

## Cotswold Airport (Kemble) Airspace Change Proposal for a Defined Instrument Approach Procedure



ACP-2016-18 Formal Proposal Submission  
CAP 1616 - Step 4b

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## 1. REFERENCES

1.1 All previous work associated with this ACP is referenced and hyperlinked, within the table below. These documents (References A to K) are available on CAA's [ACP portal](#) and support this formal submission.

Reference	Document	Date of Publication
A	<a href="#">Step 1a DAP1916 Statement of Need</a>	27 Sep 2018, Updated from CAP 725 16 Sep 2016
B	<a href="#">Step 1b Design Principles</a>	18 Oct 2018
C	<a href="#">Step 2a Options Development</a>	7 Feb 2019
D	<a href="#">Step 2b Options Appraisal (Initial)</a>	7 Feb 2019
E	<a href="#">Step 3b Consultation Strategy</a>	10 Feb 2020
F	<a href="#">Step 3b Consultation Document</a>	10 Feb 2020
G	<a href="#">Step 3b Options Appraisal (Full)</a>	10 Feb 2020
H	<a href="#">Step 3d Collate and Review Responses</a>	22 May 2020
I	<a href="#">Step 4a Consultation Review Document</a>	2 Jun 2020
J	<a href="#">Step 4a Options Appraisal (Final)</a>	2 Jun 2020
K	<a href="#">Step 4a Updated Designs</a>	2 Jun 2020
L	CAP1122 - Application for Instrument Approach Procedures to Aerodromes without an Instrument Runway and/or Approach Control.	May 2014. Withdrawn. (Reference Only)
M	<a href="#">CAP1616 - Airspace Design.</a>	22 Jan 2020
N	<a href="#">CAP760 – Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases.</a>	10 Dec 2010
O	<a href="#">ICAO Aircraft Operations (Doc 8168) both Volumes, 5<sup>th</sup> Ed</a>	2008

## **2. INTRODUCTION**

### **2.1. Introduction to the Cotswold Airport (Kemble) PBN ACP.**

2.1.1. This document forms part of the document set created in accordance with the requirements of CAP1616 Airspace Design for an Airspace Change Proposal (ACP), Reference M. For both brevity and clarity, only a summary of the analysis and outcomes of previous stages is repeated in this document, where appropriate, to aid understanding or provide context. To understand the option appraisal work conducted prior to this Step, the primary references are D, G and J.

2.1.2. This formal proposal addresses the need to define instrument approach procedures to regularise activity that has been taking place at Cotswold Airport for more than the past 10 years. The scope of this proposal is to replace the current good weather only, visually flown and self-navigated approach flown by aircraft crews arriving at Cotswold Airport with an appropriate Required Navigation Performance (RNP) all weather Instrument Approach Procedure (IAP). This will be used by approved Performance Based Navigation (PBN) operators. The aircraft in-scope, in order of movements/anticipated usage are:

- a. Corporate/business jets ranging in size from a Pilatus PC12 to Gulfstream 650 sized aircraft, including those used by members of the Royal household.
- b. Commercial helicopter operators, such as the Queens Helicopter Flight.
- c. Commercial Air Transport (CAT) airliner aircraft currently arriving for maintenance, storage, or end of life recycling. These range from Boeing 737 to 747 and Airbus A340.

2.1.3 This was deemed by the CAA to be a Level 1 airspace change proposal (ACP) under CAP1616 as it could theoretically change some General Aviation (GA) patterns – the potential to alter traffic patterns below 7000ft and/or changes to departure and arrival routes at airports. This would not change out of scope aircraft patterns, in scope commercial aircraft patterns above 4000ft, nor effect GA in uncontrolled airspace outside of the area defined by the approach. It should be noted that this IAP proposal will replace existing activity.

### **2.2 Background – A scaled and Proportionate ACP.**

2.2.1. This proposal aims to formalise activity that already takes place at Cotswold Airport by developing and publishing a suitable RNP approach to support existing in-scope arrivals, as described above. Although they comprise only 0.7% of Cotswold Airport's annual movements, these aircraft have a disproportionately positive economic impact on the airport and surrounding area. Whilst revenue for the larger CAT aircraft is relatively small, the revenue generated from business jets equates to around one third of Cotswold Airport's revenue, based on 2019 financial data: Jet A1 fuel sales alone account for 27%. They are essential to the continued economic viability of the Airport.

2.2.2. It is anticipated that for those aircraft arriving in poor weather, known as Instrument Meteorological Conditions (IMC) or unable to approach the Airport due to their own operational limitations not allowing a hand flown approach, success of this proposal may marginally increase the Airports annual movements by 0.36%<sup>1</sup>.

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<sup>1</sup> Accounting for current levels of bad weather cancellations or diversions.

2.2.3. Considering scalability and proportionality, as articulated in Appendix E to CAP 1616, this publication offers little guidance on quantitative analysis for this magnitude of change; in this case 0.7% of current movements. Due to this very small number of in-scope traffic and formalisation of current activity, the room for detailed appraisal and quantitative assessment has been limited. Standard government analysis tools, such as WebTag A3 environmental analysis could not be manipulated to generate any meaningful data.

## 2.3 Scale of this Proposal

2.3.1. As the table at Fig 1.0 below shows, the in-scope movement numbers for aircraft that will use the proposed approach is very low, compared to the current baseline, noting that these in-scope aircraft already fly a visual approach into Kemble. In the spirit of CAP 1616, this ACP has been developed proportionally to match the circumstances; although a relatively high number of overall movements, the proposal will be of low utilisation by in-scope aircraft only.

Aircraft Classification	2018		2019	
	Movements	%	Movements	%
Total Movements	31562	100	28442	100
GA (Rotary and Fixed Wing) <b>Out of Scope</b>	31180	98.8	28046	98.6
<b>In-Scope</b> Corporate/Business Jets and Helicopters	360	1.1	376	1.3
<b>In-Scope</b> CAT B-D MRO Aircraft	22	0.1	20	0.1
<b>Total In-Scope Movements</b>	<b>382</b>	<b>1.2</b>	<b>396</b>	<b>1.4</b>

Fig 1.0 – Table Showing In-Scope movements Measured Against Total Annual Movements

2.3.2. Using the latest airport annual movement statistics, before the impact of COVID-19, extracted from system-generated reports of the Airport's Red Atlas system, the Airport recorded 28,442 movements in the period 1 Jan to 16 Dec 2019, which is an unusually low year. 2018 recorded 31,562 movements over the same period. Over the past 10 years, annual movements have been consistently between 31,000 and 34,000.

2.3.3. Since both a take-off, circuit and landing is logged as a movement, this change proposal is concerned with defining an approach for arrivals (landings), the baseline of in-scope aircraft of 191 movements in 2018 and 198 in 2019 (0.6 and 0.7% of total movements respectively). This is a very low comparative number of aircraft and thus, the ACP has been both scaled and proportionately assessed and developed throughout the CAP1616 process.

### **3. EXECUTIVE SUMMARY**

3.1. To facilitate the change summarised in Section 2, Cotswold Airport developed a number of design principles (DPs); used to facilitate engaged discussion with stakeholders and to then both develop and evaluate design options. Options were developed and refined throughout engagement in Stage 2 before consultation and further analysis led to selection of the proposed option.

3.2. As covered in references H and I, the Stage 3 consultation process received 49 formal responses and an additional 5 informal emails; of these 92% were supportive and 3 (6%) neutral and 1(2%) non-supportive. These responses are detailed within the Step 3d Consultation Review Document (Reference I). The support from both the local glider airfields and wider British Gliding Association (BGA) should be noted, particularly when less engaged ACPs elsewhere have encountered friction. Stage 2 was particularly helpful in this respect to engage and collaboratively develop the designs with the interests of all airspace users in mind.

3.3. Following the consultation process, a minor design amendment has been included. This was a supportive idea to increase the missed approach altitude from 2300ft. The contracted Approved Procedure Design Organisation (APDO) reviewed this data and the comments about the missed approach and raised the altitude to 2500ft for both the Initial Approach Fix (IAF) and the missed approach altitude to return to the IAF, whilst maintaining conformance to international standards (ICAO PANS OPS Doc 8168 – Reference O).

3.4. With a very high level of support, none of the consultation responses required any substantive changes to be made to the ACP designs, nor questioned the analysis, methodology or offered any differing design options. The output of the CAP 1616 design process, stakeholder engaged development and confirmation through consultation, is the proposal; outlined in this paper.



## **4. CURRENT AIRSPACE DESCRIPTION**

### **4.1 Structures and Routes**

4.1.1 This proposal only relates to the publication of IAPs to replicate current activity to both Runways 08 and 26. Route structures are not affected.

### **4.2 Airspace Usage and Proposed Effect**

4.2.1 The proportion of aircraft types or operators is not expected to increase as a consequence of this airspace change. This ACP only seeks to define the approach routes for existing in-scope arrivals within Class G airspace; 0.7% of Cotswold Airport's Movements (see Section 2.3). There is no assessed effect on the remaining out of scope aircraft within the local Class G airspace. The effect on RAF Brize Norton will be to minimise all in-scope aircraft requests for a zone transit of their Class D controlled airspace to the one-track routing, the northern Initial Approach Fix (IAF) joining leg of the proposed instrument approach to RW26. This may contribute to minimising controller workload, thus can be viewed as a positive benefit for them. This ACP has no effect above 2500ft, does not propose any changes to airspace classification or effect its current Standard Route Document (SRD) entry for airways. It is focussed on airspace within 15Nm of Cotswold Airport up to 2500ft; and defines activity and tracks which already take place. Although a permanent airspace change, the proposed IAP will only be active for up to 5 approach slots per day.

4.2.2 In-scope aircraft currently arrive from either the national airways system (mostly international flights) or they can arrive at lower level under 7000ft, usually national and/or regional flights. From the national airways system, they are generally released from Airway Q63 by National Air Traffic Services (NATS) controllers through MALBY (Cotswold Airport's designated airways join and departure point in the national Standard Routing Document (SRD)) and descend into uncontrolled airspace (Class G airspace).

4.2.3 To date, most in-scope aircraft crews then request a service from RAF Brize Norton, under a Lower Airspace Radar Service (LARS), when both appropriate and their controller capacity allows. This is enshrined with the extant Letter of Agreement (LOA) between Cotswold Airport and RAF Brize Norton. The crew fly under own navigation and once Cotswold Airport has been visually identified, the crew then establish the aircraft onto a stable approach to land on either RW08 or RW26, depending upon the runway in use.

### **4.3 Operational Efficiency, Complexity, Delays and Choke Points.**

4.3.1 In all instances, the in-scope aircraft's arrival tracks have varied considerably, both within the proposed IAP airspace and to a greater extent further out in Class G airspace as a consequence, although the latter is outside the scope of this ACP. This variation is due to both weather and visibility as the pilot attempts to visually identify Cotswold Airport, then within the aircraft's performance limitations, establish the aircraft onto a safe stable approach to the runway in use. This is inefficient use of airspace, particularly for CAT aircraft. The proposed design, by virtue of a published defined approach, offers benefits of reduced complexity and in cockpit workload for the crew and a better understood air picture for GA traffic, enabling more efficient route planning.

4.3.2 Despite these operational benefits, the aim of this proposal is not specifically to improve the capacity or delay of the associated routes. Cotswold Airport is therefore not citing any benefit (or disbenefit) in terms of efficiency, complexity or delay.

4.3.3 A known choke point currently exists between the ATZ of Cotswold Airport and South Cerney, the latter is not an active airfield and rarely used for paratropping activities, under a NOTAM and control from RAF Brize Norton. It is an artificial choke point, whereby pilots follow the charting symbology and fly through this the north/south 2Nm gap, which intersects at 90 degrees, the extended approach centreline for Kemble's RW26. The question of South Cerney's ATZ marking has been raised by the change sponsor to the Defence Airspace and Air Traffic Management organisation (DAATM), particularly where other instances of NOTAM activity, rather than permanent chart symbology exist.

#### 4.4 Safety Issues

4.4.1 The main safety issues which this proposal seeks to address are the associated risks of collision with other aircraft or with the ground due to the absence of an international standardised and safe final approach routes for CAT and business jet aircraft within uncontrolled (Class G) airspace. In Instrument Meteorological Conditions (IMC), it is highly likely that all local aircraft will be in receipt of a traffic service from another ANSP. However, when flying under Visual Flight Rules (VFR), all in scope aircraft are required to fly in accordance with the Standard European Rules of the Air (SERA) and the UK Air Navigation Order, whereby the crew have sole responsibility for visually ensuring separation, based on give way prioritisation of traffic types. Some additional mitigation is present in CAT aircraft using the aircraft's traffic collision avoidance system (TCAS).

4.4.2 With no published IAP and no instrument approach symbology on air charts (commonly known as IAP feathered arrows), there is no common publication warning other air users that these in scope aircraft may be on an approach into Cotswold Airport and the route they will take. A significant amount of airfield to airfield communication is required to ensure all local glider sites and other airfields are aware that Cotswold Airport is expecting a heavy aircraft to arrive within a time window. Beyond that, no routing information can be communicated since this is an in cockpit, own navigation decision by each pilot. Despite, a CAA identified CAT aircraft Mid Air Collision (MAC) risk<sup>2</sup>, without the mitigation of a defined approach and chart symbology, this risk remains unmitigated to As Low As Reasonably Practicable (ALARP).

4.4.3 This requires aircraft to transition from IFR to VFR at some point on the final approach, depending upon cloud base and visibility. The current approach, described in Section 4.2, is done in both Visual Meteorological Conditions (VMC) and during IMC, although this does require visual identification of Cotswold Airport, essentially a change to VFR to allow a non-instrument approach landing. With no defined approach profile, there is no set Runway Visual Range (RVR), nor is there a set minimum safe terrain altitude for the 'cloud break'. Without defined obstacle limitation data designed into a published approach, using the airports annual survey, a Controlled Flight into Terrain (CFIT) risk remains unmitigated to ALARP.

#### 4.5 Environmental Issues

4.5.1 There are no specific environmental issues within the relevant areas of airspace, in the current operation. However, there are currently limited flight planning options for in-scope flight arrivals, the complexity of own navigation, visual identification of the airport and establishing an aircraft onto a stable descent approach profile generally results in a wide variation of tracks and

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<sup>2</sup> <https://www.caa.co.uk/Safety-initiatives-and-resources/Working-with-industry/Bowtie/Bowtie-templates/Bowtie-document-library/>

increased track miles, resulting in more fuel burn, CO<sub>2</sub>, overflight and visual intrusion than required. The proposed approach would allow a reduction in these impacts as they would offer operators more direct routings to a known initial approach fix and therefore less track mileage.

4.5.2 All of the proposed changes have been designed to prioritise minimising the environmental impact throughout the whole design. The environmental Design Principle (DP2) has ensured that proposed designs reduce, where possible, the scatter effect of aircraft arrival tracks. DP4 ensured the designs would reduce the number of people overflown, and DP3 reduce visual intrusion. DPs are contained within Reference B; developed through engagement, particularly with local communities.

4.5.3 On the final approach, aircraft tracks have been fairly consistent, within the last 4Nm; up to this point the variance has been noted to increase, through tracking aircraft arrivals on the only medium currently available, a commercially available flight radar application. The greatest variation is outside the proposal's airspace area and further out in Class G airspace. This ACP does not seek to change variation outside the IAP. However, there may be consequential benefits of reducing this variation by focusing aircraft onto a defined point in space (the IAF) to start the procedure.

4.5.4 As a General Aviation airport, no noise data exists to provide a numerical baseline for in-scope aircraft arrivals. Throughout the CAP 1616 process, arguments have been accepted by the CAA regarding the disproportionality and difficulty of attempting to measure the noise baseline of the 0.7% annually of current in-scope aircraft arrivals. Particularly when the scale of change is immeasurable against the significant levels of background noise of light aircraft, both Cotswold Airport's remaining (99.3%) movements and other local aircraft operating almost continually in uncontrolled airspace on any self-defined routing. No recorded noise complaints of in-scope aircraft exist for baselining; any noise related complaints are usually, focussed on out of scope light aircraft, although complaints are minimal<sup>3</sup>.

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<sup>3</sup> Usually, less than 8 per year; in 2019, 4 complaints were received.

## 5. STATEMENT OF NEED

### 5.1 Statement of Need

5.1.1 The following text is Version 3 (v3) of CAP 1616 DAP 1916 Statement of Need (Reference A), as submitted on 27 September 2018, updated from the one previously submitted under CAP 725 on 16 September 2016:

*Cotswold Airport (Kemble) is a large aerodrome 4.5 nm SW of Cirencester near RAF Fairford (10nm) and RAF Brize Norton (19nm). It is licensed by the CAA and an air traffic zone (ATZ) 2nm radius is established around it with an air traffic service (ATS) provided during notified hours by qualified aerodrome flight information officers (AFISOs). Operations are limited due to the lack of ground-based navigation aids to 'good' weather known as Visual Meteorological Conditions (VMC) by day and, at certain times of the year, in the dark. The airfield logged 32,698 movements in 2017 which equates to a non-seasonally adjusted average of 2500 take offs and landings per month, the majority of whom are made by based general aviation (GA) light aircraft. Year on year increases of larger aircraft, arriving for end of service recycling, and corporate/VVIP jet aircraft are changing the traffic mix; this trend is expected to continue as major stakeholders' business increases for inter alia airliner salvage, ongoing maintenance under an EASA approved Part 145 scheme and private flying.*

**Issue:** *Currently, without a defined instrument approach procedure (IAP), suitably equipped larger aircraft including those operated by The Royal Flight have to determine their own approach path onto either end of our runway 08/26 whilst flying under instrument flight rules (IFR) in poor weather and/or in the dark. Their crews rely on Air Traffic Control radar at RAF Brize Norton or Bristol Airport to position them on to a visual final approach to the runway in use at Kemble. This generates an inherent ATM and airspace risk, which without a defined approach cannot be fully mitigated.*

**Opportunity:** *Special satellite technology managed by Europe and the USA, which provides GPS navigation freely available to all, can deliver internationally recognised all weather IAPs. Whilst these signals in space (SiS) can be used by many of our customers' aircraft with new technology equipment on board, to make good use, a design for IAPs has to be created, validated and published internationally. Defined IAPs would help enable greater regularity and enable existing mitigated risks to be reduced further to as low as reasonably practicable (ALARP). The route which inbound aircraft follow will be the same as at present but with greater accuracy laterally and vertically through improved decent angles thus bringing a new level of assurance to the approaches. Benefits including reducing the effect of noise on surrounding residents and the reduction in CO2 emissions will be published. This proposed change is not intended to increase traffic, extend opening hours nor provide GPS instrument approach training.*

### 5.2 Airspace Modernisation Strategy

5.2.1 This ACP does not form part of the plan for delivering the Airspace Modernisation Strategy, nor does it conflict with the plan or the supporting NATS Swanwick SAIP AD5 work<sup>4</sup>.

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<sup>4</sup> <https://airspacechange.caa.co.uk/PublicProposalArea?pID=38>

## **6. PROPOSED AIRSPACE DESCRIPTION**

### **6.1 Objectives /Requirements for Proposed Design**

6.1.1 This proposal is not a creation of new airspace, nor the amendment of current airspace classification. It is the replication of current activity by replacing the crew defined, visually navigated routing with a defined all-weather instrument approach within the current Class G uncontrolled airspace. The designs extend into the surrounding class G airspace for up to 15Nm.

6.1.2 The objective of the proposed design is to provide an ICAO Doc 8168 PANS OPS compliant and validated IAP design, safely flyable for all in-scope aircraft types. This will replace current undefined and crew-derived approach routing and final approach profiles to land at Cotswold Airport.

6.1.3 This in turn will allow:

- a. Increase operational safety by reducing the potential risk of a mid-air collision by placing all in-scope aircraft onto a defined arrival route, which other pilots will be aware of (through charted markings) and thus take appropriate action to avoid or contact Cotswold Airport's Tower for information.
- b. Increase the Airport's operational capacity by allowing in-scope aircraft to land during periods of reduced visibility/cloud ceiling and/or when their own operational procedures preclude a landing at an airport without a defined instrument approach to an obstacle cleared runway.
- c. Reduce the scatter effect, and thereby the distribution on any environmental impacts of in-scope arrivals, due to own navigation routing to establish a visual approach.

6.1.4 In terms of design requirements, the proposal has been designed to meet the requirements of: ICAO Doc 8168 PANS OPS, UK AIP GEN 1.7, CAP 785 and CAP 1122.

### **6.2 Proposed New Airspace/Route Definition and Usage**

6.2.1 This ACP does not propose new airspace. It does not seek to change airspace usage. The purpose is to redefine approach tracks and procedures for activity which already exists; this ACP will standardise and focus those current approach routes for in-scope aircraft. Current usage (baseline) is an average of 198 aircraft per annum. Planned usage, from implementation is 251 aircraft, rising to 487 aircraft per annum over 10 years. On current figures, this is 0.7% of Cotswold Airport's annual movement figures. References G and J (paragraph 36) provides the analysis.

6.2.2 The proposed approach for runway (RWY) 26 (a T Bar design at Fig 1.0), does have the optional of a northern leg join to the Initial Approach Fix (IAF), which would require the section between the IAF (IAFNE) and Intermediate Fix (IF) (BP26I) to be flown through RAF Brize Norton's Class D controlled airspace on a zone transit, subject to clearance. The remainder of the RW26 is flown through Class G airspace on a similar routing to existing in-scope approaches. Commencing at an IAF at 2500ft, 8 Nm from the threshold, but displaced by 5Nm north and south of the

centreline. This design was developed to filter aircraft arrivals from north into a defined zone transit area, with RAF Brize Norton input, and from the south to route aircraft away from RAF Brize Norton's controlled airspace. To allow compliance with ICAO Doc 8168, both north (IAFNE) and south (IAFSE) joins focus onto an IF (BP26I) at 2400ft and above RAF Fairford's ATZ. The IAP route then descends on a continuous 3-degree glide slope through the FAF at 1800ft and 4.2Nm from the threshold.

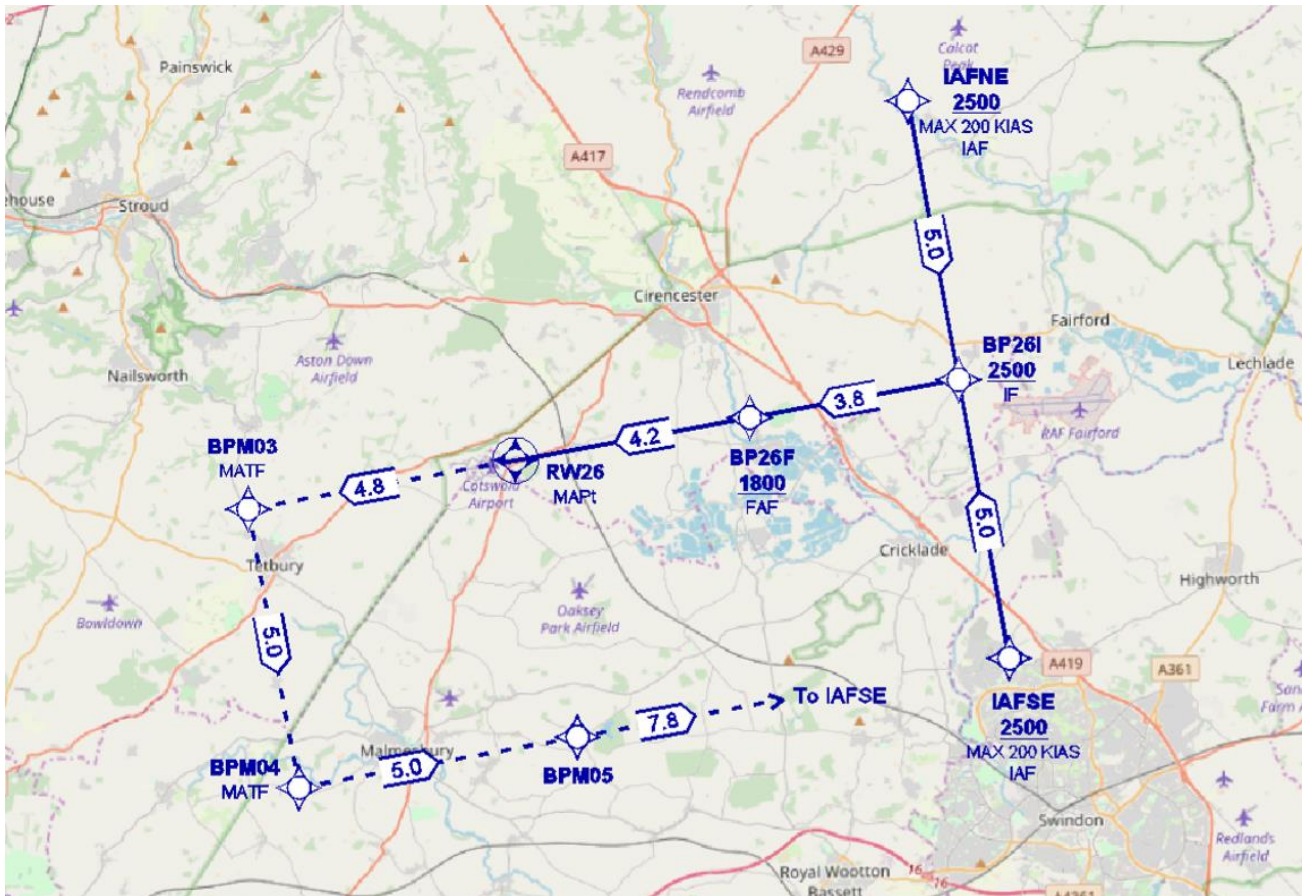


Fig 1.0 - Proposed RNP ARCH to RWY26 (see Annex C)

6.2.3 The proposed approach to RW08 (Fig 2.0 overleaf) is a straight in approach, commencing 9.2Nm from the threshold at 2500ft and following an ICAO Doc 8168 3-degree low power, constant descent profile, through a FAF (BP08F) at 2000ft, 4.8 Nm out. The design was developed to avoid any conflict with Bristol Airport Standard Terminal Arrivals Routes (STARS) and Standard Instrument Departures (SIDs) and the known common glider routings and training areas, in discussion with both local glider sites; both to the north of the IAP. To facilitate separation, a corresponding LoA has been agreed with Aston Down glider site (which also allows routing by gliders from the Nymphsfield site) to allow a NW portion of Cotswold Airports Air Traffic Zone (ATZ) to become a sailplane accessible area, subject to notification. This allows gliders to route away from the RW08 IAP route.

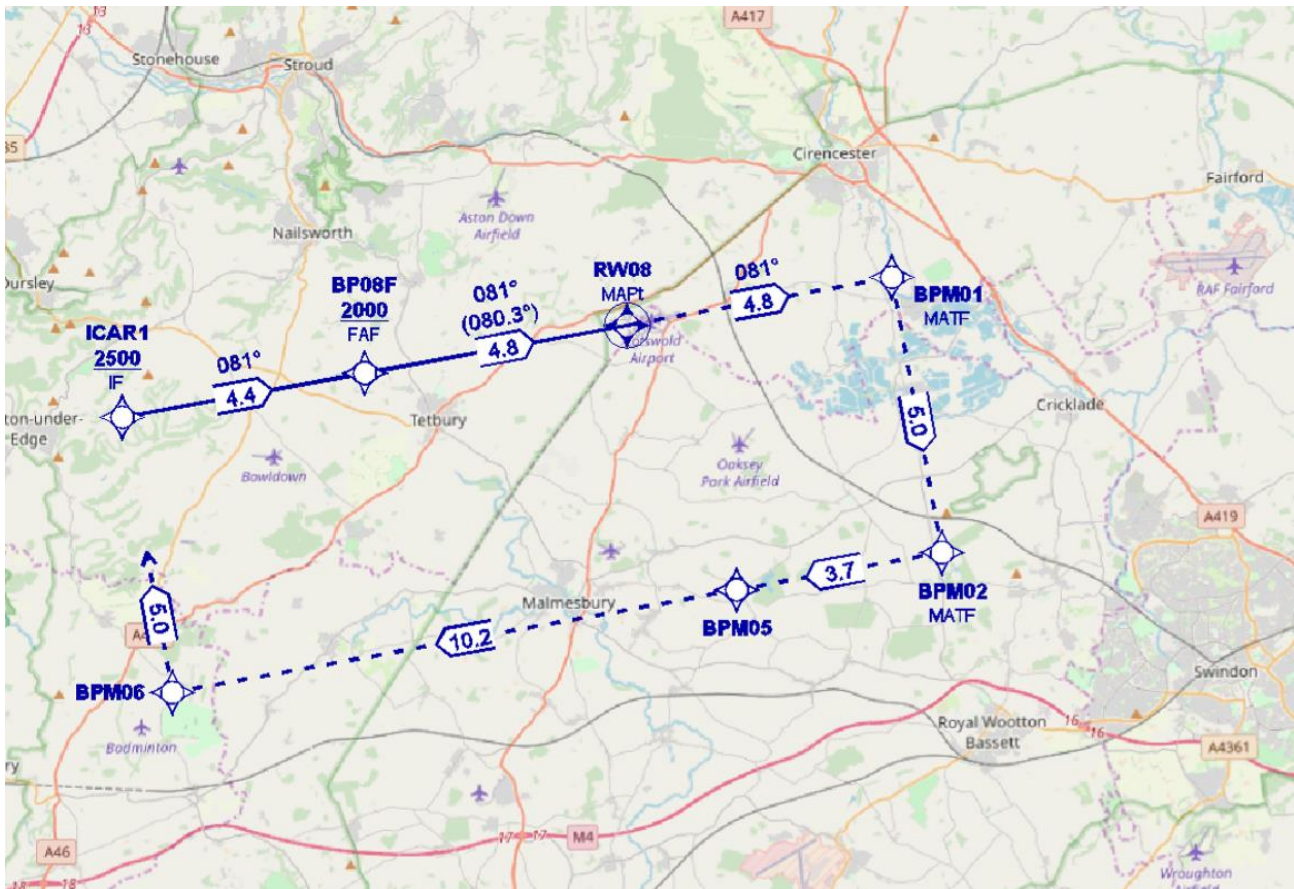


Fig 2.0 – Proposed RNP ARCH to RWY08 (See Annex C)

### 6.3 Air Traffic Management (ATM) of the Proposed Instrument Approach

6.3.1 The following brief summary of Kemble’s RNP IAPs Concept of Operations (ConOps), has been written with particular reference to procedures which will be applied by existing Aerodrome Flight Information Service (AFIS), which needs a CAA exemption from Article 183 of the Air Navigation Order. The material within this section has been drawn the Enclosures and Annexes to this proposal submission, to provide an overarching summary. This includes, but is not limited to –

- a. The Safety Case (Enclosure 1)
- b. The AFISO RNP Approach Training Manual (Enclosure 2)
- c. The PPR Slot Time Document (Annex F)
- d. The Pilot Briefing Notes (Annex G)
- e. Aerodrome Manual and supporting KAOPS (already agreed and audited by CAA)

6.3.2 The following ATM description is written in procedural order, from the crew of an in-scope aircraft booking a PPR instrumental approach arrival slot, to landing. These actions *inter alia* are designed to ensure that an aircraft conducting an Instrument approach has exclusive access to the approach deconflicted, as far as possible, from known traffic in the vicinity.

6.3.3 It is recognised that there remains a small, but non-zero, risk of an aircraft entering the ATZ whilst an aircraft is participating in an instrument approach. The low levels of traffic participating in the proposed IAPs, together with the number of movements in the vicinity of the aerodrome together with other measures, help ensure that the absolute value of this risk is extremely low.

6.3.4 Much of the ATM procedures described below already exist and can be found in KAOPs. This stems from the fact that for at least the last 10 years, these in-scope aircraft (large CAT aircraft and the Royal Flight) have been flying own navigation approaches into Kemble. The requirements for special procedures to ensure safe arrivals have been developed and refined through CAA audits, over time to accommodate such flights, although up to now these have been limited to VMC/VFR minima. As an example, so far this year, the airport has received 25 large CAT airliner aircraft, which includes 10 Boeing 747s. One Boeing 747 subsequently departed direct to the USA. This is in addition to the arrival and departure of 75 in-scope business jets. With 10 + years of activity of this type, managed with the average of 32,000 GA/light aircraft movements and no ATM conflicts, the change sponsor believes this ATM procedures work and thus any risk is minimal. The introduction of defined IAPs has necessitated updating and development of the core procedures which were already tried and tested.

### **6.3.5 The Airport (Ops) Receives an Inbound Slot Request**

a. To help ensure segregation of aircraft participating in the IAP from VFR operations, flights proposing to make an RNP approach will require prior permission (PPR) by telephone or email from Cotswold Airport in advance. A situation could arise when an aircraft already airborne requests permission makes an approach. This will be dealt with on a case by case basis on the day by the Airport Manager, or Duty Manager if the Airport Manager is unavailable. As part of the PPR process, the participating aircraft will be allocated a 1-hour timeslot (Annex F) that provides exclusive access to complete the procedure, including early and late arrival buffers.

b. If Airport Ops approves a slot and adds the aircraft details to FIDS (Red Atlas) it will inform all affected parties. The effect of allocating the slot stops any subsequent PPR requests being given out during the period allowed for the RNP IAP slot. This starts the process of segregation (VFR and instrument approach traffic) by time. Flight Plan and PPR requests for In-scope aircraft are received at least 48hrs in advance

### **6.3.6 For a Filed Flight Plan (FPL), Ops and the AFISOs Receive Notification the a/c has Departed.**

a. Ops will notify relevant stakeholders of the ETA. In the case of based flying training and maintenance operators this will have the effect of stopping their operations such as circuits or departures during the timeslot. In all likelihood, this simply confirms the PPR slot remains extant.

b. As Kemble does not provide an Air Traffic Control service, it is unable to provide an approach service to sequence and separate traffic, or to integrate Instrument and Visual Traffic in the vicinity of the Instrument approach and the ATZ. To help ensure the instrument approach procedures can be introduced safely, the following mitigations will be implemented that will segregate Instrument and Visual Flight Rules traffic.

1. Traffic wishing to participate in the instrument approach will be required to



obtain a timeslot as part of their PPR request. This PPR Time slot is then not available to any other traffic. Kemble is a PPR only airport.

2. During the timeslot, or at least until the aircraft conducting the Instrument Approach has landed or diverted, the aerodrome and the aerodrome circuit will not be available to VFR traffic. Once the in-scope aircraft crew has confirmed they are commencing the IAP, departing aircraft will be held on the ground.
  3. Inbound aircraft will be encouraged to contact RAF Brize Norton LARS
- c. There is already a close working relationship with RAF Brize Norton ATC covered by an existing Letter of Agreement which has been redrafted not only to take into account the introduction of RNP IAPs at Kemble, but also their own [RAF Brize Norton] ACP to extend the volume of controlled airspace surrounding them.
- d. This risk is further mitigated by:
1. Non-Radio a/c are not accepted (AIP EGBP AD 2.20 1b) Airport Regulations refers).
  2. All communications between Kemble Information, participating aircraft and any other aircraft operating within the local area should be in communication with Kemble Information on 118.430 MHz, to help provide pilots with situational awareness of other traffic in the vicinity.
  3. The residual risk of unknown traffic in and in the vicinity of the ATZ is minimised by participating aircraft maintaining 'See and Avoid' in the visual phase of the approach.

**6.3.7 When the subject aircraft is x minutes from the chosen Initial Approach Fix (IAF), the AFISO commences suspension of circuit operations and passes traffic information to any aircraft in receipt of a Basic Service on 118.430.**

- a. During the timeslot, the AFISO will ensure that the circuit and the aerodrome is unavailable to VFR traffic and that to the limit of the AFISO's ability, there are no other operations within the ATZ. In the event of the radio operator becoming aware of VFR traffic within the ATZ or in proximity to the ground track of the instrument approach, or missed approach, traffic information will be passed to the participating aircraft.

**6.3.8 Once subject aircraft calls Kemble Information (either free call in Class G or on handover from BZN) aerodrome and traffic information will be passed to the crew.**

- a. Any aircraft on the ground will be held.
- b. Any aircraft airborne in the vicinity on frequency will be passed Traffic Information.
- c. In response to the aircraft radio call, the AFISO will respond with information on runway in use, confirmation that aerodrome protection for the approach is in place and unofficial Met information including the QNH/QFE measured at the aerodrome.

d. The AFISOs, due to licence limitations, are unable to exercise control of aircraft within the ATZ, although the circuit operations can be suspended when the aerodrome is not available for visual landings during a pre-booked timeslot. There is however a small, but non-zero, risk of an aircraft entering the ATZ when an aircraft is participating in an instrument approach. Should an aircraft call for transit of the ATZ at that moment it will be up to the Duty AFISO to decide based on the situation, relative speeds, direction of travel and weather conditions if asking the transiting aircraft to remain clear would be more of a risk than transiting.

e. The AFISOs can manage aircraft ground movements on the aerodrome as part of their AFISO Licence privilege. As part of mitigation, Kemble has implemented procedures to control access to the aerodrome. The Aerodrome manual details access restrictions.

f. The Aerodrome Manual requires inspections of taxiways, runways, manoeuvring areas and AGL each day prior commencing operations and at other times as required. Immediately following any incident on or in the vicinity of the manoeuvring areas a full runway inspection will be undertaken to remove any debris (FOD) and assess any surface damage.

g. The AFISO position is permanently manned by 2 x AFISOs during hours of watch in the former RAF VCR with full visibility of the runway and aircraft manoeuvring area. To ensure the runway is not obstructed, before each instrument approach is commenced a visual check from the tower, with binoculars if required, will be conducted in addition to vehicle based runway visual checks or actions may be conducted following weather-related events to confirm runway condition or dispersal of bird concentrations.

h. There is a direct line telephone system in place between Kemble VCR and RAF Brize Norton ATC, which rings on all VCR and radar controller desks.

### **6.3.9 Once the subject aircraft lands (or diverts) operations in the ATZ and circuit will resume with all stakeholders informed.**

a. In support of the proposed concept of operation, Kemble has a VHF Communications assignment with a Designated Operational Coverage (DOC) of 15 nm and a height of 3,000' which is regularly used for communications in excess of 10 nm from the aerodrome. An increase in the DOC is being progressed.

## **6.4 Operational Design – The Rational for Not Requiring a Hold.**

6.4.1 The matter of a hold has been considered and the following is provided as the rational as to why a hold is unnecessary. The inclusion of a hold for the instrument procedures at Kemble had been evaluated at the very early stages of the design process and was assessed to be unnecessary and potentially unhelpful. A hold is used for an airport approach design, where multiple aircraft are sequenced to land at very regular frequencies and thus a hold is used as a method of sequencing aircraft by flying them in a holding pattern in controlled airspace. In Kemble's case, the anticipated in-scope traffic in uncontrolled airspace is sequenced by time and only one aircraft will be scheduled to fly the approach at any one time, eliminating the requirement for a hold.

6.4.2 Staff tasked by the Chair of the CAA's CNS/ATM Steering Group with the development of CAP1122 carefully considered all issues concerning holding patterns, both for arrivals and

managing missed approaches. The document produced makes but two passing references to 'holds' deliberately. It is guidance material for applicants to help enable them to propose a safe way of introducing new methods of navigation. ICAO PANS OPS Doc 8168 contains the "how-to-design" an approach; CAP1122 the way new risks created by such designs could be made acceptable to the Regulator.

6.4.3 Arrivals to the procedure are sequenced and regulated by slots which are strictly enforced. Ahead of each slot time are a 15-minute early arrival buffer preceded by 10 minutes in which arriving aircraft could call to announce their updated ETA at the IAF. Each slot is open for 30 minutes which is sufficient time for an approach and landing including a missed approach and landing. Should any aircraft not land after the second approach the assumption is that it will divert. There is a 15-minute overrun buffer to accommodate slightly late running arrivals too. [See Annex B]

6.4.5 The time the aerodrome is operationally available vs number of slots possible, when criteria applied, limits maximum number of arrivals per day. Pre-application stakeholder engagement showed demand likely to be in the order of 1 per day initially. The decision not to incorporate a hold in the designs was fully supported by the chief pilots of the based and frequently visiting commercial operators at that time. The rationale for not designing a hold in this proposal is:

- a. **A hold would serve no purpose for traffic flow management and integration:** The procedure is flown and managed by the pilot operating the aircraft as there is no approach control service sequencing and integrating traffic. Safe operation is achieved by ensuring that there is only one aircraft per slot and all arrivals and departures are suspended whilst the procedure is operation. There is no requirement for an arrival to hold waiting for other traffic before commencing the procedure.
- b. **A hold would cause unnecessary environmental impact:** In the absence of an approach control service, aircraft would be required to fly the hold after a missed approach as the procedure would have to be flown as published, even if the preference was to return directly to the IAF. This would require the aircraft to fly more track miles, unnecessarily generating both noise and CO2 emissions and reduce fuel reserves further.
- c. **A hold would be of limited use in the event of poorer than forecast weather:** The slot length limits the amount of time that the procedure is available to the inbound aircraft, at the expiry of the slot aircraft will be instructed that the approach is no longer available to them. Should an aircraft choose to hold after a missed approach to wait for an improvement in the weather then it is extremely unlikely that it could complete a further approach within the allotted time. Pre-application stakeholder engagement revealed that operations for planned tasks required meteorological information be considered, including remaining on the ground at the departure aerodromes until an assured end to the flight was likely. In the event of a sudden and unexpected deterioration in the weather towards operating minima, their SOPs would dictate actions in the event of a missed approach.
- d. **A hold would be of limited use in the event of unforeseen circumstances:** Unforeseen circumstances such as a blocked or contaminated runway take time for the ground staff to resolve. In those circumstances it is extremely unlikely that an aircraft could hold and subsequently complete even a single approach within the allotted time slot.
- e. **A hold can introduce increased pilot workload:** The use of a hold by an aircraft equipped with a fully coupled autopilot which provides the ability to fly holding patterns

automatically can clearly reduce pilot workload. This level of equipage is not reflected across all aircraft and is particularly absent in the average category A aircraft. Using raw data to hand fly a hold significantly increases rather reduces pilot workload.

6.4.6 The risk mitigations for not having a hold are:

a. Traffic management is safely achieved through the slot system and suspending operations in the ATZ.

b. Risks associated with aircraft flying in Class G in IMC have already been dealt with by the Government.

## 7. IMPACTS AND CONSULTATION

7.0.1 Engagement has been at the heart of this ACP; it was fully embraced in Stage 1 in Jul 2018 and refined and developed throughout Stage 2 and into consultation. The benefit of rigid adoption of the guidance and principles contained within CAP1616 allowed Design Principles (DP) and draft design ideas to be developed with stakeholders early on; their views refined the DPs and their operational articulation helped shape the evolving design ideas early on. A focus was placed on residents, including those who may be within the designed airspace change envelope, and neighbouring airfields/ANSPs. Engagement with the latter, comprising of 2 very active local glider sites and RAF Brize Norton (19Nm to the east and providing ATM for RAF Fairford), shaped the design which balanced the Change Sponsor's Statement of Need with their operational requirements. The result was mutual development and early de-risking of the Stage 3 consultation.

7.0.2 At Stage 3, the change sponsor, in agreement with the Civil Aviation Authority (CAA), completed an eight-week consultation, commencing on the 10th February and closing on the 6th April 2020, with targeted stakeholders. These stakeholders have been consistent throughout the CAP1616 process and are detailed within Reference I. The overwhelming response during consultation was very supportive of this proposal, across all stakeholder groups. All responses to the consultation are included in Reference H, along with Change Sponsor comments and justification. Analysis identified that only one response may impact the final proposal, a suggestion to increase the missed approach altitude from 2300 feet, considering the track miles of the circuit. This idea prompted a review of the missed approach altitude and thus to the IAF altitude. The Approved Procedure Design Organisation (APDO) has computed and amended the designs to incorporate this response and updated the selected design during Stage 4a (reference K).

### 7.1 Net Impacts Summary

Category	Impact	Evidence
Safety/Complexity	Increased predictability if flight paths and potential (unassessed) reduction in complexity/workload.	Section 4 and Enclosure 1 (Safety Case)
Capacity/Delay	No impact	
Fuel Efficiency/CO2	No impact	See Section 7.6 and References G and J.
Noise -Leq/SEL	No impact	See Section 7.7 and References G and J
Tranquillity, Visual Intrusion (AONB and National Parks)	No impact	See Section 7.7 and References G and J
Local Air Quality	No impact	See Section 7.7 and References G and J
Other Airspace Users	This proposal will enable better situational awareness (air picture) of Cotswold Airport's current in-scope arrivals through publication of the IAP and associated air chart (including in cockpit electronic navigation PDs). All effected users and stakeholders have been engaged and consulted with and all responses supported the proposal.	Section 7 and References H and I

### 7.2 Units Affected by this Proposal

7.2.1 As part of the CAP1616 process, Bristol Airport (25Nm SW), Gloucestershire Airport (9Nm

N), RAF Fairford (10Nm E), RAF Brize Norton (19Nm E), Oaksey Park Airfield (3Nm SE) and glider sites at Aston Down (3Nm NW) and Nymphsfield (9Nm NWW) were all engaged in Stage 1.

7.2.2 Bristol Airport (NATS ATC), Oaksey Park Airfield and Gloucestershire Airport confirmed no potential impact but wished to remain informed about the ACP.

7.2.3 Both glider sites, and the BGA, have been actively engaged throughout this process. Through this level of engagement, the design (predominantly for RW08) has developed to ensure no impact; this proposal will reduce the potential VFR managed separation conflicts between heavy in-scope arrivals and local gliding activities. Furthermore, engagement developed a new LoA (at Annex B) with Aston Down glider site routing their aircraft, particularly during gliding competitions, away from the proposed RW08 IAP by utilising a Sailplane Accessible Area in the NW quadrant of Kemble's ATZ.

7.2.4 RAF Fairford's traffic outside their ATZ is managed by RAF Brize Norton. For current operations, a long standing LoA exists between Cotswold Airport and RAF Brize Norton to support in-scope aircraft arrivals and IFR departures. The designed IAPs for this proposal have been developed with engagement with DAATM, RAF Brize Norton and RAF Fairford. The IAPs in this proposal define and replicate activity that already takes place in Class G airspace and that may require a zone transit of RAF Brize Norton's Class D airspace, as articulated in the Current LoA. There is no conflict with STARS and SIDs for both RAF Brize Norton and Fairford.

### 7.3 **Military Impact and Consultation**

7.3.1 Based on current operations and mutual support (LoAs), RAF Brize Norton was identified as a key stakeholder in Stage 1; DP9 determined the design must integrate with RAF Brize Norton's [current] STARS (Reference B). DAATM responded to the consultation on behalf of the MoD and incorporated comments from RAF Brize Norton and RAF Fairford. Their response was neutral, yet supported Option 2, the selected option with the T Bar design near their current airspace. Their response incorporated views based on assumed success of the concurrently developing RAF Brize Norton ACP, which seeks to both significantly increase its own Class D controlled airspace and create large portions of new Class E airspace, which will subsume most of the Class G airspace to the east of Cotswold Airport and the IAP proposal for RW26. This proposal has been designed, through the transparent CAP1616 process, for the current Class G airspace and not against the aspirations of another ACP. However, draft LoAs and a supporting pilot brief have been created to enable this proposal to remain operational, should RAF Brize Norton's ACP be approved and by necessity be required to service all activity within their proposed reclassification and enlargement of controlled airspace. These are at Annex A.

### 7.4 **General Aviation (GA) Airspace Users Impact and Consultation**

7.4.1 Both the initial and full appraisal suggested that any impact, although immeasurably small, may be most noticeable to local GA flying. Cognisant that this proposal is aimed at in-scope aircraft accounting for 0.7% of Cotswold Airport's annual movements, replacing current in-scope activity and not seeking to change airspace classification, the GA community has provided significant engagement and support for this proposal, both through formal consultation responses and online forums and social media, particularly those associated with Pilot and Flyer magazines; detailed within Reference I.

## **7.5 Commercial Air Transport Impact and Consultation**

7.5.1 There is no assessed impact on CAT aircraft or operators routings; there is qualitative assessment in Reference J suggesting a positive impact in efficiency for in-scope aircraft and the provision of a published IAP, that may otherwise operationally preclude an arrival, and thus delay scheduled arrivals to Cotswold Airport to VMC days only. All National Air Traffic Management Advisory Committee (NATMAC) members and current operators were engaged throughout and during consultation.

## **7.6 CO<sub>2</sub> Environmental Analysis Impact and Consultation**

7.6.1 This proposal has technically been categorised by the CAA as a Level 1 airspace change proposal. However, the sponsor submitted their proposals regarding environmental impact assessment within both the Full and Final Appraisal (References G and J). The conclusions were that for greenhouse gas impacts, Government analysis tools, such as WebTag A3, could not provide any useful data for so few aircraft that this proposal aims to address. Without a baseline measure, further analysis was assessed as disproportionate to the small magnitude of change of existing in-scope aircraft. It was therefore, qualitatively assessed as no discernible change.

7.6.2 However, although unquantifiable, this proposal should likely yield a positive benefit i.e. a CO<sub>2</sub> emissions reduction against the current baseline due to less track miles flown. Observation and ADS-B/Radar 24 tracking of aircraft have shown many approaching aircraft fly a stepped down visual approach at varying airspeeds and with noticeable variation in the tracks and track miles flown.

7.6.3 The consultation raised no related issues.

## **7.7 Local Environmental Impacts and Consultation**

7.7.1 For many years, the airport has engaged with the local villages through an established Airport Liaison Committee and Specific Liaison Officer. This long standing and well supported relationship was harnessed early in Step 1b to develop the DPs and brief the local villagers. DPs identified that the design should regularise approach routes onto predetermined published routes to bring certainty to local residents... (DP5); The design should respect existing noise abatement/sensitive areas... (DP8); the design should reduce the number of people overflowed (DP4) and the design should achieve a reduction in visual intrusion (DP3). The designs were developed through local engagement to meet these aims and graded accordingly during options assessment (Reference C and D).

7.7.2 As described in Section 7.6 above, no quantitative analysis against a baseline could be determined, nor was deemed proportionately appropriate. The procedure is based on GPS coordinates, which means any deviation from the approach lateral and vertical profile is very unlikely. This proposal will not result in a change to aircraft types and is exclusively for in-scope aircraft (0.7% of Cotswold Airport's current annual movements). Within the areas under the proposed approach routing, no significant villages would be overflowed within the segments of this proposed IAP, until the aircraft reaches either Kemble and Ewan villages (for RW26 and 3 -4 Nm from the threshold) and Culkerton for RW08 (2 NM away). In both cases, at this close range and with aircraft established on its final approach, the impact of this proposal is assessed as negligible against the current level of activity for these in-scope arrivals.

7.7.3 The consultation raised no related issues or concerns.

## 7.8 Economic Impacts

7.8.1 The development of this proposal has not been informed by any economic constraints or benefits, beyond the net financial benefit to the change sponsor, through enhanced airport capability. This very small magnitude of change in this proposal precludes a worked cost-benefit model, as defined in the Government Green Book and as per Appendix E to CAP1616. The Full and Final Options Appraisal in Stages 3 and 4 (References G and J), considered the scale of change as negligible on all stakeholders, although, a significant economic benefit to the continued viability of the airport. The consultation raised no issues and resulted in statements of positive support for introduction of this proposal.

7.8.2 Although the scaled proportionality of this ACP is assessed as not delivering any measurable cost benefit or impact on the local communities, engagement with Swindon Borough Council and Gloucestershire Council has suggested a strong economic opportunity. Both councils, through engagement and consultation have explored a link between the successful implementation of this proposal and their local council economic development plans (LEIP). Although an indirect consequence, this proposal will enable the attraction and development of national and international business into the region. These are shared benefits to Gloucestershire and Wiltshire. Ongoing discussions with Swindon Borough Council are developing to exploit the benefit of Cotswold Airport developing as a business aviation hub, enabled by this proposal. However, this is yet uncoded as the benefit is indirectly linked to this proposal.



## 8. ANALYSIS OF OPTIONS

### 8.1 Airspace Change Design Options

8.1.1 Following DPs and identification of the comprehensive list of options, assessment early in Stage 2, developed three options that would meet the Statement of Need (Reference A). The do-nothing option was quickly discounted as an unviable option for an airspace change proposal, not meeting these requirements.

8.1.2 In accordance with CAP1616, during stage 2 (References C and D), these three options were refined through engagement. At this stage, options remained at the macro level, unrefined and simple blocks of airspace where a particular option may place approaching aircraft. However, as a previous CAP 725 and CAP1122 applicant, this ACP has not assessed other technology options, beyond utilisation of a GPS based approach. This negates a potential imbalance and integration issue between in-scope aircraft and older technologies, such as a Non-Directional Beacon (NDB). This combined with EASA and CAA guidance on implementation of GNSS (GPS), the removal of ADF from IFR requirements and the cost, complexity and the future viability of a Full Instrument Landing System (ILS), ensured options development was focussed on airspace, rather than technological options. Engagement in Step 2a, allowed development and assessment of options (the Initial options Appraisal) in Step 2b. Both the Develop and Assess Gateway and Consult Gateway accepted that Cotswold Airport had identified all possible options; these options were evaluated in a fair and consistent manner; and the options assessment included feedback through engagement.

### 8.2 Design Options Assessment

8.2.1 Cotswold Airport evaluated the comprehensive list of options against the nine Design Principles (Reference B). This allowed the following options to be assessed and considered during Stage 2:

- **Option 1** – a simple symmetrical straight in GPS approach to both runways.
- **Option 2** – a non-symmetrical straight in GPS approach to RW08 and T bar GPS approach to RW26, driven by airspace differences.
- **Option 3** – a symmetrically standard T Bar GPS approach to both runways.

8.2.2 All three design options are very similar in concept and all aim to provide a more predictable environment for all traffic; reduce the complexity for in-scope inbound; and where possible, enable a decrease in weather/operational limitation driven cancellations/diversions. Design options were not progressed if they did not meet any of the nine Design Principles, regardless of how well they were evaluated against the other options and further criteria stipulated in Appendix E to CAP1616. The best scoring design options were accepted, refined and progressed into two options; by the end of Stage 2, option 3 had been discounted; it did not meet the DPs and both appraisal and continued engagement suggested potential conflict with other airspace users in well utilised glider training areas.

8.2.3 These were further refined in Stage 3 and two remaining options, were consulted upon. It should be noted that by this point, and confirmed by the results of the consultation, analysis became agnostic of options, the consideration was a bi-polar one, either implementation or do-nothing.

8.2.4 The overwhelming response during consultation was very supportive of this proposal, across all stakeholder groups. The results of consultation demonstrated a marginal preference for Option 2; most simply supported the proposal without preference of option. A full summary of the consultation (Reference I), the feedback received (Reference H) and how the design changed (minor) as a consequence of the feedback is described in the associated references.

8.2.5 Following the Final Appraisal in Step 4a, which considered the feedback from consultation, the final design is hereby submitted because it best meets the design principles and takes account of consultation feedback.

## 9. AIRSPACE DESCRIPTION REQUIREMENTS

	The proposal should provide a full description of the proposed change including the following:	Description for this proposal
a	The type of route or structure; for example, airway, UAR, Conditional Route, Advisory Route, CTR, SIDs/STARs, holding patterns, etc	RNP APCH, see Figs 1 and 2 and Annexes C and D for proposal schematics in the draft AIP entry for AIRAC publication.
b	The hours of operation of the airspace and any seasonal variations	No change to airspace. IAP (5 slots per day – Annex F) activated by PPR as required and within current AD hours
c	Interaction with domestic and international en-route structures, TMAs or CTAs with an explanation of how connectivity is to be achieved. Connectivity to aerodromes not connected to CAS should be covered	No change to current SRD for Kemble, nor own navigation transitional routing.
d	Airspace buffer requirements (if any). Where applicable describe how the CAA policy statement on 'Special Use Airspace – Safety Buffer Policy for Airspace Design Purposes' has been applied.	No change
e	Supporting information on traffic data including statistics and forecasts for the various categories of aircraft movements (passenger, freight, test and training, aero club, other) and terminal passenger numbers	No change
f	Analysis of the impact of the traffic mix on complexity and workload of operations	No change
g	Evidence of relevant draft Letters of Agreement, including any arising out of consultation and/or airspace management requirements	Updated LoAs with RAF Brize Norton (inc Fairford) at Annex A-1 and Gliding Site at Annex B. Noting Annex A-2 takes account of RAF Brize Norton's ACP aspirations, since timelines are now similar.
h	Evidence that the airspace design is compliant with ICAO Standards and Recommended Practices (SARPs) and any other UK policy or filed differences, and UK policy on the Flexible Use of Airspace (or evidence of mitigation where it is not)	IFP Doc 8168, validated by APDO (Annex C and D)
i	The proposed airspace classification with justification for that classification	No change – remains Class G
j	Demonstration of commitment to provide airspace users equitable access to the airspace as per the classification and where necessary indicate resources to be applied or a commitment to provide them in line with forecast traffic growth. 'Management by exclusion' would not be acceptable	No change to ATZ PPR for all users. Additional Sailplane Accessible Area (SAA) detailed within Annex B.
k	Details of and justification for any delegation of ATS	No change

## 10. SAFETY ASSESSMENT

### Assessment against the current operations baseline

10.1 This ACP is designed to formally replicate current activity, as detailed within Reference J. As described in Section 4.4, when measured against the baseline of current in-scope activity, the publication of an ICAO PANS OPS Doc 8168 compliant IAP provides additional mitigation against the associated risks (MAC and CFIT) of these aircraft currently flying approaches into Cotswold Airport.

10.1.2 A published IAP and associated instrument approach symbology on air charts (commonly known as IAP feathered arrows), provides warning other air users, on both air charts and common navigational software used on personal electronic devices, that these in scope aircraft may be on an approach into Cotswold Airport and the route they will take. This provides enhanced mitigation beyond SERA when flying VFR highlighting to other air users a potential hazard.

10.1.3 This requires aircraft to transition from IFR to VFR at some point on the final approach, depending upon cloud base and visibility. The current approach, described in Section 4.2, is done in both Visual Meteorological Conditions (VMC) and during IMC, although this does require visual identification of Cotswold Airport, essentially a change to VFR to allow a non-instrument approach landing. Unlike current operations, the proposed ICAO Doc8168 3-degree constant descent approach is designed using CAP232, obstacle limitation data and defines both the OLS height and provides a RVR threshold. In both instances, visibility is required at a defined height and distance from the runway threshold. By virtue of having a compliant defined approach, Controlled Flight into Terrain (CFIT) risk is reduced to ALARP for an AFISO airport.

### Proposal Assessment against CAP 1122

10.2 Whilst noting the positive safety benefit of simply having a defined approach, there remains extant risks for an instrument approach to an airport without an approach control service. This was originally enshrined within CAP1122, which has been withdrawn. However, the risk mitigation outlined as guidance in CAP 1122 is a well know benchmark within the CAA and has been used to frame the safety case at Annex A, which follows CAP 670 (reference N), as appropriate. This safety case builds upon the expanded Bowtie questionnaire<sup>5</sup>, which the CAA have already agreed many of the arguments contained within.

10.2.1 These risks have been mitigated, through the proposed design and the supporting outcomes from the CAP 760 based safety case to a level considered ALARP by the change sponsor; the full details are contained within Enclosure 1. These include, updated draft LoAs with RAF Brize Norton (Annex A) and Cotswold Gliding Club (Annex B), a Pilot Briefing Note (Annex G) to accompany the IAP(Annex C), and increase in Cotswold Airports DOC (Enclosure 3) and changes to training (Enclosure 2), MET provision and operating procedures for implementation of this proposal. This should provide sufficient levels of assurance to allow the CAA to grant an exemption from related instrument approach control Articles (183) within the Air Navigation Order, as originally defined in CAP1122.

10.2.2 The full safety case is at Enclosure 1.

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<sup>5</sup> Completed just before the Stage 3 ACP CAA Gateway and thus at a level of maturity beyond the original aims of the Bowtie Safety Questionnaire.

## 11. OPERATIONAL IMPACT

	An analysis of the impact of the change on all airspace users, airfields and traffic levels must be provided, and include an outline concept of operations describing how operations within the new airspace will be managed. Specifically, consideration should be given to:	Evidence of compliance/ proposed mitigation
a	Impact on IFR general air traffic and operational air traffic or on VFR General Aviation (GA) traffic flow in or through the area	Design Principles, Engagement and consultation suggest no change. Charting changes. See Section 7 and References G and J.
b	Impact on VFR operations (including VFR routes where applicable);	No change, See References G and J and Section 7.
c	Consequential effects on procedures and capacity, i.e. on SIDs, STARs, and/or holding patterns. Details of existing or planned routes and holds	No change.
d	Impact on aerodromes and other specific activities within or adjacent to the proposed airspace	LoA with local gliding sites, see Section 7 and Annex B.
e	Any flight planning restrictions and/or route requirement	No change

## 12. SUPPORTING INFRASTRUCTURE/RESOURCES

	General requirements	Evidence of compliance/ proposed mitigation
a	Evidence to support RNAV and conventional navigation as appropriate with details of planned availability and contingency procedures	EGNOS Working Agreement.
b	Evidence to support primary and secondary surveillance radar (SSR) with details of planned availability and contingency procedures	No Change, N/A
c	Evidence of communications infrastructure including R/T coverage, with availability and contingency procedures	Kemble DOC application to extend to 25 Nm and FL40 has been submitted, see Enclosure 3.
d	The effects of failure of equipment, procedures and/or personnel with respect to the overall management of the airspace must be considered	Existing contingency and SMS procedures in place, as today. Loss of SiS, as per reversion statement. EGNOA Working Agreement will enable NOTAM of loss of SiS. Data analysis of SiS and APV-1 service level is within Enclosure 1.
e	Effective responses to the failure modes that will enable the functions associated with airspace to be carried out including details of navigation aid coverage, unit personnel levels, separation standards and the design of the airspace in respect of existing international standards or guidance material	No change.
f	A clear statement on SSR code assignment requirements	Normal Class G squawks -7000 VFR and 2000 IFR.
g	Evidence of sufficient numbers of suitably qualified staff required to provide air traffic services following the implementation of a change	No change to ATS provision. Amendment to phraseology (Enclosure 2) and new MET Competence (Enclosure 1 – for CAP 746 SI) This specific IAP FISO training will be

		complete in good time for the planned implementation date.
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### 13. AIRSPACE AND INFRASTRUCTURE

	General requirements	Evidence of compliance/ proposed mitigation
a	The airspace structure must be of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to fully contain horizontal and vertical flight activity in both radar and non-radar environments	No change
b	Where an additional airspace structure is required for radar control purposes, the dimensions shall be such that radar control manoeuvres can be contained within the structure, allowing a safety buffer. This safety buffer shall be in accordance with agreed parameters as set down in CAA policy statement 'Safety Buffer Policy for Airspace Design Purposes Segregated Airspace'. Describe how the safety buffer is applied, show how the safety buffer is portrayed to the relevant parties, and provide the required agreements between the relevant ANSPs/ airspace users detailing procedures on how the airspace will be used. This may be in the form of Letters of Agreement with the appropriate level of diagrammatic explanatory detail.	No change
c	The Air Traffic Management system must be adequate to ensure that prescribed separation can be maintained between aircraft within the airspace structure and safe management of interfaces with other airspace structures	No change. PPR system in place for both IFR/VFR. Segregation is via time and holding aircraft on the ground and supported by LARS.
d	Air traffic control procedures are to ensure required separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures	PPR, LoA with RAF Brize Norton (Annex A1 for introduction of this proposal (minor amendment from current LoA) and Annex A2 accounting for RAF Brize Norton's ACP).
e	Within the constraints of safety and efficiency, the airspace classification should permit access to as many classes of user as practicable	No Change
f	There must be assurance, as far as practicable, against unauthorised incursions. This is usually done through the classification and promulgation	No change to existing CAS volumes or classification. Promulgation via the normal AIRAC cycle.
g	Pilots shall be notified of any failure of navigational facilities and of any suitable alternative facilities available and the method of identifying failure and notification should be specified	EGNOS WA, NOTAM and PPR for IAP slot bookings.
h	The notification of the implementation of new airspace structures or withdrawal of redundant airspace structures shall be adequate to allow interested parties sufficient time to comply with user requirements. This is normally done through the AIRAC cycle	Publish updated AIP with new IFP plates via AIRAC cycle (Planned 02/2021) (Annex C)
i	There must be sufficient R/T coverage to support the Air Traffic Management system within the totality of proposed controlled airspace	Kemble DOC application to extend submitted for 25Nm and FL40.(Enclosure 3)
j	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered	Updated RAF Brize Norton (includes RAF Fairford) LoA at Annex A

k	Should there be any other aviation activity (low flying, gliding, parachuting, microlight site, etc) in the vicinity of the new airspace structure and no suitable operating agreements or air traffic control procedures can be devised, the change sponsor shall act to resolve any conflicting interests	Engagement record, air charting (feathered IAP arrows). Airspace remains Class G, SERA applies.
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ATS route requirements		Evidence of compliance/ proposed mitigation
a	There must be sufficient accurate navigational guidance based on in-line VOR/DME or NDB or by approved RNAV derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/Eurocontrol standards	No change to en-route
b	Where ATS routes adjoin terminal airspace there shall be suitable link routes as necessary for the ATM task	Sector 23 Q63 Malby, as per current SRD. No change to SRD or own navigation transitions
c	All new routes should be designed to accommodate P-RNAV navigational requirements	PBN mandate

Terminal airspace requirements		Evidence of compliance/ proposed mitigation
a	The airspace structure shall be of sufficient dimensions to contain appropriate procedures, holding patterns and their associated protected areas	No change
b	There shall be effective integration of departure and arrival routes associated with the airspace structure and linking to designated runways and published instrument approach procedures (IAPs)	No defined departure routes.
c	Where possible, there shall be suitable linking routes between the proposed terminal airspace and existing en-route airspace structure	No change
d	The airspace structure shall be designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace	No change, IFP designed to Doc 8168 with CAP 232 type A data.
e	Suitable arrangements for the control of all classes of aircraft (including transits) operating within or adjacent to the airspace in question, in all meteorological conditions and under all flight rules, shall be in place or will be put into effect by the change sponsor upon implementation of the change in question (if these do not already exist)	Annexes A and B, LoAs, noting Class G airspace.
f	The change sponsor shall ensure that sufficient visual reference points are established within or adjacent to the subject airspace to facilitate the effective integration of VFR arrivals, departures and transits of the airspace with IFR traffic	No change
g	There shall be suitable availability of radar control facilities	No change

h	The change sponsor shall, upon implementation of any airspace change, devise the means of gathering (if these do not already exist) and of maintaining statistics on the number of aircraft transiting the airspace in question. Similarly, the change sponsor shall maintain records on the numbers of aircraft refused permission to transit the airspace in question, and the reasons why. The change sponsor should note that such records would enable ATS managers to plan staffing requirements necessary to effectively manage the airspace under their control	Philip Church, AOPA ADSB Project installation and data harvesting.  No change to current RedAtlas movements software used to record all movements.
i	All new procedures should, wherever possible, incorporate Continuous Descent Approach (CDA) profiles after aircraft leave the holding facility associated with that procedure	See proposed APDO designs in Section 6 and at Annexes C and D

	Off-route airspace requirements	Evidence of compliance/ proposed mitigation
a	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered	RAF Brize Norton LoA
b	Should there be any other aviation activity (military low flying, gliding, parachuting, microlight site etc) in the vicinity of the new airspace structure and no suitable operating agreements or air traffic control procedures can be devised, the change sponsor shall act to resolve any conflicting interests	Engagement record, publication of IAPs in AIP entry, local information and publication of 'feather arrows' on charting (inc electronic devices)

#### 14. ENVIRONMENTAL ASSESSMENT

	Theme	Content	Evidence of compliance/ proposed mitigation
a	WebTAG analysis	Output and conclusions of the analysis (if not already provided elsewhere in the proposal)	Not proportionate. See Section 7 and References G and J.
b	Assessment of noise impacts (Level 1/M1 proposals only)	Consideration of noise impacts, and where appropriate the related qualitative and/or quantitative analysis, including whether the anticipated noise impact meets the criteria for a proposal to be called-in by the Secretary of State (paragraph 5(c) of Direction 6 of the Air Navigation Directions 2017)  If the change sponsor expects that there will be no noise impacts, the rationale must be explained	No assessed noise impact based on very small magnitude of change. See Sect 7 and Reference G and J.
c	Assessment of CO2 emissions	Consideration of the impacts on CO2 emissions, and where appropriate the related qualitative and/or quantitative analysis  If the change sponsor expects that there will be no impact on CO2 emissions impacts, the rationale must be explained	No change. No assessed CO2 impact, see Sect 7 and para 29-52 in Reference G and reference J.



d	Assessment of local air quality	Consideration of the impacts on local air quality, and where appropriate the related qualitative and/or quantitative analysis	No change
	(Level 1/M1 proposals only)	If the change sponsor expects that there will be no impact on local air quality, the rationale must be explained	No change. No assessed air quality impact based on very small magnitude of change. See Sect 7 and Reference G and J.
e	Assessment of impacts upon tranquillity	Consideration of any impact upon tranquillity, notably on Areas of Outstanding Natural Beauty or National Parks, and where appropriate the related qualitative and/or quantitative analysis	No change. Routing away from bulk of Cotswold AONB. See Para 29-52 Reference J.
	(Level 1/M1 proposals only)	If the change sponsor expects that there will be no tranquillity impacts, the rationale must be explained	No change. Routing away from bulk of Cotswold AONB. See Para 29-52 Reference J
f	Operational diagrams	Any operational diagrams that have been used in the consultation to illustrate and aid understanding of environmental impacts must be provided	Included in Sect 6, Annex C and references G and J.
g	Traffic forecasts	10-year traffic forecasts, from the anticipated date of implementation, must be provided (if not already provided elsewhere in the proposal)	Para 11 and 36 to Reference J, noting very small magnitude of change for 0.7% of movements.
h	Summary of environmental impacts and conclusions	A summary of all of the environmental impacts detailed above plus the change sponsor's conclusions on those impacts	See Section 7.1

## 15. ANNEXES

15.1 The following Annexes and Enclosures are supplied as attached documents and used to complement to remaining ACP work, as details in References in Section 1. In particular, the safety case at Enclosure 1, is not a stand-alone document; this main document, with supporting annexes/enclosures and references provide the contextual framework. All are available in Stage 4b of the ACP Portal [Here](#)

<b>Annex</b>	<b>Document</b>	<b>Notes</b>
A	Draft Letter of Agreement (LoA) with RAF Brize Norton	Includes RAF Fairford MATZ
B	LoA with Cotswold Gliding Club	
C	Draft AIP changes, including new IAP, for AIRAC publication	
D	APDO Procedure Design Information and Coding	ADQ-IR DAL 2
E	KAOP 20 – Updated PPR Procedures from SMS	Supports Enclosure 1
F	PPR IAP Slot Timings	
G	Draft Pilot Briefing Note for IAP	Supports Enclosure 1

<b>Enclosure</b>	<b>Document</b>	<b>Notes</b>
1	Supporting CAP 760 Safety Case	Includes CAP1122
2	Draft FISO Training Manual (For Stage 6)	Supports Enclosure 1
3	Supporting email for DOC increase application lodged with OFCOM and CAA.	Supports Enclosure 1