Cole Jarman

Mr B Tulloch
Camden Council
5 Pancras Square
London
N1C 4AG

13th August 2015
Ref: 14-0692 L02-0

Dear Mr Tulloch

Application Reference 2015/2089/P - 11 Rosslyn Hill
Response on behalf of Applicants to Vanguardia report "Air Studios – Noise and Vibration Effects of Proposed Construction works at 11 Rosslyn Hill, London NW3 5UL"

Introduction

Cole Jarman are an independent acoustic consultancy that has been operating for over 20 years. Within the company is a vast array of experience in the field of acoustics and vibration from the 15 practicing consultants. The company has been involved in dealing with a number of construction disputes on the grounds of noise. For example, the company were adviser to the Corporation of London on noise and vibration issues resulting from the Crossrail proposals for the tunnelled sections through central London. Particular interest was paid to the Barbican Centre Concert Hall, in which detailed noise measurements were undertaken in collaboration with the Crossrail team and for which an agreed method for controlling noise and vibration intrusion was agreed.

We have been requested by the applicants to review and respond to the Vanguardia report dated 3rd June on behalf of Air Studios.

Having reviewed the report we wrote to Vanguardia on 6th July (copy letter attached) requesting a meeting at the studios to discuss the issues raised. Regrettably, the same day we received the attached email from Vanguardia advising that they were instructed by their client to incur no additional fees or costs and that "Our client has confirmed that they made themselves crystal clear to your client's architect". It has therefore not been possible to engage with Vanguardia concerning their report. Because of this in preparing this letter, in relation to the constructions of Air Studios we have had to rely only upon that report and on-line information about planning applications made by the studios.

Sound Insulation of the Studios

The report by Vanguardia is lacking any detail information concerning the design of the studios. Paragraph 3.18 acknowledges this stating *"The original criterion for the design of air studios is being established from historical test data which has been archived"*. As Vanguardia are no longer instructed this information is not available.

In paragraph 2.5 the Vanguardia report recognises that the studios were built as a "box within a box" construction to isolate most forms of external noise, but that the hall (also used for recording) is not isolated in that way.

Limited information is available associated with the planning applications for the studios. The sound isolation of the studios is however clearly shown on the drawing "First mezzanine floor plan as proposed" (Heber-Percy & Parker Architects) submitted in support of planning application 9210063. The drawing shows a floating slab and independent wall linings to the studios.

Therefore it is to be surmised that the primary concern of Air Studios is the noise and vibration impacts of the proposed development upon the hall. The report records that Vanguardia undertook noise readings in the hall and one studio. They state that the noise levels corresponded to a level of NR15. However the report is lacking information regarding the survey. It is not said:

a) Under what conditions were the noise measurements made? In particular were the ventilation and air-conditioning systems fully operating? (These could add to the noise in the hall)

b) Was the lighting operating? (This could add to the noise in the hall)

c) Were any of the other studios in use generating high sound levels at the same time as the readings were being made?

d) How long were the noise measurements made for and at what time?

e) Whilst dB levels are recorded it is not stated if the levels are background (L_{90}), average levels (L_{eq}) or maximum levels (L_{max}).

The lack of this information and the decision of Air Studios to not instruct Vanguardia to discuss their report means that the readings carry little value.

Music sound levels generated within the studios will vary according to what is being recorded. However orchestral sound levels can locally get up to around 100 dB L_{Aeq} with peaks levels as high as 130 dB. Amplified bands can be louder still.

The planning consent for the studios PL/08905427 had attached to it a number of conditions. Condition 08 required that:

"No music shall be played on the premises in such a way as to be audible within any adjoining accommodation"

The applicant's property 11 Rosslyn Hill is at its nearest point only 7m from the hall recording studio and yet the applicants do not hear music from the hall, despite likely sound levels at times inside up to 100 dB L_{Aeq}. It is therefore clear that when the studios were formed sound insulation measures were built into the studios, including the hall, in order that music inside

the building would not be heard outside the building in the neighbouring dwellings. Those sound insulation measures will work both ways, also protecting the studios against external noise. Our noise survey in the garden of 11 Rosslyn Hill found that even at that location maximum external noise levels peaked at 80-85 dBA. On the Rosslyn Hill road side of the building the levels could be higher still. Measures will have had to be put in place to protect recording studios and hall from noise from emergency vehicle sirens and alike.

The Vanguardia report suggests an internal noise criteria be adopted of 25 dB L_{Amax}. This would suggest they expect the sound insulation of the external fabric of the hall to be in excess of 55dBA to protect against ambient noise. This represents a high level of sound reduction. Certainly from outside Air studios sound insulation treatments to the halls windows are clearly visible. The Vanguardia report however makes no mention of these.

However, it can clearly be concluded that with the existing level of sound protection of the studios there will be some protection against construction noise.

Existing Noise Levels Around the Studio

Existing noise levels around the studio should be considered when assessing the impact of noise from any construction activity. A noise survey has been conducted at two additional locations (A and B) to determine the noise levels around the studios. The locations of the two measurements locations are indicated below. Also shown is the measurement location from the plant noise assessment report.

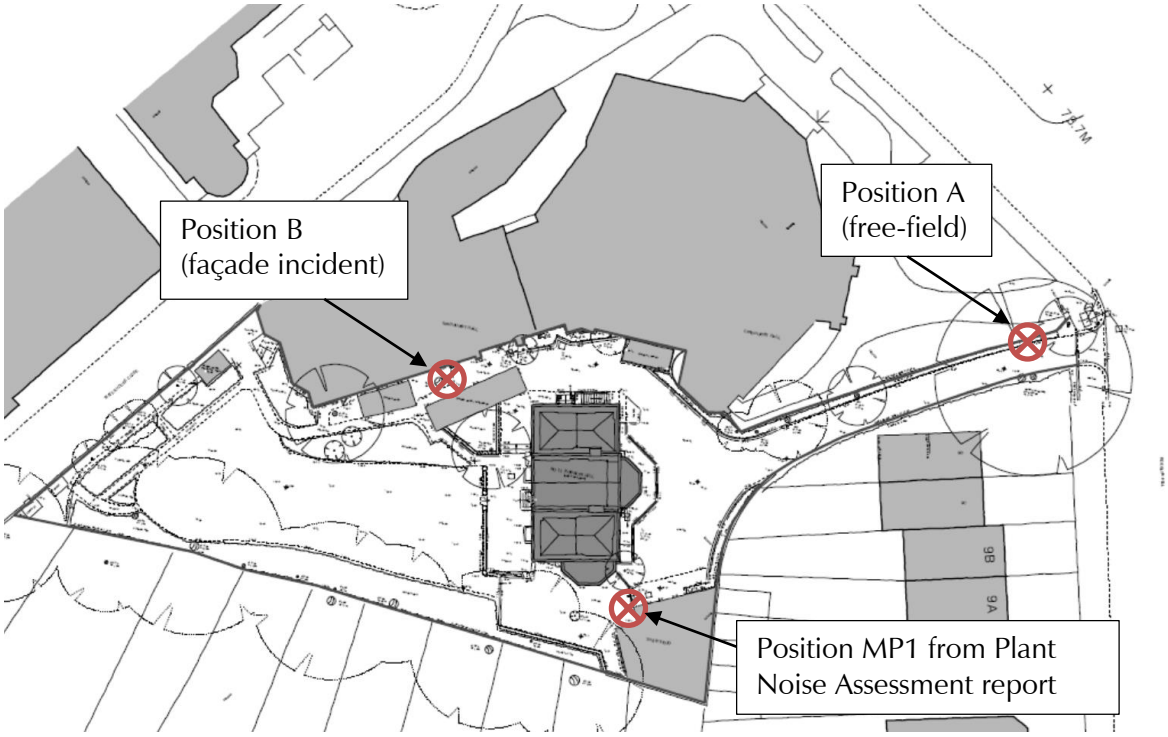

Figure 1: Measurement locations

A summary of the results of the noise measurements is presented in the following table.

	Daytime (0700-2300)			Night-time (2300-0700)		
Location	**$L_{Aeq,16h}$**	**L_{Amax} (1)**	**$L_{A90,15min}$ (2)**	**$L_{Aeq,8h}$**	**L_{Amax} (1)**	**$L_{A90,15min}$ (2)**
Position A	70	90 (102)	52	66	83 (101)	38
Position B	50	65 (76)	39	41	58 (69)	34

T1 Noise measurement results

(1)Value is the typical maximum (fast), based on an average of two exceedences in an hour from an assessment of $L_{Amax,1min}$. Value in brackets is the absolute maximum L_{Amax} level recorded in the 16 hour day or 8 hour night period.

(2) Value is the absolute minimum $L_{A90,15min}$ level recorded in the 16 hour day or 8 hour night period.

Noise levels during typical site operation hours (0800-1800) at Position A were 70 dB$L_{Aeq,10h}$ with a minimum background noise level of 54 dB $L_{A90,15min}$. At Position B, noise levels were 51 dB $L_{Aeq,10h}$, with a minimum background noise level of 42 dB $L_{A90,15min}$.

Based on the noise measurements, it is expected that the noise levels at the noisiest facades of the Air Studios building facing Rosslyn Hill will be in the region of 69 dB L_{Aeq} (façade) during typical site operation hours, with maxima typically around 84 dB L_{Amax} (façade) and worst case maxima up to 96 dB L_{Amax} (façade). These are generally due to sirens from the nearby Royal Free Hospital and noisier vehicles, such as motorbikes.

From a review of the floor plans of the Lyndhurst Hall on the Air Studios website, it seems that the control room and the booth areas of the main recording hall are located on the noisier façade and so incident noise levels in line with these values are expected. It is acknowledged that some of the windows benefit from screening from the road, where typical maxes are expected to be up to 20dB lower than on the front façade.

The minimum background noise measurement at night of 34 dB $L_{A90,15min}$ is expected to represent the lowest background noise level on any of the façades due to its highly sheltered location.

Proposed Criteria

Vanguardia in their report propose various criteria in relation to construction noise and vibration.

A particular criticism of their proposals is that they do not distinguish between times when the studios are recording and times they are not. In order to protect the amenity of residents around the site working hours would need to be restricted to between 8am and 6pm Monday to Friday and 8am-1pm Saturdays. Therefore clearly outside these time the studios could not have any noise disturbance. Within those permitted hours it is common to adopt a practice of noisy and quiet working hours. For example in the City of London the use of percussive tools is not normally permitted in the periods 1000-1200 and 1400-1600 hours. In this case noisier works could be scheduled to take place at times agreed with the studio. So, for example, if no recording takes place before 11am, more noisy work could be undertaken up to that time.

During those quiet periods appropriate noise limits would need to be agreed that take account of the sound insulation of the building and mitigation measures on the construction site itself, such as acoustic barriers.

Vanguardia have misinterpreted that L_{Amax} criteria adopted by Crossrail, the full documentation making it clear that for recording studios the criteria is 30 dB L_{Amax}, not 25dB as stated. Also it should be noted this criteria is in relation to operational train running noise, not temporary construction noise. It represents a high standard.

The Vanguardia report also considers vibration and impulsive noise. They state that impulsive noise will be generated by the proposed piling works. (paragraph 2.10). However this view is incorrect. The piling would be undertaken using continuous flight auguring, whereby the holes for the piles are created by auguring (drilling) into the ground, not by impact driven techniques. This means there would not be impulsive noise or any significant vibration generated.

The concerns on this matter I understand are likely to arisen as a consequence of site investigation holes that were made on the application site using impact driven techniques, the technique normally used for these investigations.

Notwithstanding this given the historic nature of the studio building it would of course be necessary to agree vibration limits for the studio building that would be applicable at all times. These we expect would be based upon the various documents discussed by Vanguardia in their report.

Discussion of Air Studios protection from noise

Based on the information obtained to date, it is possible to carry out an indicative review of noise break-in to Air Studios.

As discussed earlier, the façade facing Rosslyn Hill is already subject to noise maxima of up to 96 dB L_{Amax}, with more typical maxima (2 per hour) being in the region of 84 dB L_{Amax}.

It is understood that at times the recording needs to stopped when there is a particularly loud event outside. We would therefore expect the studios to have sufficient protection against typical maxima of 84 dB L_{Amax}, but not necessarily the absolute maxima of 96 dB L_{Amax}.

Based on the Vanguardia recommendation for internal noise levels should not exceed 25dB L_{Amax} (or the 30 dB L_{Amax} for Crossrail) this would require around 55-60dB attenuation between the external façade level and a representative internal location (possibly where the nearest microphones may be located).

Piling operations are likely to generate the highest noise levels during the construction programme. A typical continues flight auger piling rig can be expected to produce a façade incident noise level of 82 dBA at 10m. The noise is expected to be fairly steady so L_{Amax} levels under 85dBA are reasonable to assume at 10m. Additional screening may be possible reducing the noise levels. However this assessment is indicative that construction activities that take

place more than 10m from the studios would not impact upon recordings. For those noisier activities closer to the studio we'd recommend co-ordinating activity so as to not take place during recordings would be the normal reasonable approach adopted. We would expect to put together a construction management plan which would be on the basis of planned activities on site and the current protection provided to the studio by the upgraded glazing. This would ideally involve the cooperation of Air Studios so that we can ensure that disruption is kept to an absolute minimum.

Construction Management Plan

In paragraph 4.2 of their report Vanguardia are disparaging of what they describe as "*The so called construction management plan*". However that name is not that given to the document by the applicants, but only ascribed to the document on the Camden Planning Portal. Its actual title is "Outline Construction Logistics Plan". The document has no aspiration to be considered as a Construction Management Plan.

The applicants would accept (and expect) that a construction noise and vibration management plan be agreed with the local planning authority via a Section 106 / Section 61 agreement prior to the commencement of works. The aim of the construction noise and vibration management plan would be to reasonably protect the amenity of local residents and Air Studios.

For example, we may expect the following measures to be considered in the construction noise and vibration plan:

- Restricted site operation hours (e.g. 08:00-18:00 Monday to Friday, 08:00-13:00 Saturdays)
- Restricted hours of operation for the noisier elements of work (e.g. 08:00-13:00)
- Best practical means for any excavation and construction activities, including consideration of piling/demolition/excavation techniques.
- Noise and vibration limits (to be determined) at the site boundary to ensure minimal possible impact on nearby sensitive locations, such as Air Studios. Potential for temporary screening if deemed beneficial.
- Noise monitoring at the site boundary, with alert emails/texts when set limits are exceeded.
- Regular reports highlighting the progress of works and the noise levels recorded.

It would be hoped that Air Studios would be cooperative to enable a reasonable code of practice to be drawn up covering the various matters referred to in paragraph 4.3 of the Vanguardia report. We fully expect to work closely with the Council's EHO to agree a Construction Management Plan that mitigates against the worst of the noise impact, following the normal process for schemes of this sort.

Plant Noise

Vanguardia express reservations regarding our plant noise assessment. This included concerns about the measurement location assumed in our report, stating that the location of the microphone was not representative of Air Studios.

The results from the additional noise survey at Location B indicate that the minimum background noise level on the quietest façade of Air Studios, which was well shielded from local roads, is 34 dB L_{A90} (façade). The lowest background noise level measured in our original plant noise survey report was 39 dB $L_{A90,15min}$ (free-field).

Camden policy on plant noise control (5dB below background) is derived in order to protect the amenity of residents in their houses. This assumes that residents may have windows open. In the case of the recording studios this however does not apply, the studios clearly having high levels of sound insulation against external noise.

The lowest background noise level measured at the Air Studio façade is lower than previously measured and so the impact of the new proposed plant has been re-evaluated, even though it can be argued that the studios are not sensitive to background noise. With the same recommendations as in the Plant Noise Assessment report (14/0692/R2-1) and very conservative screening assumptions, the noise rating level at the Air Studios façade will be approximately 29 dBA.

This is 5dB below the lowest background, which ties up with the recommendations in Camden's Development Policy DP28. This is also considerably below the minimum rating noise level of 35dB where BS4142 applies as stated within BS4142:1997, which was the active version of BS4142 at the time Camden's development policy was written. Under the current version of BS4142:2014, a rating level equal to or lower than background would result in a low impact with no penalties for tonality or impulsivity.

Given that the façade is currently subjected to typical maxima of 58-84 dB L_{AFmax}, the plant noise level of 29dBA is considered to be insignificant in terms of noise break-in to the Studio.

I trust the above is clear, however please call if you have any queries.

Yours sincerely

Neil Jarman