

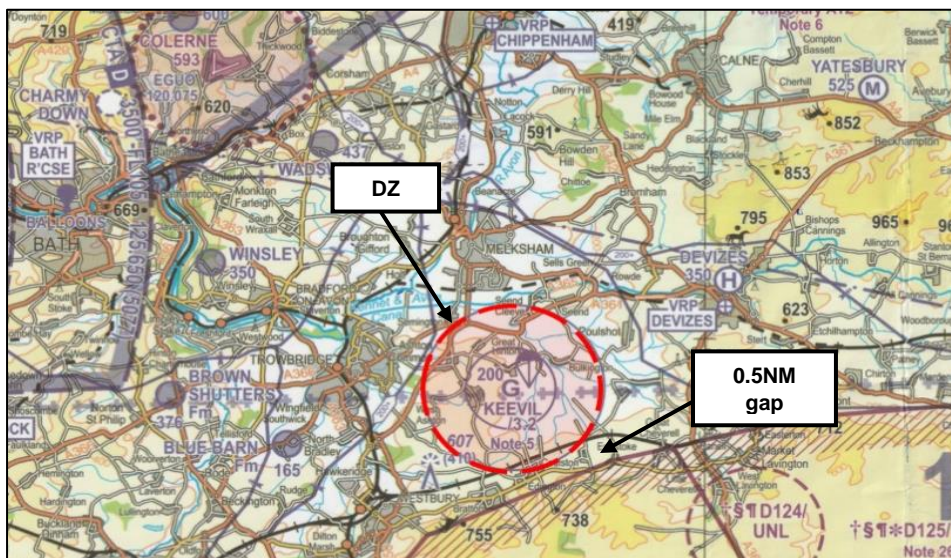


ACP-2021-006 - ENABLING BVLOS UAS OPERATIONS FROM KEEVIL AIRFIELD STAGE 2 INITIAL OPTIONS APPRAISAL SAFETY ASSESSMENT

Introduction

1. This document forms part of the overall submission for Stage 2B of ACP-2021-006 in accordance with the requirements laid out in CAP 1616¹.
2. The aim of this document is to outline the initial safety implications that may arise as a result of the proposed Design Options. This document will not include a safety assessment of the operation of the Remote Piloted System itself. The specific air system safety case is produced jointly by the Type Airworthiness Authority (TAA), Chief Aircraft Engineer (CAE) and Senior Operator / Air Safety Officer within the MOD.
3. This safety assessment is iterative and additional safety considerations will be captured at every stage to assist in the development of a comprehensive Safety Assessment, which will be reviewed by the CAA at Stage 5. By Stage 5 the final assessment will have identified new or changing hazards, quantified risks and applied mitigations.

Use Existing Airspace Structure (DZ)



4. Initially, it is assessed that the use of the DZ to enable RPAS operations will have a negligible impact on safety for the following reasons:
 - a. The DZ is an existing structure that pilots are already familiar with. ADS-B/ radar data suggests that air users are already choosing to avoid the airspace

¹ CAP1616 para 121 & Appendix E p206

when unable to determine the activity status of the airfield. There has only been 2 Airprox incidents in the vicinity of Keevil over the past 20 years².

b. Activity Information may be made available to pilots should they require information during the DZ activation to assist in providing situational awareness. This could potentially be achieved through the use of the extant Keevil Radio frequency (Glider Common).

c. The activation of the DZ by NOTAM allows pilots to safely flight plan. Additionally, the use of an Airspace Coordination Notice (ACN) could be explored in order to provide additional information for air users and ATSU's.

d. RPAS can receive an air traffic service from Boscombe Down ATC prior to crossing the 0.5NM gap from the DZ into D123. Radar coverage assessments were conducted prior to and during the use of the Temporary Danger Area exercise at Keevil in 2021³. Therefore any additional risk of MAC due to pop-up traffic can be mitigated against.

5. However, the following additional hazard was identified with this option:

a. The requirement for a corridor bridging the 0.5NM gap between the DZ and D123 is deemed to pose an additional risk as some pilots do use the land features as a navigational aid to avoid both SPTA and the DZ. Further development work to identify mitigations to this will be assessed in subsequent appraisals however the risk is initially assessed as small as the main mitigation will be the air traffic service provision and reliance on ATC radar (primary and secondary) to provide timely traffic information.

Danger Area



6. The Sponsor's initial assessment is that the introduction of a DA will incur similar hazards to those identified for a DZ. However, a DA may cause an increase in the risk of Mid Air Collision (MAC) if the DA contributes to an increase in the funnelling effect of aircraft between SPTA and Bristol CTR. However, it is assessed that (based on ADS-B and radar data) this risk will only increase in the event that **all** traffic chooses to route around the DA to the North and if the gap between the DA and Bristol CTR is

² According to the interactive map found on the Airprox Board website.

³ This confirmed that aircraft are visible to Boscombe Down ATC's Primary Surveillance Radar from 700ft AMSL.

also reduced. Over the past 20 years there have been no relevant Airproxes filed between the Keevil and Bristol gap.

7. To mitigate against this potential increased hazard the following may be employed:
 - a. A Danger Area Crossing Service could be implemented to facilitate a more direct track across the airfield.
 - b. The final airspace design must ensure that it does not unnecessarily extend to the North and West to unnecessarily constrict the Class G corridor as it is a main arterial route to and from South West England.
8. Pilots currently routing through the Keevil overhead without using the Glider Common frequency or in receipt of an air traffic service may not be aware of any glider winch launching activity taking place (placing themselves and any gliders in danger of collision). The addition of a DA with a published DACS frequency will reduce the likelihood of MAC due to ATC's awareness of traffic wishing to operate within the vicinity of the airfield.

Conclusion

9. As a result of this safety assessment the Sponsor intends to continue developing safety assessments for both design options in Stage 3.
10. The safety assessment for the initial options appraisal has identified some potential additional and changing hazards that may arise compared with the current airspace use which will be confirmed through further qualitative and qualitative analysis.
11. It is currently assessed that these risks can be significantly reduced by employing procedural mitigations and airspace design that will be developed at a later stage. It is also assessed that in some cases the design options may make the area marginally safer as it would create a more known air traffic environment during parachuting or gliding activity at the airfield, taking away any ambiguity over the status of the airfield.
12. The Sponsor will continue to identify and develop additional risks throughout the progression of this ACP. A final Safety Assessment will be provided for review by the CAA during Stage 5.

Next Steps

13. As the design options are further refined the safety assessment will be developed with qualitative and quantitative assessments in the following ways:
 - a. Analyse evidence from the Airprox Board and relevant Mandatory and Volunteer Occurrence Reports to quantify the current situation, particularly any hazards relating to the current funnelling of aircraft between SPTA and Bristol CTR.

- b. Evidence from MOD Defence Air Safety Occurrence Reports (DASORs) submitted as a result of RPAS flying from Keevil during the TDA as well as more general DASORs relating to operating within the Keevil area with a particular focus on Airprox.
- c. VFR heatmaps and BGA glider tracks of the local area to understand if additional hazards exist for air users who may not be radio equipped.
- d. Review specific MOD 'Bowtie' risk evaluation model for operating RPAS within the UK, specifically the hazard barriers in place to prevent MAC.