

# Beyond Visual Line of Sight (BVLoS) Caernarfon Complex Trial Bristow Helicopters Limited.

## Airspace Change Decision for Trial

CAP 2114

The bottom half of the page features a large, abstract graphic. It is composed of several overlapping, semi-transparent shapes in various shades of blue and purple. The shapes are curved and angular, creating a dynamic, layered effect that fills the lower portion of the document.

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RH6 0YR.

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Enquiries regarding the content of this publication should be addressed to:

Airspace, ATM and Aerodromes, Safety and Airspace Regulation Group, Aviation House, Beehive Ring-road, Crawley, West Sussex, RH6 0YR

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## Chapter 1

# Executive summary

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## Objective of the Proposal

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1. Bristow established the Unmanned Air System (UAS) Prototype Service in 2017 to explore the utilisation of UAS for UK Search and Rescue (SAR). They have been undertaking UAS flights in the North West Wales since 2018 and in 2019 the company embarked on a trial to develop a UAS capability for UK SAR. The project comprises several phases, the first three incorporating a concept demonstration and platform evaluation, complete over the last 2 years. This Phase (Phase 3) seeks to undertake simulated scenario-based SAR sorties, the first stage being incorporated into this ACP which will evaluation and assess novel electronic conspicuity technologies to support UAS integration into UK airspace.
2. The Caernarfon Complex Trial seeks to evaluate novel innovate technologies to allow a UAS to see, sense or detect conflicting traffic or other hazards and take the appropriate action. The specific technologies are focused on the detection and avoidance of other air users and support the underlying principles of:
  - Ensuring the platform is safe to operate (principally prevention of loss of safe separation)
  - Non-restrictive to other air users
  - Regulatory compliance
3. The project aims to evaluate Beyond Visual Line of Sight (BVLOS) operation of the Schiebel S-100 Camcopter and sensors/payloads as a potential UK SAR asset. Bristow Helicopters aim to contribute to a body of evidence to support UAS safety case development and the transition to more inclusive and flexible airspace.

## Summary of the decision made

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4. For this trial, the CAA has decided to approve, with the conditions listed on page 13, the establishment of a Temporary Danger Area (TDA) complex (details of which can be found on page 15) for the segregation of hazardous activity.

## Next steps

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5. Should the Sponsors wish to submit a further application for the next stage of their Trial then an updated Trial Plan will need to be submitted together with the outcomes of the objectives of this ACP.

## Chapter 2

## Decision Process and Analysis

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### Chronology of Proposal Process

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#### Statement of Need and Assessment Meeting

6. The Sponsors submitted a Statement of Need (SoN) on 15 July 2020. An Assessment Meeting (AM) was held on 7 October 2020 at which the Sponsors outlined the following requirements for the airspace trial:
  - Undertake simulated scenario-based SAR sorties, as part of a three staged approach to optimise a UAS SAR capability.
  - Trial the solution in non-segregated airspace utilising:
    - i. Stage 1 – Evaluation and assessment of novel technology to support UAS integration into UK airspace
      - a) Crawl Phase (This ACP) – Test and evaluate novel electronic conspicuity technologies.
      - b) Walk Phase (Next Submission) – Test and evaluate a Surveillance Mandatory Zone within a TDA.
      - c) Run Phase Test and evaluate an established SMZ within non-segregated airspace. (Future Submission).
    - ii. Payload/Sensor Optimisation for S-100 Camcopter.
    - iii. Employment of UAS for UK SAR.
7. The CAA determined that the proposal was in scope of CAP1616 and assessed the proposal as an Airspace Trial.
8. Minutes of the AM together with a copy of the slide presentation were published on the CAA Airspace Portal.

#### Engagement

9. When proposing the establishment of a TDA, sponsors are required to undertake targeted engagement with aviation stakeholders on the safety and operational viability of their proposal in accordance with the requirements of Annex A of the CAA's Policy for Permanently Established Danger Areas and Temporary Danger Areas.

10. The consultation on this ACP invited aviation stakeholders in the vicinity of Caernarfon Airport, the Llyn peninsula and Snowdonia National Park to participate to influence the design and the operating procedures of the developing proposal. The consultation material was circulated to a total of 38 organisations and individuals via email. The aviation consultees included the National Air Traffic Management Advisory Committee (NATMAC), the Ministry of Defence, NATS, local military and civilian aerodromes (and their users), local airspace users and the national bodies representing UK GA interests who may be effected by the proposed changes – General Aviation Alliance (GAA), the British Gliding Association (BGA) and the British Hang Gliding and Paragliding Association (BHPA). The emergency services were also consulted (NPAS and West Wales Air Ambulance).
11. Taking into consideration COVID-19 circumstances it was appropriate and reasonable for the Sponsors to conduct their consultation focusing on the use of online methods. The consultation was launched and conducted by email; a postal address was also provided as an option for response.
12. Over the four-week consultation period beginning on the 19 October 2020 the Sponsor proactively contacted key stakeholders to hold additional meetings during the consultation period to provide clarity on the proposal, gave the opportunity to address any concerns and offered a forum for solutions and compromise to be reached.
13. Of 28 responses that were received there were a total of 10 initial objections and when categorised four different objections were submitted in total. Following consultation meetings with representatives from the BGA, the BHPA and the GAA, including some of the local stakeholders, the Sponsors reached agreement with all through Letters of Agreement. The actions and mitigations proposed by the sponsor in response to the feedback received are deemed entirely reasonable and adequate in the circumstances. Most of the responses from the targeted aviation stakeholders were positive and supported the trial. At the time of the final submission all stakeholders who participated in the engagement associated with the proposal were supportive of the trial progressing, having been satisfied with the modifications to the design and that appropriate mitigations were in place.
14. The Sponsors have confirmed their intention to undertake regular engagement with relevant stakeholders if the TDA is approved and implemented. The Sponsors have also confirmed their intention to collate, monitor and report to the CAA on the level and content of related complaints throughout the duration of the TDA.

## **Proposal update and submission to CAA (Stage 4)**

15. The Sponsors initially submitted their final Trial Plan on 14 December 2020 which contained the details for a maritime and land TDA complex with

Caernarfon being used as the originating aerodrome, a diagram of which can be found on page 15. Following a review of the submission a number of clarification questions were posed to the Sponsors which included confirmation as to the objectives and success standards for the intended duration of the trial, confirmation regarding the Operating Safety Case (OSC) to support the ability for the Sponsors to operate the system as described in the confines of the airspace being sought and clarification surrounding the management of the TDA to ensure that the CAA could understand the impacts of the Trial.

16. The Sponsors subsequently submitted confirmation of all the points raised, a revised Letter of Agreement and the Operational Authorisation and updated Oversight Report was provided on 2 February 2021.

## **CAA Analysis of the Material provided**

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17. As a record of our analysis of this material, the CAA has produced the following, which will be published on the CAA Airspace Change Portal:
  - Operational Assessment.
18. The CAA has also assessed the following aspects; the findings of these are included in under the associated sections of this decision document:
  - Engagement (including related consultation activities).
  - Environmental.

## **CAA assessment and decision in respect of Consultation**

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19. The fundamental principles of effective consultation are targeting the right audience, communicating in a way that suits them, and giving them the tools to make informative, valuable contributions to the proposal's development. The CAA are satisfied that these principles have been applied by the change sponsor during the consultation. If the airspace trial is approved, the Sponsors must identify and inform the full range of relevant stakeholders that the airspace trial will be taking place, and during the period of the airspace trial undertake regular engagement with them whilst collating, monitoring and reporting on the level and contents of any related complaints.



## CAA Consideration of Factors material to our decision whether to approve the change

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### Explanation of statutory duties

20. The CAA's statutory duties are laid down in section 70 of the Transport Act 2000.

### Conclusions in respect of safety

21. The CAA's primary duty is to maintain a high standard of safety in the provision of air traffic services and this takes priority over all other duties.<sup>1</sup>
22. In this respect, with due regard to safety in the provision of air traffic services, the CAA is satisfied that the proposals maintain a high standard of safety for the following reasons:
- All UAS activities, that are subject to this ACP will take place in the TDA when it is notified as active.
  - The CAA has received the UAS Operators Operating Safety Cases (OSCs). Prior to activation of the TDA, the CAA must have approved these OSCs' which, include a description of the UAS's buffer requirements<sup>2</sup>.
  - The Sponsors will ensure that a Danger Area Crossing Service or a Danger Area Activity Information Service (DAAIS) is provided by a RAF Valley or when RAF Valley is not available then a DAAIS will be provided by Caernarfon Aerodrome. whenever the TDA is notified as active.
  - Caernarfon currently have sufficient *technical* capability to cover the entire maritime complex, however require an expansion of their Ofcom licence to *respond* to contacts beyond 10nm. Caernarfon are currently in the process of applying for an update to their current Ofcom permission to *respond* to contacts beyond this 10nm range. Caernarfon do however currently have sufficient radio coverage and licencing to support UAS operations in the land complex. It is therefore a requirement that prior to the activation of the TDA that if Caernarfon do not receive an expansion of their licence to sufficiently cover the maritime complex in time for the activation of the TDA from 08 Apr then in the event that RAF Valley are not able to offer a DACS provision, the DAAIS will be provided by London Information. An amendment to the LOA will be required in this instance.

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<sup>1</sup> Transport Act 2000, Section 70(1).

<sup>2</sup> A buffer is required in order to mitigate any error with the UAS's positioning systems.

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## **Conclusions in respect of securing the most efficient use of airspace**

23. The CAA is required to secure the most efficient use of the airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic.<sup>3</sup>
24. The CAA considers that the most efficient use of airspace is defined as 'secures the greatest number of movements of aircraft through a specific volume of airspace over a period of time so that the best use is made of the limited resource of UK airspace'.
25. The CAA considers the expeditious flow of air traffic to involve each aircraft taking the shortest amount of time for its flight. It is concerned with individual flights.
26. In this respect, the CAA is satisfied that efficient use of airspace is considered appropriately due to:
  - The TDA only being activated when needed with an estimate for the maritime complex 2-3 times a week, with weekend usage generally one weekend per month. The land complex has an estimated average usage of one day per week, with a weekend usage likely to be one weekend per month over a period of 6 months.
  - The sponsors commitment to prioritise emergency access.

## **Conclusions in respect of taking into account the Secretary of State's guidance to the CAA on environmental objectives**

27. In performing the statutory duties, the CAA is obliged to take account of the extant guidance provided by the Secretary of State<sup>4</sup>, namely the 2017 Guidance to the CAA on Environmental Objectives.
28. The Government Guidance (CAP1616 paras B86-B88) requires Sponsors of Airspace Trials, of greater than 90 days, to explain how the Sponsor has considered and assessed the likely noise impact of its proposal. However, as this is a trial for an UAS, the noise impacts and limitations expected are not yet fully documented. The CAA therefore considered the noise assessment report for the Schiebel S-100 Camcopter and is content that the noise impacts will not have an impact on health or quality of life.

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<sup>3</sup> Transport Act 2000, Section 70(2)(a).

<sup>4</sup> Transport Act 2000, Section 70(2)(d)

## Conclusions in respect of aircraft operators and owners

29. The CAA is required to satisfy the requirements of operators and owners of all classes of aircraft.<sup>5</sup>
30. In this respect, the CAA is content that the requirements of operators and owners of all appropriate classes of aircraft have been considered and the known impacts, as a consequence of establishing a TDA have been mitigated sufficiently, while ensuring the hazardous activity is contained.

## Conclusions in respect of the interests of any other person

31. The CAA is required to take account of the interests of any person (other than an owner or operator of an aircraft) in relation to the use of any particular airspace or the use of airspace generally.
32. In this respect, the CAA considers that the proposal will not have an impact on health or quality of life with regard to the interests of any other person due the Sponsors operating the UAS in such a way as to avoid overflight of residential, commercial, industrial and recreational areas as much as possible.

## Integrated operation of ATS

33. The CAA is required to facilitate the integrated operation of air traffic services provided by or on behalf of the Armed Forces of the Crown and other air traffic services.<sup>6</sup>
34. In this respect, the CAA is content that the proposal has no impact on the integrated operation of air traffic services.

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<sup>5</sup> Transport Act 2000, Section 70(2)(b).

<sup>6</sup> Transport Act 2000, Section 70(2)(e).

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## **Interests of national security**

- 35. The CAA is required to take account of the impact any airspace change may have upon matters of national security.<sup>7</sup>
- 36. In this respect, the CAA is satisfied that the proposal has no negative impact on national security.

## **International obligations**

- 37. The CAA is required to take account of any international obligations entered into by the UK and notified by the Secretary of State.
- 38. In this respect, the CAA is satisfied that the proposal has no impact on international obligations.

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<sup>7</sup> Transport Act 2000, Section 70(2)(f).

# CAA's Regulatory Decision

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## CAA's Regulatory Decision

39. Noting the anticipated impacts on the material factors we are bound to take into account and the conditions being met, we have decided to approve this airspace trial, with the conditions set out below.

### Conditions of approval

40. The following conditions are to be met:
- a) It is a condition of this ACP approval that if Caernarfon do not receive an expansion of their licence to sufficiently cover the maritime complex in time for the activation of the TDA from 08 Apr then in the event that RAF Valley are not able to offer a DACS provision, the DAAIS will be provided by London Information. An amendment to the LOA will be required in this instance.
  - b) A condition is being placed that the use of the maritime and land complex is predicated on the ability for RAF Valley, Caernarfon or London Information providing a DAAIS. For the periods that these entities cannot provide a DAAIS then these areas are not to be used
  - c) During the engagement with the GA community with respect to the land complex a LOA was reached in order to mitigate the impact of the TDA design between the Sponsor and BGA BHGA and the GAA. This was in lieu of the OSC being approved for operations to be conducted within a TDA that was of a design not contiguous with the ground. The OSC has been approved to allow such an airspace design in this instance and therefore negates the requirement for such an LOA to be considered.
  - d) Engagement activities should continue with all impacted stakeholders and the wider GA community.
  - e) The CAA's Airspace Technical Regulator, for this airspace trial, should be updated regularly on the progress of the above engagement activity, together with evidence of the outcomes set in the objectives of this trial.
  - f) The Sponsor shall collect information relating to incidents related to the airspace design, DACS/DAAIS provision/resource issues, infringement statistics, usage, LoAs and their usage, any impact on MoD and stakeholder feedback.

## Implementation

41. An Aeronautical Information Circular will be submitted on 26 Feb 21 in order to promulgate, by NOTAM, the activation of the TDA.
42. The Sponsors have been informed that any delay to activating the TDA as a result of the conditions not being met, does not automatically mean that an extension to the approved activation period will be granted<sup>8</sup>.
43. The TDA will be notified as EG D398 made up of EGD398A-I as part of the airspace trial ACP 2020-050 on the CAA Airspace Portal. The CAA activity reference number is 2021-04-0060.
44. Any queries relating to this airspace trial are to be directed to the SARG Airspace Technical Regulator via [airspace.policy@caa.co.uk](mailto:airspace.policy@caa.co.uk).

## Period of the Trial

45. The period of the trial part 1 will be 8<sup>th</sup> Apr 21 – 8<sup>th</sup> October 21.

## On-going engagement and monitoring post-implementation

46. The Sponsors have stated their commitment to ongoing engagement with relevant aviation stakeholders, before and during the airspace trial, whilst they have also confirmed their intention to collate, monitor and report to the CAA on the level and contents of any related complaints in line with the requirements of the airspace trial process.
47. If the basis of stakeholder feedback received during the airspace trial suggests that it is not achieving the anticipated outcomes, the CAA will investigate accordingly and take appropriate action.

## Post Implementation Review

48. Post Implementation Reviews are not required for airspace trials.

Civil Aviation Authority

*25<sup>th</sup> February 2021*

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<sup>8</sup> Any request for an extension will follow the requirements of CAP1616 paras 321-323.

## Appendix A – TDA Dimensions

