

GENERAL AVIATION ALLIANCE

Partnership in Aviation

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GENERAL AVIATION ALLIANCE (GAA) RESPONSE TO THE RAF BRIZE NORTON ACP CONSULTATION

This is the General Aviation Alliance (GAA) response to the RAF Brize Norton (BZN) Airspace Change Proposal Consultation dated 15th December 2017 and should be read in addition to any responses from individual GAA member organisations.

The GAA is a group of organisations representing the interests of many in the UK General Aviation (GA) industry. Members of the GAA include: British Balloon and Airship Club (BBAC); British Gliding Association (BGA); British Hang Gliding and Paragliding Association (BHPA); British Microlight Aircraft Association (BMAA); British Parachute Association (BPA); Helicopter Club of Great Britain (HCGB); Light Aircraft Association (LAA); PPL/IR Europe – European Association of Instrument Rated Private Pilots; Royal Aero Club of the United Kingdom (RAeC). The GAA coordinates about 72,000 subscription paying members of these bodies.

1. Introduction

The GAA strongly objects to the proposed ACP principally because it does not represent an equitable use of airspace and would significantly increase risk for other airspace users.

RAF Brize Norton and London Oxford Airport (LOA) are located in an Area of Intense Air Activity (AIAA) that has been identified by the CAA's Future Airspace Strategy VFR Implementation Group (FASVIG) team as a "VFR significant area". It is home to numerous airfields used by the General Aviation (GA) community and has a high density of GA transit traffic; indeed, this important piece of Class G airspace is pivotal in providing north-south and east-west transits within the UK. Higher classifications of airspace in the vicinity already limit GA activity and give rise to known choke points. The expansion of Class D airspace in this area would undoubtedly exacerbate this problem and increase the risk to GA aircraft, which experience has shown generally try to route around controlled airspace wherever possible. It should

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British Gliding Association
British Hang Gliding and Para gliding Association
British Microlight Aircraft Association
British Parachute Association*

*Royal Aero Club of the United Kingdom
Helicopter Club of Great Britain
Light Aircraft Association
PPL/IR*

also be noted that the proposal would adversely impact individual glider sites designated by Sport England as Significant Areas for Sport (SASp) in the area.

Whilst we believe that several pilots were involved in the development of the proposal, it is also apparent that Sport and Recreational Aviation (S&RA) operations are not fully understood by the sponsors or airspace designers as the proposed option effectively shuts most of the primary soaring area in the UK. The UK is a leading sport gliding nation and the area affected by the ACP has a large number of highly active gliding and para-gliding sites that promote and conduct cross country soaring. The proposal renders it virtually impossible to return and safely land at many gliding sites surrounding RAF Brize Norton and in 2 cases would probably result in closure of the affected gliding clubs.

The GAA believes that any application for additional Class D airspace, especially within an AIAA, should be required to demonstrate that this is the only feasible option to reduce unacceptable levels of risk which are not able to be mitigated in any other way. In this case, there are obvious safety advantages of securing improved access to the national airways structure, and we judge that small extensions to the volume of Class D airspace to connect to Airway L9 are reasonable. We believe, however, that alternative operational mitigations can and should be implemented to contain Instrument Approach Procedures (IAPs) within the lateral dimensions of the existing CTR. We also consider that the overall safety benefits that this ACP would provide to RAF Brize Norton operations in general (which include air-to-air refuelling and low-level tactical operations, as well as operating outside of CAS to join airways other than L9) are minimal and grossly disproportionate to the safety and economic impacts on GA.

2.Consultation process

2.1 Timing.

The public consultation document was issued immediately prior to the introduction of CAP 1616, thereby avoiding the need for greater transparency, regulatory oversight and stakeholder involvement. Furthermore, it was incomplete and contained a number of potentially misleading elements which would have become evident under the new gateway-based process. The aeronautical chart extracts in Figures 8, 9 and 12, for example, misleadingly foreshortened the Y-axis, which would have the effect of minimising the extent of the ACP to the non-expert reader. Although these were subsequently corrected via a re-launch on the RAF Brize Norton website, no attempt was made by the sponsor to promulgate this to stakeholders and it was only after the intervention of the GAA that the update was made available via the sponsor's website; we note the version on the Regulator's website has not been corrected.

2.2 CAP 725 v CAP 1616.

In this case, which involves two major ACPs (for RAF Brize Norton and LOA), each of which and in combination will affect significant numbers of aviation and non-aviation stakeholders, we believe that the most up-to-date ACP process should have been adopted. Following the statement made to Parliament in October 2017 - "The Government has issued revised Air Navigation Directions and Air Navigation Guidance to the Civil Aviation Authority (CAA) which will take effect from 1 January 2018, although we expect that airspace change sponsors will seek to follow the new guidance immediately and apply it retrospectively." - we are disappointed that the sponsor, as a government entity, elected not to follow the guidance contained in CAP 1616. Indeed, we are not satisfied that this ACP should be further progressed against the outdated process and are calling separately on the Aviation Minister to intervene on this matter.

2.3 Focus Group.

We note that the sponsor elected not to form a Focus Group as recommended at Stage 2 of CAP 725. Such a group would have provided advice and opinions on the sponsor's airspace design options, highlighted potential consequences that may have been overlooked, and assisted the sponsor with the identification of stakeholders and the formulation of the consultation material. The consultation document does not explain the rationale behind this decision, which is unhelpful given the amount of stakeholder assistance available and the potential adverse impact of this ACP on GA operations.

2.4 Aviation stakeholder engagement.

We do not consider that reasonable steps have been taken to ensure that aviation stakeholders received the necessary information or, indeed, to garner feedback from them (be it via email, the post, meetings or other means). Despite the consultation document claiming at 6.5 'to have conducted extensive work to engage with local aviation stakeholders ... with a view to incorporating their requirements into subsequent design iterations as far as practicable.', it is evident that, in practice, the sponsor has not taken reasonable steps to ensure proper engagement with those that could be affected by the ACP. No effective engagement has taken place with numerous aviation stakeholders specified in A2.2 of the consultation document communication, including the UK's principal national sport flying organisations e.g. the BGA, BMAA and LAA, plus local airfields and sporting clubs e.g. Bristol & Gloucester Gliding Club (Nympsfield), Gloucestershire Airport, Redlands Airfield, Rendcomb Airfield, Cotswold Gliding Club (Aston Down Gliders), Calcot Airfield and Sandhill Farm Airfield. Where engagement is stated as having taken place, as noted at 6.5 in the document, it has often been superficial and was presumptive of the ACP being approved as proposed; no substantive effort has been made to seek alternative arrangements.

2.5 Non-aviation stakeholder engagement.

Regarding engagement with the non-aviation stakeholders specified in A2, of 81 which responded to our poll during February and March 2018, 29 advised that they had not been contacted. Overall, we believe that the consultation document infers a significantly greater degree of engagement than took place. We are saddened and dismayed that the sponsor has chosen to deny many identified stakeholders the opportunity to respond in a timely manner and led the reader to conclude a significantly higher level of engagement than is the case.

3. Environmental impacts

3.1 Aircraft-based training.

One of the reasons given for an enlarged CTA/CTR is to facilitate continuation of aircraft-based procedural training, which has obvious environmental implications, and would in a commercial / non-military environment generally be undertaken in simulators. At Section 2.3 of the consultation document it states that '... there is no requirement for military sponsors to conduct studies concerning the environmental impacts of military aircraft on military operations, in accordance with Department for Transport (DfT) guidance' but the document fails to provide the reader with sight of that guidance. We are not convinced that aircraft-based training for routine procedures, which could be readily and more safely replicated by synthetic training, would constitute 'military operations'. Commercial Air Transport (CAT) aircraft also operate in and out of challenging locations that remain reliant on complex and legacy-based procedures yet are able to maintain operational competence through synthetic training (one example being Extended Twin Engine Operations (ETOPS) diversions into other nations' airspace with minimal airfield infrastructure). The

adoption of more synthetic training would help in achieving ALARP with significant cost savings and environmental benefits.

3.2 Impact of the options considered.

The sponsor has made only a superficial assessment of the environmental impact of each option. The alternatives have been presented from the operational perspective of RAF Brize Norton and do not adequately consider the resultant environmental impacts from GA traffic that have elected to route around the proposed additional Class D airspace or have been denied access to it. There is also no mention in the consultation document of the effect of potentially diverting significant volumes of GA traffic across the Cotswolds Areas of Outstanding Natural Beauty (AONB), in particular in the areas where the bases are below 2000ft above ground level (AGL). The consultation document also fails to confirm that greater adoption of Continuous Descent Approaches (CDAs) will be implemented via revised speed and altitude constraints within each procedure.

4. Rationale for change

We are not satisfied that the justification for change has been properly considered or presented. The reasons for and explanation of the change have been stated but are flawed and do not take sufficient account of the adverse impact on both aviation and non-aviation stakeholders, which we consider to be grossly disproportionate in comparison to the benefits gained by the sponsor. Furthermore, the inference that the 'problem' which the sponsor is attempting to solve is getting worse is misleading and shown to be false by the sponsor's own data (Figures 2 and 3).

4.1 Safety

4.1.1 ALARP. Reducing risks to As Low As Reasonably Practicable (ALARP) is not confined to the aviation sector. The Health and Safety Executive (HSE) publish comprehensive guidance on the subject which is particularly helpful in assessing this ACP.

“‘Reasonably practicable’ requires a computation must be made by the risk owner in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) is placed in the other, and that, if it be shown that there is a gross disproportion between them – the risk being insignificant in relation to the sacrifice – the defendants discharge the onus on them.”

Ensuring a risk has been reduced to ALARP entails weighing the risk against the sacrifice needed to further reduce it. The process is not one of balancing the costs and benefits of measures but, rather, of adopting measures except where they are ruled out because they involve grossly disproportionate sacrifices. Many decisions about risk and the controls that achieve ALARP are not obvious and require judgment. Where introduction of a safety measure to control a hazard transfers risk to others, the transferred risk should be treated as a separate matter for which control measures must be introduced to reduce its risk also to ALARP. If the risks from the safety measure to be introduced are greater than the risks which it is sought to prevent, the measure should not be introduced. In terms of the ACP, whilst we have had no sight of the sponsor's Hazard Analysis (which we assume will be provided to the Regulator in accordance with CAP 760), we would consider a reduction in risk level to ALARP by transferring the risk to GA airspace users to be grossly disproportionate.

4.1.2 Choke points¹. Following on from the above, the sponsor has failed to properly evaluate the safety risk to GA at choke points where traffic density is likely to be increased as a result of the ACP. Extant GASCo advice to fly with no less than 2nm lateral and 200ft vertical separation from controlled airspace creates a further reduction in available airspace at such hot spots, which also needs to be taken into consideration. The very real risks associated with choke points were highlighted in AAIB Report 5/2010 which concerned a fatal mid-air collision between RAF Brize Norton and RAF Benson. Section 1.11.6 of the Report showed that the level of GA activity in that area can be around 75 aircraft per hour and between 15-25 aircraft at any one time. This is a level which would significantly exceed RAF Brize Norton's stated ATSOCAS handling capability of 8 aircraft simultaneously (5 Traffic Service plus 3 Deconfliction Service) by a single controller. The consultation document, however, makes no mention of enhancing the capacity of RAF Brize Norton's ATC establishment to meet demand from GA traffic requesting crossing clearances through the increased volume of Class D airspace. Without such an uplift, the proposal is likely to result in 'management by exclusion' which is specifically prohibited in Appendix 5 of CAP 725.

4.1.3 Increased collision risk. QinetiQ Report 10/02707 'Class G Airspace Modelling', to which the sponsor makes no reference, states '... the activity that takes place within Class G airspace is sufficiently well understood and predictable in its nature, such that the level of activity at any time can be calculated. More specifically, modelling can quantify the expected level of use and identify activity hotspots'. We have analysed present and proposed airspace widths and heights at known and projected choke points and have estimated the change in collision risk based upon guidance contained in AAIB Report 5/2010 if the majority of GA traffic elects (as is likely) to route around the proposed controlled airspace.

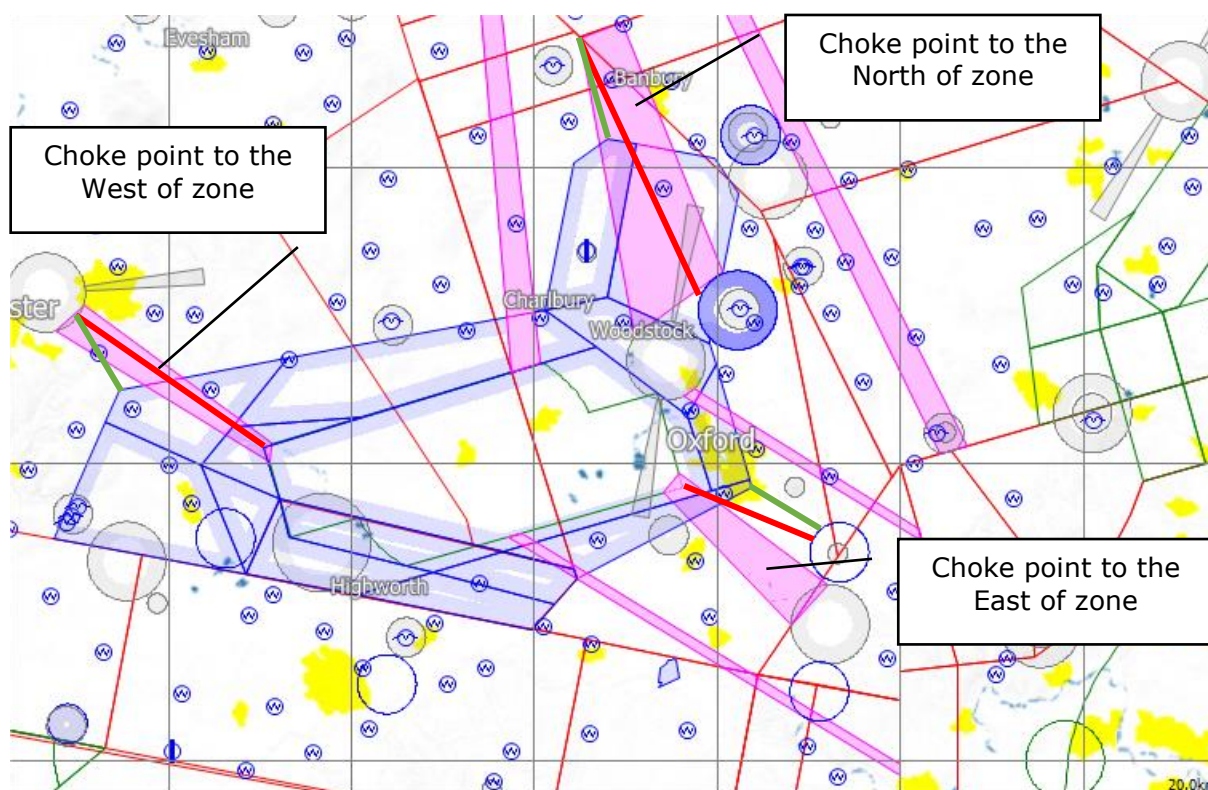


Figure 1 – Position of critical VFR choke points

¹ We use the term 'choke point' to refer to an area of GA traffic congestion due to surrounding airspace design.

This analysis suggests that the risk of mid-air collision is roughly doubled at the south-eastern edge of the proposed airspace in the Brize Norton-Benson gap (East), and roughly trebled over the proposed Oxford CTR1 (North) and in the area around Kemble (West). Wholesale adoption by VFR traffic of extant GASCo recommendations regarding proximity from controlled airspace would see these risk levels elevated by an order of magnitude. Overall, we believe that the sponsor's decision not to conduct a meaningful analysis of either the RAF Brize Norton ATC capacity or the collision risk at GA choke points has wilfully misled the reader in respect of the level of risk that would be transferred to other airspace users, particularly GA.

4.2 Data presented

We found one third of the incidents (32 of 99) mentioned in A3 and A5 of the consultation document to be wholly irrelevant to the ACP. Of the remaining 67, 22 could be mitigated in other ways, and 3 by raising the upper level of the existing CTR to 6000ft, which we support.

4.2.1 A3. We contest the assertion that every deviation from a published procedure necessarily has a safety implication. Our analysis of Aircraft Caused to Deviate from Published Arrival or Departure Procedures showed that of the 66 incidents cited:

- 15 were not relevant to the ACP
 - 11 were revised clearances issued by LATCC Sector 23
 - 4 were deviations due to weather
- 28 could have been avoided by the existence of, or closer compliance with, Local Agreements;
- 3 could have been avoided by closer radar coordination between RAF Brize Norton and LOA;
- 20 could have been mitigated in other ways.
- Despite the title of the appendix, none were deviations from published arrival procedure.

4.2.2 A4. Regrettably, we were unable to analyse A4 Aircraft Leaving CAS on Approach Procedure as no cogent information is presented to identify aircraft speeds, whether the approaches were pilot-interpreted or radar-vectorred, the extant weather conditions, the time of day, or in which phase and height of the procedure the excursion occurred (e.g. outbound leg, base turn, final approach, missed approach).

4.2.3 A5. Our analysis of Reportable Safety Events showed that of the 33 incidents cited:

- 17 were not relevant to the ACP
 - 11 occurred outside the proposed ACP airspace
 - 3 occurred within the existing CTR
 - One was a Civil-Civil VFR event at a VRP on the very edge of the proposed ACP airspace
 - One was a penetration of the LOA ATZ so is not relevant to the RAF Brize Norton ACP
 - One occurred in the LOA overhead so again is not relevant to the RAF Brize Norton ACP
- 3 contained insufficient information to assess
- 3 were due to separation failure by pilot / ATC

- 5 could have been avoided by closer radar coordination between RAF Brize Norton and LOA
- 3 could have been mitigated by raising the upper limit of the present CTR to 6000ft
- 2 could have been mitigated in other ways.

We are surprised and disappointed that the sponsor has seen fit to present a disproportionately large volume of non-specific and often irrelevant data purporting to support their justification for quadrupling the volume of Class D airspace. We are concerned that readers will fail to recognise the shortcomings in the information presented and will be misled into believing the risk level to be significantly greater than reality suggests and to accept the sponsor's assertions at face value.

4.3 Traffic forecast

The ACP sponsor is required to provide reasonable traffic forecasts and that they be used to reflect the future impact of the proposal. The ACP fails to provide a traffic forecast for RAF Brize Norton and fails to mention the plan to phase out the C130J aircraft from 2022. Section 2.2 refers to considerable changes in the types of aircraft operating at RAF Brize Norton, but fails to note that those aircraft have greater performance and are probably more manoeuvrable than their predecessors. Section 3.3.2 claims that operations include up to 30 Instrument Flight Rules (IFR) approaches each day in addition to, on average, 20 route-inbound flights. This is at odds with RAF Brize Norton-published and stakeholder-derived operational data which show actual traffic levels to be below half of that stated, many of which (circa 30%) occur at night, and which include significant numbers of rotary and 'non-heavy' aircraft movements that are readily contained within the extant CTR. We consider this section to be misleading as a significant element of the ACP is predicated on higher volumes of large aircraft movements.

5. The proposal and alternative mitigations

The consultation document is, at best, subjective in considering the options, and fails to properly consider appropriate alternative mitigations which would contribute to achieving the objectives desired but without the introduction of significant volumes of additional Class D controlled airspace. Unsurprisingly, the GAA objects strongly to the proposal and would invite the sponsor to further engage on the recommendations set out below.

5.1. Recommendations. We recommend that the sponsor:

1. Prohibits its assets from transit flying below FL 60 in Class G airspace within 40nm of its CTR other than to descend in the zone to land or fly circuits in order to deconflict RAF Brize Norton traffic from GA operating within the Oxford AIAA, particularly when leaving L9.
2. Withdraws the Alpha and Bravo departures; releasing departing aircraft with limited manoeuvrability at 1800ft and 2800ft respectively directly into Class G airspace is contrary to good Threat Error Management (TEM).
3. Adopts a climb gradient of 7.5% to make more efficient use of airspace on RAF Brize Norton SIDs. We note that extant SIDs are predicated on PANS-OPS minimum climb gradients. UK Future Airspace (FAS) policy, supported by NATS, recommends a minimum climb gradient of 6-9% which is readily achievable with the modern aircraft operated by RAF Brize Norton and is

consistent with other UK CAT airports (and even Kabul OAKB at 5877 ft AMSL which requires 7.5%).

4. To assist with lateral containment, imposes a maximum 180kt speed constraint on all base turns and provides more radar vectoring to FAT (when required), particularly in good VMC.
5. Adopts altitude constraints that reflect a nominal 3-degree CDA and, to assist with vertical containment, revises procedures to avoid level turns on the final turn inbound to the approach. These would enable the base of the proposed CTA10 to be raised to 5,500ft to attach to the CTR and Airway L9.
6. Considers the use of Flexible Use Airspace (FUA), which would be particularly helpful to the GA community given RAF Brize Norton's relatively low movements and the high safety risk to GA aircraft that may elect to route around the controlled airspace. It is unclear whether the sponsor has considered relevant Eurocontrol Guidance on this matter.
7. Adopts an NADP1 (Noise Abatement Departure Profile) for Runway 07 departures within the lateral limits of the existing CTR. This will achieve the Flight Level 80 constraint at 5 nm before MALBY.
8. Alternatively, invests further effort in negotiating with NATS to modify the MALBY SID to join Airway L9 at SIREN using our recommended proposed climb gradients, which will reduce the volume of controlled airspace between the (raised) CTR and L9 through the proposed CTA 5/7.
9. Considers implementing procedural approach training in a synthetic environment, by using simulators for Non-Precision Approach (NPA) currency and training with attendant environmental and cost benefits.
10. Whenever possible, considers using pilot-interpreted approaches to train only in realistically poor weather conditions. We suggest that such approaches be limited to <4km visibility and/or <1000ft cloud-base as this would coincide with much reduced GA traffic density.
11. Develops a more appropriate standing agreement with Kemble in respect of their transponder and non-transponder traffic. Our analysis of A3 suggests that to do so would mitigate some 50% of instances that required aircraft to deviate from published departure procedures.
12. Implements a single ATCC, with appropriate CONOPs, to coordinate and deconflict both RAF Brize Norton and LOA traffic. This would have the benefit of conferring ALARP and a significant safety benefit for all airspace users by providing a seamless radar picture and full traffic coordination. We strongly recommend this measure be implemented regardless of the ACP and included as part of the sponsor's hazard mitigation plan.
13. Given the high volume of gliding activity within the Oxford AIAA, utilises a FLARM receiver to enhance ATC situational awareness, noting the use of FLARM by Boscombe Down and within the RAF on its Tutors and other training aircraft. Standard Operating Procedures for the use of FLARM are available for Military ATC.

14. Considers together with LOA the alternative airspace design we propose at Annex A which, in conjunction with the adoption of the above recommendations, will help achieve the sponsor's objectives, but with significantly less additional Class D airspace. Procedure design work has been undertaken to ensure it is possible to achieve this reduction and we would welcome more detailed discussion with the sponsor to ensure it is compatible with their operational requirements.

6. Conclusion

For such a wide-ranging ACP with obvious safety and economic implications for GA, we found the sponsor's approach to consultation both with aviation and non-aviation stakeholders to be sadly lacking. We are disappointed by the sponsor's decision not to form a Focus Group as recommended in CAP 725 as such a group would have provided invaluable input on the airspace design options and no doubt helped to craft a more palatable solution. As it stands, the consultation document contains incomplete and misleading information, fails to properly assess the considerable and disproportionate impact on the GA community, and pays scant regard to a raft of measures that would negate the need for a circa fourfold increase in the Class D airspace surrounding RAF Brize Norton.

Given the nature of the ACP, which needs to be considered alongside the LOA ACP, we are disappointed that the sponsor chose not to follow the new CAP 1616 process. Indeed, we are not satisfied that this ACP should proceed any further under CAP 725 and are calling separately on Government to intervene in this matter.

Notwithstanding our fundamental concerns about the consultation process and the substance of the consultation document, we believe it should be possible, through better engagement, to meet the needs of both the sponsor and other aviation stakeholders within extant controlled airspace lateral boundaries by:

- Enhancing the RAF Brize Norton radar facility and revising ATC and operational procedures to enhance track-keeping within the present zone;
- Raising the upper level of the present CTR and adding a small volume of additional airspace to link with Airway L9;
- Implementing enhanced coordination and control of RAF Brize Norton traffic to and from Airway L9;
- Implementing enhanced coordination with LOA;
- Mitigating overall risk to ALARP for all airspace users.

Whilst we strongly object to the current proposal, the GAA remains willing and able to assist the sponsor in developing a compromise solution that satisfies all airspace users and would welcome the sponsor's request for additional engagement.



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Annex A - Proposed airspace design for LOA and RAF Brize Norton

