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Draft Consultation Document

ACP-2023-022

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Contents

Glossary of Terms	iii
Introduction	iv
1 Context	1
1.1 About the Air System	1
1.2 Regulatory Requirement	1
1.3 Why RAF Marham?	2
1.4 Baseline Scenarios	2
2 Summary of Airspace Design Development	4
2.1 Design Principles	4
2.2 Type of Airspace to Accommodate Protector Activities	4
2.3 Stage 2 Airspace Design Options Summary	5
3 Proposed Airspace Design Option	8
4 Operating Principles	9
4.1 Measures to Minimise the Impact on other Airspace Users	9
4.2 Utilisation of Airspace	9
5 Effect of Proposed Airspace Design Option	11
5.1 Effect on Local Communities	11
5.2 Effect on Aviation Stakeholders	11
5.3 Environmental Effects	11
6. Consultation Process	13
6.1 Consultation Duration	13
6.2 What is being asked?	13
6.3 Webinar	13
6.4 How to respond	14
7 Next Steps	15
7.1 Next steps in this proposal	15
Appendix A - ACP-2023-022: CONSULTATION FEEDBACK FORM	A-1
Appendix B – ACP-2023-022 – AT A GLANCE	B-1

Glossary of Terms

Term	Description
ACP	Airspace Change Proposal
AIP	Aeronautical Information Publication
AISA	Airspace Integration Safety Argument
AONB	Area of Outstanding Natural Beauty
ARFFP	Aircraft Rescue and Fire Fighting Provision
ARP	Aerodrome Reference Point
ATC	Air Traffic Control
ATZ	Aerodrome Traffic Zone
BVLOS	Beyond Visual Line Of Sight
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CTA	Control Area
CTR	Control Zone
DA	Danger Area
DAA	Detect And Avoid
DP	Design Principle
EVLOS	Extended Visual Line Of Sight
FL	Flight Level
FUA	Flexible Use of Airspace
GA	General Aviation
IFR	Instrument Flight Rules
ISD	In Service Date
MAA	Military Aviation Authority
MATZ	Military Air Traffic Zone
MOB	Main Operating Base
MOD	Ministry of Defence
MRP	MAA Regulatory Publications
NOTAM	Notice to Aviation
PD	Practice Diversion
RA	Regulatory Article
RAF	Royal Air Force
RMZ	Radio Mandatory Zone
RP	Remote Pilot
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Air System
SON	Statement of Need
STS	Synthetic Training Simulator
SUAAIS	Special Use Airspace Activity Information Service
SUACS	Special Use Airspace Crossing Service
TCAS	Traffic Alert and Collision Avoidance System
TDA	Temporary Danger Area
TMZ	Transponder Mandatory Zone
TRA	Temporary Reserved Area
UAS	Unmanned Air System
UAV	Unmanned Air Vehicle
VFR	Visual Flight Rules
VLOS	Visual Line Of Sight

Introduction

This document forms part of the airspace change process as defined in Civil Airspace Publication (CAP)1616. ACP-2023-022¹ was commenced to enable a large Remotely Piloted Air System (RPAS), Protector RG Mk1, safe and efficient access to and from a nominated diversion airfield at Royal Air Force (RAF) Marham. The Ministry of Defence (MOD), and specifically Air Capability, is the Change Sponsor for this proposal (identification number ACP-2023-022). The airspace change proposal (ACP) passed the Stage 2 Gateway² on 9 May 2024 and has moved onto Stage 3, Consult.

Background

The main operating base (MOB) for Protector is RAF Waddington, where permanent segregated airspace in the form of a Danger Area (DA) has already been established. This is EGD324 and was implemented at the end of Nov 2023.

Under current timescales, routine Protector operation is likely to commence from RAF Waddington in Summer 2024 when the MOD will conduct test and evaluation activities prior to Protector formally entering into service³. During this, and for future activity in the UK, Protector will require a nominated permanent diversion airfield to be made available in the event that, for any unforeseen reason, RAF Waddington becomes unavailable. Following investigation into several military airfields, RAF Marham has been identified as the most suitable and preferred diversion airfield.

Access to RAF Marham as early as June 2024 was managed under a separate MOD ACP (identification number ACP-2023-047⁴) and all key aviation stakeholders were approached late last year to provide feedback. The ACP has been recently approved by the Civil Aviation Authority (CAA) and will enable an airspace trial to take place to test the procedures at RAF Marham as the diversion airfield. The airspace trial will be conducted in accordance with a trial / test plan with specified and measurable objectives.

This ACP seeks to establish suitable airspace to enable Protector RG Mk1 safe and efficient access to RAF Marham as a nominated diversion airfield beyond the timeframe for the airspace trial mentioned above. Version 2.0 of the Statement of Need (SON) can be viewed via the CAA ACP Portal⁵ and states that the objective of the proposed change is to establish suitable airspace enabling safe and efficient access to a nominated diversion airfield for the Beyond Visual Line Of Sight (BVLOS⁶) RPAS, Protector.

¹ Each airspace change proposal (ACP) has a unique identifier allocated by the CAA. ACP-2023-022 is the airspace change identification of the ACP, which is entitled "RPAS operations to/from a nominated diversion airfield".

² Guidance on the regulatory process for airspace change is available at [CAP1616 Airspace Change](#).

³ Protector In Service Date is currently expected to be early 2025.

⁴ Access to RAF Marham as a nominated diversion airfield as early as June 2024 has been managed under an airspace trial (see ACP-2023-047 on the CAA ACP Portal) For more details see here: [Airspace change proposal public view \(caa.co.uk\)](#)

⁵ The SON can be found on the CAA ACP Portal here: [Airspace change proposal public view \(caa.co.uk\)](#)

⁶ The MAA Master Glossary defines BVLOS as the operation of a Remotely Piloted Aircraft beyond a distance where the Remote Pilot is able to respond to or avoid other airspace users by visual means.

In terms of airspace construct, there is no expectation for the lateral boundary of the airspace design for this permanent ACP to differ from that of the airspace trial; a similar volume of airspace has already been demonstrated at RAF Waddington⁷ as sufficient to meet Protector's training and operational objectives.

Document Scope

This document aims to provide information that will ensure stakeholders understand the impact of the ACP and are able to provide meaningful feedback. Potentially impacted stakeholders have been identified through Stages 1 and 2 of this airspace change. Whilst this list is the most up-to-date available, it is anticipated that the list will continue to be expanded through public consultation.

This document provides context to the proposal, including background to the aerodrome at RAF Marham, local airspace and why the MOD is seeking to implement the changes to airspace. It also outlines the selected airspace design, which has been developed following the Initial and Full Options Appraisals at both Stages 2 and 3 of the ACP. These appraisals can be found on the CAA ACP Portal.

This document uses the most up-to-date and credible data available. For instance, all charts have been produced using up-to-date CAA digital aeronautical 1:250 000 or 1:500 000 charts.

As a result of feedback at Stages 1 and 2 of the ACP, an 'at a glance' overview is presented at Appendix B, to provide a simplified precis of the proposed airspace and anticipated impact to non-aviation stakeholders. The intent of the Appendix is for those without an aviation background to understand the impacts (positive and negative) of the ACP in order to provide meaningful feedback.

In addition, during Stages 1 and 2 stakeholders provided feedback within which the Change Sponsor identified several general themes and some aviation-specific questions. These themes/questions have been incorporated in a Frequently Asked Questions (FAQs) document, against which the Change Sponsor has provided comment. The FAQs document has been uploaded to the Citizen Space Portal [here](#). It will be maintained and updated as appropriate throughout the consultation period.

⁷ Successful completion of UK Test and Evaluation Phase 1 (Nov 2023) – see [ACP-2023-003](#)

1 Context

1.1 About the Air System



Protector has a 79FT wingspan and is 38FT long. It is powered by a single TPE 331-10 turbo-prop engine and will be operated by fully qualified RAF pilots.

The image to the left is an artist's impression of Protector superimposed over a London backdrop

1.1.1 Remotely Piloted Aircraft are defined as 'any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board. A Remotely Piloted Air System (RPAS) refers to the complete system required to operate a remotely piloted aircraft and usually includes a Ground Control Station (location to operate the aircraft), datalinks to the aircraft and any other associated ground equipment. RPAS can also be referred to as UAS, UAV or 'drones'.

1.1.2 UK military aviation is regulated by the Military Aviation Authority (MAA). Accordingly, the Protector programme is subject to the MAA Regulatory Publications (MRP). MAA Regulatory Article (RA) 1600 - 'Remotely Piloted Air Systems' is a military regulation that categorises RPAS into either the Open, Specific or Certified category. According to aircraft category, aircraft can be operating to differing operating procedures. MAA02: Military Aviation Authority Master Glossary outlines the three operating principles of RPAS. They are:

- Visual Line of Sight (VLOS). An operation in which the Remote Pilot maintains direct unaided visual contact with the Remotely Piloted Aircraft.
- Extended Visual Line of Sight (EVLOS). Operations, either within or beyond the limits for VLOS, where the Remote Pilot (RP) is still able to comply with their collision avoidance responsibilities, but the requirement for the RP to maintain direct visual contact with the RP Aircraft (RPA) is addressed via other methods or procedures. It is important to note, however, that collision avoidance is still achieved through 'visual observation' (by the RP and / or RPA Observers)
- Beyond Visual Line of Sight (BVLOS). For Remotely Piloted Air Systems; the operation of a Remotely Piloted Aircraft beyond a distance where the Remote Pilot is able to respond to or avoid other airspace users by visual means. This is the category **of the Protector airframe**.

1.2 Regulatory Requirement

1.2.1 Of particular relevance to the operation of Protector in UK airspace is MAA RA 2320 – MAA regulation for operation of military RPAS. The RA states the criteria for BVLOS RPAS operation such that within UK airspace, BVLOS operations should only be conducted if:

- An appropriately approved Detect and Avoid (DAA) capability enables compliance with Rules of the Air appropriate to the class of airspace, or;

- They are flown using a Layered Safety Approach that specifically requires flight in Segregated Airspace, or in Controlled Airspace (Classes A-D)⁸ with the informed consent of the Air Navigation Services Provider (ANSP).

1.2.2 When Protector initially comes into service, it will be fitted with a limited DAA capability only and, since RAF Marham is located entirely within Class G airspace, flight in segregated or controlled airspace is required. This will permit Protector to access RAF Marham in a safe environment, maintain regulatory compliance, and provide protection of other airspace users of any associated and identified hazardous activities.

1.3 Why RAF Marham?

1.3.1 The MOD conducted a scoping exercise to determine suitable locations for the diversion of Protector. 32 MOD airfields were assessed against a set of principle and auxiliary requirements. The principle requirements were; a fully formed support framework; a surveyed runway; minimum level of equipment and infrastructure. Viable diversion airfields were further evaluated against auxiliary requirements categorised as essential, highly desirable or desirable and included; weather differential from RAF Waddington; suitable aircraft rescue and firefighting provision (ARFFP); ability to reach the diversion from frequent operating areas in timely manner; disruption to local airspace and airfield users. Subsequently RAF Marham was identified as the most suitable and preferred diversion airfield.

1.4 Baseline Scenarios

1.4.1 As required during Stage 2 of the CAP1616 process, the Change Sponsor undertook an assessment of the impacts of the future scenario without any airspace change, by comparison against the impacts of the proposed design options. To achieve this, the MOD prepared two baseline scenarios⁹ in accordance with CAP1616 as follows:

- A scenario based on the year of implementation without the airspace change proposed (year 1)
- A scenario based on ten years after implementation without the airspace change proposed (year 10)

1.4.2 Both scenarios are at Appendix A of Stage 3, Full Options Appraisal¹⁰ and provide an overview of RAF Marham, the local airspace and local context/features below 7,000FT. For illustration, the local airspace in its current form is shown below at Figure 1 and a cross-section diagram of it is at Figure 2.

⁸ Guidance on UK airspace classification can be found at: [Introduction to Airspace - NATS](#)

⁹ Baseline scenarios updated to V3.0 on advice from CAA at Stage 2 and additional information received from West Norfolk District Council. This did not affect the Options Appraisal.

¹⁰ The Full Options Appraisal can be found on the CAA Portal here: [Airspace change proposal public view \(caa.co.uk\)](#)



Figure 1 - RAF Marham Local Area. Source data: CAA VFR Aeronautical Chart 1:500K, Ed 49, 2023. PM P216 Sandringham House and PM R225 Wash added from the UK Military AIP ENR 5-1-13 (05 OCT 23).

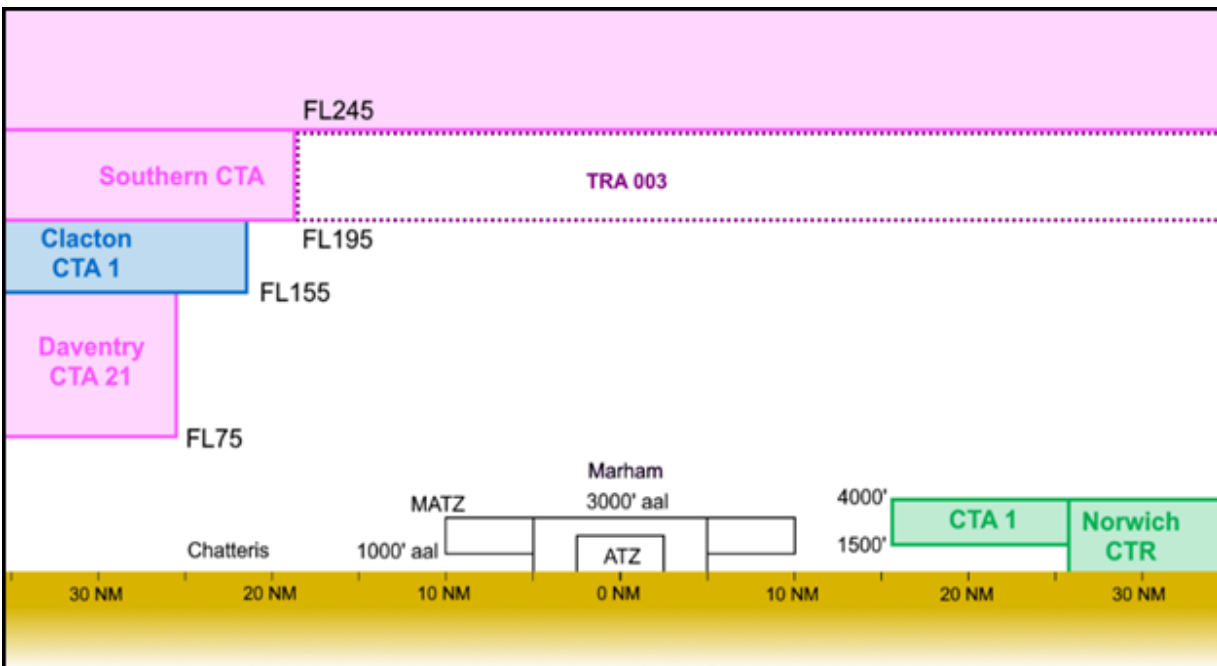


Figure 2 - Cross-section Diagram of RAF Marham Local Airspace

2 Summary of Airspace Design Development

2.1 Design Principles

2.1.1 During Stage 1 of this ACP (Jan 2024) the MOD engaged with comprehensive list of stakeholders to develop a set of Design Principles (DPs). Table 1 shows the final set of DPs for ACP-2023-022.

Priority	Ref	Design Principle
1	DP1	The airspace change proposal must maintain a high standard of safety and should seek to enhance levels of safety, wherever possible.
2	DP2	The airspace provides access to a sufficient area to meet operational and training objectives.
3	DP5	The airspace change proposal should not be inconsistent with relevant legislation, the CAA's airspace modernisation strategy or Secretary of State and CAA's policy and guidance.
4	DP3	The airspace design should endeavour to maximise accessibility for other airspace users.
	DP4	The airspace change proposal should consider the impacts on all airspace users.

2.1.2 During Stage 2 (Mar – Apr 2024) the DPs were used to assess the validity of an initial set of two airspace design options and enabled the Change Sponsor to reduce the set to just one single option. The Stage 1 and 2 engagement record and the rationale for the final selection of DPs can be found on the CAA ACP Portal¹¹.

2.2 Type of Airspace to Accommodate Protector Activities

2.2.1 In accordance with the regulatory requirement described at paragraph 1.2, without an appropriately approved DAA capability, Protector must be flown in segregated airspace, or in controlled airspace (classes A-D). Since RAF Marham is located within Class G airspace, some form of airspace segregation is required for Protector to transit through current Class G airspace in order to be able to achieve onward transit using Classes A and C airspace. Consideration has been given to the most appropriate type of airspace to accommodate Protector activities; a precis follows and is then further summarised in Table 2 below.

2.2.2 Protector is fitted with a Traffic Alert and Collision Avoidance System (TCAS II), which may be approved to provide a DAA capability in airspace where all traffic can be expected to be operating a transponder¹² (i.e. transponder-mandatory airspace). The MOD is producing an Airspace

¹¹ See document entitled ACP-2023-022 Stage 1 DEFINE – Design Principles V1.0 at [Airspace change proposal public view \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-proposal-public-view)

¹² A transponder is an avionic system located on board the aircraft that provides information about the aircraft identification and barometric altitude to the ATC system on the ground and to TCAS on other aircraft. Source: [2711.pdf \(skybrary.aero\)](https://www.skybrary.aero/2711.pdf)

Integration Safety Argument (AISA) for the introduction of Protector into UK airspace. This work aims to develop an evidenced argument for the safe operation of Protector under Instrument Flight Rules (IFR) and under an air traffic service within transponder-mandatory airspace, as well as in suitable segregated airspace.

Type of airspace	Suitability for Protector	MOD Comment
Classes A & C Class D above FL100 or if below FL100 is also a TMZ ¹³	Yes	These classes of airspace are not justifiable by the Change Sponsor in terms of: Restrictions placed on other airspace users; Air traffic management resourcing; Flexible use of airspace (notified hours of activation in UK AIP).
Class E	Unknown	Pending AISA for Protector, but thought unlikely to be suitable.
Class G Danger Area	Yes	Less impact on other airspace users since it can be tactically managed (does not have notified hours of activation in UK AIP)
TMZ/RMZ	Possibly	Not being considered for same reasons as noted above for Classes A, C and D,

2.2.3 The most economical type of airspace to be implemented (in terms of hours of activation, access to airspace and staffing resource) would be segregated airspace in the form of a DA.

2.3 Stage 2 Airspace Design Options Summary

2.3.1 As stated in the Background section on page iii, the MOB for Protector is RAF Waddington, where permanent segregated airspace (Danger Area EGD324) has already been established. During the design phase of the Waddington ACP the MOD focussed on minimising the impact on other airspace users¹⁴, whilst maintaining military operational objectives and operating in accordance with current regulation. Similar considerations have been employed in developing the airspace design for RAF Marham. The Change Sponsor saw no merit in revisiting design options that had been rejected during the original ACP for RAF Waddington¹⁵ and proposed two similar airspace designs for this permanent airspace change.

2.3.2 During Stage 2 of this ACP, two airspace design options were presented for stakeholder consideration. The two options, centred on RAF Marham's aerodrome reference point¹⁶ (ARP) have identical lateral and vertical external dimensions; Stage 2 Option 2 incorporated an internal division

¹³ TMZ = Transponder Mandatory Zone.

¹⁴ Through continued collaboration with the air vehicle manufacturer, General Atomics – Aeronautical Systems Incorporated (GA-ASI) and RAF subject matter experts the MOD was able to achieve a reduction in the flight profile of Protector to enable it to be accommodated within segregated airspace of 5NM radius.

¹⁵ ACP-2019-18 can be found on the CAA ACP Portal here: [Airspace change proposal public view \(caa.co.uk\)](https://www.caa.co.uk/air-traffic/air-traffic-control/air-traffic-control-proposals/air-traffic-control-proposals-public-view)

¹⁶ RAF Marham airfield reference point is the midpoint of RW05/23 (52 38 54.26N 000 33 02.42E)

to facilitate air traffic management. The airspace design options are depicted in Figure 3 and Figure 4 below:

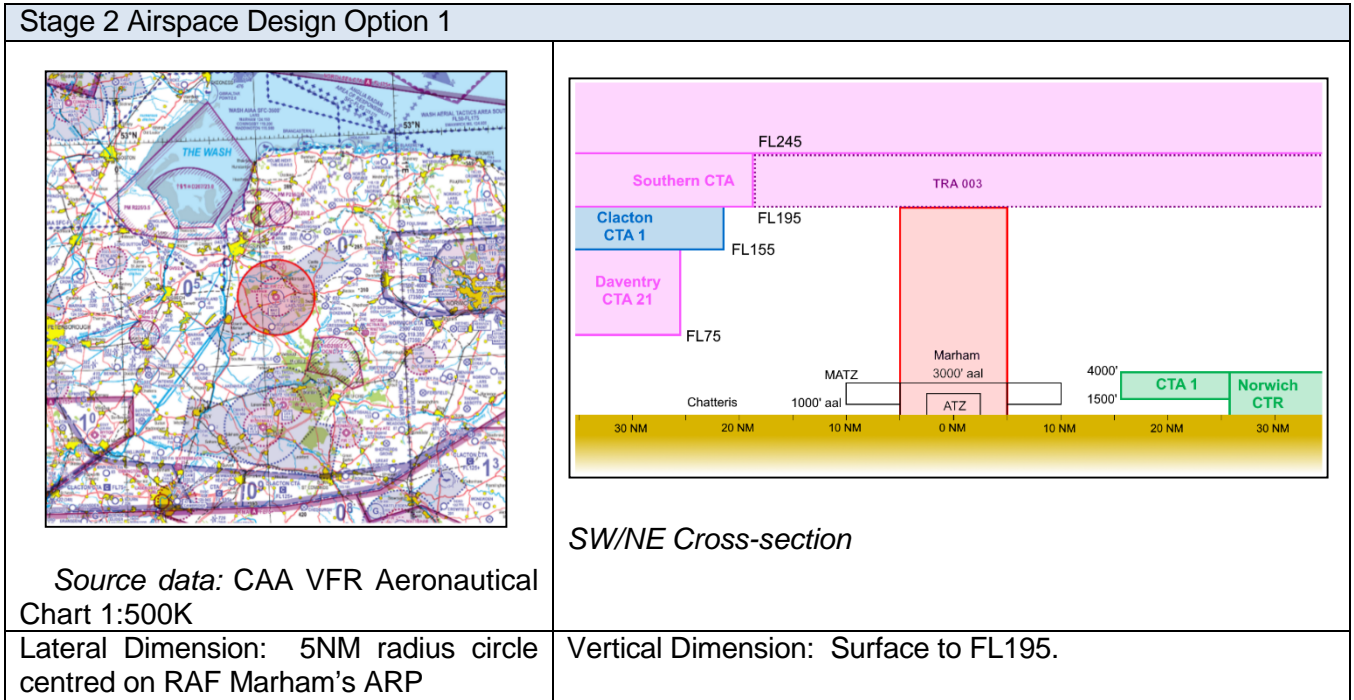


Figure 3 - Stage 2 Airspace Design Option 1

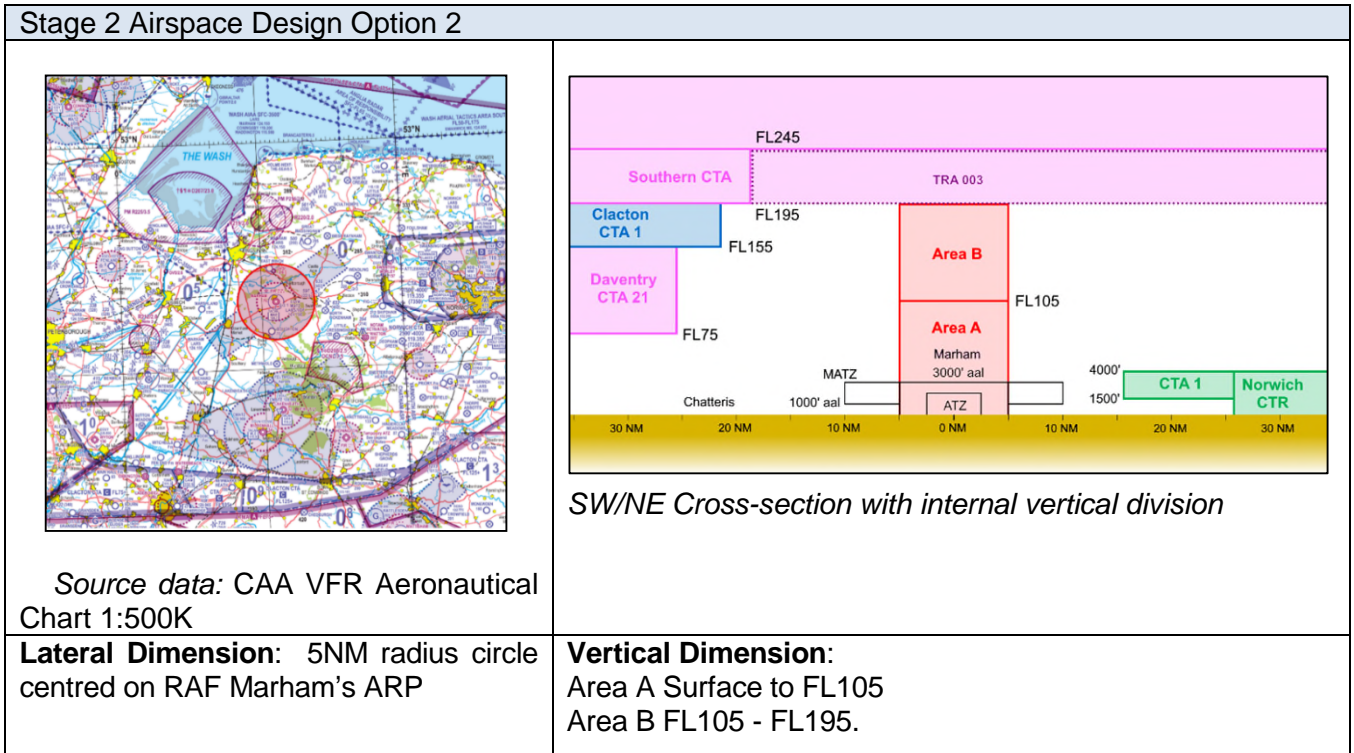


Figure 4 - Stage 2 Airspace Design Option 2

2.3.3 Based on stakeholder feedback and design principle evaluation in Stage 2, the Change Sponsor elected to discount Stage 2 Option 1 and take only Stage 2 Option 2 through to Stage 3 of the process.

3 Proposed Airspace Design Option

3.1.1 The airspace proposed is shown at Figure 5. It consists of one design and comprises two volumes of airspace, both of 5NM radius centred on RAF Marham’s ARP. Area A is from surface to FL105; Area B is FL105 to FL195.

The Change Sponsor wishes to stress that this is a single option consultation. The option for consideration comprises two volumes of vertically-joined airspace.

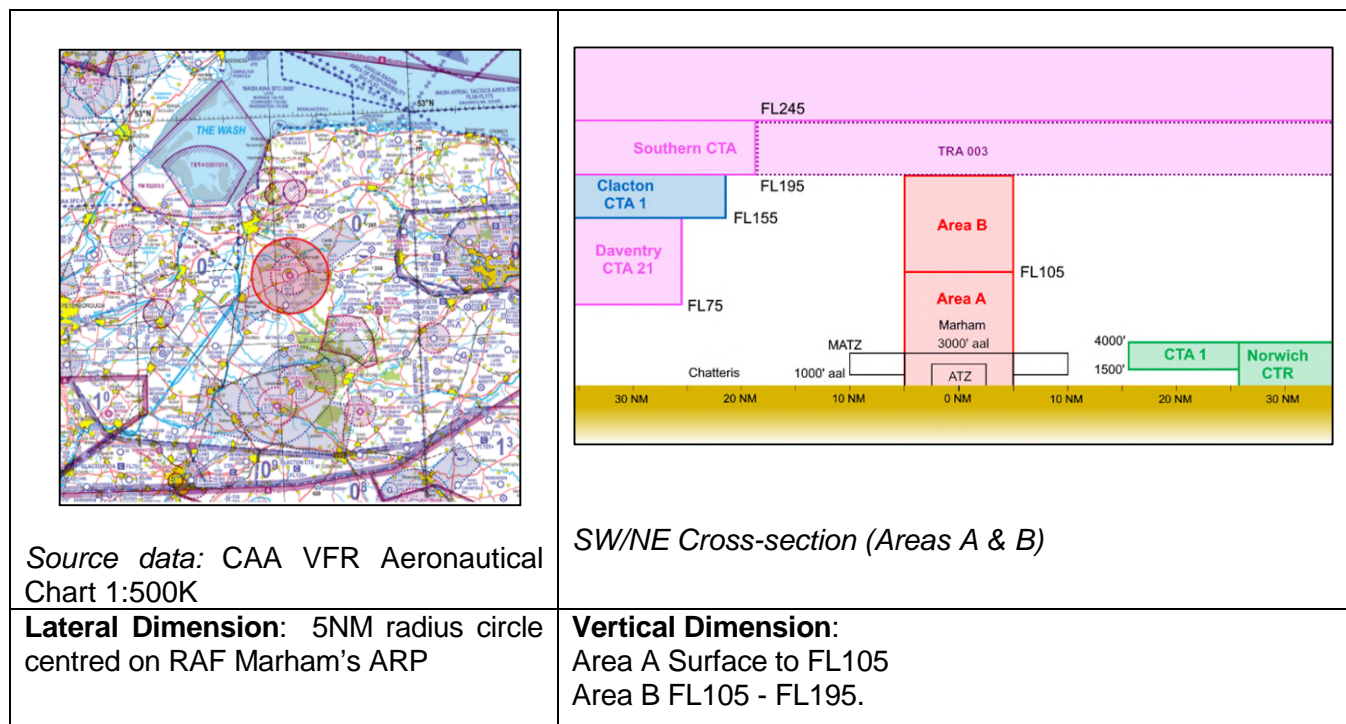


Figure 5 - Stage 3 Airspace Design

3.1.2 The overall volume of airspace is in the form of a cylinder from Surface to FL195; an internal division at FL105 is incorporated within the cylinder, thereby splitting the airspace into two sections, namely Area A and Area B. This is to facilitate more expeditious air traffic management. When Protector is not within an area, the area would be considered ‘active, but with no Protector activity within’ and aircraft may be permitted to enter the airspace. Apart from reasons of routine air traffic safety and co-ordination, aircraft would only be prevented from accessing either area when Protector is in (or about to enter) either section. It is thought that this will reduce holding times and thereby promote Flexible Use of Airspace (FUA) for all local airspace users (civil and military).

3.1.3 The Change Sponsor proposes to implement the required segregation in the form of a DA, which will provide the most efficient and tactical use of airspace. The MOD will activate the airspace structures only as and when necessary. In other words, only when activity by Protector is planned from either RAF Waddington or RAF Marham itself.

4 Operating Principles

4.1 Measures to Minimise the Impact on other Airspace Users

4.1.1 Type of Airspace. As described in paragraph 2.2 the type of airspace implemented will drive the overall hours of airspace activation. Therefore, the MOD will implement the required segregation in the form of a DA, which will provide the most efficient and tactical use of airspace.

4.1.2 Activation Periods.

- The proposed airspace will not be permanently active and will be activated only as and when necessary. In other words, only when activity by Protector is planned from either RAF Waddington or RAF Marham itself.
- Procedures will be adopted to ensure that the airspace is activated and notified only as and when required. This will involve appropriate Notice To Aviation (NOTAM) action being taken at D-1¹⁷. Activation and de-activation of the DA will be requested by RAF Waddington.
- The DA airspace would be kept active for the duration of Protector sorties and is likely to mirror the activation periods of the airspace implemented at RAF Waddington (EGD324)
- It is important to stress that whilst this airspace is required to be active for the entirety of any Protector flying (whether or not Protector makes use of the DA), the DA may not be used as a mechanism by which MOD may exclude other airspace users, other than when Protector is within the airspace or for reasons of routine air traffic safety and co-ordination

4.1.3 Access to Airspace. To ensure minimum disruption to other airspace users a Special Use Airspace Crossing Service (SUACS) will be offered within the implemented airspace. This means that, even if the airspace has been notified as being active, it may be possible for both civil and military aircraft to transit through it under a clearance from RAF Marham ATC.

4.1.4 Air Traffic Control. RAF Marham ATC will be staffed during all activation periods of the proposed airspace. Information on the status of the airspace will be available, including a Special Use Airspace Activity Information Service (SUA AIS) via RAF Marham or other appropriate military ATC units.

4.2 Utilisation of Airspace

4.2.1 Routine live flying will take place out of RAF Waddington. The Change Sponsor anticipates that during the first 6 months of Protector's service in the RAF, the flying tempo will be restricted to one air vehicle at a time during core flying hours Monday – Friday. This is likely to occur up to 3 times per week. It is difficult to predict when the flying tempo will significantly increase, but potentially within the first 24 months of service, there may be up to two air vehicles in the air simultaneously. Some night flying is expected.

4.2.2 It is important to note that the airspace at RAF Marham will need to be active for all Protector flying, including sorties from RAF Waddington when planned use of RAF Marham is not expected (i.e. the DA may be active but not necessarily used). This is to enable Protector to access RAF Marham as a diversion airfield in the event that, for any unforeseen reason, RAF Waddington becomes unavailable. Occasional use of RAF Marham by Protector is anticipated as follows:

¹⁷ D-1 means that the NOTAM must be requested the day before the airspace is to be activated.

- Planned use of RAF Marham for anything other than operational necessity is not envisaged;
- When required to access RAF Marham. Protector will enter the cylinder at FL195 from the adjoining Class C airspace above. It will then perform a spiral descent and execute its automatic landing profile to the main runway¹⁸;
- On departure from RAF Marham. Protector will execute its automatic take-off profile and perform a spiral climb to FL195 when it will enter Class C airspace for transit en route;

4.2.3 Protector will occupy the entirety of the airspace construct for a maximum of approximately 20 minutes during each arrival or departure phase.

4.2.4 On occasion crews may be required to conduct practise diversions (PD) into RAF Marham for currency reasons. Whilst the primary method to maintain flying currency will be via synthetic means (i.e. flight simulator), a small element of live flying is likely to be necessary. A PD will comprise of one arrival and one departure profile only. Current estimate of live training requirements are defined below:

- All flying instructors will be required to conduct a live PD at RAF Marham. To facilitate this, up to 10 live PDs could be completed at RAF Marham soon after ISD is declared.
- Each trainee pilot must also undertake one live PD at RAF Marham. The current training schedule indicates an enduring requirement for up to 25 live PDs per financial year.

4.2.5 SUACS requests will be denied whilst Protector is actually operating within the DA, the potential impact of which is estimated to be less than 1 aircraft during this period¹⁹.

4.2.6 The Change Sponsor wishes to re-iterate that as the Protector Programme progresses, it is anticipated that there would be advances in technology permitting the development and instalment of an appropriate DAA system on the airframe within the next 10 years. Should this be the case, then the required airspace would either be significantly reduced or withdrawn.

¹⁸ The Protector air system is equipped with an Automatic Take-Off and Landing Capability (ATLC), which means that Protector will follow pre-determined flight profiles for the initial departure and final approach phases of flight.

¹⁹ Further details on the impact analysis can be found at para 1.2 of the Full Options Appraisal on the CAA Portal here: [Airspace change proposal public view \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-proposal-public-view)

5 Effect of Proposed Airspace Design Option

5.1 Effect on Local Communities

5.1.1 It has been concluded in the Full Options Appraisal and Environmental Assessments at Stages 2 and 3 that there will be negligible change to noise or local air quality for local communities as a result of this airspace change.

5.1.2 The Full Options Appraisal can be found at: [Airspace change proposal public view \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-proposal-public-view)

5.2 Effect on Aviation Stakeholders

5.2.1 There may be a small impact on ease of access for local flying communities. It is expected that Protector will need to access airspace infrequently and for a maximum of approximately 20 minutes during each departure or arrival phase. Access will be maximised when the airspace is not occupied by Protector by provision of a crossing service (e.g. SUACS). The airspace construct provides flexibility in facilitating transit within 5NM of RAF Marham through the split of the proposed airspace into two areas, thus reducing the requirement for aircraft to re-route or to hold outside the proposed airspace.

5.2.2 Gliders (and other air vehicles without communication equipment) are likely to be the most affected stakeholders. They would be unable to enter the DA, as they would not be able to receive a SUACS. The Change Sponsor is aware of this.

5.3 Environmental Effects

5.3.1 The ACP Change Sponsor is the MOD and is, therefore, only responsible for assessing the consequential environmental impact of MOD's operations on civil air traffic²⁰. For this reason, the Change Sponsor has not considered the environmental impact of Protector activity specifically in conjunction with this ACP. The full environmental assessment can be found on the CAA ACP Portal²¹

5.3.2 In accordance with CAP 1616i Environmental Assessment Requirements, Change Sponsors must consider the potential biodiversity implications associated with airspace design options. By completing a habitats regulations assessment early screening criteria form, the Change Sponsor scoped out the requirement for a full Habitats Assessment at Stage 2 of the ACP²².

5.3.3 In summary, it has been assessed that the airspace design proposed will have a negligible impact on the following:

5.3.4 Noise. The Change Sponsor has assessed that the proposed change will not result in an increase in the number of aircraft operating in the local area. Therefore, the same amount and type of noise is likely to impact the local population as is currently the case. Since the change is likely to impact less than 30 aircraft on the busiest flying day, and considering the mitigations put in place (e.g. NOTAM, SUACS), the overall impact of the proposed change on noise is assessed to be negligible.

5.3.5 Greenhouse Gas Emissions and Fuel Burn. The Change Sponsor has considered the impact of the proposed airspace on CO₂ emissions and fuel burn from a qualitative point of view and

²⁰ CAP 1616i Environmental Assessment Requirements refers.

²¹ The environmental assessment can be found at Appendix A of the Full Options Appraisal on the CAA Portal here: [Airspace change proposal public view \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-proposal-public-view)

²² The early screening criteria form can be found at para 3.6 of the Initial Options Appraisal on the CAA Portal here: [Airspace change proposal public view \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-proposal-public-view)

suggests that the proposed change will not result in an increase in the number of aircraft operating in the local area, nor will the aircraft types be altered. Therefore, whilst there might be a small number of aircraft that do not take advantage of the SUACS in order to get a direct routing, the impact on greenhouse gas emissions and fuel burn is assessed to be negligible.

5.3.6 Tranquillity and Biodiversity. The proposed airspace does not sit above any Areas of Outstanding Natural Beauty (AONB) or National Parks. There are five European sites²³ within 18KM of the runway at RAF Marham²⁴. It is anticipated that general aviation (GA) aircraft will continue to request and obtain a SUACS to cross the airspace in their current manner, with only a small percentage of them requiring a reroute due to activity within the segregated airspace. This small percentage may result in an interaction with some sensitive areas but the numbers are thought to be so small that the Change Sponsor considered a formal assessment would be disproportionate to the numbers of aircraft affected.

²³ European sites are Special Protection Areas and Special Areas of Conservation designated to protect their biodiversity. Source: [European leaflet Natura 2000.pdf \(defra.gov.uk\)](#)

²⁴ The zone of influence for potential impacts on European sites relates to flights at an altitude of 3,000 feet and below, and within 18 kilometres of a runway end. Source: CAP 1616i, Environmental Assessment Requirements and Guidance for ACPs. Para 9.10

6. Consultation Process

6.1 Consultation Duration

6.1.1 UK public consultation for ACP-2023-022 will be 7 weeks in duration, commencing Monday 11 June 2024, closing on Monday 2 August 2024. The Change Sponsor felt this was an appropriate period due to engagement already conducted for the airspace trial at RAF Marham and at Stages 1 and 2 of this proposal, together with the position, construct and frequency of use of the proposed airspace, which is anticipated to have no impact on non-aviation stakeholders. The duration provides sufficient time for all stakeholders who wish to provide feedback to do so.

6.2 What is being asked?

6.2.1 The purpose of this consultation period is to provide an opportunity for all stakeholders to comment on the proposed airspace design. This feedback will be collated and analysed by the Change Sponsor and will help to shape the final proposal that will be submitted to the CAA.

6.2.2 The key themes that the Change Sponsor is seeking to answer through consultation include, but is not limited to, the following:

- Your feedback on the airspace design presented to achieve appropriate airspace for Protector to access RAF Marham
- The perceived effect of this proposal (positive or negative)
- Key concerns for stakeholders
- Mitigating factors that could be employed to minimise impact

6.3 Webinar

6.3.1 The Change Sponsor will host an online webinar comprising of a presentation on the ACP tailored for stakeholders with a non-aviation background, followed by a Q&A session. This will take place on Thursday 11 July 2024 between 0900 and 1200. Participants are requested to register interest to the email address below.

UASCDC-ACP@qinetiq.com

6.3.2 The session will be open for 3 hours to facilitate flexibility for participants to drop in at a convenient time. The presentation will be delivered hourly at 09.00, 10.00 and 11.00, and will offer a simplified precis of the proposed change and explain the methods by which interested parties can submit feedback: stakeholders will not be able to submit feedback through the webinar, but will be encouraged to utilise the Citizen Space online portal (see para 6.4 below).

6.3.3 The event aims to facilitate an opportunity for stakeholders to pose questions and queries on the proposed change or the CAP1616 process only; questions deemed out of scope may not be answered. Stakeholders are invited to send questions in advance to UASCDC-ACP@qinetiq.com

6.3.4 Questions posed by stakeholders attending this event that may be of interest to others, will be added to the living Frequently Asked Questions (FAQ) document after the session. Stakeholders that were unable to pose their questions during the session are encouraged to submit them via the Q&A chat box on the Webinar; by email to the Change Sponsor; or by responding through the feedback form accessible on Citizen Space.

6.3.5 Joining instructions:

- To join the meeting via Teams: [click here](#)

Meeting ID: 364 986 471 595

Passcode: HLtLZn

- To Dial-in by phone:

Dial: +44 20 3443 8728#

Phone conference ID: 242 913 365#

6.3.6 To register interest in the Webinar and to send questions in advance please do so via this email address - UASCDC-ACP@qinetiq.com

6.4 How to respond

6.4.1 In accordance with CAP1616 this consultation will be undertaken through electronic communication, and it is therefore requested that stakeholders wishing to provide feedback do so through the Citizen Space online portal.

6.4.2 The link to the Citizen Space portal can be found [here](#)

6.4.3 A response form, along with consultation documentation can be found on Citizen Space. Additionally, all supplementary documentation thus far can be found here: [Airspace change proposal public view \(caa.co.uk\)](https://caa.co.uk)

6.4.4 All materials produced as part of the consultation will aim to be as accessible as possible. However, should an audience member require a document in a different format, or would like a reasonable adjustment, they should contact the Change Sponsor, either by email or by post, to make their request.

6.4.5 A paper copy of this Consultation Document including the Feedback Form will be available on request at the address below. If stakeholders are unable to respond electronically, written responses to the hard copy form at Appendix A may be submitted to the address below, by including a stamped envelope if a reply is required:

The Airspace Change Manager
QinetiQ
4 Alpha Court
Kingsley Road
Lincoln
LN6 3TA

All written responses will be subsequently uploaded to the CAA ACP Portal.

The deadline for receipt of responses is Friday 2 August 2024.

7 Next Steps

7.1 Next steps in this proposal

7.1.1 This document will be submitted to the CAA as evidence to support the ACP-2023-022 Stage 4.

7.1.2 It is part of the documentary evidence for the Stage 4 Assessment Gateway (CAA's Assessment Gateway scheduled for 20 September 2024).

7.1.3 The following CAP1616 timeline is anticipated:

Date	Activity	Detail
2 August 2024	Stage 3 Consultation Ends	No further feedback will be considered after this date
5 September 2024	Stage 3 Collate & Review	Feedback document uploaded to the CAA ACP Portal
20 September 2024	Stage 4 - Update and Submit	Upload ACP final submission to the CAA ACP Portal
13 January 2025	Stage 5 - Decide	CAA decision
17 April 2025	Stage 6 - Implement	Airspace implemented
12 months post-implementation	Stage 7 – Post Implementation Review	Assessment of the effectiveness and usage of any implemented airspace

7.1.4 Consultation responses will be collated and assessed throughout the consultation period. Once the consultation period has closed, the Change Sponsor will analyse and categorise all responses received. A consultation report will be published, articulating the categorisation process, issues raised and how they have been resolved. Finally, the consultation will confirm the final option to be submitted to the CAA, including any amendments made to the chosen design as a result of consultation feedback.

7.1.5 The Change Sponsor will upload the document to the CAA ACP Portal once the CAA has confirmed that no further consultation is required.

7.1.6 CAP1616 requires change sponsors to make it clear to stakeholders the extent to which the proposed airspace change, once implemented, is reversible if it does not meet the objectives it is designed to achieve. The Change Sponsor will formally assess the effectiveness and usage of any implemented airspace at the post-implementation review at Stage 7. If the MOD finds that for any reason the airspace change does not meet the objectives it was designed to achieve, or if for any reason the airspace implemented is no longer required, the MOD will seek to reverse the airspace change.

Appendix A - ACP-2023-022: CONSULTATION FEEDBACK FORM

The following is the print copy of the online Consultation Feedback Form that will be distributed to stakeholders on request.

ACP-2023-022 - RPAS Operations to/from a nominated diversion airfield

Overview

The aim of this consultation is to seek stakeholder views on the introduction of a change in designation of airspace in the vicinity of RAF Marham.

The main operating base (MOB) for the large Remotely Piloted Air System (RPAS), Protector RG Mk1 is RAF Waddington, where permanent segregated airspace in the form of a danger area has already been established. The danger area is EG D324A/B, which was implemented at the end of November 2023. Under current timescales routine Protector operations is likely to commence from RAF Waddington in Summer 2024 when the MOD will conduct test and evaluation activities prior to Protector formally entering into service. During this, and for future activity in the UK, Protector will require a nominated permanent diversion airfield to be made available in the event that, for any unforeseen reason, RAF Waddington becomes unavailable. Following investigation into several military airfields, RAF Marham has been identified as the most suitable and preferred diversion airfield.

The purpose of this consultation is for all stakeholders to respond effectively to the information provided. The Feedback Form will assist in gathering and considering opinions and information from relevant stakeholders regarding the potential impact of this ACP.

The methodology of this consultation is summarised in the Consultation Strategy, which can be read in conjunction with the Consultation Document and the Full Options Appraisal.

The consultation period is from 11 June to 2 August 2024. Once consultation has ended, all feedback will be considered for the final design proposal. The final design proposal may evolve from that described in the Consultation Document, subject to stakeholder input.

ACP-2023-022 - RPAS Operations to/from a nominated diversion airfield
***Questions marked are required.**

Name*

Postcode*

Most relevant to your response e.g. home/work/organisation

Email

Address

If you enter an email address you will receive an acknowledgement email

Are you responding as an individual or do you represent an organisation? * (Please select one)

Individual

Organisation

If you are responding on behalf of an organisation, what is the organisation's name?

If you are responding on behalf of an organisation, what is your position/ title?

What best describes your association with this airspace change proposal? * (Please select one)

Aviation
Stakeholder

Local Authority
Stakeholder

NATMAC
Organisation

None of the
above

In accordance with the UK Civil Aviation Authority's (CAA) CAP 1616 (Airspace Design), consultation responses will be published on Citizen Space²⁵ via the CAA Airspace Change Portal. Responses will be subject to moderation by the Change Sponsor. If you wish your response to be published anonymously, please indicate below and your personal details (Name, Address & Position) will be redacted and only be seen by the CAA.*

Please select only one

Publish Response

Publish Response Anonymously

²⁵ <https://consultations.airspacechange.co.uk>

Do you support the proposed Airspace Change Proposal?*

Yes

No

Unsure

If you have any, please provide feedback on the following themes:

Access

(entering, exiting or transiting through the airspace)

More information can be found at: ACP-2023-022 Stage 3 – Consultation Document, paragraphs 3.1.2; 4.1.3, 5.1.2

Proposed level of the internal division of the airspace

More information can be found at: ACP-2023-022 Stage 3 – Consultation Document, Figure 5 and paragraphs 3.1.1 and 3.1.2

Size/dimensions of the airspace proposed

More information can be found at: ACP-2023-022 Stage 3 – consultation Document, Figure 5, Section 3 and paragraphs 3.1.1 and 3.1.2; Full Options Appraisal Section 3

<p style="text-align: center;">Proposed management & Notification of the active airspace</p> <p><i>More information can be found at: ACP-2023-022 Stage 3 – Consultation Document, Section 4</i></p>	
<p>Other</p>	

Do you require a response?

Yes

No

If so, how would you like to be contacted? *Please select only one*

Email

Post

If you would like to be contacted by post, please provide your postal address and include a stamped envelope

Your contact information will be used for the purposes of communication regarding this ACP ONLY

Appendix B – ACP-2023-022 – AT A GLANCE



Ministry
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ACP-2023-022

At-a-glance



Definition of RPAS:

Any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board. RPAS can also be referred to as UAS, UAV or 'drones'. It can fly, navigate and communicate like any other aircraft



Its home base is RAF Waddington, Lincolnshire, and the aircraft requires a nominated permanent diversion airfield in case it cannot return to its home base.

The nominated diversion airfield is
RAF Marham, Norfolk



Why Marham? The MOD conducted a scoping exercise to determine suitable locations for diversion of Protector. A total of 32 MOD airfields were assessed against a set of requirements. Analysis concluded that RAF Marham was the most suitable diversion airfield



Ministry
of Defence

ACP-2023-022

At-a-glance



Protector Stats: Protector has a 79 ft wingspan and is 38 ft long. It is powered by a single TPE 331-10 turbo-prop engine and will be operated by fully qualified RAF crews



RPAS activity is highly regulated in the UK and when Protector enters Service it will have limitations on which parts of the national airspace structure it can operate within. As RAF Marham sits in uncontrolled airspace, a volume of **Segregated Airspace** is required for Protector to be able to access it

Definition of **Segregated Airspace**:

Airspace of specified dimensions allocated for exclusive use to a specific user(s)

Airspace Change Proposal (ACP) 2023-022 aims to establish suitable airspace that will enable Protector to access RAF Marham, whilst keeping it safely segregated from other aircraft operating in the vicinity

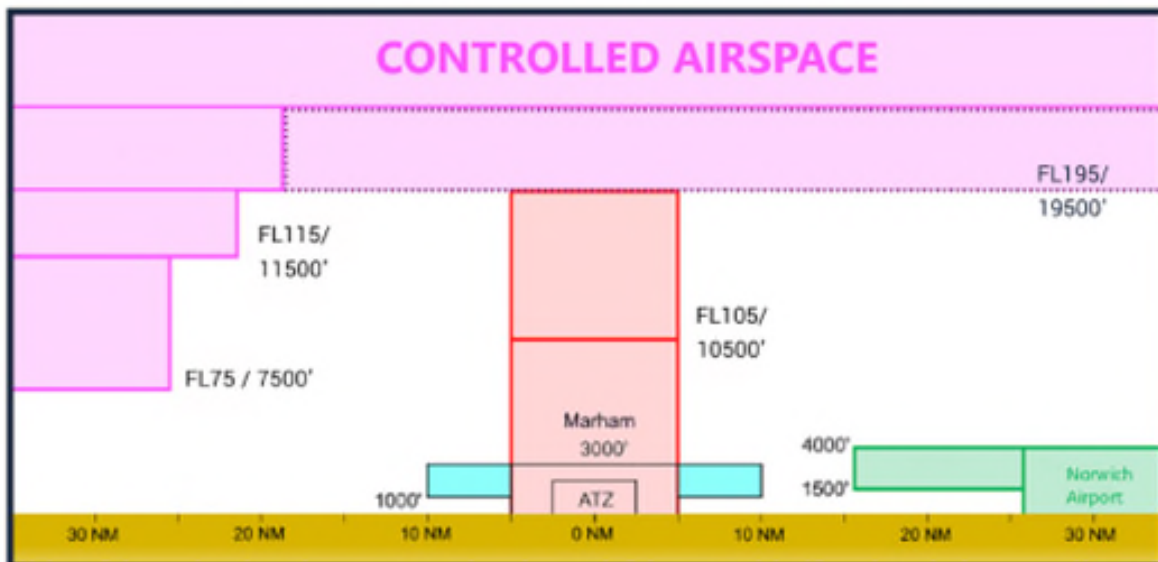


ACP-2023-022

Airspace Design

The proposed airspace is a 5nm (nautical mile) radius cylinder, from the ground to the bottom of the Controlled Airspace at FL195 (19500ft). The airspace is divided at FL105 (10500ft). This allows users to access the portion of the cylinder that isn't in use by Protector






Cross section of airspace above RAF Marham with proposed additional airspace in red



The airspace is only in force when required by Protector, and is activated and de-activated by **NOTAM**. When active, other airspace users can still access the airspace - when it is not in use or shortly to be used by Protector - by means of a Special Use Airspace Crossing Service (SUACS) from Air Traffic Control

Definition of NOTAM:

A notice distributed by means of telecommunication containing information ... the timely knowledge of which is essential to personnel concerned with flight operations

<p>Frequency of Use</p> 	<p>It is anticipated that when Protector enters service, the airspace would be activated up to 3 times per week, Monday - Friday only. Actual flying by Protector into RAF Marham would be much less frequent.</p>
<p>Noise</p> 	<p>Protector's engine is similar to that of other small light aircraft that already frequently visit RAF Marham, so there isn't expected to be any increase in noise.</p>
<p>Emissions</p> 	<p>Protector is only estimated to spend 6% of its time below 3000ft, the height above which emissions have little or no effect on air quality. In most aspects, Protector's engine produced approximately 40% less emissions in comparison to a large SUV.</p>
<p>Infrastructure</p> 	<p>No new infrastructure will be required, nor is there any expected increase in personnel requirements at RAF Marham.</p>
<p>Privacy</p> 	<p>The MOD is bounded by the Data Protection Act 2018 and, therefore, any data gained by the operation of Protector's sensors will be dealt with in an appropriate manner.</p>



ACP-2023-022

Further Information



ACP Key Dates	
13 January 2025	CAA decision on airspace
17 April 2025	Airspace implementation



All materials produced as part of the consultation will aim to be as accessible as possible. However, should an audience member require a document in a different format, or would like a reasonable adjustment, they should contact the Change Sponsor, either by email or by post, to make their request.



Where can I find out more information?

More detailed documentation is available on the Civil Aviation Authority's Airspace Change Portal. This can be found at airspacechange.caa.co.uk and searching for ACP-2023-022

or



Email UASCDC-ACP@Qinetiq.com