

STRiFE 9/03

Public Inquiry into Appeal by Helioslough Ltd into a  
proposed Strategic Rail Freight Interchange on land in and  
around Former Aerodrome, North Orbital Road, Upper  
Colne Valley, Hertfordshire

Proof of Evidence by J & S Consulting Ltd on behalf of  
STRiFE

NOISE

**Noise evidence prepared for 2<sup>nd</sup> Appeal by Helioslough Ltd  
against the refusal for the development of land in and around the  
Former Radlett Aerodrome, Near St Albans**

**Appeal Reference APP/B1930/A/09/2109433/NWF**

**Reference Number: STRIFE9/03**

**Prepared by:**

**J.M.O'Keeffe**

**Date: 19<sup>th</sup> October 2009**

**Checked by:**

**S.M.O'Keeffe**

**Date: 19<sup>th</sup> October 2009**

**Authorised by:**

**S.M.O'Keeffe**

**Date: 3<sup>rd</sup> October 2009**

1	DOCUMENTS .....	3
1.1	Core Documents.....	3
1.2	Reference Documents .....	3
1.3	Abbreviations .....	3
2	INTRODUCTION.....	3
3	PROOF OF NOISE EVIDENCE .....	4
3.1	Review of Inspector’s Conclusions on Noise [RD/1].....	4
3.1.1	Paragraph 6.64 of Inspector’s Conclusions on Noise [RD/1] .....	4
3.1.2	Paragraph 6.65 of Inspector’s Conclusions on Noise [RD/1] .....	4
3.1.3	Paragraph 6.66 of Inspector’s Conclusions on Noise [RD/1] .....	4
3.1.4	Paragraph 6.67 of Inspector’s Conclusions on Noise [RD/1] .....	5
3.1.5	Paragraph 6.68 of Inspector’s Conclusions on Noise [RD/1] .....	5
3.1.6	Paragraph 6.69 of Inspector’s Conclusions on Noise [RD/1] .....	6
3.1.7	Paragraph 6.70 of Inspector’s Conclusions on Noise [RD/1] .....	6
3.1.8	Paragraph 6.71 of Inspector’s Conclusions on Noise [RD/1] .....	7
3.1.9	Paragraph 6.72 of Inspector’s Conclusions on Noise [RD/1] .....	8
3.1.10	Paragraph 6.73 of Inspector’s Conclusions on Noise [RD/1] .....	8
3.1.11	Paragraph 6.74 of Inspector’s Conclusions on Noise [RD/1] .....	9
3.1.12	Paragraph 6.75 of Inspector’s Conclusions on Noise [RD/1] .....	9
3.2	Safety of conclusions drawn in AD[1].....	10
4	CHANGES AFFECTING NOISE ENVIROMENT SINCE FIRST APPEAL .....	10
5	RECOMMENDATIONS .....	10
6	APPENDICES Qualifications and Experience.....	11
6.1.1	Qualifications .....	11
6.1.2	Experience .....	11
6.1.3	Current profession .....	11

## **1 DOCUMENTS**

### **1.1 Core Documents**

CD/2.1 Environmental Statement (Part 3)

CD/2.2 Environmental Statement (Part 4)

### **1.2 Reference Documents**

RD/[1] Report APP/B1930/A/07/2045747 Town and Country Planning Act 1990 St Albans City and District Council Appeal by Helioslough Ltd Radlett Strategic Railfreight Interchange  
RD/[2] 2006 No.2238, ENVIRONMENTAL PROTECTION ENGLAND: The Environmental Noise (England) Regulations,

### **1.3 Abbreviations**

A	A weighting of measured noise spectrum
C	C weighting of measured noise spectrum
dB	Decibel
DIRFT	Daventry International Rail Freight Terminal
IoA	Institute of Acoustics
L <sub>eq</sub>	Equivalent Constant Noise Level
MaxL	Maximum recorded noise level during measurement
MaxP	Maximum Sound Pressure Level during measurement
SLM	Sound Level Meter
SPL	Sound Pressure Level
SRFI	Strategic Rail Freight Interchange

## **2 INTRODUCTION**

This document is the Noise Proof prepared on behalf of STRiFE to oppose the second planning application by Helioslough for an SRFI on the old Radlett Airfield site in St Albans. Duplication of this Proof of Evidence with that being prepared by Veritas, the SADC noise consultants, it was agreed that this document will predominantly challenge the robustness of the conclusions on non-constant/intermittent noise on local residents drawn in the Inspector's report from the first Public Inquiry and identify changes of circumstances that demonstrate that the noise issue is not closed and must be reconsidered in full during the second Public Inquiry. The Veritas Proof of Evidence will contain the detailed arguments on noise impact criteria using BS4142 (PPG24) and the recently released World Health Organization guidelines on noise levels.

### 3 PROOF OF NOISE EVIDENCE

#### 3.1 Review of Inspector's Conclusions on Noise [RD/1]

The Inspector's conclusions from the noise evidence presented at the first Inquiry have been extracted from his report and are presented below, either as a numeric reference identical to that presented in the report or in full where there is disagreement with the statements.

##### 3.1.1 Paragraph 6.64 of Inspector's Conclusions on Noise [RD/1]

###### **Comment**

**This comment accurately represents the concerns of the Council and STRiFE that the major issue is noise from on-site activities during nighttime.**

##### 3.1.2 Paragraph 6.65 of Inspector's Conclusions on Noise [RD/1]

Helioslough furthermore agreed that, if planning permission for the proposed development is granted, it should be granted subject to a limit on night-time noise emissions from the site (including noise from road and rail sources on site) of 50dBLAeq,8hr measured at the façade (HS/4.7 and HS/0.6, Condition 22). Therefore, only two issues arise for consideration: (i) would this be achievable and (ii) would it provide for a reasonable noise climate?

###### **Comment**

**There was no agreement between the Council and Helioslough on the 50dBLAeq, 8hr measured at the façade on this limit as a condition. Furthermore this limit is not derived from calculation but merely a commitment made by Mr Sharp and not supported by Dr Hawkes.**

**Recent WHO Amendments to Guidelines have been published in 2008 and these need to be taken into account at the second Public Inquiry. As stated in the Section 1 of this Proof of Evidence, Veritas will deal in detail with the implications of these Guidelines.**

##### 3.1.3 Paragraph 6.66 of Inspector's Conclusions on Noise [RD/1]

At the inquiry, Helioslough's noise witness, Mr Sharps, was confident that this limit would be achievable in practice. Helioslough invite the Inspector and Secretary of State to attach significant weight to his judgment in this respect, for the following reasons:

3.1.4 Paragraph 6.67 of Inspector's Conclusions on Noise [RD/1]

First, Mr Sharps is a noise consultant with extensive experience. He based his judgment on a detailed exposition of why the Soundplan model provides worst case outputs. He explained the factors within ISO 9613 (the method used by Soundplan) which lead to over-prediction, and also explained how he had conducted tests at many sites that had confirmed this conclusion. In this respect, it is noteworthy that no evidence was put forward by the Council to counter Mr Sharps' evidence that the model over-predicts.

**Comment**

**The Inspector makes no reference to evidence provided by STRIFE regarding the lack of correlation between the Soundplan model and measured noise levels. This is a serious oversight as this evidence was only presented by STRIFE, especially as the Inspector goes on to state:**

**'No evidence was put forward by the Council to counter Mr Sharp's evidence that the model over-predicts'.**

3.1.5 Paragraph 6.68 of Inspector's Conclusions on Noise [RD/1]

Second, Mr Sharps noted that worst-case inputs had been used in the noise model for all on-site noise sources.

**Comment**

**Without correlation of the Soundplan model with measured data from site survey, the use of the model to predict changes is fraught with risk. Furthermore, since the Soundplan model is predicting average noise levels over an 8-hour period at night the probability of noise peaks loud enough to wake local residents is effectively ignored and this will lead to complaints, or the need for residents to close windows at night to reduce the chance of sleep disturbance.**

**It is normal engineering practice to check the results of mathematical models to reduce the risk of modeling errors and in fact this process is now part of ISO 9000 procedures in most other engineering industries that employ mathematical modeling techniques.**

3.1.6 Paragraph 6.69 of Inspector's Conclusions on Noise [RD/1]

Third, it is improbable in the extreme that Mr Sharps would have advised his client to agree to a noise limit that could not be met.

**Comment**

**No evidence was presented to the Public Inquiry demonstrating that the noise climate of 50dBLAeq,8hr was achievable. It is not Helioslough or Mr Sharp that would have to suffer the consequences of sleep disturbance. This statement is based on opinion not fact. The key issue is not the average noise level but the maximum values that will occur at night and is why BS4142 essentially adds 5dB to calculated averages in the case of non-constant or impulsive noise to take these non-steady characteristics into account. As previously stated the applicability and impact of BS4142 will be dealt with in the Veritas Proof of Evidence.**

3.1.7 Paragraph 6.70 of Inspector's Conclusions on Noise [RD/1]

The reasoning behind why a night-time noise limit of 50dBLAeq,8hr is considered reasonable is set out in Mr Sharps' update note. In brief, the National Physical Laboratory (NPL) audit report of the WHO Guidelines, commissioned by the DETR, advises that a 45dB night-time noise level, measured at 1m outside a façade, describes a noise situation in which "effects can be assumed to be negligible" (HS/4.5, para 8.3). Mr Sharps has used the NPL audit report of the WHO guidelines and other guidance to determine that a "poor" night-time noise climate is one that reaches 60dBLAeq,8hr or more (ibid, para 8.6). This is because it is accepted in the NPL report that "significant impacts" do not occur until "much higher degrees of noise exposure" are reached than those set out in the WHO guidelines (HS/4.5, para 8.3). In this regard, it is relevant to note that the WHO guideline values are currently materially exceeded in many parts of the country, and indeed at many of the receptor points around the site, which sits between busy roads and a busy rail line (HS/4.1, p10).

**Comment**

**Local noise measurements taken by various parties have shown that the present noise climate in the area closest to the boundary of the proposed SRFI is remarkably benign. STRIFE presented evidence that the existing Soundplan predictions would contravene WHO guidelines as the Leq noise levels at the three receptors closest to the planned SRFI recorded nighttime noise levels of 38 dB<sub>Leq</sub>, 42 dB<sub>Leq</sub> and 45dB<sub>Leq</sub>. These average noise levels are below the WHO guideline values, and not as stated by the Inspector in Paragraph 6.70 'materially exceeded at points around the site'.**

3.1.8 Paragraph 6.71 of Inspector's Conclusions on Noise [RD/1]

In this context, a noise limit of 50dB is stringent and would, as Mr Sharps said, "bear down" on night-time noise. It would provide the operator with an incentive to tackle noise in a proactive manner through selection of the most appropriate equipment and working methods. This would be driven home by lease provisions demanding that all occupiers comply with the noise conditions (HS/0.8, Clause 12). A purist approach which condemns as unacceptable a noise climate 5dB higher than that set out in the WHO guidelines would make it virtually impossible to deliver infrastructure projects of the type proposed anywhere other than in the remotest of locations (which could be expected to lack the rail and road infrastructure required by a SRFI).

**Comment**

**The proximity of this major site to existing residential areas is a major consideration. The DIRFT boundary is over 1km from populated areas or separated from them by the M1. Residential properties in the vicinity of the proposed Helioslough site for the SRFI are within 200m to 300m, a substantial difference that should affect the decision to place such a large facility so close to the residential areas of Park Street, Napsbury and Frogmore. Figure 3.1.8.1, taken from the Helioslough site plan clearly indicates the very close proximity of existing housing in Park Street, Frogmore and Napsbury. This map demonstrates that the selected site cannot in any way be described as a remote location and hence dictates the need for extreme caution when dealing with the effect in local residents of site noise at night.**



**Figure 3.1.8.1 Proposed SRFI site location with respect to existing housing**

3.1.9 Paragraph 6.72 of Inspector's Conclusions on Noise [RD/1]

As to the debate between the parties at the inquiry as to whether site noise should have been assessed using BS4142, Mr Sharps evidence is that it is neither appropriate nor possible to carry out a BS4142 analysis (HS/4.4, para 10). Although Dr Hawkes in his evidence purports to carry out such an assessment, the reality is that he could not obtain the data necessary to carry it out correctly because background noise levels would change as a result of the relief road. Moreover, he erred in the way in which he surveyed at one location and in the way he compiled the numbers that are set out in his Table 7.1.

**Comment**

**A BS4142 analysis is a more appropriate method to protect existing residents from sleep disturbance. For this reason alone STRIFE invite the Inspector in charge of the 2<sup>nd</sup> Public Inquiry to insist that this methodology be applied to this 2<sup>nd</sup> Application.**

3.1.10 Paragraph 6.73 of Inspector's Conclusions on Noise [RD/1]

Leaving these disputes to one side, the key issue dividing the parties is whether the noise from on-site operations would be perceived as "industrial in nature". Dr Hawkes accepted that BS4142 fell to be applied if, and only if, this was the case. In judging whether the noise would be perceived as industrial in nature, there are two matters which provide a context. First, the Council has not disputed Mr Sharps' evidence that noise levels at properties to the east and west of the site would be dictated by shunter vehicles operating on the site. Second, Dr Hawkes agreed that noise from the site would not consist of a "small number of discrete events".

**Comment**

**The final sentence in this paragraph fails to recognize that it is the presence of discrete events that wake people. If such short duration high noise events only happen only twice an hour they will keep people awake all night but not affect the overall average noise level.**

3.1.11 Paragraph 6.74 of Inspector's Conclusions on Noise [RD/1]

In this context, and given both the distance to the properties and noise bunds that lie between the noise source and receptors, there is every reason to conclude, as Mr Sharps has done, that the noise would be heard as more or less continuous, and no different in nature to traffic noise. This requires an exercise of judgment, but it is a judgment that Mr Sharps has formed based upon extensive experience of similar developments. In particular, Mr Sharps Report APP/B1930/A/07/2045747 Radlett Strategic Railfreight Interchange Page 35 explained that he had undertaken extensive surveys and listening tests at the Felixstowe Docks near to his home. He also stated that he had surveyed at DIRFT, Southampton Container Port and many other distribution centres, including Peterborough and St Helens.

**Comment**

**Noise measurements at DIRFT made by the J&S Consultant showed that the noise associated with an SRFI is not continuous and peak noise levels occurred with sufficient regularity to disturb sleep with a window open in the room used to measure the overnight the Leq.**

3.1.12 Paragraph 6.75 of Inspector's Conclusions on Noise [RD/1]

In any event, given Helioslough's willingness to accept an absolute noise limit which would guarantee a reasonable noise climate, the debate concerning the desirability or otherwise of carrying out a BS4142 analysis is somewhat academic.

**Comment**

**Council for Helioslough and their noise consultant, Mr Sharp, spent a significant amount of time trying to defeat the need for a BS4142 analysis. It is not an academic issue. BS4142 essentially adds 5dB to the calculated average to take into account impulsive noise events that will cause sleep disturbance. This negates the 5dB reduction offered by Mr Sharp to arrive at his proposed absolute noise limit of 50dB LAeq,8hr as with BS4142 it would revert to 55dB LAeq,8hr. All parties agree that 55dB LAeq,8hr would lead to noise complaints, but the averaging effect of the measurements would obscure this fact. This key issue is anything but academic. Again the Veritas Proof of Evidence will deal in detail with the applicability of BS4142.**

### **3.2 Safety of conclusions drawn in the Inspector's Report RD [1]**

The conclusions drawn by the Inspector and summarized in RD [1] are flawed for the reasons presented in section 3.1.

A BS4142 analysis is the only secure way to ensure that the existing residents close to the boundaries of the proposed STRFI site are protected from sleep disturbance. It must also be borne in mind that there has been a substantial new residential development of 183 dwellings on the old Radlett Airfield Engine Shed and Warehouse site that was not present during the first Public Inquiry. Finally, the likely transit of freight trains at night across points with the added effect of track gradient has to be taken into account.

## **4 CHANGES AFFECTING NOISE ENVIRONMENT SINCE FIRST APPEAL**

- 5.1 A development of 183 dwellings on site of the former Engine Shed and Warehouse.
- 5.2 The discovery of 'pathing' issues that will restrict the movement of freight trains across the main line to mainly night time with the subsequent noise as they cross the points into the SRFI. The time taken to effect this operation is estimated to be 10 minutes.
- 4.3 There is a gradient at the entry and exit of the SRFI that will produce intermittent night time wheel flange squeal noise, brake squeal noise and high load engine noise events as the freight trains enter and leave the SRFI.

## **5 RECOMMENDATIONS**

- 4.1 The noise issue must be fully re-assessed as part of the second Public Inquiry as a result of the changes listed in section 4.
- 4.2 A study of the noise impact due to the train movement noise as the trains enter the proposed SRFI at night on the Napsbury Park housing development should form a critical part of any noise review.
- 4.3 The impact of the SRFI noise at night must include the new residential development on the site of the old Radlett Airfield Engine Shed & Warehouse.

## **6 APPENDICES Qualifications and Experience**

### **6.1.1 Qualifications**

- 1968 B.Sc. (Spec) Mathematics (London)
- 1971 M.Sc. Noise & Vibration (ISVR Southampton)

### **6.1.2 Experience**

1968-1973 HSA Brough

- Aircraft noise prediction and measurement
- Prediction of fatigue life of aircraft structures in a noise environment

1973-1977 Perkins Engines Peterborough

- Engine noise prediction
- Engine noise measurement and control

1977-1990 S.D.R.C. London / Hitchin

- Noise and vibration consultant specialising in:-
  - Engine noise prediction and measurement
  - Measurement and prediction of interior noise in cars
  - Aircraft noise prediction
  - Structural response under noise excitation

### **6.1.3 Current profession**

Noise and vibration consultant working for J & S Consulting Limited

Numerous technical papers have been published on the prediction and measurement of diesel engine and vehicle noise. Lectures have been given on noise and vibration topics at several international and national conferences.