Traffic on other roads in the area was occasionally audible in the distance during lulls in the flow on Swinton Street. Train pass-bys were also audible until 0100 hours, however this measurement position was well screened from the railway.
- 3.9 At measurement position 4, the noise climate was controlled by traffic on Acton Street, to the south of the position and Swinton Street. Traffic on other roads in the area was occasionally audible in the distance during lulls in the flow on Swinton and Acton Street. Train pass-bys were also audible in the distance only, until 0100 hours, as this position was comparatively further away and well screened from the railway.

4. RESULTS

- 4.1 The results of noise measurements at positions 1-4 are presented in the attached schedule 04055/Sch1.
- 4.2 Octave band L_{90} spectra measured at positions 1-4 during the survey are presented in the attached schedule 04055/Sch2.

5. OPERATIONAL PLANT NOISE LIMITS

- 5.1 Mechanical services plant serving the building is to be contained in the rooftop plantroom, as detailed in the SEF Architect's drawings for the scheme. There is to be a standby emergency electricity generator installed as part of the scheme, this may be located either in the rooftop plant area, or in the car park at ground floor level.
- 5.2 With respect to the new plant to be installed as part of the development, Camden Council Planning Department produce a guidance document entitled "Noise standards in respect of planning and licensing applications". Section DS6 'Noise and vibration standards makes the following comments in respect of new industrial development under paragraph 16.27:

"The Council considers that for new developments involving noisy plant/equipment or other uses, design measures should be taken to ensure that noise levels predicted at a point 1 metre external to sensitive facades are at least 5dB(A) less than the existing background measurement (L_{A90}) when the equipment is in operation. Where it is anticipated that equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses in the noise (bangs, clicks, clatters, thumps), special attention should be given to reducing the noise levels at any sensitive facade by at least 10dB(A) below the L_{A90} level."

- 5.3 To be consistent with this requirement, limits are proposed in table 04055/T1 for noise emissions from normally operating mechanical services plant to be installed as part of the development. The limits are based upon the results of the noise survey and are 5dB(A) below the relevant measured L_{A90} background noise

level. The majority of plant items are to operate 24 hours a day, however in the event of some plant operating during daytime hours only, two separate noise limits are given for daytime and night time hours respectively.

- 5.4 The plant noise limits are to apply at a position 1m from the façade of the relevant noise sensitive property, and apply to the combined noise level from all plant that operates during the relevant period (daytime or night time).

Position	Daytime Plant Noise Limit dB(A) 0700-2200	24 Hour Plant Noise Limit dB(A)
1 – Existing residential houses to north east on Wicklow Street	41	37
2 – Existing hospital buildings, and the rear façade of residential houses due east on the other side of the railway	40	36
3 – Existing houses to the south and south east, on Swinton Street	48	37
4 – Rear facades of houses facing onto Swinton Place, due south of the site	51	37

Table 04055/T1: Proposed plant noise limits.

- 5.5 Any plant items that have a distinctive tonal or intermittent nature shall be designed to a level 5dB(A) lower than the limits in table 04055/T1 above. The recorded L_{90} background noise spectra in Schedule 04055/Sch2 can be used to help determine whether plant will be perceived as being tonal or not.
- 5.6 We would recommend that the following condition be imposed upon any planning permission granted, in order to ensure that the requirements of Camden Council with respect to noise from normally operating permanent plant to be installed as part of the development are addressed. This condition should apply to noise from all normally operational mechanical services plant:

Noise from permanent normally operating mechanical services plant in the building shall not exceed a combined noise level at least 5dB(A) below the existing L_{A90} background noise level during the relevant time period. Noise limits for plant are to apply at a position 1m from the closest affected window of the relevant noise sensitive property.

Any individual items of plant which have a distinctive tonal or intermittent nature shall not exceed a noise level at least 10dB(A) below the existing L_{A90} background noise level during the relevant time period.

Informative

For the purposes of this condition, existing L_{A90} background noise levels at nearby noise sensitive properties shall be taken to be those measured and reported in Cole Jarman Associates Environmental Noise Survey Report 04055/R1 (1st issue) dated 8th March 2004.

5.7 The standby electricity generator is to be for emergency use only, such plant would typically be designed to a less stringent criteria than that for normally operating plant. This reflects the very occasional use of the plant concerned, and its nature as a standby item for use during emergencies only. Depending upon the precise nature and final location of the generator, a suitable noise limit will need to be discussed and agreed with the local authority.

5.8 With specific regard to the emergency generator and any other plant for emergency use only, we would propose the following planning condition:

Prior to installation on site, a scheme for protecting nearby residential dwellings against noise from the proposed emergency plant shall be submitted to and approved in writing by the local authority. The scheme shall include proposals for control of noise caused by routine testing and maintenance activities on the plant concerned.

6. CONCLUSIONS

6.1 A noise survey has been conducted at the site for the proposed new building at the existing RNTNE Hospital, Grays Inn Road, London.

6.2 Existing day and night time background noise levels have been measured at a number of locations around the site and the sources and nature of the noise quantified.

6.3 The external background noise levels measured have enabled appropriate environmental noise criteria to be established for new permanent plant to be installed in the proposed building, in line with the requirements of Camden Council.

6.4 Suitable planning conditions have been proposed to be attached to any planning permission granted as part of the development, consistent with ensuring that the requirements of Camden Council are incorporated into the mechanical services plant design for the final development scheme.

Cole Jarman Associates
March 2004

RNTNE Hospital, Grays Inn Road, London
Results Schedule 04055/Sch 1
Noise levels measured at positions 1-4

Position 1 – Wicklow Street

Time Period	Sound Pressure Level (dB re 20µ Pa)			
	L _{A10}	L _{A90}	L _{Aeq}	L _{Amax}
2100-2200	61	46	57	73
2200-2300	59	46	57	76
2300-0000	57	46	55	69
0000-0100	54	44	57	79
0100-0200	51	43	52	77
0200-0300*	52	43	49	64
0300-0400	50	42	50	76
0400-0500	49	42	46	59

* Some noise from railway maintenance work audible during this period

Position 2 – Audiology Building on Hospital Site

Time Period	Sound Pressure Level (dB re 20µ Pa)			
	L _{A10}	L _{A90}	L _{Aeq}	L _{Amax}
2100-2200	59	45	56	71
2200-2300	58	45	56	71
2300-0000	60	44	58	72
0000-0100	55	42	56	75
0100-0200	56	41	52	66
0200-0300*	55	42	52	66
0300-0400	55	41	52	67
0400-0500	54	42	50	64

* Some noise from railway maintenance work audible during this period

Position 3 – Swinton Street

Time Period	Sound Pressure Level (dB re 20µ Pa)			
	L _{A10}	L _{A90}	L _{Aeq}	L _{Amax}
2100-2200	75	53	71	94
2200-2300	76	53	71	86
2300-0000	75	53	73	95
0000-0100	75	49	70	83
0100-0200	73	44	68	84
0200-0300*	73	47	68	84
0300-0400	71	43	67	85
0400-0500	69	42	67	89

* Some noise from railway maintenance work audible during this period