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**ACP-2020-026**

**GATEWAY DOCUMENTATION:  
STAGE 1 DEFINE**

**STEP 1B DESIGN PRINCIPLES  
AND  
STAKEHOLDER ENGAGEMENT**

**Roles**

Action	Role	Date
Produce	Airspace Change Lead – 92 Sqn	30 Mar 21
Review	DAATM	8 Apr 21
Approve	Change Sponsor – OC 92 Sqn	12 Apr 21

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## **Introduction**

The Ministry of Defence, and specifically the Air and Space Warfare Centre, represented by 92 Squadron, is the change sponsor for this proposal. The proposal seeks to secure Future Combat Airspace (FCA) for the use by UK and multi-national partners during occasional large scale, highly complex, multi-domain collective training exercises that are used to prepare aircrews for operational service.

The purpose of this document is to demonstrate that the Change Sponsor has followed CAP1616 airspace change processes. It forms part of the overall requirement for the Stage 1 Define Gateway, Step 1B – Design Principles (DP).

As described in Annex D to CAP1616, the Change Sponsor has engaged with a range of potential stakeholders to seek their views on the change proposal and collect initial feedback as to what is important to them regarding the proposal in terms of Design Principles only.

It is important to assure stakeholders that they are included in the change process and that they have influenced the design. The stakeholder feedback has been analysed and summarised in this document to describe how the feedback has been incorporated into finalised Design Principles. The finalised Design Principles will be employed in the development of airspace design options.

## **Executive Summary**

The Change Sponsor conducted detailed stakeholder analysis to ensure they effectively engaged with all potential stakeholders over the Design Principles.

Stakeholders were engaged in writing and included:

Internal MoD stakeholders

Local General Aviation (including aerodrome operators)

Commercial aerodrome operators

National Air Traffic Management Advisory Committee Members

The change sponsor received relatively little feedback, however, where organisations had issues with the Principles, further engagement was offered. The change sponsor noted that the level of feedback was expected to increase towards the Design stage of the process where actual airspace structure dimension options are being offered and discussed.

The major theme of the feedback was concern that the design of the airspace had already been decided and that the airspace was likely to restrict the freedom of manoeuvre for general aviation. Additional concern was also raised that the airspace was being informed

and designed using the information from the multiple iterations of ACP-2020-042, and that the information available from that trial might be skewed due to the impact of COVID-19 on the general aviation industry.

Further details of the engagement can be found later in this document.

As a result of the engagement, some of the Design Principles have been adjusted. All changes have been commented on and all queries that have not resulted in a Design Principle change have been discussed below.

### **How this document is laid out**

#### Section 1

We engaged a representative group of aviation and local community stakeholders.

This section summarises:

How and why we identified stakeholders;

How we engaged stakeholders;

The engagement chronology.

#### Section 2

We developed the design principles based on stakeholder feedback.

This section describes:

The initial set of design principles offered by the sponsor;

A summary of the feedback and how the design principles were adapted;

How the design principles were prioritised.

#### Section 3

Next steps in the airspace change proposal.

## Section 1

### Stakeholder Identification

Detailed stakeholder analysis was undertaken.

Initial airspace options development will be focussed on a large area in the northeast of England and Scotland as highlighted by the image below<sup>1</sup>.

To determine stakeholders, the potential area that could be affected by an airspace change was identified. At this early stage the MoD is hoping to restrict any potential airspace changes to airspace in the vicinity of the area highlighted below, however, to ensure all stakeholders were captured, a wide distribution list was actioned.

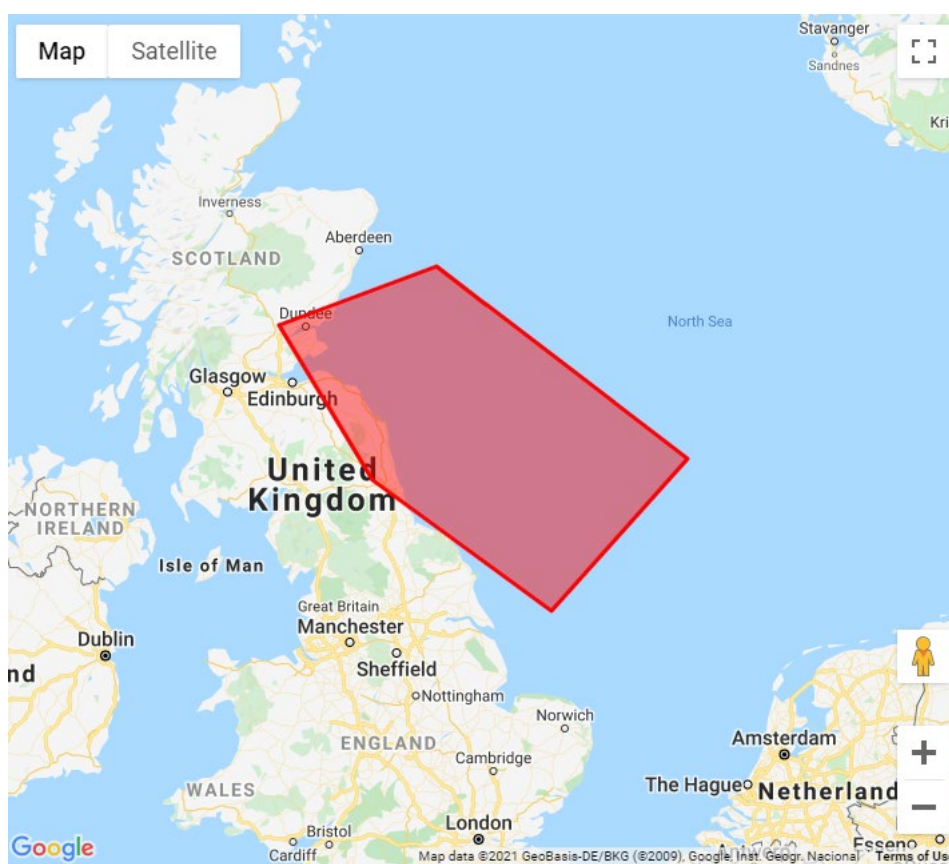


Image 1. Area identified by the change sponsor as the likely area of impact due to ACP-2020-026.

Research was undertaken in the defined areas to determine General Aviation aerodromes, General Aviation operators, commercial airports and businesses potentially affected.

Notwithstanding the expectation that NATMAC members representing airspace user communities at the national level would cascade engagement literature to an appropriate level, it was important to attempt to identify General Aviation organisations local to, and

<sup>1</sup> This image was uploaded to the CAA Airspace Change Portal to aid in the identification of stakeholders, it does not represent the actual proposed airspace.

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just beyond the specified area. Best efforts were made to reach out directly at this level, using the stakeholder relationships developed during ACP-2020-042.

Certain stakeholders identified in CAP1616 were deliberately omitted at this early stage in the process, including local authorities, members of parliament, AONBs, National Parks and National Scenic Areas. The rationale for doing this is set out below:

**Insufficient Detail.** At this stage in the process, we do not have enough detail on airspace dimensions or activation periods to engage meaningfully with these groups. We believe that to do so would be confusing to people who are neither airspace specialists, nor familiar with CAP1616. As an example of this, even airspace stakeholders familiar with this process appeared confused by what we were asking of them in this round of engagement and asked for precise details, dates and timings, rather than simply scrutinising the Design Principles as requested.

**Airspace Design.** The vast majority of the airspace footprint will be over the sea, with only a small area overland in Northumberland and eastern Scotland. Therefore most of the activity will be over the sea as well, including supersonic flight, rapid height changes and dynamic manoeuvring; activities which would cause the most noise and environmental impact. Most of the overland exercise flying will be above 15000ft AGL and not involve 'combat' manoeuvring. Therefore the impact to stakeholders in these areas will be minimal.

**Airspace Base Level.** We think that MoD's requirements can be fulfilled by setting an airspace base level above 7000ft AGL overland, which would remove the requirement to engage with the majority of these organisations (the exception being local airfields, most of whom we have already engaged). It should be noted that regardless of the base level of the airspace, military traffic will still be, and has always been, able to fly over the Northumberland and eastern Scotland area down to 250' AGL in Class G airspace. This activity will continue, regardless of the presence or status of exercise airspace above. Indeed, with the reduction in size of the UK Armed Forces and a shift away from low-level tactical flying, the noise and environmental impact on the Northumberland area from military traffic is orders of magnitude lower now than it has been for decades previously.

**'Engagement Fatigue'.** As part of our ACP-2020-042 work, we noted a distinct impression of engagement fatigue from some stakeholders, characterised by frustration at our repeated requests for their input. As a result, we would rather wait until a clear plan has developed (precise airspace dimensions and expected number of activations) before approaching stakeholders, thereby preserving 'engagement equity' for as long as possible. We believe that this approach is valid for this ACP, where we think that the impact to these groups will be very low anyway.

The following stakeholders were identified either by scrutiny of aeronautical charts or through examination of those contacted in support of ACP-2020-042. Additional stakeholders were contacted, and the contact list amended post the first round of engagement.

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Aviation Stakeholders - Internal		
1 Gp SASO	2 Gp SASO	11 Gp SASO
22 Gp SASO	38 Gp SASO	DAATM
Navy Command HQ	Joint Helicopter Command	Director Special Forces
11 Gp A7	JTEPS	Space & BM Force

Aviation Stakeholders - External		
Airlines UK	Airspace4All	Airport Operators Association
Airfield Operators Group	Aircraft Owners and Pilots Association	Airspace Change Organising Group
Association of Remotely Piloted Aircraft Systems UK	Aviation Environment Federation	British Airways
BAe Systems	British Airline Pilots Association	British Balloon and Airship Club
British Business and General Aviation Association	British Gliding Association	British Helicopter Association
British Hang Gliding and Paragliding Association	British Microlight Aircraft Association	General Aviation Safety Council
British Model Flying Association	British Skydiving	Drone Major
General Aviation Alliance	Guild of Air Traffic Control Officers	Honourable Company of Air Pilots
Helicopter Club of Great Britain	Heavy Airlines	Iprosurv
Isle of Man CAA	Light Aircraft Association	Low Fare Airlines
Military Aviation Authority	NATS	PPL/IR (Europe)
UK Airprox Board	UK Flight Safety Committee	United States Air Force Europe
Newcastle Airport	Eastern Airways	Edinburgh Airport
Durham Tees Valley	Birmingham Airport	Borders Gliding Club
NATS Aberdeen	Dundee Airport	Easy Jet
Virgin Atlantic		

## Engagement Methods

A proactive approach was used to engage with potential stakeholders. To ensure wide awareness of the proposed ACP, the Change Sponsor engaged through written communication to organisations believed to be interested. At this stage of the engagement, we felt that there would be little value in holding drop-in sessions or town halls as there was very little information to share about any potential airspace changes. COVID-19 restrictions would also have made such sessions very challenging to run. It was felt that this would be better organised for early Stage 2 of the ACP.

**Written Communication.** An initial email introducing the ACP was sent along with a letter with details of the DRAFT design principles and an explanation about how we would like to engage with stakeholders for feedback on the proposal. The letter included details on how to leave feedback via the CAA portal, and a direct contact email address for the Change

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Sponsor to address questions or concerns. Details are provided on the CAA Airspace Change Portal.

**Surveys.** The use of a survey was considered as an engagement method. However, the ability for stakeholders to also be able to discuss potential impacts outside of a survey was also deemed necessary, so a simple survey attached to the Engagement Letter was emailed along with email contact details for the sponsor to allow stakeholders to respond in a free-text format too. Giving both methods as an option has delivered a more robust and effective engagement opportunity.

**Members of Parliament.** It was decided not to engage directly with MPs at this stage. The change sponsor decided it would be more appropriate to engage via the Air Secretariat at a more suitable step in the process.

**Engagement Chronology.** The table below details the design principles engagement activity undertaken.

<b>Date</b>	<b>Action / Stakeholders Contacted</b>	<b>Notes</b>
8 Jan 21	NATMAC Members	Email and covering letter
10 Jan – 10 Feb 21	Responding to general email correspondence.	Emails, various.



## Section 2

### Draft Design Principles

To provide a start point and initiate a discussion on design principles, a list of DRAFT design principles was offered during engagement.

The concept of a 'long list' was rejected; a review of this approach found that these majored on Environmental Impact principles for commercial traffic. Given the provisional M1<sup>2</sup> categorisation of this proposal it was assessed that environmental impacts could be accounted for under a single design principle to minimise the impact on other aircraft, which was felt would be appropriate to this stage in the process and could be developed in detail at later stages.

The draft design principles initially offered are in the table below:

<b>Draft Design Principle – The design must:</b>		<b>Initial Rationale</b>
a	The airspace design must be safe, with any hazards identified and risks mitigated such that they are as low as reasonably practicable and tolerable.	Safety to all airspace users is paramount to any airspace change.
b	The training area will be within efficient reach of RAF / United States Air Force (Europe) (USAFE) Main Operating Bases.	Reducing transit time maximises airborne training time, minimises the amount of fuel wasted in transit and ensures the area is accessible to and utilised by the widest array of users possible.
c	The design will provide a suitable training area to meet the following core requirements:  Full tactical employment of aircraft and weapon capability Supersonic flight and rapid height changes Use of high and low altitude activity concurrently Representative employment ranges of simulated air-air and air-surface weapons Representative formation numbers with opposing forces (>80 aircraft) The design will provide a sufficient overland portion for running tactical scenarios, siting targets and simulated threats that facilitate representative collective training in a contested electromagnetic environment.	The airspace must be of a suitable shape and size to accommodate the requirements described. The introduction of 5 <sup>th</sup> generation F-35 means that legacy airspace is often too small for aircrew to practice the full array of weapon employment profiles using representative ranges and formation structures. Preparing crews for war comes from realistic peacetime training.
d	Safe, efficient and standardised management, notification and activation of airspace, utilising Flexible Use of Airspace (FUA) principles.	UK airspace is congested and has many users. It is important to make airspace available to the greatest extent possible and minimise restrictions.
e	Minimise impact on other airspace users and the network where possible.	Through liaison with NATS and DAATM adopting an airspace design that minimises the impact on other users is key while also adopting the most streamlined of processes currently used by NATS.
f	Minimise noise and environmental impacts, where relevant.	The MoD has no intention of further impacting the environment in areas already affected, or

<sup>2</sup> For a Level M1 change, a military proposal anticipated to affect civil operations must take the environmental impact of those effects into account. Therefore, in this scenario, the Ministry of Defence must discuss options with local communities.

		intentionally introducing new areas of impact as a result of the introduction of the Future Combat Airspace.
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## Design Principles Evolution

Relevant comments from all stakeholders were collated and arranged under the related draft design principle. Where it was assessed that a new design principle had been proposed, these were listed separately. All comments were reviewed and responded to. Where a change to the draft design principle was accepted, this was annotated, and a revised design principle was proposed.

### **DP(a). The airspace design must be safe, with any hazards identified and risks mitigated such that they are as low as reasonably practicable and tolerable.**

There was support for this DP from several members of the NATMAC and internal MoD distribution list. One user voiced concern with the command and control of large-scale exercises and made comment about the integration of foreign participants. They also identified the need to be involved in Hazard Identification Workshops during the process in accordance with CAP1616.

The consensus was that Safety must be priority one throughout the process. The Change Sponsor agrees that this DP will attract the highest priority.

- **No revision proposed. Design principle awarded Priority 1.**

### **DP (b). The training area will be within efficient reach of RAF / United States Air Force (Europe) (USAFE) Main Operating Bases.**

Several respondents requested to understand why D701 or D323 were not deemed suitable for the FCA. The change sponsor acknowledges that existing airspace structures exist for training, however, as technologies advance (weapon and aircraft systems) training must support the full employment of all aircraft weapon and on-board systems. Likewise the MoD and coalition partners must train collectively to ensure readiness for future operations. This requires larger airspace volumes than are required for day-to-day training, both in length and width. ACP-2020-042, the airspace trial which will be used to inform the FCA, introduced D597 which is approx. 180nm by 90nm. This is the size of airspace required in order to allow multi-domain integrated operations involving air AND ground assets (ground-based threat emitters, ground targets etc) to exercise safely, efficiently and importantly – realistically.

One user mentioned the use of the Irish Sea – this is deemed impractical from the perspective of the change sponsor due to the increased time and fuel required to get there from the east coast bases. This would reduce the on-station time required for exercising, take away the ability to include ground players and threat emitters and could potentially impact the Transatlantic arrival routes impacting General Aviation more than the proposed area of the North Sea and Northumberland. There would also be an increased environmental impact, which would conflict with other DPs within this submission.

Therefore the North Sea area, as demonstrated by ACP-2020-042, is deemed the most accessible and suitable area to accommodate the needs of MoD and foreign participants transiting to the airspace with a limited amount of fuel and time for high quality training.

One respondent noted that a definition of efficient would help strengthen this principle.

- **No revision proposed. Design principle awarded joint Priority 4.**

**DP(c). The design will provide a suitable training area to meet the following core requirements:**

Full tactical employment of aircraft and weapon capability

Supersonic flight and rapid height changes

Use of high and low altitude activity concurrently

Representative employment ranges of simulated air-air and air-surface weapons

Representative formation numbers with opposing forces (>80 aircraft)

The design will provide a sufficient overland portion for running tactical scenarios, siting targets and simulated threats that facilitate representative collective training in a contested electromagnetic environment.

One user commented how the FCA would integrate with the EWTR at Spadeadam. This integration is already something that occurs during large-scale exercises and is well rehearsed within Defence. The use of the electromagnetic spectrum will continue to require the current level of approvals and will be notified to all users ahead of the planned activity, as is current practice. The use of Spadeadam and the FCA concurrently will also be planned and promulgated, as it has been during the recent Ex COBRA WARRIOR (using D597 within ACP-2020-042) to assure and inform all other airspace users.

There were several comments that this DP could be afforded a lesser amount of priority and could be re-worded to be more of a DP and less of a list of requirements. However the Change Sponsor felt that this DP attracted a high priority.

- **Revised DP(c):**
- **Optimise the airspace design to enable and accommodate periodic large-scale multi-domain collective training activities.**
- **Revised DP(c) awarded joint Priority 2.**

**DP(d). Safe, efficient and standardised management, notification and activation of airspace, utilising Flexible Use of Airspace (FUA) principles.**

One MoD user commented on the potential impact to real world MoD operations to be affected if the airspace was to cover existing Air-to-Air Refuelling tracks. MoD exercises and operations will continue to be planned and conducted with as little impact to each other as is possible.

- **Revised DP(d):**
- **Optimise Airspace Management (ASM) applying Flexible Use of Airspace (FUA) principles and ASM Policy.**
- **Revised DP(d) awarded joint Priority 4.**

**DP(e). Minimise impact on other airspace users and the network where possible.**

Several users suggested re-wording this DP to afford more priority and emphasis in the order of the DPs. There was also clarification sought in the frequency of the activation of the airspace and how the airspace will be accessed by users – the frequency will depend on the design approved via the ACP, but the nominal activation was passed in the initial information to the airspace users.

The re-wording will be taken forward in this process and the clarifications sought answered during the design phase of the process. The Change Sponsor felt that this DP was a high priority and sat alongside and complemented DP(c).

- **Revised DP(e):**
- **Minimise impact on other airspace users and the network.**
- **Revised DP(e) awarded joint Priority 2.**

**DP(f). Minimise noise and environmental impacts, where relevant.**

Most comments on this DP were related to the wording, and as a result the DP will be split into 2 separate DPs dealing with environmental impacts of the FCA.

- **Revised DP(f):**
- **Minimise environmental impacts including noise (where relevant).**
- **Revised DP(f) awarded joint Priority 3.**

**Additional Design Principles Proposed**

The Stage 1B engagement resulted in a number of new and reworded DPs. These are shown below:

<b>Proposed additional DP</b>	<b>Sponsor Response</b>
Minimise environmental impacts including CO2 emissions - <b>DP(g)</b>	The sponsor agrees that the original DP(f) should be split to allow weighting to be given to each DP as appropriate.

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Minimise the impact to Commercial Air Traffic flow, sector complexity and sector capacity – <b>DP(h)</b>	This is clearly a concern to many of the respondents, so a DP acknowledging and addressing this is deemed appropriate.
Optimise protocols for deconfliction of simultaneous activations of multiple volumes of Special Use Airspace – <b>DP(i)</b>	Simplification of process to activate and disseminate information related to the planning and activation to one or more SUAs seems completely sensible and the change sponsor agrees that this should be a principle adhered to throughout the remainder of the process.
Minimise complexity in flight planning – <b>DP(j)</b>	As above, this DP relates to best practice and should be adhered to for the remainder of the process.
Maximise the incorporation of results of the MOD's supporting Airspace trial – ACP-2020-042 – <b>DP(k)</b>	ACP-2020-042 will provide valuable data that is likely to inform the ACP-2020-026 process. This data must be analysed in order to make informed and appropriate decisions where possible.

## Design Principles Prioritisation and Stage 1B Output

The table below comprises a consolidated list of the DPs at the end of Stage 1B, prioritised as shown and ready to take forward into Stage 2.

Safety is the highest priority and DP(a) is automatically assigned Priority 1.

The MoD feels that the ability to complete its training and operational objectives is next in priority after safety and, since no stakeholder contested this, DP(b) is assigned Priority 2 along with the corresponding DP(e) about minimising impact to other airspace users.

The method of determining the remaining DPs order of prioritisation has been determined by the comments received, not just upon the volume of responses. It is anticipated in CAP1616 that design principles may conflict or that some would be more important to one organisation than another. Therefore, blending of the principles is required and, recognising all the comments provided through engagement, they are summarised as follows:

Priority	Design Principle
1	DP(a) The airspace design must be safe, with any hazards identified and risks mitigated such that they are as low as reasonably practicable and tolerable.
2	DP(c) Optimise the airspace design to accommodate periodic large-scale multi-domain collective training activities.  DP(e) Minimise impact on other airspace users and the network.
3	DP(h) Minimise the impact to Commercial Air Traffic flow, sector complexity and sector capacity.  DP(g) Minimise environmental impacts including CO2 emissions.  DP(f) Minimise environmental impacts including noise (where relevant).
4	DP(d) Optimise Airspace Management (ASM) applying Flexible Use of Airspace (FUA) principles and ASM Policy.  DP(b) The training area will be within efficient reach of RAF / United States Air Force (Europe) (USAFE) Main Operating Bases.
5	DP(j) Minimise complexity in flight planning.  DP(i) Optimise protocols for deconfliction of simultaneous activations of multiple volumes of Special Use Airspace.  DP(k) Maximise the incorporation of results of the MOD's supporting Airspace trial – ACP-2020-042.

## Section 3

### Next Steps

This document will be submitted to the CAA as evidence to support Step 1B of the CAP1616 airspace change process.

This will complete the documentary evidence of the Stage 1 Assessment Gateway (document deadline 16 April 21, for the CAA's Assessment Gateway scheduled for 30 Apr 21).

The planned CAP1616 timeline is as follows:

<b>CAP 1616 Gateway</b>	<b>Planned Date</b>
Stage 1 – Define	30 Apr 21
Stage 2 – Develop and Assess	25 Jun 21
Stage 3 – Consult	27 Aug 21
Stage 4 – Update and Submit ACP	17 Dec 21
Stage 5 – Decide	29 Apr 22
Stage 6 - Implement	AIRAC 09/2022