



Ministry
of Defence

Defence Airspace and Air Traffic Management
CAA House
45-59 Kingsway
London
WC2B 6TE

Telephone [REDACTED]
Email: [REDACTED]

COMBAT AIR – TRAINING AIRSPACE

CAP1616 STAGE 2a Design Principle Evaluation

This document forms part of the Airspace Change Proposal process as defined in CAP 1616. For ease of reading the Statement of Need and Design Principles are re-iterated before the document outlines the various options considered to meet the Statement of Need.

1. Statement of Need

In SDSR 2015, the Government committed the UK to increasing the number of combat aircraft that the MOD will operate and confirmed the intention to buy 5th generation fast jets. Additionally, as its NATO ally, the US Government has committed to the continued basing of combat aircraft within the UK. Resultantly, there is a projected growth of more capable combat aircraft planned to operate within the UK. To support this Government-directed expansion in military capability, there is a requirement for a larger area of segregated airspace to accommodate training requirements and thus ensure operational capability.

2. Design Principles

Key Principles/Requirements

1. The training area will be within reach of UK/USAFE Main Operating Bases.
2. The design will provide a suitable training area.
3. The design will provide a sufficient overland portion for siting land based assets (Training Requirement).
4. Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP (Safety).
5. Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing).
6. Minimise impact upon the network where possible (Efficiency + Airspace Sharing).
7. Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety).
8. Conformity – use standard airspace structures where possible (Simplicity + Safety).

9. Minimise impact upon any other airspace users (Given the likelihood that any impact will be over the sea and above FL100, it is assessed that there will be few other stakeholders. These will be engaged through wider consultation in Stages 2 & 3 but will not impact the design principles).

3. Options Evaluation

An initial evaluation of the potential geographical options against the design principles is below. This is a rudimentary evaluation, not an evaluation of a detailed design, therefore if a design principle is potentially achievable it will be marked as met and annotated 'potentially' any viable options will be further appraised at stage 2b.

NORTH WEST SCOTLAND

North West Scotland	REJECT		
Description of Option			
Provide training airspace in North West Scotland.			
Design Principle 1: The training area will be within reach of UK/USAFE Main Operating Bases. (Key)	NOT MET	PARTIAL	MET
Not within range of RAF Marham & RAF Lakenheath.			
Design Principle 2: The design will provide a suitable training area. (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 3: The design will provide a sufficient overland portion for siting land based assets. (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 4: Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 5: Management of airspace to utilise FUA principles. (Medium)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 6: Minimise impact upon the network where possible. (High)	NOT MET	PARTIAL	MET
Impact upon North Atlantic traffic.			
Design Principle 7: Simplicity - utilise existing structures where possible. (Medium)	NOT MET	PARTIAL	MET
New structures required.			
Design Principle 8: Conformity – use standard airspace structures where possible. (Medium)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 9: Minimise impact upon any other airspace users. (Medium)	NOT MET	PARTIAL	MET
Yes.			

NORTH EAST SCOTLAND

North East Scotland	REJECT		
Description of Option			
Expand EG D613 to 120nm x 60nm and provide overland portion.			
Design Principle 1: The training area will be within reach of UK/USAFE Main Operating Bases. (Key)	NOT MET	PARTIAL	MET
Not within range of RAF Marham & RAF Lakenheath.			
Design Principle 2: The design will provide a suitable training area. (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 3: The design will provide a sufficient overland portion for siting land based assets. (Key)	NOT MET	PARTIAL	MET
Limited without significant impact upon Aberdeen.			
Design Principle 4: Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 5: Management of airspace to utilise FUA principles. (Medium)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 6: Minimise impact upon the network where possible. (High)	NOT MET	PARTIAL	MET
Impact upon Aberdeen and Atlantic traffic.			
Design Principle 7: Simplicity - utilise existing structures where possible. (Medium)	NOT MET	PARTIAL	MET
Potentially using EG D613 as basis.			
Design Principle 8: Conformity – use standard airspace structures where possible. (Medium)	NOT MET	PARTIAL	MET
All airspace design features are standard for the UK.			
Design Principle 9: Minimise impact upon any other airspace users. (Medium)	NOT MET	PARTIAL	MET
Military use of Tow Line 4.			

NORTH SEA

Expand EG D323	ACCEPT		
Description of Option			
This option builds upon the segregated airspace used by EG D323.			
Design Principle 1: The training area will be within reach of UK/USAFE Main Operating Bases.	NOT MET	PARTIAL	MET
Within reach of RAF Marham, RAF Lakenheath & RAF Coningsby.			
Design Principle 2: The design will provide a suitable training area.	NOT MET	PARTIAL	MET
Yes if 120nm x 60nm.			
Design Principle 3: The design will provide a sufficient overland portion for siting land based assets.	NOT MET	PARTIAL	MET
Yes.			
Design Principle 4: Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP.	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 5: Management of airspace to utilise FUA principles.	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 6: Minimise impact upon the network where possible.	NOT MET	PARTIAL	MET
Impact upon the network L602, and Atlantic traffic over North Sea.			

Design Principle 7: Simplicity - utilise existing structures where possible.	NOT MET	PARTIAL	MET
Yes, use existing EG D323 structures.			
Design Principle 8: Conformity – use standard airspace structures where possible.	NOT MET	PARTIAL	MET
All airspace design features are standard for the UK.			
Design Principle 9: Minimise impact upon any other airspace users.	NOT MET	PARTIAL	MET
There is some impact to other MOD airspace users, such as AEW Orbit Area 4 and there may be some impact to aircraft routing off route or above FL100 along the Yorkshire coast.			

EAST ANGLIA

East Anglia	REJECT		
Description of Option			
Expand East Anglia to meet size requirement of 120nm x 60 nm.			
Design Principle 1: The training area will be within reach of UK/USAFE Main Operating Bases. (Key)	NOT MET	PARTIAL	MET
Overhead RAF Marham & RAF Lakenheath.			
Design Principle 2: The design will provide a suitable training area. (Key)	NOT MET	PARTIAL	MET
Yes if 120nm x 60nm.			
Design Principle 3: The design will provide a sufficient overland portion for siting land based assets. (Key)	NOT MET	PARTIAL	MET
Yes.			
Design Principle 4: Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP. (High)	NOT MET	PARTIAL	MET
Uncertain due to interaction with TMA.			
Design Principle 5: Management of airspace to utilise FUA principles. (Medium)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 6: Minimise impact upon the network where possible. (High)	NOT MET	PARTIAL	MET
Significant impact upon the TMA – option not viable.			
Design Principle 7: Simplicity - utilise existing structures where possible. (Medium)	NOT MET	PARTIAL	MET
Will require new segregated airspace structures.			
Design Principle 8: Conformity – use standard airspace structures where possible. (Medium)	NOT MET	PARTIAL	MET
Feasible.			
Design Principle 9: Minimise impact upon any other airspace users. (Medium)	NOT MET	PARTIAL	MET
Impact upon other Military users and Civil Air Tests in EAMTA.			

WALES

Wales	REJECT		
Description of Option			
Expand Wales MTA to provide sufficient size of training airspace.			
Design Principle 1: The training area will be within reach of UK/USAFE Main Operating Bases. (Key)	NOT MET	PARTIAL	MET
Not with range of RAF Marham & RAF Lakenheath for routine training.			
Design Principle 2: The design will provide a suitable training area. (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 3: The design will provide a sufficient overland portion for siting land based assets. (Key)	NOT MET	PARTIAL	MET
Yes.			
Design Principle 4: Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 5: Management of airspace to utilise FUA principles. (Medium)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 6: Minimise impact upon the network where possible. (High)	NOT MET	PARTIAL	MET
Significant impact upon east-west air routes and upper air routes across UK.			
Design Principle 7: Simplicity - utilise existing structures where possible. (Medium)	NOT MET	PARTIAL	MET
Design Principle 8: Conformity – use standard airspace structures where possible. (Medium)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 9: Minimise impact upon any other airspace users. (Medium)	NOT MET	PARTIAL	MET
Significant impact upon other military airspace users particularly training aircraft from Valley.			

SOUTH WEST

South-West	REJECT		
Description of Option			
Expand EG D064 to meet size requirements.			
Design Principle 1: The training area will be within reach of UK/USAFE Main Operating Bases. (Key)	NOT MET	PARTIAL	MET
Not within optimum range of RAF Lakenheath and RAF Marham.			
Design Principle 2: The design will provide a suitable training area. (Key)	NOT MET	PARTIAL	MET
Yes.			
Design Principle 3: The design will provide a sufficient overland portion for siting land based assets. (Key)	NOT MET	PARTIAL	MET
Yes.			
Design Principle 4: Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 5: Management of airspace to utilise FUA principles. (Medium)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 6: Minimise impact upon the network where possible. (High)	NOT MET	PARTIAL	MET

Will impact traffic to/from Ireland, overflight traffic and UK/US traffic.			
Design Principle 7: Simplicity - utilise existing structures where possible. (Medium)	NOT MET	PARTIAL	MET
Yes, could use EG D064 structure as basis.			
Design Principle 8: Conformity – use standard airspace structures where possible. (Medium)	NOT MET	PARTIAL	MET
All airspace design features are standard for the UK.			
Design Principle 9: Minimise impact upon any other airspace users. (Medium)	NOT MET	PARTIAL	MET
Other MOD Danger Areas.			

3.3 Options

Where a geographical option does not meet a Key Design Principle, it has been discounted as it clearly will not meet the driving reason for conducting the ACP. This discounts both Scotland options and the South-West. Of the remaining 3 options, 2 East Anglia and Wales have significant impact upon the network, so much so that neither are viable from a UK perspective. Therefore, the only viable option that will go forward for further appraisal will be the North Sea D323.

This is also the conclusion that a JANSC sponsored Feasibility & Options study came to. This initial analysis indicates that the best fit option would be to expand D323 to meet the MOD requirement. This option has been discussed at length with NATS and a potential design produced – see Fig 3, which will be finessed for design and management protocols as the process develops.

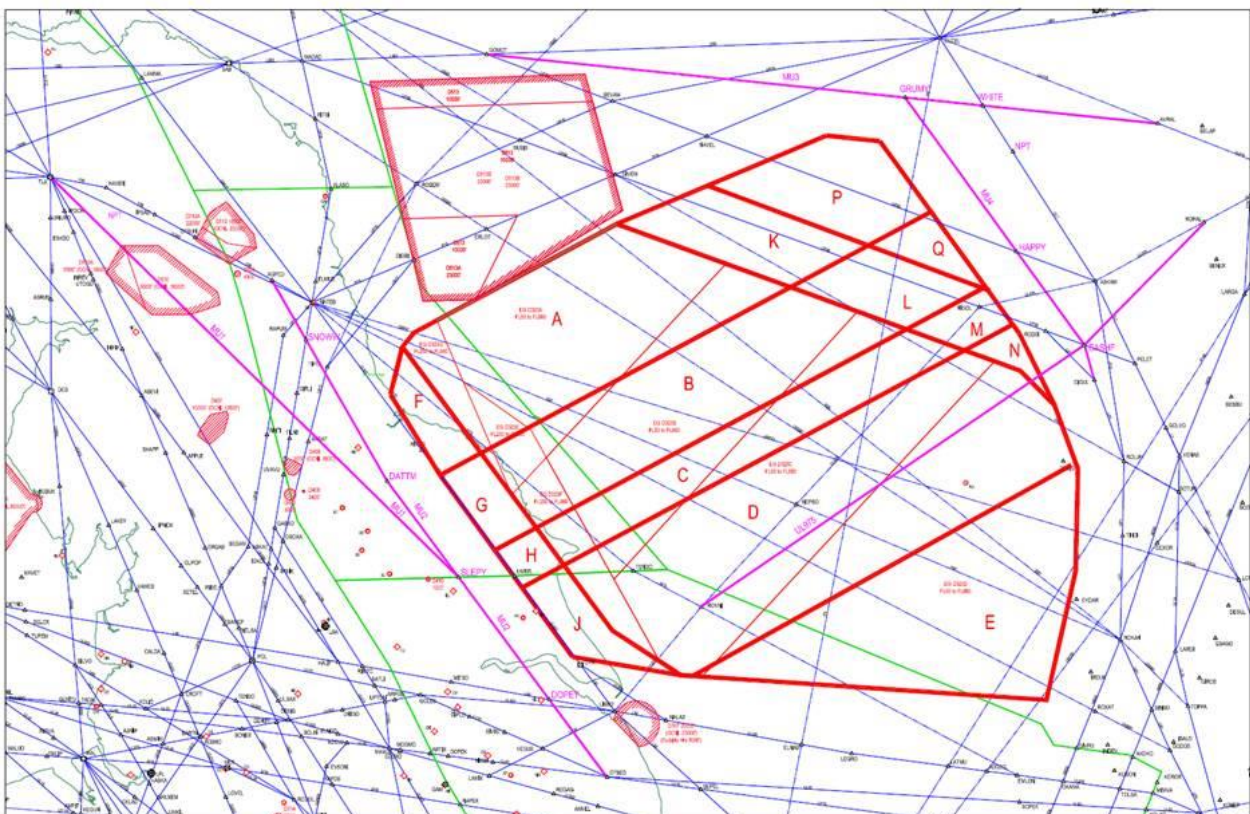


Fig 3 Potential Airspace Design

4. Stage 2a Engagement

In addition to the initial and on-going engagement with NATS already captured at Stage 1, the MOD has again contacted the airlines, and in addition the BGA and 4 Regional Airports (Newcastle, Durham/Tees, Humberside and Norwich).

An analysis of the responses indicates no objection to the identification of an expanded EG D323 as the most suitable option. There was a reiteration of the need to manage the airspace efficiently and some issues identified that will need resolving as the ACP process continues. Specifically, there was concern about the compound effect on local airspace created by this and another MOD ACP, and also some potential safety issues relating to adjacent operations in Class G. The interaction between activity within the segregated airspace and that in Class G has been noted for further consideration whilst the other MOD ACP has been withdrawn due to other factors. There was also some concern that this proposal will prevent further airspace modernisation in the area. This is not viewed as being the case and meetings have been arranged to discuss how airspace could and should be managed under FUA principles.

Further engagement has taken place with NATS and an airspace feasibility simulator trial has been conducted. There is nothing in the interim report from this trial that precludes the current location being chosen, however, further meetings are planned in order to finesse the design and agree mitigation that will minimise impact upon the network. Results of these meetings will form the basis for analysis during stage 2b.

5. Summary

Geographical options for the location of suitable airspace to meet Combat Air Training Requirements have been examined. It is concluded that the most viable option is to expand EG D323 in conjunction with the employment of suitable ASM protocols. A detailed appraisal will be taken during stage 2b.