

BAGBY AIRFIELD

HAMBLETON DISTRICT COUNCIL

PLANNING APPLICATION: 16/02240/FUL

AIRCRAFT NOISE AND CONTROL

Report to

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Acoustic Consultants: Expertise in planning and noise, the control of noise and vibration and the sound insulation and acoustic treatment of buildings.

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1.0 INTRODUCTION

Bickerdike Allen Partners LLP (BAP) were retained by Hambleton District Council to advise on the aircraft noise aspects of the development applied for (HDC Ref: 16/02240/FUL) by the owner of the airfield at Bagby, with specific attention to the applicant's submission with respect to noise and the proposed restrictions to be put in place to protect local amenity in form of planning conditions and Section 106 obligations. BAP are aware that development of this airfield has been subject in recent years to four Public Inquiries at which many of the same noise issues have been discussed.

1.1 BAP/Scope of Work

BAP is an integrated practice of Architects, Acousticians, and Construction Technologists started in 1962, and with expertise in planning and noise, the control of noise and vibration, and the sound insulation and acoustic treatment of buildings. BAP in their acoustic work have worked on many airport / aerodrome related projects. Airport studies have ranged from work e.g. on London Heathrow, Goodwood Aerodrome, London Southend, Redhill Aerodrome, London City Airport, Sywell Aerodrome, London Luton Airport, Durham Tees Valley Airport, Doncaster Sheffield Airport, Dublin International Airport, Norwich Airport, and London Biggin Hill Airport. This has allowed experience to be built up on noise matters that arise from major International Airports to general aviation airports.

BAP have not been instructed to carry out new separate studies, but rely on published information and that provided by the Applicant. This report seeks after briefly describing the development sought with respect to aircraft noise to outline in Section 2 the manner in which aircraft noise impact evaluations are usually made, and the applicants' information. Section 3 outlines the usual ways that aircraft noise control is implemented, before briefly considering the current and future restrictions for Bagby. This report concludes with summarizing the adequacy of information available and the proposed controls.

1.2 Information

Hambleton District Council (HDC) presents a large number of documents on their planning website arising from this application and previous Inquiries. The specific documents that BAP have been requested to work with, are listed below:

Key Documents: Bagby Noise

- K P acoustics: Bagby Airfield, Thirsk, Noise Impact Assessment Report 12184.NIA.01.Rev.F (27/04/2016)

- WSP / Parsons Brinkerhoff: Environmental Statement (E.S.)
 - Volume 1: Chapter 7 Noise and Vibration [September 2016/March 2018]
 - Non-Technical summary
- Barton Willmore, Bagby Airfield, Planning Design and Access Statement, October 2016.
- York Aviation: Dialogue with HDC's aviation advisor.
- WSP / Parsons Brinkerhoff supplementary memoranda
 - KP Acoustics Report Review: 28 February 2017
 - Further noise data Analysis: 28 February 2017
- Goodman Derrick LLP Letter to Hambleton D.C, Reference SBH / JEL / 99999.004 31 August 2017 and attachments.
- Published responses to recent consultation: June – July 2018.
- Dialogue with the applicant's noise adviser WSP post revised E.S. publication.

1.3 The Development (noise aspects)

Bagby Airfield received planning permission in July 1973; the central area of the airfield has been used as an airfield for a long time. It is situated on a piece of land to the south west of the village of Bagby. The site is within 200m of the edge of the village, and about 1km from Great Thirkleby.

The Airfield provides facilities for general aviation (G.A), and is reported to have accommodated total annual aircraft movements since 2002 ranging from 5,199 to 12,592. These movements mainly occur on the 06/24 grass runway (690m long), with circuit flying at 1000ft, left hand on runway 24 and right hand on runway 06 i.e. away from Bagby.

The application sought involves:

- Demolition of the existing clubhouse and control tower;
- Demolition of the single storey extension on hangar B;
- Demolition of hangars C and D on the southern boundary of the Site;
- Change of use and external alterations of the existing engineering building to be used as a clubhouse and control tower;
- Hangar F to the north of the site to be used for storage and hangar, as in the past;
- Development of a new tractor shed on the northern boundary of the site;
- Development of a new hangar (C1) on the southern boundary in place of hangars C and D;

- Formation of a new access drive; and
- Introduction of hard and soft landscaping.
- On or about 2nd January 2018 the relocation of the AvGas facility from underground fuel tank and pumps to above ground tank and 'pay-at-pump) unit together with a relocation of the mobile JetA1 fuel facilities to a fixed position with 'pay-at-pump' facility on a concrete hardstanding abutting the eastern boundary of the airfield north of hangar P and the website announcement of the provision of fuel "LL91".
- Relocation of the Maintenance Facility to southern side, within Hangar B.

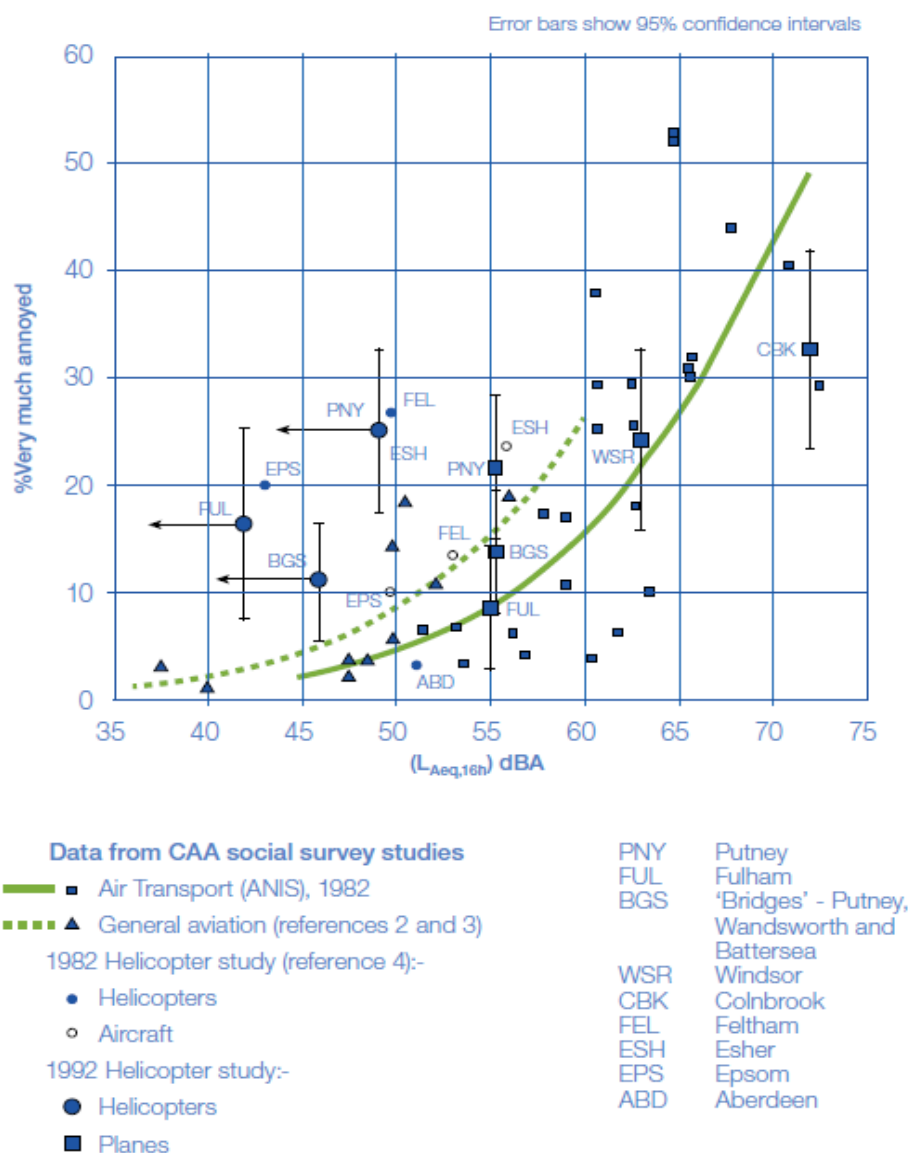
The application involves no change with regard to the runway length or orientation, and no change to the current aircraft procedures; and so does not affect aircraft noise directly. The removal of Hangar P and storage currently located at the eastern edge of the site will remove some screening. With regard to aircraft noise, the critical matter is whether the development will lead to more movements, and /or movements by noisier aircraft.

2.0 AIRCRAFT NOISE IMPACT EVALUATION

2.1 U.K. Approach

Unlike constraints developed for the commercial airports, no clear guidance is available for general aviation airfields. There is also a shortage of UK studies on noise impact of GA aerodromes. Inspectors at Public Inquiries have adopted various criteria and approaches. Figure 1 copies results from the old GA aerodrome noise impact studies and results for commercial airports. The trend lines indicate that GA noise produces a greater % of the population very much annoyed than the same level of noise ($L_{Aeq,16h}$) as around commercial airports. In simple terms for 10% very much annoyed, for commercial airports a noise of about 57 dB $L_{Aeq,16h}$ was necessary, whereas at a GA aerodrome 52 dB $L_{Aeq,16h}$ would be necessary.

Figure 1: Annoyance reactions to the noise of air transport, general aviation and helicopters



It was stated in the now replaced PPG24 that the Local Planning Authority should be aware that in some circumstances the public perceive general aircraft noise levels as more disturbing than similar levels around major airports. This point arose from some early studies on the noise impact of general aviation aerodromes as shown in Figure 1.

These studies are sometimes used to support more stringent criteria (5 dB more stringent) than the criteria used for larger airports. Historically, the White Paper on the Future of Air Transport adopted 57 dB $L_{Aeq,16h}$ for airports and aerodromes, it specifically considered the GA aerodromes

of Biggin Hill, Shoreham, Blackbushe, Fairoaks, North Weald, White Waltham, Wolverhampton and Plymouth. The decision by the Secretary of State over the development of Sywell aerodrome in 2007 used the 57 dB $L_{Aeq,16h}$ value as the bench-mark. The Aviation Policy Framework, paragraph 3.17, also suggests 57 dB $L_{Aeq,16h}$ as the approximate onset of significant community annoyance without any difference between airports and aerodromes.

It is therefore unclear as to whether the adoption of a 5 dB more stringent criteria for GA aerodromes is in accord with Central Government policy. The Aviation Policy Framework 2013 states in paragraph 3.14 that there is some evidence that people's sensitivity to aircraft noise appears to have increased in recent years, although there are still uncertainties around the precise change in relationship between annoyance and the exposure to aircraft noise.

BAP were retained in the period 1993 to 2007 to assist in development of a new GA aerodrome. In that case a more stringent criterion was adopted than at Sywell, i.e.

Aircraft noise was assessed in UK in terms of the equivalent continuous sound level (L_{eq}) and such has been used at Turweston in the past and recently, with the impact assessment level taken as 50 dB $L_{Aeq,T}$ for general aviation aerodromes. This level was taken as it was adopted by others in the past, e.g.

- Adopted by ATL advising in 1991/92 on Turweston
- Adopted by Sypol advising AVDC in 1991 on Turweston
- Adopted by the independent Inspector, Mr M Bingley BSc (Est Man) ARIC, Public Inquiry 22 September 1992 - 26 February 1993 about Turweston
- Adopted by the Secretary of State for the Environment in his decision letter of 16 December 1993, specifically advising in paragraph 5

... "He agrees with the Inspector that the use of predicted time averaged valued expressed in terms of dB(A) L_{eq} is an appropriate method of assessing noise impact and that noise levels of 50 dB(A) represent a reasonable criterion against which the acceptability of the proposals might be assessed."

For general aviation a recent example of the approach post PPG24, is a proposed housing development near Goodwood Aerodrome. The Inspector held the Inquiry in 2013. He rejected the new housing on several grounds, e.g.

"severe and irrevocable damage to the landscape, the countryside, the character of the strong sylvan northern edge to the city and diminish the impact and function of the strategic gap..."

Moreover its position beneath the flight path from Goodwood Aerodrome would be likely to seriously affect the quality of life of prospective residents."

In reaching that opinion, the Inspector had been advised that 52 dB $L_{Aeq,16h}$ could be taken as the onset of significant community annoyance, and agreed to that view. He was also advised that;

On the basis of average contours

“a small portion of the site lay within the 51 dB $L_{Aeq,16h}$ contour.

On the basis of average summer day contours

“nearly 52 dB $L_{Aeq,16h}$

On the basis of daily day contours

“for half the survey dates 54 dB $L_{Aeq,16h}$

“for 41% of the days, 55-58 dB $L_{Aeq,16h}$

He also took into account the old WHO guidelines for external areas which indicated levels of 50 dB to prevent moderate annoyance and 55 dB where “serious annoyance” might occur.

In summary in the past the onset of significant community disturbance has been taken as a value of the average $L_{Aeq,T}$ values ranging from 50 – 57 dB $L_{Aeq,16h}$. Recently 24th October 2017 Central Government indicated that whereas for many years for commercial air-ports 57 dB $L_{Aeq,16h}$ indicated the onset of significant community annoyance, a lower value was now appropriate.

The WHO Regional Office for Europe issued a report entitled, Environmental Noise Guidelines for European Region in October 2018. This recommended, based on the work of the Guideline Development Group, that for aircraft noise, average noise exposure should be reduced to below 45 dB L_{den} as aircraft noise above this level is associated with health effects. (N.B. 45 dB L_{den} is expected to be similar to 45 dB $L_{Aeq,16h}$ at Bagby as there are no night activities which the L_{den} metric would otherwise take into account).

Below gives an extract from the Department for Transport “Consultation Response on UK Airspace Policy: A framework for balanced decisions on the design and use of airspace. “

“Government Response

- 2.68 We welcome the support for proposals and we will proceed with these proposals as we believe they are the correct ones for ensuring that evidence-based and transparent decisions are made regarding aircraft noise.
- 2.69 The government’s overall policy on aviation noise is to limit and, where possible, reduce the number of people in the UK significantly affected by aircraft noise as part of a policy of sharing benefits of noise reduction with industry in support of sustainable

development. Consistent with Noise Policy Statement for England, our objectives in implementing this policy are to:

- Limit and, where possible, reduce the number of people in the UK significantly affected by the adverse impacts from aircraft noise;
- Ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions; and
- Minimise local air quality emissions and in particular ensure that the UK complies with its international obligations on air quality.

2.70 The government acknowledges the evidence from recent research which shows that sensitivity to aircraft noise has increased, with the same percentage of people reporting to be highly annoyed at a level of 54 dB LAeq 16hr as occurred at 57 dB LAeq 16hr in the past. The research also showed that some adverse effects of annoyance can be seen to occur down to 51 dB LAeq.

2.71 Taking account of this and other evidence on the link between exposure to noise from all sources and chronic health outcomes, we will adopt the risk based approach proposed in our consultation so that airspace decisions are made in line with the latest evidence and consistent with current guidance from the World Health Organisation.

2.72 So that the potential adverse effects of an airspace change can be properly assessed, for the purpose of informing decisions on airspace design and use, we will set a LOAEL¹ at 51 dB LAeq 16hr for daytime, and based on feedback and further discussion with CAA we are making one minor change to the LOAEL night metric to be 45 dB LAeq 8hr rather than Lnight to be consistent with the daytime metric. These metrics will ensure that the total adverse effects on people can be assessed and airspace options compared. They will also ensure airspace decisions are consistent with the objectives of the overall policy to avoid significant adverse impacts and minimise adverse impacts.”

With respect to General Aviation Aerodromes it is not clear whether an even lower criterion should be considered, e.g. 54 (-5 for G.A) i.e. 49 dB LAeq,16h. It can be expected that about 50 dB LAeq,16h is a tolerable level for most people; of course due to the variability of individuals response to noise, some will find even that low level unacceptable.

These responses, 2.68 – 2.72, were stated by the Government when formally instructing the Civil Aviation Authority in how to carry out its air navigation functions².

¹ LOAEL – Lowest Observed Adverse Effect Level

² Department for Transport: Air Navigation Guidance 2017

H.M. Government in April 2018 published, Beyond the horizon: The future of U.K aviation: Next steps towards an Aviation Strategy. That advised on supporting growth while tackling environmental impacts. In particular, it advised that the Aviation Strategy will explore whether the UK has the right regulations, controls and incentives to ensure the sector continues to address aviation noise and pays for its impact on communities in a manner which is proportionate to its growth. They also confirmed on the establishment of ICCAN, an independent body established to be a credible and authoritative voice on aviation noise issues. It is planned that the Government will be able to publish a comprehensive and fully informed aviation strategy in early 2019.

Above has been discussed the use of Government recommended metric for aircraft noise, the dB $L_{Aeq,16h}$ metric. Inspectors and others have sometimes used other approaches at Inquiries but these all fall to an unsupported judgement of what is acceptable. For instance for small air-fields a simple constraint on the number of operations is adopted; for instance at Bagby where it is understood in the past the impact was found generally acceptable when movements were constrained by 4160 annually (40 departures / 40 landings per week), although there were still complaints.

The Government's metric has the great advantage that it allows control to relate to a parameter where studies have related values expressed with it to community response, and it allows the effect of noisy individual aircraft events to be combined with the number of events. Use of L_{Amax} levels of individual aircraft alone has not been related to community response, and use on its own gives no attention to numbers of events.

In the recent E.S. (September 2016) the Applicants' specialist advisers WSP/Parsons Brinkerhoff included in A7.4.3 a prediction using the Governments' metric. Doug Sharps in his evidence to the 2011 Inquiry also used the usual approach, but the Inspector chose to make his decision based on his personal judgement.

2.2 Applicants' submitted noise information.

2.2.1 WSP / Parsons Brinkerhoff: Environmental Statement, Chapter 7 Noise and Vibration (September 2016)

With respect to aircraft noise WSP reported:

- A baseline noise survey, including the long term, unattended measurement of existing noise levels during daytime periods (07:00 – 23:00 hours) at nearby noise sensitive receptors over a four week period;
- An additional noise survey, including the short term, attended measurement of existing noise sources associated with various activities at the airfield;

- A computer aircraft noise modelling exercise, to quantify the airfield's current noise output to inform the current baseline position;
- An assessment of operational ground noise from activities such as aircraft refuelling and maintenance, based on proposed changes to the Site layout and following the guidance set out in BS 4142: 2014 and other relevant guidance; [As discussed below, section 2.2.5 new data issued March 2018].

The survey in the period (15 July to 12 August 2016) was made at four locations, one of which was in the garden of Littonslack on Bagby Lane. The site was chosen to be representative of existing dwellings in Bagby village. As Bagby is a linear village, this location could be better described as one of the closest to the airfield site.

This was an unattended survey and therefore could only determine the combined noise from birdsong, local road traffic, overflying large commercial aircraft, and any noise from activity at Bagby Airfield. In summary the average combined noise level was about 51 dB $L_{Aeq,16h}$. On the few occasions when survey personnel were on site they found the local noise climate was generally quiet, which is consistent with the combined noise level measured.

As well as this unattended four week survey, on the last day an attempt was appropriately made to quantify on the ground various noise generating activities associated with the operation of the airfield. It was not possible to measure any helicopter activity (a known source of annoyance in Bagby).

A retrospective attempt was made to determine the current noise contribution from aircraft activity on the overall 16 hour average noise, and on incidence of maximum noise events. This did not quantify the contribution, however an aircraft noise computer prediction model was also used. This indicated that based on 8,787 annual movements made up of helicopters (7%), single engine light aircraft (69%), microlights (22.4%), and twin engine light aircraft (1.6%), the aircraft noise contribution would be about 45 dB $L_{Aeq,16h}$. That is less than the average combined noise measured at Littonslack. The microlights were assumed to be as noisy as a single engine light aircraft, a pessimistic assumption.

With regard to maximum noise events, no attempt was made to use the computer model to predict noise from the individual types of aircraft known on-site. Such would have allowed some comprehension of the instantaneous noise effects in Bagby.

Calculations using the information provided in 2011 by Doug Sharps are provided for the helicopter hot refuelling activity; on the basis of two such events in one hour, the average $L_{Aeq,T}$ noise at local housing is predicted to be 44 dB. That is by averaging the noise that occurs over a period of 8 minutes 10 seconds, over 60 minutes. It can be deduced from Doug Sharps data that

whilst the refuelling is in progress the noise at the local residences will average 53 dB $L_{Aeq,T}$, and be audible.

2.2.2 WSP Supplementary Memorandum: Further noise data analysis: 28 February 2017

In response to Hambleton District Council's response to the E.S., WSP issued further noise data analysis and comment on a request for additional background measurements and on additional noise data applicable to specific aircraft events. On the first request WSP refused to carry out additional measurements and relied in part on the report prepared by KP acoustics, which they advised concluded;

- Noise levels in Bagby remain consistently representative of a typical village environment, with average levels in the region of 45-55 dB L_{Aeq} , with limited correlation to the noise levels measured at the airfield.
- Whilst some peaks do suggest a correlation between the airfield and community noise levels, it has been found that the majority were caused by either highly irregular air traffic or events unrelated to the airfield.

The KP Acoustics report review has concluded that noise levels from individual airfield related events are difficult to distinguish from noise levels generated by other transient events in the locality. Furthermore, it is apparent that, for those events which have been identified, associated noise levels are comparable to those generated by non-airfield related events. Non-airfield noise events have also been identified as being more numerous in comparison to airfield generated noise events.

On the second request, additional measurements applicable to specific aircraft events, WSP carried out further retrospective analysis of their original noise survey results from July to August 2016. They concluded that noise levels from individual airfield related events are difficult to distinguish from noise levels generated by other transient events in the locality. Also the existing background noise ($L_{A90,T}$) at the adopted measurement locations is unaffected by airfield operations. They also reported on a few aircraft noise events that they had managed to correlate with aircraft activity, such that at their survey locations noise could be related to aircraft type as given in Table 1.

Location	Departing Aircraft Type	Noise Level (dB)
ML1 Bagby Lane	Single engine G.A.	70 approx.
	Helicopter	78 approx.
ML2 Thistle Hill Farm	Helicopter	69 approx.
ML3 Foxglove Cottage (Thirkleby)	Single engine G.A.	76 approx.

Table 1: Noise Levels from Departing Aircraft

Unless these events coincided with peaks of noise from other sources, such events would be expected to be clearly audible and noticeable.

2.2.3 WSP Supplementary Memorandum: KP Acoustics Report Review

WSP repeat the conclusions given by KP acoustics, and add some additional analysis on noise at Keeper's Cottage. This suggests an average $L_{Aeq,1m}$ of 63 dB for a fixed wing aircraft movement and 59 dB for a helicopter movement.

2.2.4 KP acoustics: Bagby Airfield, Thirsk Noise Impact Assessment Report 12184.NIA.01 Rev.F

KP acoustics describe their unattended noise surveys at three locations in the period 01/06/2015 to 22/08/2015. They found that the location in Bagby, and at Keeper's Cottage could be characterised by low level background noise. KP acoustics carried out a retrospective study in an attempt to correlate aircraft noise events with peaks of noise in Bagby. They advised that the increase in noise levels at the recipient in Bagby village can generally be described as marginally significant, with the majority of measured noise levels corresponding to aircraft activity not exceeding 60 dB(A).

KP acoustics carried out a prediction on the basis of 70 – 75 dB(A) on at airfield (at 50m from the source), attenuated by 30 dB(A), to give 40 – 45 dB(A) at the receiver in Bagby. They then consider an internal level, and compare their prediction with the design criteria for continuous noise in new dwellings. That is KP acoustics adopted a novel way of assessing aircraft noise impact, different from that recommended by Government, and that adopted generally in UK. This analysis appears incorrect, and not relevant. In their Appendix B their first entries highlight aircraft departures generating noise of around 80 dB on the airfield and 60 dB at the Bagby receiver. It is unclear precisely the location in Bagby village where the assessments were made.

2.2.5 WSP/Parsons Brinckerhoff:

Environmental Statement, Chapter 7 Noise and Vibration (March 2018)

In March 2018, Hambleton District Council received advice from Barton Wilmore, planning advisors to the applicant, delineating changes made to the noise assessment previously

submitted in September 2016 within the Environmental Statement. These arise due to changes in the proposed development, namely

- Relocation of the Maintenance Facility to the southern side of the airfield within Hangar B.
- Provision of a permanent fuel facility to the north east of the airfield.
- Cease usage of existing Helipad 1.
- Provision of a new Helipad expected to be positioned at a distance of approximately 50m to the east of the existing Helipad 1 and immediately to the west of the new refuelling facility.

The changes to the E.S. (noise) included the results of new attended noise monitoring on the 26th February 2018. The applicants' advisors reported that the updated assessment found:

- That changes to the Bagby Airfield scheme plans had not resulted in any new significant noise or vibration effects.
- That the change to the development has reduced the significance of noise from the ground maintenance activities to "Negligible", which previously had been assessed as of "Negligible to Minor" Adverse.

With regard to noise effects of the airfield, the update did not alter the previous assessments (September 2016) with regard to:

- Long term baseline noise
- The airfields airborne aircraft noise
- Construction noise
- Access noise
- Entertainment noise

As identified in para 7.158 of the modified Noise chapter of the E.S., the applicants' advisor retains most of the Summary from the previous E.S. (September 2016), and adds the result of an assessment of the potential noise level changes related to the new refuelling location and the removal of the existing hangar and storage unit at the north eastern site boundary. That identifies impacts on residential dwellings would be of negligible significance.

The update provides useful information, but now fails to determine an assessment of the effect on local amenity of either works related to the new maintenance building, or the new refuelling/helipad arrangement. Instead it advises changes from the status quo will of themselves be negligible.

With regard to the first matter, the new maintenance facility was initially assessed (September 2016) by predicting noise breakout from activities within the building, e.g. for Rozel assessment location,

40 dB $L_{Aeq,1h}$.

Permission for this new facility should ensure appropriate building sound insulation is provided, and doors (which face the village) are kept shut if any noisy works inside are planned.

The latest study (March 2018) predicted noise from engine tick over after maintenance outside the hangar of,

53.8 dB $L_{Aeq,165\text{ secs}}$ [Table 7.18]

(i.e. 40.4 dB $L_{Aeq,1h}$) new maintenance hangar

(29.4 dB $L_{Aeq,1h}$) old maintenance hangar

And allowing for two events in an hour,

43.4 dB $L_{Aeq,1h}$ new maintenance hangar

In the latest assessment, this predicted level was combined with ambient noise (taken at 45 dB $L_{Aeq,1h}$) to indicate a combined level of 47.3 dB $L_{Aeq,1h}$. The change assessment then compared this combined level with that computed to arise if the old hangar had been used, 45.2 dB $L_{Aeq,1h}$. This was assessed as a 2 dB increase and rated as insignificant change. The assessment adopted a relatively low value for the ambient noise (45 dB $L_{Aeq,1h}$) as, for instance, analysis of the detailed noise measurements at ML1 “the Bagby location” (see Appendix 7.3) indicates higher average levels, e.g. 07.00 - 47 dB $L_{Aeq,1h}$ | 11.00 - 49 dB $L_{Aeq,1h}$ | 16.00 - 50 dB $L_{Aeq,1h}$.

This might suggest the applicants’ have taken a conservative approach.

With regard to impact the actual events, 53.8 dB $L_{Aeq,165\text{ secs}}$ will be audible as the background noise is approximately, 40 dB L_{A90} . If the method of assessment had been that stated in paragraph 7.22 (use of BS4142), the magnitude of impact (Table 7.4) would have been minor or moderate dependent on what allowance was made for the character of the noise.

With regard to the second matter the new refuelling/helipad arrangement, the initial noise assessment (now struck out) took reference noise levels obtained by Doug Sharps in 2011, and carried out noise predictions and found for Rozel:

44 dB $L_{Aeq,1h}$ (for two events).

The latest assessment involved noise measurements (Appendix 7.5) and detailed predictions, leading to a comparison of the old and new refuelling locations. As an example the predicted results for Rozel are considered here:

46.4 dB $L_{Aeq,240\text{ secs}}$ refuelling

(alias 37.6 dB $L_{Aeq,1h}$) for Robinson R44 helicopter

54.6 dB $L_{Aeq,160\text{ secs}}$ taxiing to RWY06

(alias 41.1 dB $L_{Aeq,1h}$) for Robinson R44 helicopter.

The updated E.S. assessment computes the combined results for three events per hour, that is refuelling and related taxiing for three Robinson R44 helicopter and three Cessna 150 fixed wing aircraft. The results are presented in Tables 7.24 and 7.25. The assessment considers only the change in combined noise levels between operations at the new and old facilities. Considering the new refuelling location, the results for Rozel are:

R44 Refuelling (3 off)	39.4 dB $L_{Aeq,1h}$
R44 Taxi to Runway 06 (3 off)	47.5 dB $L_{Aeq,1h}$
Cessna 150 Refuelling (3 off)	30.3 dB $L_{Aeq,1h}$
Cessna 150 Taxi to Runway 06 (3 off)	28.8 dB $L_{Aeq,1h}$
So R44 Activity [39.4+47.5]	48.1 dB $L_{Aeq,1h}$
Cessna 150 Activity	32.6 dB $L_{Aeq,1h}$
Combined all activity [48.1+32.6]	48.2 dB $L_{Aeq,1h}$ excluding ambient noise.

The individual contributions to the eventual sound level as Rozel are dominated by the R44 helicopter activity, and in particular the assessed contribution from the helicopter taxiing to Runway 06.

Considering the amplitude of the noise contribution, it will be clearly audible for a short time (not given in Table 7.21), i.e. a noise averaged over the taxiing event of 54.6 dB $L_{Aeq,T}$ on a background noise approximately 40 dB L_{A90} . As shown in the updated E.S. on the basis of a cautious assessment of ambient noise level 45 dB $L_{Aeq,1h}$, the effect of this activity on the combined noise level is small, similar to that when the same analysis is carried out for the old refuelling location.

It is useful that the impact/change due to this common helicopter type, the single engine, Robinson R44 was considered. The noise monitoring carried out in 2018, also measured noise emission from one of the twin engine type, specifically a Bell 429. An example of which was obtained by the National Grid recently. No impact assessment has been made of the results for this type, which for instance, in the studied period, January – July 2016, carried out considerable activity at Bagby, slightly more than the R44. The helicopter activity in that period was split between single and two engine types, with the latter slightly more common.

As illustrated below based on the applicants results Appendix 7.5, the twin helicopter Bell 429 is the significantly noisier than the Robinson R44 which underpins the applicants submission.

Bagby Source Noise Measurements - Location A		
	L_{Aeq,1h} (dB)	L_{AFmax} (dB)
Operation on ground at new refuelling facility, engine running		
Robinson R44	62.5	72.4
Bell 429	73.2	83.9
Difference between helicopters, B429 – R44	10.7	11.5
Departure off RWY 06 towards NE		
Robinson R44	68.3	76.4
Bell 429	75.8	87.3
Difference between helicopter B429 – R44	7.5	10.9

Table 2: Comparison of Measured Noise from R44 and B429 helicopters

Unless the applicant seeks only to operate single engined helicopters an analysis of the effect of twin engined helicopters is necessary. The complaints reported to the council in the 2017 include mention of Sikorsky S76, a much larger helicopter which, based on the noise certification levels, would be noisier than the Bell 429.

BAP sought advice from the applicants' noise advisor as to why no assessment was made of the noisier Bell 429 helicopters. BAP was advised that the Bell 429 would not use the new refuelling activity, and would use, as in the past, facilities at Hanger E. With respect other non AVGAS helicopters, twins similar to the Bell 429, BAP was advised they already used a mobile facility near the new facility so no significant change would be forecast. In essence the only change to be assessed with respect to the new refuelling facility is moving the AVGAS helicopter (e.g. Robinson R44) from using the existing Helipad 1 to the new facility.

BAP failed to agree with the applicants' noise consultant that as well as considering changes, the E.S. should also advise the local community on the absolute levels, arising from use of the new facility both by the quieter small helicopters and those larger noisier types.

2.2.6 Recent Public Consultation (Noise Issues)

Post 13 June 2018 thirty six responses to the latest information on the application have been received by Hambleton District Council. These include letters of support from locations mainly distant from the environs of Bagby Airfield, letters from statutory consultees that raise no noise

issues, and letters from local people objecting to the process being undertaken, and elements of the development itself.

With respect to noise concerns, the matter of a perceived transition from a hobby airfield to commercial airport and resultant use of larger aircraft were raised. The detailed matter of noise was raised by one objector, highlighting the perceived unbelievable nature of the EIA, the past advice including that an Inspector had deemed helicopter noise as unacceptable, concern over the new refuelling facility and lack of any attempt to mitigate noise from that facility.

2.3 Applicants' Findings

The Department for Communities and Local Government advised in May 2016 that application for this development must be accompanied by an Environmental Statement. In their screening decision they advised the development would not be advised as EIA development, on the basis of physical elements of the development, the location of the development, the road traffic generation and ecological or heritage matters. They advised that they considered that noise generated by aircraft and helicopter movements and associated activities with the Bagby Airfield proposal could have significant environmental effects which should be fully assessed within an Environmental Impact Assessment.

The Applicant subsequently prepared and issued an Environmental Statement (September 2016), Section 7.0 addressed Noise and Vibration. In paragraph 7.47, the Applicant's advisor advised that as there are no proposed changes as part of the Development to the current level of aircraft use of the site, fleet mix, or changes in flight paths using the Airfield, therefore, there can be no noise impacts from aircraft noise in the air associated with the development.

In response to the advice from the Secretary of State the advisor considered it was appropriate to understand the influence that aircraft movements have on the current baseline noise levels in the local area. The advisor summarised the E.S on aircraft noise, thus:-

- "The influence of aircraft noise on the current baseline noise climate has been considered by observing numbers of aircraft movements and their effect on the daily noise levels measured. Maximum noise levels associated with individual aircraft movements are generally difficult to identify against other transient noise sources in the area such as individual car pass-bys, agricultural and animal noise and commercial aircraft movements from aircraft travelling between other airports.
- An aircraft noise modelling exercise has been completed based on the typical average annual aircraft movement number of 8,787."

The Applicants’ planning advisor, Barton Wilmore LLP, advised in the Planning, Design and Access Statement (October 2016) that

“The Noise Assessment as part of the Environmental Statement demonstrates that the Proposed Development will not have an increase in noise emission and that the Proposed Development will not adversely impact the residential amenity of the Village;”

Subsequent to the issue of the E.S. the Applicants’ noise advisor provided supplementary information on the 28 February 2017, specifically a review of the KP acoustics report of April 2016, and separately additional data analysis. The latter resulted in the advisor summarising that

“It has been identified that noise levels from individual airfield related events are difficult to distinguish from noise levels generated by other transient events in the locality. The removal of aircraft activities from the baseline noise data has identified that the existing background $L_{A90,T}$ at the adopted measurement locations is unaffected by airport operations.”

The review of the KP acoustics report advised that it is evident that, noise levels from individual airfield related events are difficult to distinguish from noise levels generated by other transient events in the locality.

2.4 BAP’s Findings

BAP have not been instructed to carry out separate studies, but in order to advise on the suitability of the proposed restrictions have made an initial attempt to understand the recent and current aircraft noise. This has been based on a desk-top exercise of published information, the noise evidence considered in 2011, and dialogue with the applicants’ noise advisor.

The key matters are clearly what aircraft, how many, and how they operate.

On the basis of information for the period January to August 2016, the aircraft operated include four types of balloon, 13 types of helicopters ranging from Robinson R22 (622 Kgs) single engine to Eurocopter AS365 Dauphin a medium weight (4300 Kgs) twin engine craft, and about 150 different types of fixed wing propeller driven aircraft. Table 3 seeks to highlight the fixed wing types that have operated often in the period studied (that is more than 100 movements). The total movements throughout the year was 6822; e.g. 18.6/day if movements occurred evenly throughout the year. In reality they do not, e.g. in July (2016) they included:-

<u>Day of Week</u>	<u>Daily Movements (Totals for 1st, 2nd, 3rd, 4th and 5th week of month)</u>
Mondays	15, 0, 84, 25
Tuesdays	9, 18, 99, 19
Wednesday	20, 10, 38, 57

Thursday	18, 41, 87, 30
Friday	3, 25, 22, 46, 39,
Saturday	5, 7, 112, 84, 8,
Sundays	9, 94, 39, 40, 70

In the same month there were 32 turbine helicopter movements, with 17 days without any, and on the remaining 14 days usually 2 movements.

Aircraft Type FIXED WING	Movements⁽¹⁾ (>100)	Engine (H.P)	Movements Take-off weight (kgs)
Piper Archer	239	180	1157
Cessna C172	220	150	1111
Reims C172	328	210	approx. 1111
Slingsby Firefly	350	260	1157
Beagle Pup	178	150	873
Eurostar	1022	80	472
Jodel D117	124	95	620
Microlight ⁽²⁾	170	80(?)	450(?)
Dynamic	130	80(?)	450
Other Piper PA28 types	111	160-180(?)	975

⁽¹⁾ Extracted 2872 from total 4320 Fixed Wing Movements [Annual estimated at 6822]

⁽²⁾ Aeroplane not exceeding 450kg for a two seat land plane (Light Sport Aeroplane, 600kgs)

**Table 3: Bagby Most Common Aircraft: Fixed Wing Propeller Driven only:
(January to August 2016)**

In the studied period, January – July 2016, the majority of the helicopter activity was carried out by three types, namely the Robinson R44 single engined (1134 kgs maximum take-off weight) and two twin engined helicopters, the Augusta 109 and the Bell 429 (about 3000 kg maximum take-off weight).

BAP have been provided with complaint information received by the District Council in the period April 2016 to September 2017. This indicates a few complaints, two in 2016 and five in 2017. Those in 2016, appear to relate to aircraft in the early morning, around 6 a.m., possibly both helicopters. Those in 2017, appear to relate to helicopter operations, some in the early morning, some refuelling. In essence no clearly identified complaints over conventional fixed wing propeller operations.

Also available to BAP is the complaint analysis made by others for the period 21st September 1998 to 9th October 2009. There were 14 letters of complaint in this eleven year period, the majority (11) are of aerobatic activity, mainly from Tholthorpe, 10 miles from Bagby, one related to a helicopter taking off at 5.30 a.m.

This small level of recorded complaints, little over conventional G.A. activities is not surprising. BAP are advised that nearly all departures (at least 90%) depart on runway 24, that is away from the Bagby village and towards the major road A19. Departures will be the noisiest operations for fixed wing aircraft. With regard to landings many approach from the A19 to runway 06, those that do not approach (with lower engine power than departures) from the North on to runway 24. The aircraft are at low power and 550m distant from Bagby village.

After the initial climb to circuit height the aircraft will operate at less power as it undertakes the downwind leg before descending on the base leg before the final approach.

BAP are not clear on the circuit pattern flown at Bagby. It is clear that the circuit instructions indicate the circuit is on the other side of the aerodrome than the village.

With regard to aerobatics by aircraft such as the Slingsby Firefly, BAP understand that other than on special fly-in days the aerobatic activity is carried out away from the aerodrome.

The matter which appears to cause greatest concern is the operation of utility helicopters using Bagby as a refuelling site. These can be expected to approach the aerodrome and depart without direct overflight of the village.

With respect to aircraft noise from conventional operations both Doug Sharps (2011 Inquiry) and Nicola Bolton (recent E.S.) here produced noise contours. I copy in my Figures 2 + 3, two examples namely:

Doug Sharps Proof 2011: Appendix G: 9,000 aircraft movements (Figure 2)

Nicola Bolton: WSP: E.S: 2016 Appendix 7.4 (8,787 aircraft movements) (Figure 3)

The input assumptions for these contours were similar, viz:

Aircraft Type	Daily Movements	
	Nicola Bolton: Appendix 7.4	Doug Sharps Proof: Appendix G
Helicopter	1.69	1.88
Fixed Wing	16.61	17.64
Microlight ⁽¹⁾	5.39	3.48
Twin	0.39	0.12
Total	24.07	25.0

⁽¹⁾ Both parties assumed microlights are as noisy as fixed wing aircraft.

Table 4: Noise Contour Input Traffic

Figure 2: Bagby Noise Contours (D.F. Sharps 2011)

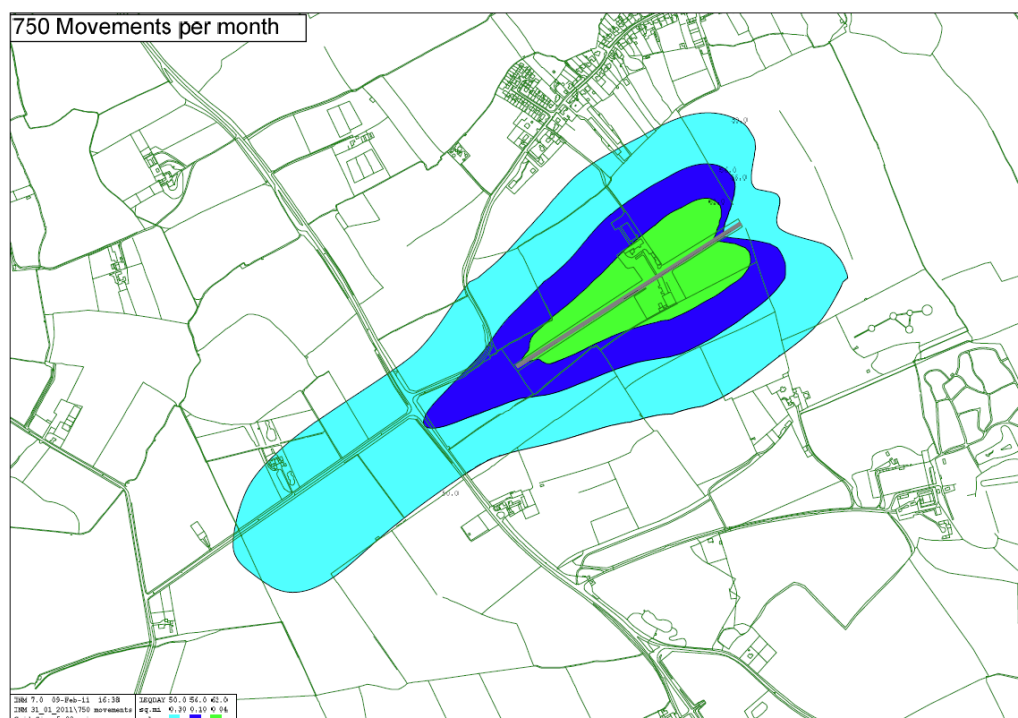
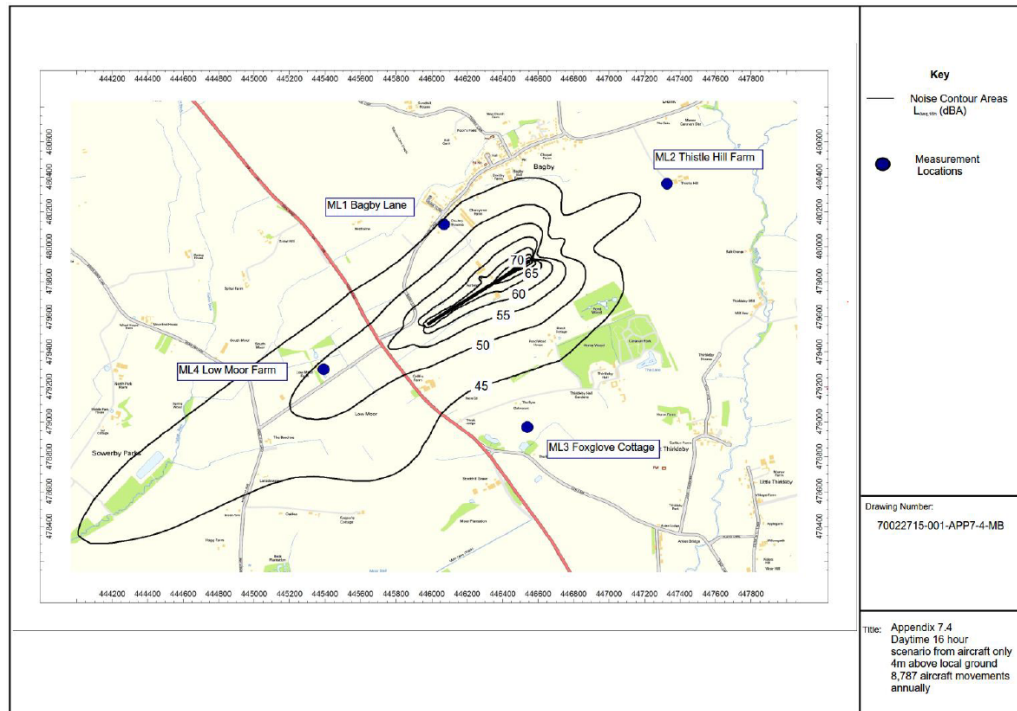


Figure 3: Bagby Noise Contours (WSP: E.S. 2016)



With the most common category, fixed wing split 80% fixed pitch and 20% variable pitch propellers. The contouring exercises both assumed 93% departures towards the A19, and 25% fixed wing aircraft doing circuits. As illustrated in Table 3 these two contouring studies have assumed similar daily movements in total, and similar distribution between aircraft types. The resultant contours, see Figures 2 and 3 are similar with the 50 dB $L_{Aeq,16h}$ only encompassing Low Moor Farm, none of Bagby.

This would concur with the reported community concerns which concentrate on helicopter refuelling activity. At such a low level of aircraft noise expressed in the metric, some complaints could arise as some find aircraft noise unacceptable irrespective of the exposure level.

As mentioned earlier some decision makers have concerns over relying solely on the recommended $L_{Aeq,16h}$ metric.

From the data available to BAP, the instantaneous levels incident on local housing can be considered. Those for departing aircraft are given below, landing fixed wing aircraft are usually quieter; helicopters can be as noisy and noisier on landing compared to departing.

Considering the nearest housing to the runway, the instantaneous levels, expressed as the L_{Amax} values are:-

In the garden of Littonslack, Bagby Lane, (430m) (WSP)

Operation	L_{Amax} Levels (dB)
Fixed wing Departures	
Piper PA32R (Lance/Saratoga)	69.2
Slingsby T67M MK11	70.4
Helicopter Departure	
Bell 429	77.6

Closer to the runway (410m) (Doug Sharps evidence - 2011)

Operation	L_{Amax} Levels (dB)
Helicopter Departure	75.8
Fixed Pitch Departure	67.5
Variable Pitch Departure	64.4
Microlight Departure	57.3

At a location at another G.A Aerodrome, (400m) (BAP data 2006/2007)

Operation	L_{Amax} Levels (dB)
Fixed Wing Departures	
Fixed Pitch, Piper PA28	68.7
Variable Pitch (Single)	64.0 / 65.9
Variable Pitch (Twin)	65.6
Microlight	58.3
Light Sports Aircraft	56.7

These few results from measurements, suggest that instantaneous noise events will arise at the closest housing in Bagby in the range 55-70 dBL_{Amax} , with rotary wing aircraft producing higher levels around mid 70's. For more distant housing in Bagby where some screening will be present, significantly lower levels will arise. As advised above such events for instant in July 2016, occur on certain days; not at all, 56 times on the Fly-In Day, and on average 20 times during the ten hour day opening hours of 08.30 to 18.30. The amplitude of these noise events should be similar that arising from road traffic pass-bys on Bagby Lane, where many events occur in the daytime period, 08.30 to 18.00.

The matter which appears of most concern is the helicopter operations, which BAP were advised initially took place at Helipad '2' approximately 450m from the nearest housing in Bagby and in front of the reflecting facades of hangar A and B. The hangars on the north side offered some screening for some properties. The latest advice indicates a different helicopter pad near the new refuelling facility, slightly closer to Bagby village.

Measurements were made of a helicopter, type not clarified, by Doug Sharps in January 2011 at a measurement location 300m distant. These survey results were relied upon by WSP in the E.S (September 2016).

The measured levels were:

Helicopter Operation	dB L_{Amax}	SEL (dB)
Departure Take-off	75.8	85.3
Landing	76.7	86.7
Hot refuel		81.0
Combined noise of arrival, hot refuel and departure		85.9

These indicate as would be expected that the helicopter operations produce noisier events, and if consideration is given to engine usage whilst on the ground longer duration activities. This fits with the comments from members of the public.

To put these L_{Amax} levels in context of the quiet background conditions in the village. Measurements in January 2011 indicated that without a wind flow from the A19 towards the village, the background noise was 38.4 to 41.4 dB during the core day period and 32.3 to 35.0 dB during the evening, as reported by Doug Sharps.

Tests by WSP in 2016 have indicated background L_{A90} ranging from 29.4 to 55.7 dB illustrating the large range. In all cases the noise of helicopters would be clearly audible with such background levels. KP acoustics reported after the surveys in 2015 that the increase in noise in Bagby from the airfield can generally be described as "marginally significant" owing to magnitude of the increase in noise in relation to the perception of sound, with the majority of the corresponding noise levels in the village exceeding 60 dB (A).

The latest advice and modified E.S considered helicopter activity at the new location by measurement and prediction. That was discussed in section 2.2.5 of this report. The analysis based on the single-engined R44 helicopter indicated $L_{Aeq,T}$ levels at the four monitoring locations as shown in Table 5 below. From that data an event of $L_{Aeq,T}$ of about 47dB can be inferred due to the R44. That is not significantly greater than the assumed ambient level of 45 dB $L_{Aeq,T}$.

Measured Noise due to Engine Running at new refuelling location			
Location	dB L _{Aeq,T}		Distance from Helicopter (m)
	R44	B429	
A	63.0	73.2	53
B	49.8	57.7	262
C	49.4	55.2	347
D	45.0	49.4	354 (Shielded?)
Housing	47.0 ?	53.0 ?	450 (Unshielded)

Table 5: Helicopter Refuelling Noise near and far from Helipad (from E.S. Table 7.5.1.)

The instantaneous level during this exercise was for the single engine R44, 72.4 L_{Amax} near the helipad, and 56 L_{Amax} (Location B + C); with approximately 10 dB higher levels for the Bell 429.

The results indicate noise events which will be clearly audible for single and twin engine types and will continue for several minutes unlike a normal landing or take-off, at levels dependant on what type of helicopter which could be problematic. On the basis of information in the revised E.S., use of the refuelling facility by twin-engine helicopters could produce significant impact. It is unclear as to why if the Bell 429 can be refuelled at the more distant location, why other twin helicopters have to use this new facility.

3.0 AIRCRAFT NOISE CONTROL

3.1 Principles

The key principles with regard to aircraft control, involve establishing a good relationship with aerodrome's neighbours, and operating an agreed level of activity in the quietest way possible. Aircraft noise, as other environmental noises (e.g. that from rail, road, and construction activity) are controlled not to be inaudible but to a level set to be acceptable to most parties. In Bagby's case the 1970's level was restricted to private flying up to 4160 movements annually.

In recent years greater levels of activity have occurred and aircraft types altered. This has involved the introduction of helicopters and the introduction of quieter small G.A aircraft (modern microlights, light sport aeroplanes etc.)

Bagby Parish Council seeking refusal of the current application have raised a wide range of concerns several related to noise, i.e.

- o More, larger helicopters and helicopter training and hot-refuelling

- o The development will result in greater noise resulting in loss of amenity
- o Overflying of homes occurs
- o Flying circuits for large periods causes great loss of amenity over areas previously excluded
- o Stunt flying takes place
- o Unacceptable noise levels have resulted in the refusal of planning permission and 3 appeal Inspectors have found noise unacceptable.

Thirkleby Parish Council raise similar concerns, plus concerns over lack of control.

Appendix 2 copies advice from Civil Aviation Authority on the Noise Considerations at General Aviation (G.A.) Aerodromes. CAA concludes with it's best practice guidance, i.e. Aerodrome operators should consider:-

- Take the matter of noise impact seriously and be seen, subject to overriding safety considerations, to be attempting to protect their neighbours from the environmental impact of aerodrome related operations.
- Notwithstanding overriding flight safety constraints, and taking into due consideration the experience of expertise of the locally based flying community, consider adaptation of flying procedures, such as published aerodrome patterns and practices, to mitigate the environmental impact of aerodrome operations upon the local community.
- Aim to foster an open relationship with the local community, providing details of NAPs³ and ways in which members of the public can assist in the monitoring of compliance.
- Be prepared to sanction, on a sliding scale, individual pilots who are found to have unnecessarily failed to comply with local implemented NAPs.
- Assist inexperienced pilots, those unfamiliar with the aerodrome and repeat offenders to facilitate a better understanding of local noise issues and associated NAPs.
- Consider promulgating within the local community any anticipated future unusual flying activity that might, even in the short-term, precipitate and increased noise burden describing how the impact has been mitigated to the greatest extent possible.
- Take action to minimise the impact of ground operations.

³ NAPs – Noise Action Plans

3.2 Current Controls

The current voluntary controls at Bagby with respect to the level of operations, aircraft types allowed to operate, and how aircraft operate are not formalised. The Aerodrome has put in place voluntary 'trial' restrictions on use. The version received in August 2012 is copied in Appendix 3. BAP are not aware as to whether the aerodrome has operated in the last few years in accord with the restrictions or not.

The key restrictions respond to the first critical noise matter, how many daily movements:

Except for Fly-In Days where 150 can occur, for the rest of the year 80 per day is the limit. With regard to monthly movements (ignoring microlights) 950 per calendar month.

No more than 12 helicopter movements per day, excluding emergency or essential utility helicopter flights.

Helicopter circuits shall be limited to 3 circuits per helicopter and shall not exceed 12 minutes in duration.

With respect to aircraft types allowed to operate, the 'trial' does not impose any restrictions; clearly the runway length and type restricts some aircraft types.

With respect to how aircraft operate, the 'trial' requires:

- no helicopter hover practice other than for the purposes of training, landing or taking off.
- Helicopters shut down their engines during refuelling save for emergencies or essential utility aircraft.
- Performing aerobatics overhead needs Airfield Manager approval, and limited to no more than three 10 minutes sessions per day.

BAP are aware that a new Code of Conduct was prepared by the applicant in February 2018.

3.3 Proposed Planning Conditions and Section 106 Obligations

Appendix 4 copies an earlier draft of possible planning conditions and Section 106 obligations developed by HDC, their advisors and the applicant to protect the local community. Unlike the current controls these, when settled, will not be voluntary, and will give the local community the benefit of some containment to those activities related to aircraft noise available at Bagby for many decades. The final planning conditions will be finalised taking into account all information.

With regard to aircraft noise the first critical matter is the level of activity. The draft planning conditions related to operating conditions contain:

Annual Limits

- All movements 8,440 (23 per average day) (That's more than now, but less than in some past years, and a level assessed by the applicant in the E.S. (actually assessed 8,787))
- Helicopters 675 (<2 per average day) (In 2016, there were 390 jet movements which BAP understand are turbine engine helicopters. There were also a number of piston engine helicopters, annual number unclear. On the basis information of the first part of the year, an annual total of 140 piston engine helicopters. Therefore current annual helicopters usage about 530, i.e. slightly less than the proposed control. The applicant included in the E.S. noise contouring including helicopter usage of order 620 movements annually)
- Touch + Go Movements 1700

Monthly Limits

- All movements 1518 (=50/day)

Daily Limits

- Fixed Wing including Touch and Go's
Generally no limit, except on Fly-In days when a maximum of 150 movements / day.
- Helicopters
On any week day no more than 10 helicopter movements

Early morning Limits

Weekdays

- 1 movement between 07.00 and 07.30
- 5 movements between 07.00 and 09.00

Saturdays

- 4 movements between 08.00 and 09.00

Sundays/Bank Holidays

- 2 movements between 08.00 and 09.00

Evening Limits

Weekdays

- 2 movements between 21.00 and 22.00

- 6 movements between 20.00 and 22.00

Saturdays/Sundays and Bank Holidays

- 4 movements between 20.00 and 21.00

These conditions are very complex, more than BAP has noticed at other G.A. aerodromes upon which they have been retained. These should ensure no significant worsening in the adverse effects related to level of activity.

With regard to the second critical matter for aircraft noise i.e. what aircraft carry out the movements, detailed conditions to restrict activity to aircraft no noisier than currently operate are proposed.

With regard to how the aircraft are operated, a proposed condition seeks to reduce the effect of helicopter refuelling, the Section 106 obligations also introduce restrictions on circuit training, the circuit used by training aircraft, and helicopter operations.

The overall effect of the controls should be to contain noise to that recently experienced.

4.0 SUMMARY

4.1 Adequacy of Applicant's submitted noise information and findings

The Applicant concentrated in the initial E.S. on noise matters relating to use of the new access road, demolition and construction, entertainment noise from the clubhouse, maintenance activities within the new hangar advising that there can be no noise impacts from aircraft noise in the air associated with the Development. They did separately consider helicopter refuelling using the information provided by D.F Sharps in 2011.

Two unattended noise surveys were undertaken, and attempts made to retrospectively determine the contribution of aircraft noise events noise in local areas. This was in general not successful, such that the detailed noise effect of the airfield operations on the local area was not clarified. The applicants' noise information did not meet the requests made by HDC, other than by providing a noise contour and a very small number of instantaneous noise levels, which did not fully address aircraft noise.

In March 2018, a revised E.S Chapter 7 was issued which provided useful information by measurements of helicopter and fixed wing aircraft using the proposed new refuelling facility and helipad. This coupled with predictions directly addressed the matter which has caused most past complaints, the refuelling of helicopters. The related analysis concentrated on the impact arising from one type of aircraft, a single engine Robinson R44 type and showed it is unlikely to produce an unacceptable change in noise impact. Analysis of the provided movement data for

January – July 2016 indicates that although the single engine helicopter was common, an equal or larger number of helicopter operations related to the noisier Bell 429/Augusta 109 twin engine larger types. Impact analysis for these helicopters appears necessary unless the applicant seeks only to operate single engine types.

4.2 Adequacy of Proposed Planning Conditions and Section 106 Obligations.

The proposed restrictions represent a large improvement over the current situation (Voluntary Code of Conduct) as they put in place restrictions on the level of activity, the noise characteristics of the aircraft operating and the manner of operation.

The residual concerns with regard to aircraft noise are:

- o The possible level of activity on busy non Fly-In days, (daily top limit)
- o The impact of utility helicopter activity, (10/day-hours/restriction)
- o The establishment and maintenance of an Aerodrome Consultative Committee and the related reporting procedures.

However the overall effect should be to contain aircraft noise to that recently experienced.

4.3 Bagby Aircraft Noise / Impact / Control.

The aircraft operations from Bagby, as advised by the Secretary of State and various inspectors do affect local amenity. The impact is reduced by the use of small GA aircraft, especially new light sports aircraft and modern microlights, and the fact that the noisiest phase of operations (departures) mainly takes place away from the local villages. The few complaints reported to HDC suggest acceptability of most operations except for concern over helicopter refuelling especially early in the morning.

The lack of any current controls other than voluntary may exacerbate community reaction, such that if as suggested by the CAA it can be shown that the matter of aircraft noise is being taken seriously a tolerable situation should arise. The proposed controls, adequately enforced, should provide suitable benefit to both the operator and local community.

Jeff Charles
for Bickerdike Allen Partners LLP

Peter Henson
Partner

APPENDIX 1

GLOSSARY OF ACOUSTIC AND AVIATION TERMINOLOGY

The Decibel, dB

The unit used to describe the magnitude of sound is the decibel (dB) and the quantity measured is the sound pressure level. The decibel scale is logarithmic and it ascribes equal values to proportional changes in sound pressure, which is a characteristic of the ear. Use of a logarithmic scale has the added advantage that it compresses the very wide range of sound pressures to which the ear may typically be exposed to a more manageable range of numbers. The threshold of hearing occurs at approximately 0 dB (which corresponds to a reference sound pressure of 2×10^{-5} Pascals) and the threshold of pain is around 120 dB.

The sound energy radiated by a source can also be expressed in decibels. The sound power is a measure of the total sound energy radiated by a source per second, in watts. The sound power level, L_w is expressed in decibels, referenced to 10^{-12} watts.

Frequency, Hz

Frequency is analogous to musical pitch. It depends upon the rate of vibration of the air molecules that transmit the sound and is measure as the number of cycles per second or Hertz (Hz). The human ear is sensitive to sound in the range 20 Hz to 20,000 Hz (20 kHz). For acoustic engineering purposes, the frequency range is normally divided up into discrete bands. The most commonly used bands are octave bands, in which the upper limiting frequency for any band is twice the lower limiting frequency, and one-third octave bands, in which each octave band is divided into three. The bands are described by their centre frequency value and the ranges which are typically used for building acoustics purposes are 63 Hz to 4 kHz (octave bands) and 100 Hz to 3150 Hz (one-third octave bands).

A-weighting

The sensitivity of the ear is frequency dependent. Sound level meters are fitted with a weighting network which approximates to this response and allows sound levels to be expressed as an overall single figure value, in dB(A).

Environmental Noise Descriptors

Where noise levels vary with time, it is necessary to express the results of a measurement over a period of time in statistical terms. Some commonly used descriptors follow.

Term	Description
$L_{Aeq,T}$	The most widely applicable unit is the equivalent continuous A-weighted sound pressure level ($L_{Aeq,T}$). It is an energy average and is defined as the level of a notional sound which (over a defined period of time, T) would deliver the same A-weighted sound energy as the actual fluctuating sound.
L_{A90}	The level exceeded for 90% of the time is normally used to describe background noise.
$L_{Amax,T}$	The maximum A-weighted sound pressure level, normally associated with a time weighting, F (fast), or S (slow).
SEL	The total noise energy produced from a single noise event, normalised to a 1-second duration. This is equal to $L_{Aeq} + 10\log(T)$.
L_{den}	The A-weighted average annual sound pressure level, measured over a 24 hour period, with a 10 dB penalty added to the average level in the night period (23:00-07:00), a 5 dB penalty added to the average level in the evening period (19:00-23:00), and no penalty added to the average level in the day period (07:00-19:00).

Ambient Noise

Usually expressed using $L_{Aeq,T}$ unit, commonly understood to include all sound sources present at any particular site, regardless of whether they are actually defined as noise.

Background noise

This is the steady noise attributable to less prominent and mostly distant sound sources above which identifiable specific noise sources intrude.

Sound transmission in the open air

Most sources of sound can be characterised as a single point in space. The sound energy radiated is proportional to the surface area of a sphere centred on the point. The area of a

sphere is proportional to the square of the radius, so the sound energy is inversely proportional to the square of the radius. This is the inverse square law. In decibel terms, every time the distance from a point source is doubled, the sound pressure level is reduced by 6 dB.

Road traffic noise is a notable exception to this rule, as it approximates to a line source, which is represented by the line of the road. The sound energy radiated is inversely proportional to the area of a cylinder centred on the line. In decibel terms, every time the distance from a line source is doubled, the sound pressure level is reduced by 3 dB.

Factors affecting sound transmission in the open air

Reflection

When sound waves encounter a hard surface, such as concrete, brickwork, glass, timber or plasterboard, it is reflected from it. As a result, the sound pressure level measured immediately in front of a building façade is approximately 3 dB higher than it would be in the absence of the façade.

Screening and diffraction

If a solid screen is introduced between a source and receiver, interrupting the sound path, a reduction in sound level is experienced. This reduction is limited, however, by diffraction of the sound energy at the edges of the screen. Screens can provide valuable noise attenuation, however. For example, a timber boarded fence built next to a motorway can reduce noise levels on the land beyond, typically by around 10 dB(A). The best results are obtained when a screen is situated close to the source or close to the receiver.

Meteorological effects

Temperature and wind gradients affect noise transmission, especially over large distances. The wind effects range from increasing the level by typically 2 dB downwind, to reducing it by typically 10 dB upwind – or even more in extreme conditions. Temperature and wind gradients are variable and difficult to predict.

Aviation terms

Air Transport Movements

Air transport movements are landings or take-offs of aircraft engaged on the transport of passengers, cargo or mail on commercial terms. All scheduled movements, including those operated empty, loaded charter and air taxi movements are included.

NPR

Noise preferential route – departure flight ground tracks to be followed by aircraft to minimise noise disturbance on the surrounding population.

Dispersion

Due to the effect of the wind, aircraft speed, and pilot choice differing aircraft tracks about the nominal track are flown; this is known as dispersion around a nominal track.

Start of Roll

The position on a runway where aircraft commence their take-off runs.

Threshold

The beginning of that portion of the runway usable for landing.

Radar Vectoring

Aircraft are provided by Air Traffic Control (ATC) with various instructions which result in changes of heading, altitude and speed. The controller affects safe separation from other traffic by use of radar.

Nominal Tracks

Using recognised international design techniques, tracks across the ground can be delineated for departing and arriving aircraft. These tracks are nominal because they can be influenced by the wind, ATC instructions, the accuracy of navigational systems and the flight characteristics of individual aircraft. In UK it is usual to permit a 1500m swathe to be established about the nominal track for the purposes of assessing whether an aircraft has stayed on track.

AAL

Height of aircraft above aerodrome level.

Altitude

Height of aircraft above sea level.

Noise Footprint

A noise contour which joins points on the ground which receive the same maximum noise level from the nearby airborne aircraft; often for night studies 90 dB(A) SEL is the level used.

APPENDIX 2

NOISE CONSIDERATIONS AT GENERAL AVIATION (GA) AERODROMES

Noise Considerations at General Aviation (GA) Aerodromes

An examination of some of the environmental issues associated with general aviation-focussed aerodromes, concentrating upon noise impact and local Noise Abatement Procedures (NAP).

November 2012



NOISE CONSIDERATIONS AT GENERAL AVIATION AERODROMES

1. Introduction

- 1.1 Under the [Civil Aviation Authority \(Air Navigation\) Directions 2001](#), the CAA is tasked by the Government to provide a focal point for receiving and responding to aircraft related environmental enquiries and complaints from the general public. In providing this function, the environmental issues associated with smaller aerodromes and aircraft used for General Aviation (GA)¹ activities are frequently raised with the CAA's Directorate of Airspace Policy (DAP). Whilst the term "aircraft related environmental enquiries and complaints" captures a broad range of subjects, a high proportion of the telephone calls and correspondence received by DAP are specifically related to the noise impact of GA aircraft and the activity in which they are involved. This paper examines the environmental issues associated with GA focussed aerodromes, concentrating on the associated noise impact and the potential voluntary measures that can be taken by the operator of such aerodromes in order to mitigate these effects.

2. Scope

- 2.1 The purpose of this paper is to provide best practice guidance to aerodrome and aircraft operators in minimising the noise impact of their operations on the local population. It has also been written to provide members of the general public with an explanation of the constraints and factors that must be considered by aerodrome operators when designing and implementing voluntary noise mitigation measures. The other environmental impacts, such as aircraft emissions, visual intrusion and maintenance activities, which, in addition to noise, contribute to the overall environmental impact of GA are not covered; advice on these matters can be obtained by visiting the General Aviation Awareness Council (GAAC) website, which can be accessed [here](#).

3. Aviation Legislation: The Air Navigation Order and The Rules of the Air Regulations

- 3.1 All civil aircraft fly subject to the legislation contained within the Air Navigation Order (ANO) and the Rules of the Air Regulations (RoA). The full text is published in [Civil Aviation Publication \(CAP\) 393: Air Navigation: The Order and The Regulations](#). The RoA are diverse and whilst it is not the intention to replicate them in this paper, some of the 'low flying prohibitions' are worthy of description. Rule 5 of the RoA details the low flying prohibitions, the purpose of which is to ensure the safety of persons and property on the ground; however, there are some associated environmental (noise) implications that merit being drawn out and the following extracts from Rule 5 give some indication as to the height limitations placed upon aircraft operators:
- Except with the written permission of the CAA, an aircraft shall not be flown closer than 500 feet to any person, vessel, vehicle or structure (Rule 5(3)(b) refers).

¹ GA activities encompass private flying, aerial work and recreational flying involving all types of aircraft.

- Except with the written permission of the CAA, an aircraft flying over a congested area² of a city town or settlement shall not fly below a height of 1,000 feet above the highest fixed obstacle within a horizontal radius of 600 metres of the aircraft (Rule 5(3)(c) refers).
- 3.2 There are a number of exemptions from the low flying prohibitions. Over congested areas, the 1,000 feet rule is relaxed for the purposes of landing and taking off from a Government or licensed aerodrome; over uncongested areas, the 500 feet rule is relaxed for the purposes of landing and taking off (Rule 6(a) refers).
- 3.3 Failure to comply with the requirements of the ANO and RoA is a criminal offence and the CAA is tasked by the [Department for Transport \(DfT\)](#) to investigate alleged breaches of this legislation. Where there is a high level of positive evidence to support an alleged breach of the low flying prohibitions, the CAA's Aviation Regulation Enforcement and Legal departments may seek a prosecution through the Magistrates and Crown Courts. However, the CAA would need to prove, beyond all reasonable doubt, that an offence had occurred; in the case of low flying aircraft, this would normally require confirmation of the aircraft's registration, at least two (preferably more) independent supporting witnesses and (ideally) video/photographic evidence of the incident.

4. Legislation Relevant to Aircraft Noise

- 4.1 Although it is acknowledged as a major environmental impact, aircraft noise is not currently a statutory nuisance in the UK. It is not covered by the [Environmental Protection Act 1990](#) or the [Noise Act 1996](#), which means that local authorities do not have the legal power to take action on matters of aircraft noise. However, the establishment of a new aerodrome or the development of an existing aerodrome would be subject to local planning authority agreement. The planning consent process provides a local planning authority with the opportunity to impose any operating conditions that it considers appropriate to the proposed development through the application of Section 106 agreements.
- 4.2 Whilst the CAA, under the [Civil Aviation Authority \(Air Navigation\) Directions 2001](#), must consider the environmental impact of proposals for the establishment of new, or the amendment of existing, airspace during the airspace change process, the Authority does not have the legal power to prevent an aircraft flying over a particular location at a particular time for environmental reasons; Section 76(1) of the [Civil Aviation Act 1982](#) states that

“No action shall lie in respect of trespass or in respect of nuisance, by reason only of the flight of an aircraft over any property at a height above the ground which, having regard to wind, weather and all the circumstances of the case is reasonable, or the ordinary incidents of such flight, so long as the provisions of any Air Navigation Order and of any orders under section 62 above have been duly complied with.”

Consequently, the CAA can only intervene in cases where there is substantial evidence which suggests that a breach of the legislation contained within the ANO and the RoA has occurred.

² Article 255 of the ANO defines a 'congested area' as "any area which is substantially used for residential, industrial, commercial or recreational purposes".

5. Aircraft Noise Certificates

- 5.1 Aircraft built today are required to meet the noise certification standards adopted by the [International Civil Aviation Organisation \(ICAO\)](#)³ as published in Annex 16 (Volume I) Environmental Protection. The [European Aviation Safety Agency \(EASA\)](#) produce a Type-Certificate Data Sheet for Noise (TCDSN) that documents an aircraft type's compliance with the applicable requirements for noise certification and records the associated EASA approved noise level(s). These approved noise levels are the basis against which national aviation authorities issue individual noise certificates.
- 5.2 The CAA certifies light aircraft and helicopters for compliance with the appropriate requirements and discharges its responsibilities through the [Aeroplane Noise Regulations 1999](#), the [Aeroplane Noise \(Amendment\) Regulations 1999](#) and the [Air Navigation \(Environmental Standards for Non-EASA Aircraft\) Order 2008](#).
- 5.3 The [Air Navigation \(Environmental Standards for Non-EASA Aircraft\) Order 2008](#) specifies that “the CAA, after consultation with the Secretary of State, may exempt from any of the provisions of this Part any aircraft or persons or classes of aircraft or persons, either absolutely or subject to such conditions as it thinks fit”; vintage aircraft and, with the exception of microlights, Permit to Fly⁴ aircraft are exempt from the requirement to have a noise certificate.
- 5.4 Once granted, a noise certificate will remain current so long as no modifications are made to the airframe and/or engine of the aircraft; should modifications take place, it would be the responsibility of the aircraft owner to apply for a new noise certificate.

6. Aerodromes

- 6.1 Within the UK there are two different types of aerodrome operations, licensed and unlicensed. The requirements for an aerodrome to be licensed are described in Article 211 of the ANO, but may be summarised as applying to those aerodromes where flights for the purpose of public transport operations take place. For aerodrome licensing purposes, public transport includes any flight where passengers are carried for a fare, but does not include flights where passengers agree to share the cost of fuel.
- 6.2 Any aerodrome operator that wishes to hold a licence must make a formal application to the CAA, demonstrating that they are competent to conduct aerodrome operations safely. [CAP 168: Licensing of Aerodromes](#) sets out the required standards at UK licensed aerodromes and the CAA uses this document in support of the granting of an aerodrome licence; it is the CAA's responsibility to ensure that the holders of a licence are competent and suitable persons to exercise the privileges of that licence. Under Section 5 of the [Civil Aviation Act 1982](#), the Secretary of State can specify certain aerodromes whereby the CAA will have a 'duty' to consider the environmental factors when exercising the aerodrome licensing function. However, to date, no aerodrome within the UK has been

³ Formed in 1944, ICAO was created to promote the safe and orderly development of international civil aviation throughout the World. It sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection.

⁴ A Permit to Fly is granted in accordance with BCAR A3-7 only to aircraft that do not meet the ICAO certification standards required for the issue of a Certificate of Airworthiness (CofA); further information can be viewed in [CAP 733: Permit to Fly Aircraft](#).

'specified' under Section 5 and consequently the CAA currently has no duty to consider environmental factors as part of the licensing process.

- 6.3 Although many aerodromes do not need a licence to carry out flying activities, the CAA is still responsible for all matters affecting the safety of aircraft at aerodromes through its regulation of aircraft operations and maintenance, click [here](#) for further information. [CAP 793: Safe Operating Practices at Unlicensed Aerodromes](#) provides guidance and advice on setting up and operating an unlicensed aerodrome; Chapter 2 (Planning Considerations), Section 5 (Local Engagement) encourages operators of unlicensed aerodromes to engage with the local community in order to achieve and maintain good relations.

7. Noise Impact of GA Aerodromes

- 7.1 The following list details the 'hot topics' that are frequently raised with the Aviation Related Environmental Enquiries section concerning flying activities at GA aerodromes across the UK:

- Circuit Training – this can be very repetitive with aircraft audible for long periods of time and mitigations are discussed in greater detail within the Noise Abatement Procedures section (8) of this document;
- Aerobatics – the noise can be erratic and last for prolonged periods of time and this topic is covered in greater detail below;
- Parachute Dropping/Glider Tug aircraft – noise can last for a prolonged period of time as the aircraft will routinely circle and climb/descend overhead of the aerodrome;
- Piston Engines – general perception that piston driven fixed/rotary wing aircraft are more intrusive, especially when on full power with low background noise levels. In terms of rotary wing aircraft (helicopters) it is recognised that "helicopter noise has different characteristics from that of fixed wing aircraft and is often regarded as more intrusive or more annoying by the general public".

- 7.2 As discussed in paragraph 4 above, responsibility for aviation policy and aircraft noise matters lies with the DfT and the CAA works closely with the Department to help develop regulations and policies to limit the environmental effects of aircraft operations to the greatest extent possible. However, the DfT is only directly involved in measures to ameliorate noise at three designated airports, Heathrow, Gatwick and Stansted. Away from the three designated airports, it has been the policy of successive Governments that local problems concerning the environmental impact of aircraft operations should be resolved locally.

8. Noise Abatement Procedures

- 8.1 In order to mitigate the effect of their operations on local communities, the majority of both licensed and unlicensed aerodrome operators voluntarily impose Noise Abatement Procedures (NAPs). Whilst the establishment of NAPs demonstrates that an aerodrome operator is conscious of the need to fit into the wider community and be a good neighbour, it is not always possible for the operators to design such procedures in respect of areas where aircraft performance characteristics and operational requirements allow little latitude, especially in the immediate vicinity of the aerodrome. Moreover, NAPs are subordinate to the safe conduct of flight and aerodrome operators must remain wary of implementing procedures that increase the risks to both aircraft operators and the local population. Potential problems also

arise associated with flying training activities in the visual circuit⁵. Trainee pilots should be taught to fly circuits at any airfield by visual reference to the runway; the introduction of complicated NAPs can undermine this principle and an increase in the circuit size resulting from noise abatement increases the possibility of forced landings happening away from the aerodrome.

- 8.2 Perhaps the most effective method of noise mitigation is the fundamental design and adaptation of the published visual circuit. Circuit training is an essential part of pilot training as it exercises their co-ordination and judgement as well as teaching them to make safe takeoffs and landings. A pilot undergoing training will often fly many circuits, one after another and therefore circuit flying can be extremely repetitive, with aircraft flying at low altitudes for prolonged periods of time. Whilst it is not routinely referred to as a NAP, a circuit that routes aircraft away from areas of population will have obvious benefits. Indeed many aerodromes employ the non-standard right-hand circuit to avoid overflight of areas of higher population in the immediate vicinity. A good example of how aerodromes can mitigate related noise problems through adaptation of the visual circuits is the way in which one particular airfield alternates the circuit direction on a 24hr basis, even employing 3 northerly circuits (outer, middle and inner) changing from one to another on an hourly basis. Such alternation of procedures does not reduce that noise overall, but is seen as a very successful method by which the 'pain is shared'.
- 8.3 In addition to the adaptation of lateral routing of the visual circuit, many aerodromes employ higher visual circuits. The concept that an increase in the height of a visual circuit will reduce the noise impact is interesting, as an increased circuit height will mean a longer period when the aircraft must fly under increased power and possibly increase track miles. There does not appear to have been any scientific study undertaken to demonstrate that the overall impact of a higher circuit actually does reduce the overall noise penalty on the ground. Finally, environmental issues also arise where GA activities combine with air transport activity where, for example, light aircraft have to 'fit in' with larger commercial aircraft with a resultant increase in holding and delays in the visual circuit.
- 8.4 In mitigating either a perceived generic, or specific, noise related problem, the associated procedures can vary greatly in complexity. The paragraphs below look at various examples that can be employed.
- Ground activity – Specific instructions can be given to pilots concerning the positioning of aircraft during engine run-up checks:
 - “final power checks to be carried out at Holding Point Alpha only”
 - Simplistic NAPs that are commonly employed at aerodromes to help mitigate a very specific problem often refer to the avoidance of overflight of a local village(s)/particular building(s):
 - “Pilots are requested to avoid the villages of...”
 - “Circuit traffic is to avoid overflight of all local villages”
 - “...turn to runway QDM until passing prominent white building...”

⁵ A circuit procedure is (routinely) shaped like a rectangle and obviously starts with the departure, which is then followed by the crosswind leg, downwind leg, base leg and then the final approach (where the aircraft is lined up with the runway). A Standard Overhead Join to a left-hand 1,000 feet circuit pattern is provided at Annex B.

- “All departures from Rwy07 should turn right ... to maintain a track of 080 until clear of Fyfield village.” ”Rwy 07/25 – Downwind leg must be to the north of ... the large new house.”
- Providing generic direction to pilots related to timing of specific turns:
 - “Keep circuits tight”
- Departure routes following course of other features that generate noise:
 - “immediate right turn and follow line of M1”
 - “...track 270 to the railway line”

8.5 Examples of NAPs at aerodromes close to built up areas are often more complex and/or fundamental:

- “Pilots must obtain a (noise abatement procedure) briefing before Departure”
- “Circuits restricted to aerodrome based flying schools only”
- “Noise abatement techniques should be practised at all times”
- “Pilots are to familiarise themselves with the Oxford Noise Amelioration Scheme...”

8.6 Taken as a snapshot review of published material available to all GA pilots, these are but a few examples of the ways in which aerodrome operators adapt procedures to mitigate the noise impact upon the local community. In all cases where geographical features are involved, it would seem evident that a supporting pictorial display of the routing involved produces obvious benefits. It is, however, difficult to objectively quantify the success of schemes on a specific basis but it is evident that aerodrome operators (the local experts) value their worth and believe they go some way to balancing the needs of the aviation and local communities.

9. Publication of NAPs

9.1 It is an ICAO requirement that information on the status of a ‘certified’ (licensed) aerodrome is promulgated in the State’s Aeronautical Information Publication (AIP)⁶; ICAO recommends that this information should include a detailed description of the NAPs established at the aerodrome. Consequently, NAPs associated with licensed aerodromes will be published in the AIP.

9.2 Aside from the AIP, both licensed and unlicensed aerodromes will routinely include details of their NAPs when publishing information in a variety of commercially available flight guides.

10. NAP Compliance

10.1 Publication of a NAP is one thing, the degree to which compliance is achieved or even monitored is quite different. Whilst the monitoring of compliance is vital if the procedures are to prove their worth, it can be difficult to achieve particularly when it involves aircraft operating away from the immediate vicinity of the aerodrome. Whilst an aerodrome operator may choose to design and establish NAPs, the good neighbourliness of an aerodrome will, ultimately, depend on the actions of the pilots flying the aircraft. Pilots are more likely to comply with a NAP if the procedure itself is straightforward and easy to follow.

⁶ The UK AIP is identified as the publication used for the provision of aeronautical information/data necessary for the regularity and efficiency of air navigation.

11. NAP Sanctions

- 11.2 NAPs are established on a voluntary basis and the responsibility of enforcing such procedures and the decision to apply any sanctions against non-complying aircraft, is a matter between the aerodrome operator and the individual pilot found not to have complied with the procedure. Clearly, ignoring any non-compliance will not only negate the effectiveness of the procedure in the round but will do little to encourage future compliance.
- 11.3 Conversely, taking action against errant pilots serves two very important goals. Firstly, the message to the local flying community is clear, 'stray from the procedure(s) and action will be taken'; this will encourage more consistent compliance with the procedure. Secondly, taking sanction against those that do not comply with the aerodrome-imposed procedure gives a very clear message to the local community that the aerodrome is proactive and serious about protecting its neighbours.
- 11.4 The degree of sanction is clearly a difficult issue; aerodrome operators will not, for financial reasons if nothing else, wish to routinely deny the use of the aerodrome and its facilities. However, sanction is important, and it seems that the management at certain aerodromes strike a good balance in developing a rising scale of guidance culminating in penalty. Examples that the CAA has been made aware of include:
- 11.4.1 Where investigation has provided evidence of non-compliance without any overriding reason for not following a NAP, in most cases an informal exchange with the relevant pilot has been shown to have the desired effect.
- 11.4.2 Where a pilot shows a lack of understanding of the procedure, if appropriate, they will be offered the opportunity to fly a dual sortie with a resident flying instructor who will demonstrate the airborne procedure, pointing out relevant land marks; such a training sortie is offered at reduced rates.
- 11.4.3 Blatant or repetitive (perhaps twice yearly) offences may lead to pilots being banned from operating at the aerodrome for periods of weeks or months.

12. Other Issues

12.1 'Out of the Ordinary' Events

- 12.1.1 Based upon comments received by DAP, there is evidence to suggest that to some degree local communities can become attuned to certain levels of activity and associated noise. It is the out-of-the-ordinary activity or new noise source that is more likely to cause concern. Experience has shown that the maxim 'fore warned is forearmed' holds true and the advanced promulgation of anticipated unusual peaks of traffic (night flying, fly-ins/flying displays and helicopter pleasure flights, for example) can prove beneficial to aerodrome operators and the local community alike.

12.2 Aerobatics

- 12.2.1 Whilst aerobatic activity routinely takes place away from aerodromes and therefore outside of the control of most aerodrome authorities, there are a number of aerodromes which are regularly granted annual exemptions from the RoA for the purpose of display practices or rehearsals. Aerobatics can be the source of considerable disturbance and when an aerodrome caters for such activity within the

overhead, or perhaps within the Aerodrome Traffic Zone (ATZ), it is evidently important to vary the portion of airspace utilised.

12.3 Consultative Committees

12.3.1 It remains Government policy that matters concerning aircraft noise from aerodromes should, wherever possible, be resolved locally. In support of this policy, the Government requires, under the Civil Aviation Act 1982, that aerodrome operators at fifty one aerodromes provide facilities for consultation, effectively in the form of Consultative Committees. Committee membership should comprise representatives from the aerodrome, Local Authority, parish councils and other interested parties and its purpose is to allow each party the opportunity to exchange information and ideas. Local difficulties and associated queries relating to an aerodrome's operation can often be resolved through liaison with the Consultative Committee or through contact with the Local Authority's representative on the Committee. Whilst they may provide an alternative avenue for highlighting any concerns that residents may have regarding the operation of a local aerodrome, it should be highlighted that the Consultative Committee does not have any statutory powers over the aerodrome itself.

13. Conclusion

13.1 Noise is the main topic of concern with regard to environmental issues at GA aerodromes and the aerodrome management organisations are generally highly conscious of concerns held within the local community. Given the growing consciousness of local communities, including local government, of the need to become more environmentally friendly, it is increasingly important that the GA community also considers its environmental impact; if possible and subject to overriding safety considerations, GA needs to adapt activities and procedures accordingly to ensure that they are environmentally optimised. Most aerodromes employ NAPs of some description but monitoring of compliance and the appropriateness of sanctions are difficult issues to manage successfully. Community involvement in the observation of compliance, perhaps fostered through an open relationship with the local residents, using the Consultative Committee and local council as appropriate, can have clear benefits. Equally, being seen to take action against individual pilots who fail to comply with promulgated NAPs is vital to establishing and maintaining a confidence-enhancing relationship with the local population. It is also worth highlighting that promulgation of any anticipated unusual levels of activity or different events in advance may help placate concerns related to short-term peaks of disturbance.

14. Best Practice

14.1 The following points are offered as CAA best practice guidance in respect of noise abatement issues at GA-focussed aerodromes. Aerodrome operators should consider:

- Take the matter of noise impact seriously and be seen, subject to overriding safety considerations, to be attempting to protect their neighbours from the environmental impact of aerodrome related operations.
- Notwithstanding overriding flight safety constraints, and taking into due consideration the experience and expertise of the locally based flying community, consider adaptation of flying procedures, such as published aerodrome patterns and practices, to mitigate the environmental impact of aerodrome operations upon the local community.

- Aim to foster an open relationship with the local community, providing details of NAPs and ways in which members of the public can assist in the monitoring of compliance.
- Be prepared to sanction, on a sliding scale, individual pilots who are found to have unnecessarily failed to comply with locally implemented NAPs.
- Assist inexperienced pilots, those unfamiliar with the aerodrome and repeat offenders to facilitate a better understanding of local noise issues and associated NAPs.
- Consider promulgating within the local community any anticipated future unusual flying activity that might, even in the short-term, precipitate an increased noise burden describing how the impact has been mitigated to the greatest extent possible.
- Take action to minimise the impact of ground operations.

ANNEX A to Noise Considerations at GA Aerodromes

Full website links for relevant legislation:

Civil Aviation Authority (Air Navigation) Directions 2001
(<http://www.caa.co.uk/docs/7/DfT%20CAA%20Directions.pdf>)

CAP 393: Air Navigation: The Order and The Regulations
(<http://www.caa.co.uk/docs/33/CAP393.pdf>)

Environmental Protection Act 1990
(<http://www.legislation.gov.uk/ukpga/1990/43/contents>)

Noise Act 1996
(<http://www.legislation.gov.uk/ukpga/1996/37/contents>)

Civil Aviation Act 1982
(<http://www.legislation.gov.uk/ukpga/1982/16/contents>)

Aeroplane Noise Regulations 1999
(<http://www.legislation.gov.uk/uksi/1999/1452/contents/made>)

Aeroplane Noise (Amendment) Regulations 1999
(<http://www.legislation.gov.uk/uksi/1999/2253/contents/made>)

Air Navigation (Environmental Standards for Non-EASA Aircraft) Order 2008
(<http://www.legislation.gov.uk/uksi/2008/3133/contents/made>)

Full website links for relevant guidance documentation:

CAP 733: Permit to Fly Aircraft
(<http://www.caa.co.uk/docs/33/CAP733.PDF>)

CAP 168: Licensing of Aerodromes
(<http://www.caa.co.uk/docs/33/CAP168.PDF>)

CAP 793: Safe Operating Practices at Unlicensed Aerodromes
(<http://www.caa.co.uk/docs/33/CAP793.pdf>)

Environmental Information Document 2: The Rules of the Air Regulations
(<http://www.caa.co.uk/docs/7/EIS%2002.pdf>)

Environmental Information Document 4: Aerodrome Operations
(<http://www.caa.co.uk/docs/7/EIS%2004.pdf>)

Environmental Information Document 11: Aircraft Noise and Emissions
(<http://www.caa.co.uk/docs/7/EIS%2011.pdf>)

Conduct of Prosecutions by the CAA as a Prosecutor
(http://www.caa.co.uk/docs/755/CAAProsecutionsPolicy_v2_20110914.pdf)

GA Safety Poster: Standard Overhead Join
(http://www.caa.co.uk/docs/33/ga_srgwebStandardOverheadJoinPosterJan09.pdf)

Safety Sense Leaflet 6: Aerodrome Sense
(<http://www.caa.co.uk/docs/33/20110217SSL06.pdf>)

Safety Sense Leaflet 19: Aerobatics
(<http://www.caa.co.uk/docs/33/20110217SSL19.pdf>)

PPG 24: Planning and Noise
(<http://www.communities.gov.uk/documents/planningandbuilding/pdf/156558.pdf>)

Guidelines on Airport Consultative Committees
(<http://www.ukaccs.info/guidelines.htm>)

Useful websites:

Civil Aviation Authority (www.caa.co.uk)

Department for Transport (www.dft.gov.uk)

International Civil Aviation Organisation (www.icao.int)

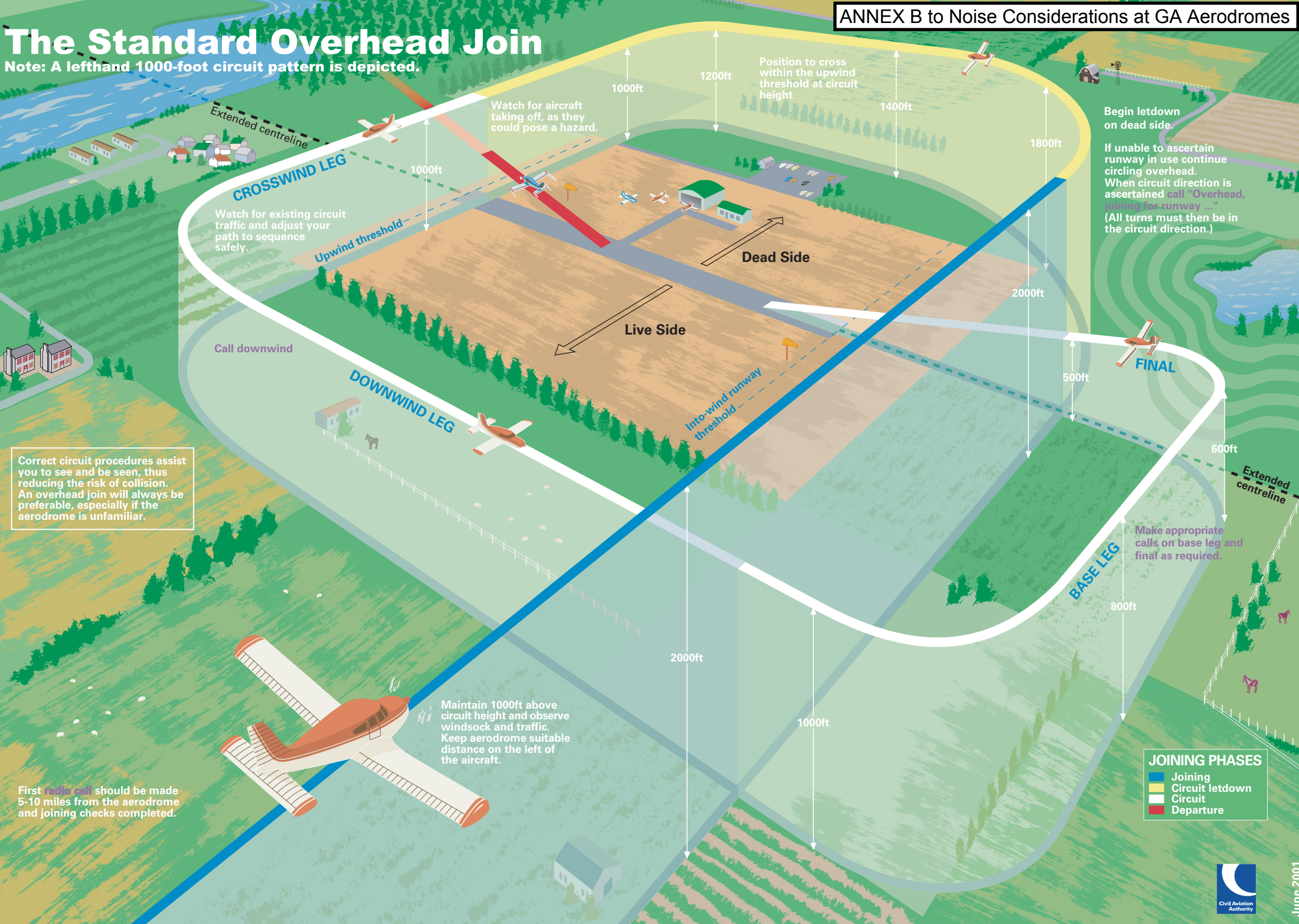
European Aviation Safety Agency (www.easa.uropa.eu)

General Aviation Awareness Council (www.gaac.org.uk)

Aeronautical Information Services (www.ais.org.uk)

The Standard Overhead Join

Note: A lefthand 1000-foot circuit pattern is depicted.



CROSSWIND LEG
Watch for existing circuit traffic and adjust your path to sequence safely.

Watch for aircraft taking off, as they could pose a hazard.

Position to cross within the upwind threshold at circuit height

Begin letdown on dead side.

If unable to ascertain runway in use continue circling overhead. When circuit direction is ascertained call "Overhead, joining for runway ..." (All turns must then be in the circuit direction.)

Correct circuit procedures assist you to see and be seen, thus reducing the risk of collision. An overhead join will always be preferable, especially if the aerodrome is unfamiliar.

First radio call should be made 5-10 miles from the aerodrome and joining checks completed.

Maintain 1000ft above circuit height and observe windsock and traffic. Keep aerodrome suitable distance on the left of the aircraft.

Make appropriate calls on base leg and final as required.

JOINING PHASES

- █ Joining
- █ Circuit letdown
- █ Circuit
- █ Departure

APPENDIX 3

BAGBY AIRFIELD (EGNG) VOLUNTARY TRIAL RESTRICTIONS IN USE

BAGBY AIRFIELD (EGNG)

VOLUNTARY TRIAL RESTRICTIONS ON USE

SECTION 1: The following restrictions are applicable to ALL Flights.

- 1). Aircraft movements at Bagby Airfield shall only take place between 7am and 11pm except in an emergency.
- 2). No aircraft of any type shall enter the area on the northern side of the runway at any time (as shown hatched on Plan No. 1) save for the purpose of access and egress from and to the hangars. (The aircraft exclusion area).
- 3). The total number of aircraft movements shall not exceed 80 per day inclusive of all types of aircraft including fixed wing, microlight, and helicopters and 950 per calendar month excluding microlights. *(Microlights are the least intrusive of all aircraft using Bagby Airfield. On that basis whilst they have been included for the purpose of calculating peak daily movements they are excluded for the purpose of calculation of total monthly movements as their presence is not believed to affect the amenity of the villagers of either Bagby or Thirkleby).*
- 4). Except in an emergency Runway 15/33 shall not be used.
- 5). A log of all aircraft movements (A/C Ms) shall be maintained at the Airfield. The log shall record the runway in use and details of all flights including aircraft type, registration, name of pilot in command and time and date of arrival / departure. A "touch and go" movement is to be identified and shall count as 2 A/C Ms. The log shall be kept up to date and made available to an authorised officer of the LPA within 7 working days of a written request for inspection. The log shall also be made available to the meetings of the Airfield's Liaison Committee.
- 6). A log of all complaints shall be kept by the Airfield. The log shall identify as a minimum the name of the complainant, the nature of the complaint made, the date and time recorded and any action taken by the airfield. (excluding members of the public who have indicated that they do not wish to communicate with the airfield directly or indirectly).

SECTION 1: CONTINUED

The following restrictions are applicable to ALL Flights on designated Fly-In Days Only

- 7). The Maximum number of Aircraft Movements on a Fly-In Day shall be 150.
- 8). No more than 3 fly-in days shall be permitted in any one year, each of which shall have been previously notified to the Council. On a fly-in day no aircraft movements shall take place before 7am or after 11pm, no helicopter movements shall take place before 8am or

after 10.30pm. The aircraft movements on a fly-in day are not included in the aircraft weekly, monthly or annual counts.

Miscellaneous Restrictions (for information)

9). Other than the existing runway lighting and /or its replacement, no additional external lighting shall be installed other than in respect of fuel installations or in complete accordance with a scheme that has been previously approved in writing by the Local Planning Authority (LPA).

10). The hangars proposed to be used for the purposes of repair, servicing, maintenance and storage of aircraft, shall only be used for such purposes and for no other purpose except with the prior written permission of the LPA.

11). All new buildings that are to be provided on-site will be used for airfield related activities only and for no other business purpose.

12). Except in an emergency, Bagby Airfield shall not be used by jet engine aeroplanes.

SECTION 2: The following restrictions are applicable to HELICOPTER Flights

1) All Restrictions listed 1-12 in Section 1 above.

2). No helicopter hover practice shall take place from Bagby Airfield other than for the purposes of taxiing, landing or taking off from the airfield.

3). Helicopter circuits whether landing, taking off or training shall be limited to 3 circuits per helicopter and shall not exceed 12 minutes in duration.

4). Except in the event of an emergency or essential utility helicopter flights (power line, railway inspection and police and royal flights) no more than 12 helicopter movements (a helicopter movement being defined as a landing, touch down or take-off) shall take place on any one day. The operations of the Yorkshire Air Ambulance shall be considered to fall within the category of emergencies and essential utility flights. *The majority of helicopter users are utility companies who regard the services provided by helicopter as essential to their business and the continuation of electricity supplies in the region. Other essential tasks are frequently*

SECTION 2: CONTINUED

operated from Bagby Airfield including gas pipeline inspections, railway inspections and detection of metal thieves, plus on occasions, organ transportation. Leaving aside essential services the airfield seeks to limit helicopter movements to 12 per day.

5). Helicopters shall shut down their engine(s) during the process of refuelling save for emergencies or essential utility aircraft as defined above at Bagby Airfield.

6). No more than 5 helicopters shall be based at Bagby Airfield except in the case of out of service helicopters which are awaiting maintenance.

7). Quiet Days – Bagby & Balk Parish Council will be encouraged to nominate (other than Christmas Day and Easter Sunday and Bank Holidays) 2 quiet days per year when all helicopter and aerobatic flights to and from the airfield will be banned save in relation to emergencies. Notice of such a quiet day must be given at least 6 months before its intended operation. *(This is intended to cover particularly noise sensitive activities in the village such as weddings & christenings. In addition, if a quiet period is required for a funeral then if the period is specified only 24 hours notice need be given).*

SECTION 3: The following restrictions are applicable to AEROBATIC Flights

1). All restrictions listed 1-12 in Section 1 above.

2). No aircraft shall take off from Bagby Airfield for the purposes of performing aerobatics overhead the airfield or within a circle radius 2 nautical miles therefrom without the permission of the Airfield Manager. Aerobatics over the airfield shall be limited to no more than three 10 minute sorties per day save at weekends where sorties will be limited to 2 per day excluding fly-ins.

3). Quiet Days – Bagby & Balk Parish Council will be encouraged to nominate (other than Christmas Day and Easter Sunday and Bank Holidays) 2 quiet days per year when all helicopter and aerobatic flights to and from the airfield will be banned save in relation to emergencies. Notice of such a quiet day must be given at least 6 months before its intended operation. *(This is intended to cover particularly noise sensitive activities in the village such as weddings & christenings. In addition, if a quiet period is required for a funeral then if the period is specified only 24 hours notice need be given).*

The Management

Bagby Airfield (EGNG)

November 2011.

Reissued August 2012.

APPENDIX 4

PROPOSED PLANNING CONDITIONS AND SECTION 106 OBLIGATIONS

Time condition

1. The development hereby permitted shall be begun within three years of the date of this permission.

Approved plans

2. The permission hereby granted shall not be undertaken other than in complete accordance with the drawing detailed below received by Hambleton District Council on the dates shown.

Details to be imported

Pre-commencement conditions

Precautions to prevent mud on the highway:

3. There shall be no access or egress by any vehicles between the highway and the application site until details of the precautions to be taken to prevent the deposit of mud, grit and dirt on public highways by vehicles travelling to and from the site have been submitted to and approved in writing by the Local Planning Authority. These facilities shall include the provision of wheel washing facilities where considered necessary by the Local Planning Authority. These precautions shall be made available before any excavation or depositing of material in connection with the construction commences on the site and be kept available and in full working order and used until such time as the Local Planning Authority agrees in writing to their withdrawal.

Discharge of surface water:

4. There shall be no access or egress by any vehicles between the highway and the application site until full details of any measures required to prevent surface water from non-highway areas discharging on to the existing or proposed highway together with a programme for their implementation have been submitted to and approved in writing by the Local Planning Authority. The works shall be implemented in accordance with the approved details and programme.

Private Access/Verge Crossings: Construction Requirements:

5. Unless otherwise approved in writing by the Local Planning Authority, there shall be no excavation or other groundworks, except for investigative works, or the depositing of material on the site until the access to the site has been set out and constructed in accordance with the published Specification of the Highway Authority and the following requirements

b. The access shall be located as shown on drawing no. "Figure 8.1" and be formed with 6 metre radius kerbs, to give a minimum carriageway width of 5 metres, and that part of the access road extending 10 metres into the site shall be constructed in accordance with Standard Detail number A2.

e. Any gates or barriers shall be erected a minimum distance of 10 metres back from the carriageway of the existing highway and shall not be able to swing over the existing highway. All works shall accord with the approved details unless otherwise agreed in writing by the Local Planning Authority.

Materials:

6. No above ground construction work shall be undertaken until details and samples of the materials to be used in the construction of the external surfaces of the development have been made available on the application site for inspection (and the Local Planning Authority have been advised that the materials are on site) and the materials have been approved in writing by the Local Planning Authority. The development shall be constructed of the approved materials in accordance with the approved method.

Pre-occupation conditions

Visibility Splays:

7. There shall be no access or egress by any vehicles between the highway and the application site (except for the purposes of constructing the initial site access) until splays are provided giving clear visibility of 120 metres measured along both channel lines of the major road from a point measured 2.4 metres down the centre line of the access road. The eye height will be 1.05 metres and the object height shall be 0.6 metres.

Once created, these visibility areas shall be maintained clear of any obstruction and retained for their intended purpose at all times.

Ditch to be piped:

8. There shall be no access or egress by any vehicles between the highway and the application site until:

a. full technical details relating to the bridging/culverting of the watercourse adjacent to the site have been submitted to, and approved in writing by, the Local Planning Authority; and

b. The surface water ditch adjacent to the site has been piped in accordance with the approved details unless otherwise approved in writing by the Local Planning Authority

Access road:

9. The approved access road shall be constructed and be brought in to use prior to the occupation of any other part of the development approved by this permission. The road shall be constructed in accordance with a construction management timetable to be submitted and approved in writing by the Local Planning Authority prior to the commencement of the development. The construction management timetable shall require the provision of the aircraft movement monitoring facilities to be installed and operational before any other operational development.

Sound insulation to hangar F:

10. Prior to occupation for the purposes of aircraft maintenance, Hangar F, as shown on drawing 1452-10, shall be lined with appropriate sound insulating materials to a standard to be agreed with the Local Planning Authority.

Operating conditions

Planning conditions relating to airfield operations

1. Maximum Permitted Aircraft Movements:

The number of all movements at the Airfield shall not exceed 8,440 per calendar year of which:

- a) A maximum of 675 may be by helicopters;
- b) A maximum of 1,700 may be Touch & Go movements; and
- c) There will be a maximum of 1,518 movements of all types in any calendar month;

2. Operating Hours:

No activity shall take place outside 0700 to 2200 hours local time Monday to Friday and no activity shall take place outside 0800 to 2100 hours Saturday, Sunday and Bank Holidays.

3. Maximum Permitted Movements between 0700 hours and 0900 hours Monday to Friday:

No more than 5 aircraft movements may occur between 0700 and 0900 hours local time, Monday to Friday, of which a maximum of 1 may operate between 0700 and 0730 hours.

4. Maximum Permitted Movements between 0800 hours and 0900 hours on Saturdays:

No more than 4 aircraft movements may occur between 0800 and 0900 hours local time on Saturdays.

5. Maximum Permitted Movements between 0800 hours and 0900 hours on Sundays and Bank Holidays:

No more than 2 aircraft movements may occur between 0800 and 0900 hours local time on Sundays and Bank Holidays.

6 Maximum Permitted Movements between 2000 hours and 2200 hours Monday to Friday:

No more than 6 aircraft movements may occur between 2000 and 2200 hours local time, Monday to Friday, of which a maximum of 2 may operate between 2100 and 2200 hours.

7. Maximum Permitted Movements between 2000 hours and 2100 hours on Saturdays, Sundays and Bank Holidays:

No more than 4 aircraft movements may occur between 2000 and 2100 hours local time, on Saturdays, Sundays and Bank Holidays.

8 Maximum Permitted Daily Helicopter Limits:

No more than 10 helicopter movements may occur on any week day.

9. Weekend and Bank Holiday Non-Resident Helicopter Limits:

Condition deleted

10. Fixed Wing Aircraft Operating Restrictions:

1. No aircraft may operate other than in accordance with the following requirements
 - a) in the case of aircraft with Noise Certification on the UK under Chapter 6 Noise Register with a maximum overflight limit of 79.6dB(A) or
 - b) in the case of aircraft with Noise Certification on the UK Register under Chapter 10 Noise with a maximum overflight limit of 82.7dB(A).
 - c) In circumstances where fixed-wing aircraft do not have a Noise Certificate on the UK Register such aircraft with a certified Maximum Take-Off Weight (MTOW) of no greater than 2,730kg shall be permitted to operate.
2. On notified fly-in days only aircraft that do not meet a) or b) above may operate when they are proven to have at least two of the following characteristics:
 - 1) The aircraft was first manufactured more than 50 years prior to the current date;
 - 2) They do not currently have an internationally recognised certification basis;

- 3) They can evidence that the aircraft (or their type) were at one time, on a military register.

Any aircraft operating under 2 above shall not arrive more than 48 hours prior to the commencement of a fly-in day. The aircraft may not depart from and return to the airfield during the fly-in day. The aircraft shall leave either on the day of the fly-in day or at the earliest reasonable opportunity thereafter consistent with weather related conditions, at Bagby, their intended destination, any diversion and the enroute weather. No return shall be permitted after departure on the fly-in day.

11. Helicopter Operating Restrictions

No helicopters may operate other than in accordance with the following requirements.

- a) In the case of aircraft with Noise Certification on the UK Register under Chapter 8, a maximum Take-Off limit of 92dB(A) and a maximum Approach limit of 94dB(A); or
- b) In the case of aircraft with Noise Certification on the UK Register under Chapter 11, a maximum overflight limit of 84dB(A).
- c) In circumstances where helicopters do not have a Noise Certificate on the UK Register such aircraft with a certified Maximum Take-Off Weight (MTOW) of no greater than 2,730kg shall be permitted to operate.

12 Fly-In Days:

No more than 3 fly-in days shall be permitted in any one calendar year, each of which shall have been previously notified to the Local Planning Authority. There shall be a maximum of 150 movements on any Fly-In day.

13 Rotors-Running Helicopter Refuelling:

Helicopters shall be required to shut down their engine(s) during the process of refuelling, except for emergency helicopters engaged in emergencies and essential utility aircraft engaged in powerline works at times of power outages. A detailed log of each rotors-running refuelling must be maintained covering the date, time, helicopter operator and reason justifying such a refuelling. This log shall be available to the Local Planning Authority upon request.

14 Movement Monitoring:

Aircraft Surveillance Cameras and Virtual Radar provision shall be installed in accordance with a scheme that has been submitted in writing to and approved in writing by the Local Planning Authority and maintained in accordance with the approved scheme and provide the data in accordance with the approved scheme on a freely and publicly accessible website(s).

15 Aircraft Transponder Requirements:

All aircraft resident at Bagby for a period of 14 or more consecutive days at Bagby in any calendar year must have transponders fitted and operable which are compatible with the Virtual Radar outlined in Condition 14, except for aircraft remaining at Bagby exclusively for the purpose of maintenance for 14 or more consecutive days.

16 Movement Log:

A log of all aircraft movements shall be maintained at the Airfield. The log shall record the runway in use and details of all flights including aircraft type, registration, name of pilot in command and time and date of arrival / departure. The log shall be kept up to date and made available to an authorised officer of the LPA within 7 working days of a written request for inspection. The log shall also be made available to the meetings of the Airfield's Liaison Committee.

17 Hangar Usage:

Hangar F as shown on drawing 1452-10, shall not be used other than for the purpose of aircraft maintenance by commercial engineering firms. No aircraft shall be stored in Hangar F other than those awaiting maintenance in relation to the primary use of the building.

Upon commencement of the use of Hangar F for the purposes of aircraft maintenance Hangars A, B, C1, E, G and H as shown on drawing 1452-10, shall not be used other than for the purpose of aircraft storage and associated day to day maintenance of aircraft for the purposes of keeping

aircraft airworthy. No commercial maintenance activities are permitted to be undertaken in Hangars A, B, C1, E, G and H as shown on drawing 1452-10.

18 Engine Ground Running:

With the exception of Low Rev engine running, all ground running and High Rev testing of engines may only take place at the threshold of Runway 06. Low Rev testing of engines associated with Hangar F, as shown on drawing 1452-10, must take place only to the South West of this building.

19 Hangar F Operation:

The aircraft access doors on Hangar F, as shown in drawing 1452-10, shall remain closed at all times except to allow access to and from the building for aircraft.

20 Aircraft Movement on Site:

No aircraft of any type shall enter the area on the northern side of the runway shown on the attached plan.

Draft conditions removed

The draft condition prohibiting use of the old north south runway is unnecessary as use of the land as a runway would be in breach of the Enforcement Notice

The draft complaints log condition is not appropriate as a land use planning condition and should be within the remit of the consultative committee to review the complaints log.

21 Runway Lighting:

Other than the retention of the existing runway lighting and/or its replacement on a like to for like basis, no additional external lighting shall be installed other than in respect of fuel installations or Precision Approach Path Indicator (PAPI) which shall be installed in complete accordance with a scheme that has been previously approved in writing by the Local Planning Authority.

22 Jet Aircraft:

Bagby Airfield shall not be used by any fixed-wing turbo-jet or turbo-fan aircraft. This is not preclude use by fixed wing turbo-prop aircraft.

Planning Obligation

A Section 106 Agreement is required to cover areas for which control is sought, but which cannot be covered by Planning Conditions due to these being covered by the Air Navigation Order. The Heads of Terms of this agreement are as follows:

1. All circuit training will be banned prior to 0900 on Monday to Saturdays and after 2000 on Monday to Friday and after 1300 on Saturdays and all day Sundays.
2. All Circuit training must follow the approved circuit as provided to the Local Planning Authority.
3. Helicopters approaching or leaving Bagby Airfield must use the designated helicopter flight path as provided to the Local Planning Authority;
4. No helicopter hover practice shall take place from Bagby Airfield other than for the purposes of taxiing, landing or taking off from the airfield.
5. Helicopter circuits whether landing, taking off or training shall be limited to 2 circuits per helicopter and shall not exceed 10 minutes in duration.
6. Quiet Periods – Bagby & Balk Parish Council can request quiet periods when all helicopter flights to and from the airfield will be banned save in relation to emergencies. Notice of such a quiet period must be given at least 1 month before its intended operation. (This is intended to cover particularly noise sensitive activities in the village such as weddings & christenings. In addition, if a quiet period is required for a funeral then if the period is specified only 24 hours notice need be given).

7. No aircraft shall take off from Bagby Airfield for the purposes of performing aerobatics overhead the airfield or within a circle radius 2 nautical miles.
8. Aerobatics over the airfield shall be limited to fly-in days pre-arranged by the Management of Bagby Airfield. Prior Notification of the fly in days will be given to the Local Planning Authority in writing.