Project Note

To:	Paul Woolf (Air Studios)		
Distribution:	Jim Griffiths (Vanguardia);		
From:	Deni Butterfield (Vanguardia)	Date:	12th October 2015
Job No:	VC/101936	File Ref:	VC-101936-EA-PN-0001
Discipline/s:	EA		
Job Title:	Air Studios	Checked:	Jim Griffiths
Subject:	**Response to CJ Letter (13th August 2015)**	Passed:	Jim Griffiths

1 Introduction

1.1 Vanguardia Consulting has been appointed by Air Studios to respond to a letter dated 13th August 2015 (Ref 14-0692 L02-0) written by Neil Jarman of Cole Jarman (CJ) sent to the London Borough of Camden (LBC).

1.2 The letter states that CJ have been asked by the applicants seeking planning permission for a development adjacent to Air Studios (Application Reference 2015/2089/P – 11 Rosslyn Hill) to review and respond to the Vanguardia report (VC-101936-RP-JETG-0002-0 Rev00) dated 3rd June 2015. This report was prepared by Vanguardia following concerns raised by Air Studios that the proposed development at 11 Rosslyn Hill would have a significant impact on their recording facilities, their clients and their staff.

1.3 It is important to note here that Vanguardia were initially appointed by Air Studios following the submission of two CJ reports in support of the Planning Application for 11 Rosslyn Hill (Ref:14/0692/R1 and 14/0692/R2-1) both of which completely overlooked Air Studios as a potential noise sensitive receptor and thus failed to recognise the sensitive nature of Air Studios in respect of the potential noise and vibration impacts of the proposed construction works.

1.4 CJ has proposed that 'noisy' works could be programmed to take place during periods when the studios are not in use. As the studios are essentially a 24/7 operation this may not be practical.

1.5 This project note deals with the matters raised by the CJ letter on a paragraph by paragraph basis to avoid confusion as the letter does not have numbered paragraphs.

2 Vanguardia Comments

The sub headings in this section relate to those in the letter being reviewed.

Introduction

2.1 There are no comments on this section.

Sound Insulation of the Studios

2.2 CJ state that the Vanguardia report is lacking any detail concerning the design of the studios and reproduces a statement from the Vanguardia report to verify this - *"Paragraph 3.18".* Unfortunately CJ have misunderstood this paragraph as they seem to have concluded that the reference to archived test data relating to the detail of the design is Vanguardia archived data. This is not the case. These data were also not available to Vanguardia at the time of the writing our report which is why we undertook our own sound level measurements. The instruction from Air Studios has no bearing on the availability of this information.

2.3 The design of the studios is not a relevant factor with respect to the matters under debate. The studios are an existing noise sensitive receptor adjacent to the proposed development.

2.4 The following paragraphs in this section continue to surmise on the construction of the Studios and incorrectly conclude that the primary concern of Air Studios is the noise and vibration impact of the proposed development upon the Hall. Air Studios is a world class recording facility which comprises four major recording studios, eight programming rooms and three 5.1 surround sound mixing rooms. Air Studios quite justifiably are concerned about the effect that the proposed construction works might have on all of their facilities, not just the Hall.

2.5 This section also raises a number of questions about the Vanguardia report which are answered here:

a) The noise measurements were made under normal operating conditions for the spaces where the ventilation and air-conditioning systems were fully operational. The 'red light' was not on as no recording was taking place.

b) The lighting was also operating.

c) At least one other studio was in use, generating high sound levels, during the measurement period.

d) A succession of 30 second measurements were taken over a period of 5 minutes at each measurement position. These measurements were taken between the hours of 11am and midday on 3rd June 2015.

e) The measured levels are 30 second Leq's.

Reproduced in Appendix A to this note is an extract from the text of an email from Gavin Greenaway, a renowned composer and conductor and frequent visitor to Air Studios. He states:

4. I have never heard of any noise from studio 1 in the Hall causing any stoppage to a recording I was part of.

5. The noise from the lights is measurable but not at all significant in recordings.

6. The air con system is designed so that when the 'red light' is on (i.e. we are recording) the ventilation fans do not run, and no noise is caused. Since the red light is not on during rehearsals, the quality of air and its temperature is very acceptable with this system.

These comments validate the measurements taken by Vanguardia.

2.6 The CJ letter makes the assertion that the reported measurements carry little value because of the questions raised (answered above) and the decision not to instruct Vanguardia to discuss their report. The measurements reported are valid measurements taken by Vanguardia acting as an independent acoustic consultant. The measurements are of course valuable as they record the existing noise climate within the Studios when they are not in use.

2.7 CJ go on to say that the sound levels within the studios '*can locally get up to around 100dB L_{Aeq} with peak levels as high as 130dB'.* This statement is true but it wrongly infers that because the levels in the studios are so high that any construction noise that might be heard would be so low by comparison that it would not be audible. This shows a lack of understanding of the recording process. Any music recording will have a large dynamic range with periods of high noise interspersed with periods of low (or possibly no) noise. Certainly any noise intrusion will be masked during periods of high noise but not during periods of low noise. In his email Gavin Greenaway states:

2 'Just because sound levels can reach 100db (or whatever) does not mean that a noise floor, say 40db below this is at all acceptable. At a rock concert the levels of sound are consistently high and mask much of the noise - however, EVERY piece of film music must start and end cleanly with silence (and a pure ring out from the space at the end). Many film cues have the orchestra playing very very quietly to create the right texture and feel for the cue. So every tiny noise is picked up. Sometimes we have to redo takes because the noise from the page turns is too loud and distracting'.

This is the view of a regular end-user of the studios and an expert in this field.

2.8 CJ go on to argue that because the applicant at 11 Rosslyn Hill cannot hear the music coming from the studios it would follow that the noise from the construction works would not be audible within the Studios because the sound insulation measures in the studios would work both ways, and '*Measures will have been put in place to protect recording studios and hall from noise from emergency vehicle sirens and alike'.* This argument is fatally flawed. The ambient noise levels (which are quite high) experienced by the occupiers of 11 Rosslyn Hill would mask any escape of noise from the studios also the noise levels within the studios are so low that even the slightest noise (see above) can be picked up and can ruin a recording. It is known by users of the facility that sirens on emergency vehicles and low frequency noise from trains can be heard in the studios. Below are two quotes from Gavin Greenaway's email – both very pertinent:

1. *The lack of sound heard outside the studio and the acoustic shielding built into the Hall does not mean that extraneous low frequency (LF) sound will not get in. Acoustic instruments in fact generate very little acoustic energy below 50 hertz, so the chances of them being heard outside a ice traffic noise are low. However building plant and anything mechanical directly* in *contact with the ground generates substantial LF energy, many magnitudes greater than an acoustic instrument. This sound can plainly be heard inside the Hall when an orchestra's truck is idling next to the building. (I haven't checked this as the source, but I have heard the noise occasionally in the studio).*

   The use of averaged noise figures is totally inadequate to deal with the LF threat from the building works.

   3. The Hall IS susceptible to siren noise. At least once per session we have to redo a take due to sirens. We all accept that we are working in a converted church, not a studio built from the ground up.
   Once at Abbey Road studio 1 recording was interrupted by a low hum. We thought at first it was a helicopter hovering over the building, but it turned out to be tree surgeons working in close proximity to the roof. It took 20 minutes to find the cause (the tree surgeons had come on the wrong day) and we were not able to record during that time.

2.9 The CJ letter concludes that *'with the existing level of sound protection of the studios there will be some protection against construction noise.'* The key word in this sentence is **some.**

2.10 The CJ letter attempts to dismiss the suggestion that ground borne noise might be an issue. Vanguardia do not agree with this suggestion especially due to the proximity of the proposed construction works.

Existing Noise Levels around the Site

2.11 Table 1 presents a summary of the existing noise levels around the site and includes two additional locations (A and B) used to determine noise levels around the studios. These additional locations have been included because the first two CJ reports failed to identify the studios as a noise sensitive receptor.

2.12 Below Table 1 is a commentary on the recorded levels. Table 1 provides Daytime (0700-2300) 16hour levels and Night-time (2300-0700) 8hour levels with two notes explaining how the L_{Amax} and $L_{A90,15min}$ levels have been obtained. The commentary however seems to draw on 10hr (0800-1800) levels which are not shown in Table 1. This is quite confusing and there is no explanation as to how these figures have been calculated. It then goes on to provide expected noise levels at noisiest facades of the Air Studios which are different again without any explanation as to how these levels have been obtained.

Proposed Criteria

2.13 CJ criticise the proposed criteria that Vanguardia have suggested in relation to construction noise and vibration because the report does not distinguish between times when the studios are recording and times they are not. In fact the hours of operation of the studios are not specified because their operation is on a 24/7 basis. CJ state: *' In order to protect the amenity of residents the working hours would need to be restricted to between 8am and 6pm Monday to Friday and 8am to 1pm Saturdays. Therefore clearly outside these times the studios could not have any noise disturbance.'* The sentiment in this statement is confused – and the meaning is not clear. CJ go on to explain how there are accepted practices where times are allotted to quiet and noisy times saying e.g. if no recording takes place before 11am more noisy work could be undertaken at that time. As previously described there are no fixed hours of operation for the studios, it is a 24/7 operation with studio spaces sometimes booked for weeks at a time. The criteria proposed by Vanguardia would need to be complied with at all times that the studios were in use.

2.14 It is suggested by CJ that Vanguardia have misinterpreted the LA_{max} criteria within DS10 relating to the Threshold of Significant Impacts of re-radiated underground sources. Vanguardia recommended the use of the 25dB $L_{Amax,s}$ threshold in favour of the higher 30dB $L_{Amax,s}$ threshold because of the very large volume of the main recording studio at Air Studios. It has a volume equivalent to some auditoria and most other recording studios are quite small in comparison. It was also noted that the existing ambient noise levels in the recording space are so low that to protect it the lower noise limit should be applied. Vanguardia have erred on the side of caution in order to protect an extremely noise sensitive location. CJ also make the point that the criteria in DS 10 do not relate to temporary construction noise. It is understood that this project is likely to last for more than a year.

2.15 CJ claim that continuous flight auguring will be used on the site (not impact driven) and that this method would mean that there would not be any impulsive noise or any significant vibration generated. Continuous flight auguring can however produce relatively high noise levels particularly when the augur encounters obstructions underground – there may be a need to augur through. High noise levels can also be generated when the augur is cleaned to remove adhering spoil – this may take place several times during a working shift. It is also quite common to experience a 'roar' from the power pack. This can be a significant source of noise.

Discussion of Air Studios protection from noise

2.16 CJ make an assumption that recording in Air Studios are not affected by the external background noise levels. This section should be read accounting for the comments received from Gavin Greenaway on this topic:

10. The studios (the Hall specifically) ARE susceptible to background noise. If you turn up the speakers very high, you will hear the low drone of London. The consistent nature, and relatively low level, of this noise means that it can be mitigated with equalisation or post-processing.

This means that any calculations made by CJ which assume that the Air Studios façade is sufficiently robust to completely prevent the noise break-in of external background noise are incorrect.

2.17 This section of the CJ letter discusses the possible noise break-in to the Studios from the construction noise and concludes that using the stated mitigation and based on the noise information obtained to date their assessment is indicative that construction activities that take place more than 10m from the studios would not impact upon recordings. It acknowledges that special arrangements would have to be put into place for the noisier activities closer to the studio. All of this will be included in a Construction Management Plan.

Construction Management Plan

2.18 CJ are critical of Vanguardia for assuming that the 'Outline Construction Logistics Plan' was indeed a Construction Management Plan (CMP). It must be said that it is normal practice to submit a Construction Management Plan to support a planning application for a large project. Being that the Outline Construction Logistics Plan was the only document on the Planning Portal it was not unreasonable for Vanguardia to assume that this document was in fact the submitted CMP.

2.19 CJ propose a number of measures designed to be considered in the CMP. These are summarised below:

i. Restricted Site Operation Hours
ii. Restricted hours for noisier work
iii. BPM
iv. Noise and Vibration Limits to be determined at the site boundary
v. Noise Monitoring at the site boundary
vi. Regular reports

2.20 It has already been explained why restricted site operation and restricted hours for noisier work are not practical due the 24/7 nature of the business of Air Studios and the highly noise sensitive nature of the recording spaces. Naturally BPM is a given, not least to protect the amenity of the other residents of the area.

2.21 In view of the confidence expressed by CJ that the construction activities that may take place more than 10m from the studios would not impact upon the recordings there appears to be no reason for the restricted hours for noisier work to be necessary.

2.22 Whilst there may be very limited scope to programme 'noisy' work (or work within 10m of the studios) to take place when the studios are not in use, it is probable that this time would be outside normal working hours so any 'noisy' work would not be allowed due to the restrictions imposed by L B Camden put in place to protect the other adjacent noise sensitive properties in the area.

2.23 Vanguardia agree that whilst noise and vibration limits determined and monitored at the site boundary would be appropriate to protect the neighbouring noise sensitive receptors they are not suitable for the protection of Air Studios.

2.24 Vanguardia suggests that a synchronised method of noise monitoring inside and outside the building that correlates the internal and external levels would be more appropriate. In the event of the agreed internal noise limit inside the studio being exceeded which is caused by the construction taking place outside then the construction should immediately cease and not recommence until either the recording studios are not in use or an alternative (less noisy) method can be agreed. The levels not to be exceeded are stated in the Vanguardia report Table 4.1.

Plant Noise

2.25 The additional noise survey location (location B) is now included to address the omission of a suitable measurement location in the previous reports by CJ. This has resulted in a revised (lower) background noise level used in the plant noise assessment calculations.

2.26 There is still no justification for the use of a limit set at not more than 5dB above background. The plant noise data previously submitted indicates that tonality will be present yet no adjustments appear to have been made.

APPENDIX A – Response from Gavin Greenaway

Gavin Greenaway is a renowned music composer and conductor and a regular user of Air Studios. Reproduced below is an extract from an email received.

From: Gavin Greenaway
Sent: 27 September 2015 16:26
To: Jessica Learmond-Criqui
Subject: Re: air noise report

Hi Jessica,

Thanks for this. There are a number of incorrect assumptions in the report which Air need to counter, for instance:

1.The lack of sound heard outside the studio and the acoustic shielding built into the Hall does not mean that extraneous low frequency (LF) sound will not get in. Acoustic instruments in fact generate very little acoustic energy below 50 hertz, so the chances of them being heard outside a ice traffic noise are low. However building plant and anything mechanical directly in contact with the ground generates substantial LF energy, many magnitudes greater than an acoustic instrument. This sound can plainly be heard inside the Hall when an orchestra's truck is idling next to the building. (I haven't checked this as the source, but I have heard the noise occasionally in the studio).

The use of averaged noise figures is totally inadequate to deal with the LF threat from the building works.

2. Just because sound levels can reach 100db (or whatever) does not mean that a noise floor, say 40db below this is at all acceptable. At a rock concert the levels of sound are consistently high and mask much of the noise - however, EVERY piece of film music must start and end cleanly with silence (and a pure ring out from the space at the end). Many film cues have the orchestra playing very very quietly to create the right texture and feel for the cue. So every tiny noise is picked up. Sometimes we have to redo takes because the noise from the page turns is too loud and distracting.

3. The Hall IS susceptible to siren noise. At least once per session we have to redo a take due to sirens. We all accept that we are working in a converted church, not a studio built from the ground up.

Once at Abbey Road studio 1 recording was interrupted by a low hum. We thought at first it was a helicopter hovering over the building, but it turned out to be tree surgeons working in close proximity to the roof. It took 20 minutes to find the cause (the tree surgeons had come on the wrong day) and we were not able to record during that time.
4. I have never heard of any noise from studio 1 in the Hall causing any stoppage to a recording I was part of.

5. The noise from the lights is measurable but not at all significant in recordings.

6. The air con system is designed so that when the 'red light' is on (i.e. we are recording) the ventilation fans do not run, and no noise is caused. Since the red light is not on during rehearsals, the quality of air and its temperature is very acceptable with this system.

7. "If no recording takes place before 11am". Yes, it is possible that Air could tell its clients that no session could start before 11 to be guaranteed no pile driving, but the other noisy things going on without control would continue randomly. Acoustic barriers will do nothing to stop the LF noise.

8. Bottom p.5 "a representative internal location (possibly where the nearest microphones may be located". This shows a lack of understanding of disruptive sound as it relates to recordings, in my view. If a 50hz generator hum is present anywhere in a room, you will hear it in the whole room. There is no microphone placement which won't pick it up, and the level will will not depend so much on proximity as the shape of the room and whether you measure at a node or null point.

9. Noise monitoring at the site boundary is not going to tell us the actual disruptive noise inside the Hall.

10. The studios (the Hall specifically) ARE susceptible to background noise. If you turn up the speakers very high, you will hear the low drone of London. The consistent nature, and relatively low level, of this noise means that it can be mitigated with equalisation or post-processing.

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