

# Danger Areas for Unmanned Air System Operations from Predannack – Post Implementation Review

CAP 2109

A large, abstract graphic composed of overlapping blue and purple shapes, resembling a stylized wing or a large letter 'C', occupies the lower half of the page. It features a gradient from light blue to dark blue and purple.

Published by the Civil Aviation Authority, 2021

Civil Aviation Authority  
Aviation House  
Beehive Ring Road  
Crawley  
West Sussex  
RH6 0YR

You can copy and use this text but please ensure you always use the most up to date version and use it in context so as not to be misleading, and credit the CAA.

First published 2021

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

Airspace, ATM and Aerodromes  
Safety and Airspace Regulation Group, Aviation House  
Gatwick Airport South  
West Sussex  
RH6 0YR

The latest version of this document is available in electronic format at: [www.caa.co.uk](http://www.caa.co.uk)

# Contents

---

<b>Contents</b>	<b>3</b>
<b>Executive summary</b>	<b>5</b>
<b>Scope and background of the PIR</b>	<b>6</b>
<b>What is a Post Implementation Review?</b>	<b>6</b>
<b>Background to our conclusions in this PIR Decision</b>	<b>6</b>
<b>Conditions attached to the CAA's decision to approve the change.</b>	<b>7</b>
<b>Relevant events since change (if any)</b>	<b>7</b>
<b>Data collected for the purpose of the PIR</b>	<b>8</b>
Sources of Information	8
<b>Objectives and anticipated impacts</b>	<b>9</b>
<b>The original proposal and its objectives</b>	<b>9</b>
<b>Anticipated Impacts</b>	<b>9</b>
<b>CAA assessment</b>	<b>10</b>
<b>Operational Assessment</b>	<b>10</b>
Safety	10
Operational Feedback	10
Air Navigation Service Provision	10
Utilisation and Track Keeping	10
Traffic	10
Infringements and Denied Access	11
Letters of Agreement	11
Environmental Assessment	11
Community Stakeholder observations	11
International Obligations	11
Ministry of Defence Operations	12
Any other impacts	12
<b>Conclusion</b>	<b>12</b>
<b>Note on plain language</b>	<b>12</b>

<b>Annex A – Information From Sponsor</b>	<b>13</b>
<b>Sponsor’s Initial Letter</b>	<b>13</b>
<b>Follow-Up Email Chain</b>	<b>15</b>

## Executive summary

---

1. The CAA's airspace change process is a seven-stage mechanism that is set out in detail in CAP 725<sup>1</sup>/CAP1616<sup>2</sup>. Under this process, on 28<sup>th</sup> September 2018 the Ministry of Defence (MOD) submitted to the CAA an Airspace Change Proposal (ACP) developed by Royal Navy Air Station Culdrose (RNAS Culdrose) to implement changes to the military Danger Areas around The Lizard in Cornwall. The aim of this ACP was to facilitate the operation of Unmanned Air Systems (UAS) ("drones") over the sea to support military exercises and training. Current UK regulations require that any UAS operated Beyond Visual Line of Sight (BVOLS) be operated within segregated airspace – the activation of a Danger Area provides that segregation.
2. The proposals were accepted by the CAA on 12<sup>th</sup> April 2019<sup>3</sup> and implemented on 18<sup>th</sup> July 2019. The CAA started the Post Implementation Review (PIR) of the impact of its decision and the implemented change on 18<sup>th</sup> November 2020. The content and outcome of the review process by the CAA is discussed in detail in this report including its annex.
3. On 2 January 2018 the CAA introduced a new process for making a decision whether or not to approve proposals to change airspace design. Irrespective of whether the CAA decision to approve the change was made under the previous process (set out in CAP 725), we will conduct all Post Implementation Reviews in accordance with the process requirements of CAP1616. However, when assessing the expected impacts against the actual impacts we will use the methodology adopted at the time of the original CAA decision in order to do so.
4. During the review process, the CAA considered the formal response from the Sponsor which is contained in the Sponsor's documents contained at Annex A:
  - Letter of 11/12/20
  - Follow-up email of 18/01/21

---

<sup>1</sup> <https://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=395>

<sup>2</sup> <https://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=8127>

<sup>3</sup> Decision formally published as CAP 1785: <https://www.caa.co.uk/cap1785>

5. As a result, the CAA has reached the following conclusion:

The CAA is satisfied that the implementation of Danger Areas EG D005A, EG D005B, EG D006B and EG D006C has satisfactorily achieved the intended objectives, and the change is confirmed.
6. This report, and its annexes, provide the information the CAA has reviewed and taken into account before reaching these conclusions.

## Scope and background of the PIR

---

### What is a Post Implementation Review?

---

7. The CAA's approach to decision-making in relation to proposals to approve changes to airspace is explained in its Guidance on the Application of the Airspace Change Process, CAP [725/1616]. This detailed Guidance provides that the seventh and last stage of the process is a review of the implementation of the decision, particularly from an operational perspective, known as a Post Implementation Review (PIR).
8. The Guidance states that the purpose of a PIR "is for the change sponsor to carry out a rigorous assessment, and the CAA to evaluate, whether the anticipated impacts and benefits in the original proposal and published decision are as expected, and where there are differences, what steps (if any) are required to be taken".
9. If the impacts are not as predicted, the CAA will require the change sponsor to investigate why and consider possible mitigations or modifications for impacts that vary from those which were anticipated to meet the terms of the original decision.
10. A PIR is therefore focused on the effects of a particular airspace change proposal. It is not a review of the decision on the airspace change proposal, and neither is it a re-run of the original decision process.

### Background to our conclusions in this PIR Decision

---

11. On the 12<sup>th</sup> April 2019 the CAA approved the creation and amendment of Danger Areas over the sea off The Lizard in Cornwall to enable the operation of BVLOS UAVs from Predannack airfield. This change was implemented on the 18<sup>th</sup> July 2019.
12. BVLOS UAV operations now form an essential part of military training and exercises. The MOD identified Predannack as being appropriate for this due to its existing aviation infrastructure (including services provided by the nearby RNAS

Culdrose) and proximity to both the coastline and the relevant naval training areas. Figure 1 shows the geographical relationships.



**Figure 1 – Geographical Context**

## Conditions attached to the CAA's decision to approve the change.

---

13. No conditions were attached to the CAA decision.

## Relevant events since change (if any)

---

14. The COVID-19 pandemic arose during the period covered by this PIR. However, the Sponsor has confirmed that there has been sufficient use of the Danger Areas by UAVs during the period to be able to assess their real-world operation and impact.

## Data collected for the purpose of the PIR

---

### Sources of Information

#### Change Sponsor

15. In addition to the original ACP submission and supporting material, the Sponsor provided a letter to the CAA explaining why they considered the Implementation to have been successful, plus follow-up information in response to supplementary questions from the CAA.



# Objectives and anticipated impacts

---

## The original proposal and its objectives

---

16. The objective for this airspace change was provide suitable segregated airspace to allow military UAVs to undertake training flights and support military exercises in BVLOS conditions.
17. The appropriate mechanism to deliver segregated airspace was via a set of Danger Areas. A suitable transit corridor was also required as the UAVs would be operating in BVLOS conditions while transiting to and from the designated military training area.
18. The aim of using Danger Areas to provide segregated airspace is to ensure that all relevant airspace users, whether civilian or military, are aware of the precise extent of that airspace, the activities happening within it, and who to contact in case they should need to enter it.

## Anticipated Impacts

---

19. Military Danger Areas are only activated when required for operational/training purposes. The anticipated impact was therefore that other airspace users would be excluded from the affected airspace during live operations, while the UAVs would be contained within it. Appropriate arrangements would be put in place to ensure that valid entrance into the airspace by other airspace users (e.g. Search and Rescue flights) would be possible and safe, through coordination with RNAS Culdrose.
20. Danger Areas EG D005A and EG D005B are explicitly for BVLOS UAV operations. When the UAV flights were not happening, these Danger Areas would not be activated and there would be no impact on other airspace users or stakeholders on the ground.
21. Danger Area EG D006 was already in existence to support the South Coast Exercise Areas and may be used for various military purposes besides UAVs. Its modification in this ACP by the creation of EG D006B and EG D006C was intended to reduce the impact on other airspace users by allowing the different sections to be activated and de-activated as required, rather than as one single block.
22. Because the UAV operations would replace some existing helicopter operations at Predannack, the overall impact on ground stakeholders was expected to be a reduction in noise caused by military flying from Predannack, since the UAVs intended to use the area are much smaller and quieter than manned helicopters.

## CAA assessment

---

23. We have taken into consideration the interval since implementation and the change in utilisation of UK airspace when conducting this assessment.

## Operational Assessment

---

### Safety

24. The Sponsor reported that there were no identified safety issues for the whole of the first year of operations. Four incidents have been recorded during the autumn/winter of 2020 but these are considered to be of low severity and largely avoidable in the future through increased pilot briefing. Three of these incidents were infringements by military aircraft in the RNAS Culdrose visual traffic circuit. Given that RNAS Culdrose is responsible for providing the Air Traffic Service for Predannack, these infringements may be considered more as “breaches” by “home” traffic than outright incursions by “foreign” traffic.
25. The fourth incident was reported as being confusion about the activation status of the Danger Areas, rather than an actual airspace incursion.

### Operational Feedback

26. Nothing further.

### Air Navigation Service Provision

27. The MOD is responsible for providing the Danger Area Crossing Service (DACCS) while the Danger Areas are activated and a Danger Area Activity Information Service (DAAIS) at other times. The Sponsor reports no issues with the provision of either of these.

### Utilisation and Track Keeping

28. Although detailed activation and utilisation records have not been kept, the Sponsor has confirmed that all 4 areas have been activated and utilised since implementation, with EG D0005A (the circle around Predannack itself) being the most frequently utilised by UAVs. None of the safety incidents identified above involve a UAV inappropriately leaving the Danger Area complex.

### Traffic

29. As noted earlier, the use of Predannack for military UAV operations has reduced its use by military helicopters. However, this is an operational decision by the MOD about the use of its own assets and is therefore does not form part of the basis for

the CAA PIR decision. Other operations at Predannack are only permitted when it is closed for military purposes – this ACP does not change that.

### **Infringements and Denied Access**

30. Three infringements were reported during late 2020, all by military airspace users. All are still under investigation and at least one is disputed by the pilot. As these are infringements of a military Danger area by military personnel, they are an issue for the relevant military authorities, not the CAA. However, the sponsor has indicated that if necessary an education exercise will be undertaken.
31. No requests for urgent access (e.g. Search and Rescue) have been notified.

### **Letters of Agreement**

32. The Sponsor reports that Letters of Agreement (LoAs) regarding the activity within EGD005A/B are in place with Flag Officer Sea Training (Plymouth Military Radar), HMCG SAR Helicopter Unit (Newquay) and LoAs are signed by all operators prior to RPAS operations. Additionally the Sponsor has briefed the Southwest Airspace Users group, attended by commercial and GA community, at a one of the regular meetings held at Cornwall Airport Newquay.

### **Environmental Assessment**

33. As a military ACP, the environmental impact of military operations themselves is not to be taken into account in the PIR.
34. The other main users of Predannack Airfield itself (outside of military operating hours) are gliders and model aircraft. Neither of these generate a significant enough environmental impact to be considered relevant in the context of this PIR.
35. Finally, Predannack Airfield and the new Danger Areas are in Class G airspace (where aircraft are not required to submit flight plans), in a very sparsely populated part of the UK. As such, there is comparatively little other traffic to be affected by the activation of the Danger Areas (which is in itself not an “all day, every day” occurrence).
36. The environmental impact of this ACP is therefore considered to be negligible.

### **Community Stakeholder observations**

37. No observations have been reported. As noted above, the use by Predannack of UAVs has reduced military helicopter traffic and thus should have reduced the impact of military operations on the local community.

### **International Obligations**

38. Not applicable as this airspace change is wholly contained within the London FIR and does not reach any international borders.

## Ministry of Defence Operations

39. This is a Ministry of Defence ACP to support its own operations. The MOD has confirmed it is satisfied that the size and shape of the Danger Areas is appropriate to its needs for the purpose of flying BVLOS UAVs.

## Any other impacts

40. No other impacts have been identified.

## Conclusion

---

41. The CAA is satisfied that the implementation of Danger Areas EG D005A, EG D005B, EG D006B and EG D006C has satisfactorily achieved the intended objectives, and the change is confirmed.

## Note on plain language

---

42. The CAA has attempted to write this report as clearly as possible. Our approach has been to include all the relevant technical material but also to provide a summary and of the conclusions the CAA has reached in reliance on it in as understandable a way as possible. Nevertheless, when summarising a technical subject there is always a risk that explaining it in more accessible terms can alter the meaning.

# Annex A – Information From Sponsor

---

## Sponsor's Initial Letter

---



### Fleet Air Arm

ATCO 2  
Air Traffic Control  
Royal Naval Air Station Culdrose  
HELSTON  
Cornwall  
TR12 7RH

██████████  
Airspace Regulator (Technical)  
Airspace, ATM & Aerodromes  
Civil Aviation Authority

Telephone: ██████████  
Military Net: ██████████  
Email: ██████████@mod.gov.uk

11 Dec 2020

### RESPONSE TO POST IMPLEMENTATION REVIEW OF PREDANNACK DANGER AREAS (EGD005A & B)

1. Please see my response to your questions regarding the Post Implementation Review (PIR) of the Predannack Danger Areas (EGD005A & B) established on 18 Jul 19:

Q1. Whether in MOD's opinion, it is possible to undertake a meaningful 12-month PIR at this point for this ACP given the wider COVID-19 context and if not, what time period would be meaningful?

A. Yes, multiple activations have taken place since 18 Jul 19 giving all airspace users the ability to familiarise themselves with the restrictions.

Q2. The number of times the DA complex has been activated (whether entirely or in part) and how the modular nature has been utilised?

A. Records have not been kept of each activation however, there have been numerous activations of EGD005A, less including EGD005B and less again involving EGD006B & C. The vast majority of activity takes place within EGD005A & B but all areas have been utilised at times to meet operational trials. A system will be put in place to record activations from Jan 21.

Q3. Whether all activations have been notified to other airspace users via NOTAM, and if not why not?

A. Yes, all activations of EGD005A & B have been notified via NOTAM and any use of EGD006B & C outside of notified times would be NOTAMed.

Q4. Whether the DACS has been available on all occasions and what use has been made of it?

A. Yes, a radar controller at RNAS Culdrose has provided a DACS of areas notified but not currently active. When a DACS has been unavailable due to RPAS activity a suggested alternative routing has been offered.

Q5. Whether the DAAIS has been available at all other times?

A. Yes, during all activations a Radar controller has been in position at RNAS Culdrose to provide a DAAIS.

Q6. The nature of any interactions with SAR operations, the local gliding club, and other aviation stakeholders, and the effectiveness of any LoAs?

A. LoAs have been established with other local airspace users (especially SAR & HEMS operators) and are subject to regular review. Information on the initial implementation of the Danger Areas was given to local flying clubs and airfields and remains part of the RNAS Culdrose ATC brief to Station based aircrew.

Q7. Any infringements or other safety issues?

A. Yes, there have been three infringements (all in the last two weeks) and one instance of confusion as to the activity status (Oct 20) all are subject to internal investigation and review of procedures for suitability or change. However, the infringements have all been by aircraft joining or leaving the Culdrose visual circuit and have been relatively minor airspace breaches with no effect upon RPAS operations due to immediate action being taken by ATC.

Q8. Whether there has been any need for emergency access into the DA complex by other manned aircraft?

A. None notified.

Q9. Whether MOD consider the DA complex to be appropriate for the declared purpose, and if not why not?

A. Yes, multiple scenarios have been trialled for differing use of the DA complex with various RPAS options.

Q10. Whether MOD consider the DA complex and its component elements to be the appropriate size and shape for the declared purpose?

A. Yes

Q11. Any issues raised by local aviation and non-aviation stakeholders?

A. None notified.

Q12. The environmental impact of the change?

A. None notified.

Q13. Whether any additional infrastructure has been required?

A. No, current ATC infrastructure at Predannack has been utilised.

Q14. Whether, in MOD's opinion, the implementation of the ACP meets with the Principles declared in Paragraph 7 of the Submission Document?

A. Yes

Q15. Whether, in MOD's opinion, the implementation of the ACP is consistent with the Key Findings declared in Paragraph 31 of the Submission Document?

A. Yes

Q16. Any other information relevant to the requirements of Paragraphs 50 and 51 of the CAA Decision?

A. Yes

2. If you have any further questions, please do not hesitate to contact me.

[REDACTED]

[REDACTED]

Lieutenant Commander  
Royal Navy

## Follow-Up Email Chain

---

**From:** [REDACTED] Lt Cdr (NAVY CU-AIR ATC CTRL6) <[REDACTED]@mod.gov.uk>  
**Sent:** 18 January 2021 09:31  
**To:** [REDACTED] <[REDACTED]@caa.co.uk>  
**Subject:** RE: 20201214 - Predannack PIR MOD Response

[REDACTED],

In response to your questions:

Q6 LoAs regarding the activity within EGD005A/B are in place with Flag Officer Sea Training (Plymouth Military Radar), HMCG SAR Helicopter Unit (Newquay) and LoAs are signed by all operators prior to RPAS operations. Additionally I have briefed the Southwest Airspace Users group, attended by commercial and GA community, at a one of the regular meetings held at Cornwall Airport Newquay, although these have now been interrupted by COVID-19 restrictions.

Q7 All recent incursions have been by military users and are still under investigation. One was a foreign pilot seemingly unaware of the DA the others have been from the visual circuit at Culdrose and at least one infringement is disputed by the pilot. An internal education/reminder is likely.

Q16 Should have been No.

Hope these help, please contact me if you require more information.

Aye

[REDACTED]

Lt Cdr [REDACTED] RN  
ATCO  
HMS SEAHAWK  
Building D47 | Royal Naval Air Station Culdrose | Helston | Cornwall | TR12 7RH  
☎ Mil: [REDACTED] | ☎ Civ: +44 (0) [REDACTED]  
✉ MODNET [REDACTED] @mod.gov.uk



Protecting the Nuclear Deterrent  
Defending the Nation's Aircraft Carriers  
Training the next generation of the Fleet Air Arm

*This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom it is addressed. If you are not the intended recipient or there are problems please notify the sender and then delete the e-mail (and file(s) if attached) from your system. Recipients should note that e-mail traffic on MOD systems is subject to monitoring, recording and auditing to secure the effective operation of the system and for other lawful purposes. The MOD has taken steps to keep this e-mail and any attachments free from viruses. However it accepts no liability for any loss or damage howsoever caused as a result of any virus being passed on. It is the responsibility of the recipient to perform all necessary checks. The statements expressed in this e-mail are personal and do not necessarily reflect the opinions or policies of the department.*

---

**From:** [REDACTED] <[REDACTED]@caa.co.uk>  
**Sent:** 05 January 2021 12:57  
**To:** [REDACTED] (DAATM-Airspace Strategy SO2) <[REDACTED]@mod.gov.uk>  
**Cc:** [REDACTED] (NAVY CU-AIR ATC CTRL6) <[REDACTED]@mod.gov.uk>;  
[REDACTED] (NAVY CU-AIR ATC SATCO) <[REDACTED]@mod.gov.uk>  
**Subject:** RE: 20201214 - Predannack PIR MOD Response

Dear [REDACTED]

I have supplementary questions on just 3 of your responses.

Q6 Could you please be more specific about which local airspace groups/operators you have LoAs with? And confirm whether these are effective?

Q7 Is there any cause for concern that the DAs have been operating without issue for several months but you have recently had 4 (3 infringements and an activity status confusion) in a matter of weeks?

Q16 You answered "Yes" about having other information but didn't provide anything. Was that answer a typo?

Kind Regards

[REDACTED]