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NOISE IMPACT ASSESSMENT REPORT

**UNITS 23-24 CHERITON, QUEEN'S CRESCENT,
LONDON, NW5 4EZ**

FOR

MR M. HASSAN



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1. EXECUTIVE SUMMARY

Sound Licensing has been instructed to undertake an acoustic assessment of the property units 23-24 Cheriton, Queens Crescent, London NW5 4EZ in response to a request from the property occupiers. The request is to support a planning application submitted to the Local Authority, the London Borough of Camden, for permanent change of use from ground floor community centre (D1) and basement office (B1a) to a community centre and place of worship (D1) on both floors.

Sound Licensing previously completed a similar noise impact assessment of the centre to support a planning application for temporary permission - planning permission was granted under reference 2015/4077/P. That previous noise impact assessment report, dated 27th August 2015 (report ref: 23-24 Queens Crescent NIA), is referenced within this report hereon as 'the previous SL noise report'.

A visual investigation of the property was conducted wherever possible and practicable. The investigation demonstrated that the recommendations to reduce noise levels from the centre, as provided in the previous SL noise report, have been implemented onsite.

A noise survey was conducted within the proposal site and outside the nearest residential premises. A robust, worst-case assessment of the noise levels associated with the proposed religious activities has been undertaken with respect to the nearest noise sensitive receptors. The results of the noise survey were considered reasonable given the location of the measurement positions and the noise source.

The results of the noise survey demonstrate that the highest operating noise level associated to the community centre do not increase the external background noise levels at residential premises.

No complaints of noise have been received by the planning and environmental health departments of the London Borough of Camden with respect to the operation of the community centre since it gained a one year temporary planning permission.

The operation of the community centre is demonstrated to not adversely or significantly adversely impact the amenity of the closest residential noise sensitive receptors.

2. INTRODUCTION

The site of Units 23-24 Cheriton, Queens Crescent, London NW5 4EZ (hereafter referred to as “the site”) is a commercial unit on ground floor and basement level with residential premises directly above and south on the opposite side of a small car access/garage area.

The purposes of this report are:

- To detail the findings of the visual investigation completed at site to see if recommended noise mitigation measures have been implemented
- To detail the existing ambient and background noise levels at 1 metre from the façade of the nearest residential properties at the rear of the site and compare the specific noise level of the operation of the community centre
- To demonstrate that the operation of the site, with recommended mitigation measures installed over the last year, has not caused and will not cause any significant noise impact to nearby residential premises.

3. SITE DESCRIPTION

The site is currently occupied and is part of a number of commercial/retail units on the ground floor with the closest residential properties located directly above (1st floor level) and south to the rear of the site. The proposal is to operate the premise between the times of 09:00 – 21:00 Monday-Friday, 10:00 – 19:00 Saturdays and 10:00 - 18:00 Sundays.

Figure 3.1 shows the site highlighted approximately in **blue** and the surroundings land use.

Figure 3.1 Site Location and the Surrounding Land Use



4. CONSTRUCTION OF SITE

Construction

The construction of the site is detailed in the previous SL noise report. No significant construction or demolition work has been implemented throughout the last year in which temporary planning permission was granted. The only construction and renovation work undertaken has been to implement all recommendations given in the previous SL noise report; this was confirmed by inspecting the premises before the noise survey. The recommendations that have been implemented are reproduced below,

- Acoustic seals are installed where necessary to opening windows/panels.
- Acoustic seals are installed on basement door.
- Installation of hardboard/acoustic board over any window, opening panels or other unnecessary gaps to stop noise leakage. Recommended to use a material with a minimum mass of 10-15kg/m². Acoustic sealant has been used on all fixings wherever possible and necessary.
- Doors are kept closed when prayers are in operation
- Notices are posted asking patrons to respect the neighbours and to leave the area quietly
- Regular staff briefings remind all staff of the noise issues
- Managers regularly ensure patrons outside leave in a quiet and orderly manner
- The PA system is locked within its cupboard

The PA and speaker system located at ground floor which is used to amplify the religious prayer is the same as that detailed in the previous SL noise report. No system upgrade has been installed.

5. NOISE EMISSION LIMITS

5.1 Local Authority Requirements

Camden Local Plan Appendix 2:

'Assessments for noise from entertainment and leisure premises must include consideration to amplified and unamplified music, human voices, footfall and vehicle movements and other general activity. Appropriate metrics must be used to measure and assess the noise impact including LAeq and LAmax metrics and appropriate frequency spectrum. Planning permission will not be granted in instances where it is not possible to achieve suitable and sufficient internal noise levels with reference to the most up to date and appropriate guidance within proposed noise sensitive receptors despite appropriate mitigation proposals due to the totality of noise from existing entertainment venues'.

Correspondence with the L.B. Camden planning officer confirmed that *'An updated noise survey is required to see if the previously recommended measures have been successful along with further recommendations, if necessary'*.

6. NOISE SURVEY METHODOLOGY

The methodology to monitor and measure noise from the community centre closely follows the methodology undertaken for the noise survey in the previous SL noise report. The noisiest activity of the proposal was advised to Sound Licensing as being an evening prayer.

A manned noise survey was undertaken between 18:24 and 18:52 hours on 10th October 2016. Measurements were undertaken within two places simultaneously; (1) inside the ground floor of the site and, (2) below the façade/walkway at 1 metre from the residential premise located at (believed to be) Flat Number 6, Level 1, at Fordcombe House (to the rear of the site). Specific noise levels were measured at both locations when the specific noise (noisiest activity – evening religious prayer) was in operation, between the time of 18:24 and 18:37 hours. Background noise levels were undertaken at the residential location only when the specific noise was not in operation, between 18:38 and 18:52 hours.

The evening prayer started at approximately 18:24 hours in line with religious requirements, lasting for 13 minutes. This included the use of the amplified speaker system by the person reading the prayer and a large number of people in attendance listening to, and orally joining in the prayers at times, as part of the religious event. The prayer was attended by approximately 70 people in total which is below the maximum capacity of the proposed use (maximum capacity estimated up to 170 total: 140 ground floor, 30 basement). Calculations have therefore been completed within Section 8 of this report to predict noise levels at residential locations when the maximum attendance is in operation.

Measurements undertaken inside the site were completed in the middle of the ground floor to reduce sound reflections from the internal walls wherever possible. The sound level meter was set close by to one of the speakers and was mounted 1.5 metres above ground on a tripod. Measurements undertaken at the residential property outside Flat No.6 Fordcombe House were completed by mounting the sound level meter 1.5 metres above ground on a tripod. All doors and windows of the site were closed during the time of the survey.

Measurements were taken in 15 minute periods with set parameters of L_{Amax} , L_{Aeq} and L_{A90} . It was ensured by Sound Licensing consultants that the noisiest activity was conducted, and stayed at, maximum capacity/operation in accordance with the religious activity i.e., the speaker system was locked while the specific noise was measured. This method provides a worse-case scenario of measuring noise levels when the evening prayer was in operation.

As per section 8.4.6.1 of BS8233:2014, “Airborne sound insulation is mainly considered for intermediate floors between spaces containing either noise sources or noise-sensitive occupants. For a ground or basement floor where there is neither an appreciable noise source nor a noise-sensitive occupant below the floor, the floor is only of interest if it could contribute to flanking transmission”. Due to this, and given the fact that no noise flanking transmission paths were identified in the visual inspection of the site, and the fact that vibration is not an issue associated with the noisiest activity, airborne noise between the basement and the flat above the ground floor of the site has not been assessed. Airborne noise has however been assessed from the ground floor and basement of the site in respect to the residential property located at Flat 6, Fordcombe House.

The equipment used for the noise survey is summarised in Table 6.1.

Table 6.1 Description of Equipment used for Noise Survey

Equipment	Description	Quantity	Serial Number
Larson Davis Sound Expert LxT	Type 1 automated logging sound level meter	1	0004702
Larson Davis 377B02	½" microphone	1	159519
Larson Davis	Pre-amplifier	1	042610
Larson Davis CAL200	Class 1 Calibrator	1	12245

Equipment	Description	Quantity	Serial Number
Pulsar Model 30	Type 1 automated logging sound level meter	1	T232239
Pulsar	½" microphone	1	-
CESVA PA14-801	Pre-amplifier	1	028021
Pulsar Model 106	Class 2 Calibrator	1	51504

The noise monitoring equipment used was calibrated before and after the noise survey period. No significant drift was found. Equipment calibration certificates can be provided upon request.

Figure 6.1 Approximate location of external noise monitoring position



7. NOISE SURVEY RESULTS AND OBSERVATIONS

7.1 Results

A summary of the measured noise levels at each position during the survey is shown in Table 7.1. All measured noise levels have been rounded to the nearest number for the purposes of this report.

Table 7.1 Summary of noise monitoring results 10th October 2016

START TIME	LOCATION	SPECIFIC NOISE SOURCE OPERATION	dB L _{Aeq}	dB L _{A90}	dB L _{Amax}
18:24	1m from façade of Flat No.6 Fordcombe House	On	55 (13mins)	46 (13mins)	84*
18:24	Ground floor of site	On	64 (13mins)	41 (13mins)	92
18:34	1m from façade of Flat No.6 Fordcombe House	Off	56 (15mins)	47 (15mins)	86*

*Max noise levels affected by buses passing on Malden Road and/or overhead flights

The results of the noise survey provided in the previous SL noise report is reproduced below for ease of reference.

Table 7.2 Summary of noise monitoring results 24th August 2015

START TIME	LOCATION	SPECIFIC NOISE SOURCE OPERATION	dB L _{Aeq} 15mins	dB L _{A90} 15mins	dB L _{Amax} *
19:39	1m from façade of Flat No.6 Fordcombe House	Off	55	48	80
20:14	1m from façade of Flat No.6 Fordcombe House	On	54	47	68
20:44	1m from façade of Flat No.6 Fordcombe House	Off	53	40	68
20:10	Ground floor of site	On	57	37	74

Table 7.1 demonstrates that with the maximum internal specific noise in operation (the religious prayer), 64dB L_{Aeq (13mins)}, neither the ambient or background sound pressure levels (specific noise off) are increased externally at Flat No.6 Fordcombe House. Comparing Table 7.1 and 7.2 shows that the ambient and background sound pressure levels have not significantly changed in the year since measurements were last taken – this demonstrates that the noise survey data gained during both noise surveys is robust.

As per section 6 of this report, it should be noted that the measured noise levels are a worst case scenario with the specific noise operating.

7.2 Observations

Observations of the noise climate during the survey at each location are given below.

1 metre below façade of Flat 6, Fordcombe House – External ambient noise levels affected mainly by vehicles on local road network and overhead flights, and some residential noise.

Ground floor of site - Internal ambient noise levels affected very slightly by infrequent loud external noise sources such as buses passing over speed bumps on local road network. No other sources audible.

It should be importantly noted that during the time of the source noise in operation (the evening prayer) no significant sources of noise could be subjectively heard from the community centre at any time.

No abnormal noise sources were noted to occur during the survey which affected the data.

8. RESIDENTIAL NOISE IMPACT CALCULATIONS

Calculations below have been completed to predict noise levels at the two residential premises under assessment since no access could be gained to the residential premises during the survey.

8.1 No.6 Fordcombe House

As detailed within Section 6 of this report, approximately 70 people attended the evening prayer. The maximum attendance proposed is 170 people (basement and ground floor). A calculation has been completed to predict the specific noise level at this location with full attendance, as below;

$170 \div 70 = 2.4$ times the number of people than the specific noise measured. This increase in people would result in an increase of 4dB over the measured external specific noise level (55dB L_{Aeq}). The noise level at 1metre from the façade is predicted to be 59dB L_{Aeq} . Noise levels were measured at 1metre from the façade therefore a -3dB reduction needs to be applied to the measurements. The noise level with full attendance is therefore predicted to be 56dB L_{Aeq} .

It should be importantly noted however that the specific noise level measured at this location inherently includes external noise sources (other than the evening prayer) which could not be practicably paused out of the measurement, e.g., road traffic noise, overhead aircraft, residential noise etc.

8.2 Flats above site

As detailed within Section 6 of this report, approximately 70 people attended the evening prayer conducted within the ground floor (directly below flats above). The maximum attendance proposed is 140 people (ground floor only). A calculation has been completed to predict the specific noise level in this premises with full attendance, as below;

$140 \div 70 = 2$ times the number of people than the specific noise measured. This increase in people would result in an increase of 3dB over the maximum internal measured specific noise level (64dB $L_{Aeq, 13mins}$). The specific noise level in the ground floor with full attendance is therefore predicted to be 67dB L_{Aeq} .

The predicted construction of the dividing layer between the ground floor of the site and the residential flats directly above is detailed in Section 4 of the previous SL noise report as having a likely overall sound attenuation of 48dB R_w .

Therefore; Internal noise level =
 $67 \text{ dB } L_{Aeq} - 48\text{dB } R_w = \mathbf{19\text{dB } L_{Aeq}}$

8.3 Footfall Noise

An assessment of speech noise from patrons exiting the front of the site can be completed in respect to adjacent neighbours above. The aim of this assessment is to provide a worst case scenario of the use of this area when prayers are finished and if patrons congregate.

A noise level of 60dB L_{Aeq} at 1 metre has been used as a reference for talking and conversation at a typical distance between two people. For this purpose, it has been assumed that 50 people talking outside the centre would be the noise source (60dB L_{Aeq} x 50 people = 77dB L_{Aeq} @ 1metre). There is approximately 4 metres between the external ground floor and the façade of the first floor residential premises therefore with distance attenuation the predicted noise level is 65dB L_{Aeq} . There is a balustrade as part of the residential walkway which forms a line of sight screen to the external ground floor below and this would likely offer at least 10dB noise reduction. Therefore noise at 1 metre from the residential facades above the site is predicted to be 55dB L_{Aeq} . Referring to Table 7.1, this predicted noise level is 13dB below the L_{Amax} noise levels measured at the external position and 2dB above the lowest measured L_{Aeq} . Assuming a 15dB reduction in noise from a slightly open window as per BS8233:2014, the internal noise level in the residential flats above the site would be **40dB L_{Aeq}** .

If management techniques are continued to be adopted then the accumulation of 50 people outside the centre should not take place and these noise levels therefore present a worst case scenario. It should also be noted that the front facades of the residential premises above the site face the main road (Malden Road) and would likely have higher noise levels than those detailed in Table 7.1 and 7.2, therefore the noise level impact of patrons talking outside would likely be less than calculated above.

9.0 DISCUSSION

9.1 Noise Survey Results compared to previous SL noise report

British Standard (BS) 8233:2014 'Guidance on sound insulation and reduction for buildings' provides references and guideline values for desirable indoor ambient noise levels for dwellings. A comparison of the measured noise data against the British Standard provides the difference between the existing noise levels and desired internal levels.

Given the proposed operating times of the site (maximum of 21:00 hours), it is appropriate to compare calculated noise levels with reasonable resting conditions in nearby residential premises. This time period is within 07:00-23:00 hours therefore noise break out from the site will be assessed against achieving the internal noise levels inside residential premises' living rooms, as per BS8233:2014, given as 35dB $L_{Aeq, 16hour}$

Table 9.1 – Flats above Ground Floor of Site

British Standard	Calculated Sound Pressure Level (specific on) $L_{Aeq, 15min}$	Difference between British Standard and specific noise on
35dB $L_{Aeq, 16hour}$ (07:00 – 23:00)	19	-16dB

As can be seen from Table 9.1, with the specific noise (evening prayer) operating, the internal noise level within the flats above ground floor of the site are -16dB than the British Standard. The specific noise levels from the site's noisiest operation (evening prayer) are therefore considered to have a negligible impact in this premises.

A comparison of the externally measured background and ambient noise levels (specific noise source off) and the specific noise source operating can also be made as demonstrated in Table 9.2 below.

Table 9.2 Flat No.6 Fordcombe House

LOCATION	SPECIFIC NOISE SOURCE OPERATION	dB L_{Aeq}	dB L_{A90}
1m from façade of Flat No.6 Fordcombe House	On	55 (13mins)	46 (13mins)
1m from façade of Flat No.6 Fordcombe House	Off	56 (15mins)	47 (15mins)

As can be seen from Table 9.2, with the specific noise (evening prayer) operating the background and ambient noise levels are not increased. The specific noise levels from the site's noisiest operation (evening prayer) are therefore considered to have a negligible impact to the existing ambient and background noise levels at this location and would not be considered to cause any negative impact on residential amenity.

10. OPERATION OF THE COMMUNITY CENTRE

All premises and operational management recommendations provided in the previous SL noise report should continue to be implemented.

Correspondence with the planning department and the environmental health department for the London Borough of Camden confirmed by email in October 2016 that in the year since temporary planning permission was granted no complaints of noise against the community centre have been received.

It is of our understanding from obtaining information from the client that the site has been operating, at times, at full capacity in the time since temporary planning permission was granted. A Management Plan is in place to address and adequately deal with any noise related matters associated to the Centre.

10.1 Conclusion

Sound Licensing has completed a visual investigation of the property and have identified that all recommendations provide in the previous SL noise report have been implemented. A noise survey was completed in order to determine noise impact levels at the residential premises adjacent to the site due to the site operating its noisiest activity. The noise impact assessment has demonstrated that the operation of the community centre does not increase the background and ambient noise levels and does not negatively impact nearby residential premises. Operational and management recommendations provided in the previous SL noise report should be continued to be implemented throughout the operation of the centre.

APPENDIX A – ACOUSTIC TERMINOLOGY

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
L_n,T	The noise level exceeded for n% of the time over a given period T. e.g., L_{90} , the noise level exceeded for 90% of the time (background noise) level.
L_{max}	The maximum noise level measured.

APPENDIX B – Pictures

Rear of Site (from 1metre outside Flat No.6 Fordcombe House)



Basement Room



Ground Floor



Ground Floor



Ground Floor

