CAA Environmental Assessment

Title of airspace change proposal	Enabling RPAS and RAF Aerobatics Team Operations Out of RAF Waddington
Change sponsor	Ministry of Defence
Project reference	ACP-2019-18
Account Manager	[redacted]
Case study commencement date	01/06/2023
Case study report as at	07/08/2023

Instructions

In providing a response for each question, please ensure that the 'status' column is completed using the following options:

- YES
- NO
- PARTIALLY
- N/A

To aid the SARG Lead it may be useful that each question is also highlighted accordingly to illustrate what is:

resolved YES not resolved PARTIALLY not compliant NO

1. Introduction

This CAA environmental assessment and statement describes the environmental factors relevant to the Ministry of Defence (MoD), specifically the 22 Group Royal Air Force's (RAF) ('the sponsor') Airspace Change Proposal (ACP) to create a volume of segregated airspace in the vicinity of RAF Waddington to facilitate beyond visual line of sight (BVLOS) operations of a large military Remotely Piloted Air System (RPAS), the Protector RG Mk1, between RAF Waddington and its operating and training areas in the UK. The ACP also aims to enable access to segregated airspace over RAF Waddington for the RAF Aerobatic Team (RAFAT) or the 'Red Arrows' to conduct aerobatic flying formations and display training, following the team's relocation in 2022 from RAF Scampton to RAF Waddington.

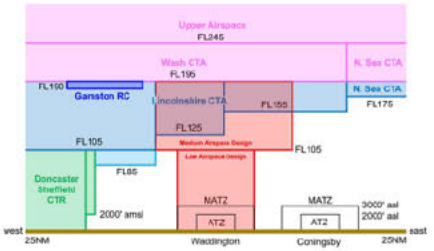
Following the three phases of Options Appraisals, the final proposed design option that was determined to be the best solution comprises of two distinct Danger Areas (DA) which overlap laterally and are joined vertically, see Figure 1. The first DA, known as the 'Low' airspace structure, is a 5nm cylinder, centred on RAF Waddington, extending from surface to 10,500 ft. (FL105) that is necessary to contain RAFAT activities. The second DA, referred to as the 'Medium' airspace structure, is a rectangular volume of airspace (18nm x 13nm), which sits above the 'Low' DA and extends from

10,500 ft. to 19,500 ft. (FL105 to FL195), allowing Protector to climb into other Class A and/or Class C airspace. The Low DA will be used for both the RPAS and RAFAT activities, while the Medium DA will only be used by Protector.

Source data – CAA VFR aeronautical chart

Final Combined Low and Medium Airspace Design Options

Activation:
Low would be used for both RAFAT and Protector activities.
Medium would be activated for Protector activity only, to enable Protector to continue climb into Classes A and/or C airspace and vice versa.



Combined airspace design cross-section WNW/ESE

Lateral Dimensions:
Low - 5 nm radius circle centred on RAF Waddington's aerodrome reference point[5] (ARP).
Medium - 18 x 13 nm rectangle aligned to and abutting the southern edge of the Lincs CTA.

Vertical Dimensions:
Low – Surface – FL105
Medium – FL105 - FL195

Figure 1: Combined Low and Medium Airspace Design Options

2. Nature of the Proposed Change		Status
2.1	Is it clear how the proposed change will operate, and therefore what the likely environmental impacts will be?	Yes

	The DAs will be activated by Notices to Aviation (NOTAM) (either together or separately) at least 24 hours in advance and only when required for the duration of RPAS and RAFAT activities. The DAs will be managed by the Military Airspace Management Cell (MAMC) and used on the following basis: • The Low DA will always be activated for RPAS and RAFAT activity • The Medium DA will be activated for RPAS activity only; when activated for Protector, the Low DA will be simultaneously activated The sponsor has estimated that Protector activities will require activation of the DAs for up to three days per week. The total durations are expected to last for up to 12 hours, however, the RPAS would only need approximately 10 minutes in the Low airspace design for departure and recovery. For RAFAT, activation of the Low airspace design is estimated, based on 'worst-case' scenario, to be 6 x 30-minute daily training slots on weekdays between September and March, with occasional weekend use from mid-May to end September for in season practice. When the proposed airspace is active for Protector operations, a Danger Area Crossing Service (DACS) and a Danger Area Activity Information Service (DAAIS) will be provided by Waddington ATC to offer other airspace users the option to cross the segregated airspace. A DAAIS via London Information will also be available. Impacts on other airspace users are likely to be greater during RAFAT activities in the Low DA, leading to some re-routing around or holding outside the activated DA until clearance can be given. The ACP is scaled as a Level M1 as it has potential to alter civil aviation traffic patterns below 7,000 ft. over an inhabited area and is being sponsored by the MoD. For Level M1 ACPs, the CAA is directed to disregard the environmental impacts that are a direct result of military aircraft or military operations (including civil aircraft carrying out military function under contract). However, consequential environmental impacts from other airspace users (i.e., civil aviation) that are a result of the proposed change must be assessed in accordance with Level 1 requirements. To provide an understanding of current aircraft activity (i.e., the baseline situation) the sponsor has provided a detailed description of both the military and civil aviation activity in the vicinity of RAF Waddington. RAF Waddington has an Aerodrome Traffic Zone (ATZ) and a Military Aerodrome Traffic Zone (MATZ). The airspace around RAF Waddington is classified as Category G, uncontrolled airspace, with no restrictions on which aircraft can enter it, what equipment the aircraft must carry, and the routes taken by the aircraft. This means that the activity of other airspace users, and hence those airspace users consequentially affected by the change, are not possible to predict with any certainty. In respect of civil aviation activity, the area around RAF Waddington is populated by numerous civil airfields and airstrips used for general aviation (GA), gliding, paragliding and parachute activities, including Temple Bruer and Wickenby airfields which are adjacent to the proposed airspace and the British Parachute School/Skydive Langar that operates in the airspace towards the south-west. Waddington

	Flying Club also operates out of RAF Waddington for civilian flying training while RAF Cranwell situated nearby also hosts a popular gliding club. No data on aircraft movements associated with the flying school has been provided but will presumably be subject to Waddington's ATC and military schedule. The airspace within the Medium DA is used infrequently by gliders and occasional aircraft leaving the national air traffic route structure to position for arrivals into the Midlands airports. The sponsor submitted an assessment to evaluate the potential consequential impacts of the Low airspace design on civil traffic which has the same lateral dimensions as the extant MATZ at RAF Waddington. The first qualitative assessment presented the approximate frequency of civil air traffic passing within 5nm overhead RAF Waddington on an average day as provided by RAF Waddington ATC. Vertically, the Low DA extends to FL105, however, according to RAF Waddington ATC, very few civil aircraft transit between 3,000 ft to FL105 within 5nm and the majority contact ATC. The sponsor estimated this to be around 15 daily requests from GA aircraft for MATZ and overhead crossings on an average. A peak of high 20s on the busiest flying days was anticipated, however, predicted to be less than 30 on any given day. The second assessment provided supporting quantitative data taken from RAF Waddington ATC for monthly MATZ crossing statistics for 2019 which indicated that a total of 615 GA aircraft requested a crossing service. Further, the sponsor's analysis for August 2019 which was the busiest month in the year prior to the COVID pandemic indicated an average of 19 MATZ crossings per week (or approximately 3 per day, maximum being between 6-10 per day assuming 2-3 busy days per week). Based on this evidence, the sponsor rationalises that the majority of civil aircraft will continue to request and obtain a DACS to cross the Low DA, with only a few (unspecified number) requiring re-routing or holding due to ongoing activity within the Low segregated airspace. However, this is expected to be minimal due to good radar equipage levels as indicated during stakeholder feedback. Other mitigation measures such as Letters of Agreement (LoA) established with potentially impacted stakeholders (members of Kesteven Model Flyers, and other locally situated British Model Flyers Association (BMFA) clubs, Lincolnshire & Nottinghamshire Air Ambulance) and efficient management of airspace are also estimated to minimise impacts. GA will also be able to access other airspace over RAF Scampton which will not be active simultaneously. The sponsor mentions that a proportion of the aircraft requesting an overhead routing might also plan to fly above the MATZ to maximise success of obtaining a crossing approval. The sponsor also states that the proposed ACP will not result in an increase in the number of aircraft operating in the local area nor alter aircraft types. Therefore, based on the available assessment data, the sponsor concludes that any further quantitative assessment of environmental impacts would be disproportionate. The CAA agrees that the proposed DAs will have a negligible environmental impact as result of the consequential impacts on other airspace users. This conclusion is formed due to the minimal number of in-scope aircraft identified to be affected, which will be primarily mitigated through the introduction of a DACS.

3. Secretary of State Call-in Noise Criterion	Status

3.1	Is the proposal likely to meet the Secretary of State's criterion for call-in on noise impacts? If yes, has the additional assessment on that criterion been undertaken and what are the results? If no, what is the rationale for that conclusion? *The criterion, as set out in the DfT's Air Navigation Guidance (2017)[1] is that the proposed airspace change could lead to a change in noise distribution resulting in a 10,000 net increase in the number of people subjected to a noise level of at least 54 dB[2] as well as having an identified adverse impact on health and quality of life.[3]*	No
	CAP1616 paragraph B54 identifies that an assessment of health and quality of life impacts using Department for Transport's (DfT) Transport analysis guidance (TAG) will not be required for any airfield or aerodrome with fewer than an average of 30 movements per day. This screening criteria assumes that 30 aircraft movements per day will be required to trigger noise levels of 51 dB LAeq,16hr which is the point at which adverse effects begin to be seen on a community basis and therefore the lowest input value for the purposes of TAG. A 3 dB increase in noise is equivalent to a doubling of noise energy and therefore approximately 60 aircraft movements per day would be expected to result in noise levels above 54 dB LAeq,16hr. Based on the evidence provided by the sponsor as explained in Q2.1 and Q7.1 to 7.3, the CAA therefore concludes that this airspace change is unlikely to lead to a change in noise distribution resulting in a 10,000 net increase in the number of people subjected to a noise level of at least 54 dB LAeq,16hr or have an identified adverse impact on health and quality of life.	

4. Statement of Need		**Status**
4.1	Does the Statement of Need include any environmental factors?	No
	The statement of need does not include any environmental factors.	

5. Design Principles		**Status**
5.1	Does the final set of Design Principles include any environmental objectives?	Partial

[1] The DfT's call-in criteria are set out in The Civil Aviation Authority (Air Navigation) Directions 2017, Section 6, paragraph (5). These Directions are replicated in Annex D of the DfT's Air Navigation Guidance 2017,

[2] LAeq 16h noise exposure.

[3] The assessment of the numbers of people affected and the associated adverse impacts on health and quality of life of the airspace change proposal should be carried out by the sponsor in accordance with the requirements set out in the DfT's Guidance.

	The Change Sponsor developed a set of seven Design Principles (DP). While there was no specific DP on environmental objectives, DPs *d) 'Minimise the impact to other airspace users'* and *(e) 'Endeavour to make the airspace as accessible as possible'* are considered to influence the nature and scale of consequential environmental impacts on other airspace users and are, therefore, considered to include an environmental objective. DP *(f) 'Use Flexible Use of Airspace (FUA) principles to manage the airspace as far as practicable (Efficiency and Airspace Sharing)'* also aims to minimise disruptions to civil air traffic and therefore impacts the consequential environmental impacts by efficient operational management of airspace. Further, it may also be considered that DP *(c) 'Where possible and practicable, accommodate the emerging Airspace Modernisation Strategy'* also indirectly refers to the Strategy's overarching Environmental Sustainability principle in terms of minimising impacts. It should be noted that not all the design principles include a SMART objective or are fully defined.	
5.2	Does the proposal explain how and to what extent the final airspace design achieves any environmental Design Principles?	Yes
	In terms of DP (d), the sponsor developed the final airspace design from six Low level airspace design options and two Medium level airspace design options. At Step 2A, the sponsor reduced the Low airspace design options to a single option (Option 1), as it was considered the only option that met all the DPs and used the "*smallest volume of airspace and, without stubs, such that it will reduce the impact on operations at Wickenby and Temple Bruer particularly*". At Stage 3, the final Medium airspace level design option was selected with refinements that reduced its lateral dimensions. This avoided disruption to the British Parachute School/Skydive Langar aircraft operating from Langar Airfield and allowed aircraft using the Gamston Radar Corridor to continue doing so. It is therefore considered that the final airspace design achieves DP (d). In respect of DP (e) and (f), the airspace change proposal is to introduce the DAs, activated via NOTAM at least 24 hours in advance by RAF Waddington Operations through the MAMC. The DAs will only be activated when required and access by civil air traffic will be maximised by the ability to obtain a DACS and DAAIS offered by RAF Waddington ATC. In addition, the sponsor states that the airspace will be handed back for civil use under FUA and Airspace Management (ASM) policy principles should the activity be cancelled or concluded early. LoAs established with other airspace users are also considered to further reduce impacts. It is, therefore, considered that the final airspace design minimises any consequential environmental impacts and achieves the environmental DPs, including DP (c). Note that the sponsor has also proposed application of an internal buffer to the Low and Medium DA in the associated request for dispensation from the CAA Safety Buffer Policy which is anticipated to further reduce impact on network route traffic within the Lincolnshire Control Area (CTA) if approved.	
5.3	Were there any proposed environmental Design Principles that were rejected from the final set? If so, is the rationale for rejecting those Principles reasonable?	Yes

	This ACP was originally initiated to enable the operation of Protector when it came into service from early-2020s. Due to the closure of RAF Scampton, the CAA agreed that this ACP could be amended to incorporate another ongoing airspace change proposal - *ACP-2018-72: Relocation of RAFAT training airspace* - in order to rationalise the requirement for airspace in the vicinity of RAF Waddington. ACP-2018-72 was thus withdrawn at Stage 1 and following the inclusion of RAFAT activity as part of the objectives of this current ACP, a rationalisation of design principles was carried out and further engagement with stakeholders undertaken. The withdrawn ACP-2018-72 included '*DP3: The design must consider sensitive areas. Specific sensitive areas for military aircraft will be determined through consultation. Examples may include, but not be limited to: hospitals, industrial hazards and equestrian facilities.*' Several comments were received from stakeholders requesting retention of this DP in the current ACP, however, as stated in *Appendix 1 – Rationalisation of RAFAT ACP DPs against ACP-2019-18* the sponsor reasoned that, *"The MOD is not required to provide an environmental assessment of increased noise and emissions as a direct consequence of relocating the Red Arrows' activity. However, it will assess any impact on noise and/or tranquillity as a consequence of GA being re-routed as a result of the ACP. Care will be taken to minimise this."* The CAA considers that the rationale for rejecting this DP is reasonable given the environmental assessment requirements for ACPs sponsored by the MoD. The final set of DPs as described in Q5.2 above, while not explicit in terms of environmental objectives are nevertheless considered to sufficiently address the assessment requirements in terms of indirect impacts caused as a result of this ACP.	
5.4	Were there any design options during the airspace change process that might have better met the environmental Design Principles than the final proposal as submitted to the CAA? If so, is the rationale for rejecting those options set out?	No
	The sponsor developed six options for the Low airspace design and two options for the Medium airspace design which were evaluated against the 'Do-nothing' option. All Low airspace design options, other than Option 1, failed to meet DP (d) while the two Medium airspace design options met all DPs influencing environmental performance. The final proposal consisting of the combination of the Low airspace design (Option 1) and the refined Medium airspace design have the minimal dimensions required and is therefore considered to be the design option that best meets DP (d). Additionally, mitigation measures proposed by the sponsor such as the implementation of a DACS, LoAs, application of FUA and ASM policy principles also minimise consequential environmental impacts and therefore facilitate compliance with DPs (c), (e) and (f).	

6. Options Appraisal		**Status**
6.1	Have environmental impacts been adequately reflected and assessed in the Options Appraisal?	Yes

	The airspace around RAF Waddington is classified as Category G, where the sponsor describes that, "*the majority of the civil air traffic is GA and engaged predominantly in leisure or sporting activity*" and that "*it would be difficult to predict any definite traffic patterns created by any new segregated airspace.*" The sponsor has therefore qualitatively assessed all environmental impacts against the current day baseline within its Options Appraisal. The CAA agrees that, as the airspace is uncontrolled, it is not possible to accurately estimate how airspace users will fly, including the frequency, height, and ground track. Therefore, the CAA agrees with the sponsor's approach of undertaking qualitative assessments. In terms of Level 1 environmental metrics, the sponsor has qualitatively assessed the impacts on noise, greenhouse gas emissions, local air quality and tranquillity within its options appraisal, while impacts on biodiversity have not been explicitly considered or screened out.	
6.2	Is the final proposal as submitted to the CAA the airspace design option that also produced the best environmental impacts as assessed by the Options Appraisal? If not, does the rationale for selecting the preferred option adequately explain this choice?	Yes
	As stated in Q5.4, the sponsor assessed that the final airspace design option submitted to the CAA has the minimal dimensions required in terms of airspace volume necessary for the RPAS and RAFAT activities and therefore caused the least impact to other airspace users compared with the other design options. As the environmental impacts associated with the ACP are expected to be proportional to the consequential changes to civil aircraft patterns, the final design option submitted to the CAA is also likely to produce the best environmental impacts, as assessed by the Options Appraisal.	

7. Noise [for Level 1 and Level M1 airspace change proposals]		**Status**
7.1	Has the noise impact been adequately assessed and presented in both the consultation material and the final submission to the CAA, taking account of scalability and proportionality?	Yes
	The sponsor has undertaken a high-level qualitative assessment of noise metrics including LAeq, TAG, N-above, overflight and operational diagrams. In general terms, the sponsor has assessed any increase in noise impacts to be 'very low (if any)' as the Low DA has the same lateral dimensions as the extant MATZ at RAF Waddington. Vertically, the Low DA extends to FL105, however, according to RAF Waddington ATC, very few civil aircraft transit between 3,000 ft to FL105 within 5nm and the majority contact ATC. According to MATZ crossing statistics collected for 2019, a total of 615 GA aircraft requested a crossing service. Further, analysis for August 2019 which was the busiest month in the year prior to the COVID pandemic indicated an average of 19 MATZ crossings per week (or approximately 3 per day, maximum being between 6-10 per day assuming 2-3 busy days per week). The sponsor reasons that once the ACP is implemented, civil aircraft will continue to request and obtain a DACS, and very few aircraft would be required to re-route or hold until clearance can be given. Instances when re-routing occurs is most likely during periods of RAFAT activity, however, during such times, GA will be able to access other	

	airspace over RAF Scampton which will not be active simultaneously. Re-routing is also minimised due to radar equipage as indicated during stakeholder feedback. In terms of LAeq and TAG, the sponsor reasons that given the minimal number of civil aircraft consequentially impacted (estimated to be less than 30 on peak days), modelling for LAeq and TAG would be disproportionate. In terms of operational diagrams depicting typical civil aircraft patterns in the local area, the sponsor states that due to the Class G nature of airspace, it is difficult to predict any definite traffic patterns created by the newly segregated airspace. Further, given the minimal change to the areas overflown due to the provision of a DACS and other mitigation measures, any modelling including for other noise metrics such as N-above and overflight contours is also unlikely to provide meaningful benefit and therefore has been scoped out. The sponsor's qualitative assessment concludes 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, 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, DACS), the overall impact of the proposed change on noise is thought to be negligible*".	
7.2	If a noise assessment has not been undertaken by the sponsor, has this decision been adequately explained and evidenced in both the consultation material and the final submission to the CAA, and is the rationale reasonable?	Yes
	The sponsor has presented a rationale and supporting evidence regarding the minimal number of civil aircraft consequentially impacted (estimated to be less than 30 on peak days) and the Class G nature of surrounding local airspace that makes it difficult to predict how aircraft will operate, to scope out quantitative assessments and noise modelling for LAeq, TAG, N-above, overflight and operational diagrams. The CAA accepts the sponsor's rationale and supporting evidence and concludes that there will be no material change in noise impacts as a result of this ACP.	
7.3	Summary of anticipated noise impacts from the final proposed airspace change.	
	The sponsor has provided a high-level qualitative assessment of the potential consequential impact of the Low DA on civil aircraft traffic and thereby on the noise metrics using some additional quantitative data from RAF Waddington ATC. This data indicates that a minimal number of GA traffic are impacted: an average of 19 MATZ crossing requests per week (or approximately 3 per day, maximum being between 6-10 per day assuming 2-3 busy days per week). The sponsor reasons that once the ACP is implemented, civil aircraft will continue to request and obtain a DACS, and very few aircraft would be required to re-route or hold until clearance can be given. Any increase in noise impacts is therefore estimated to be 'very low' as the sponsor estimates that the ACP will impact less than 30 civil aircraft per day. The sponsor has therefore scoped out quantitative assessments for LAeq, TAG, N-above, overflight and operational diagrams, also citing the Class G nature of airspace that makes it difficult to define traffic patterns with accuracy.	

	Based on the rationale and supporting evidence provided by the sponsor, the CAA considers that noise impacts from the proposed ACP have been adequately assessed taking account of scalability and proportionality. Based on the low volumes of in-scope aircraft likely to be impacted by the proposed airspace change, and as the airspace is uncontrolled, where it is not possible to accurately estimate how airspace users will fly, including the frequency, height, and ground track, the CAA agrees with the sponsor's approach of undertaking qualitative assessments. The CAA therefore accepts that further detailed assessments for noise impacts may be scoped out as there is unlikely to be any material change in consequential civil aircraft operations, areas overflown or impact on ground-based infrastructure and therefore any material change in these noise metrics. Further, the provision of a DACS and other mitigation measures are expected to minimise impacts. In summary, the CAA concludes that: • Noise impacts will be negligible due to the number in-scope traffic that are likely to be consequentially impacted by the change and that any impacts have potential to be further mitigated through the introduction of a DACS. • The low volume of in-scope aircraft and the frequency of activation means that noise levels in excess of the 51 dB LAeq,16hr daytime Lowest Observed Adverse Effect Level (LOAEL) are unlikely to occur and therefore the change is unlikely to lead to an adverse impact on health and quality of life. • There will be a change in overflight for any aircraft required to re-route around the Danger Area, however due to the number of affected in-scope aircraft, changes in overflight will be negligible. • Any changes in overflight will change the location of where maximum noise levels occur, however, the Class G airspace means it is not possible to predict how the aircraft behaviour will change and therefore how the maximum noise level might change.

8. CO_2 Emissions		Status
8.1	Has the impact on CO_2 emissions been adequately assessed and presented in both the consultation material and the final submission to the CAA, taking account of scalability and proportionality?	Yes
	The sponsor has qualitatively assessed the impacts on CO_2 emissions stating that there could be 'a small increase' if GA aircraft do not/cannot take advantage of the DACS to achieve a direct routing. CO_2 impacts from the Medium DA is assessed to be 'negligible' since few GA operate above FL105. The sponsor has also provided some quantitative data to justify this conclusion based on the estimated number of civil aircraft anticipated to be re-routed (as opposed to the estimated number of civil aircraft requesting and obtaining a crossing service) as a result of the ACP. This data was based on specific feedback from aviation stakeholders through which the sponsor identified the average number of sorties per week which required access to the segregated airspace. This amounted to approximately 4 sorties per week within the Low airspace design and 4 sorties per annum for the Medium airspace design. Based on this qualitative assessment, the sponsor concludes 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 DACS in order to get a direct routing, the impact on CO_2 emissions and fuel burn is thought to be very low."	
8.2	If an assessment of the impact on CO_2 emissions has not been undertaken by the sponsor, has this decision been adequately explained and evidenced in both the consultation material and the final submission to the CAA, and is the rationale reasonable?	Yes
	The sponsor has presented a rationale and supporting evidence regarding the minimal number of civil aircraft consequentially impacted (estimated to be less than 30 on peak days) as well as the number of civil aircraft likely to require a re-route (estimated to be approximately 4 sorties per week around the Low DA and 4 sorties per annum around the Medium DA) to scope out any further quantitative CO_2 assessments. The CAA accepts the sponsor's rationale and supporting evidence and concludes that there will be no material change in CO_2 emissions as a result of this ACP.	
8.3	Summary of anticipated impact on CO_2 emissions from the final proposed airspace change.	
	For the assessment of CO_2 emissions and fuel burn, the sponsor has referenced specific information provided by aviation stakeholders regarding their current use of the proposed segregated airspace and potential impacts in terms of re-routing. The feedback indicated that approximately 4 sorties per week within the Low airspace design and 4 sorties per annum for the Medium airspace design would be impacted. The sponsor concludes that the impact on CO_2 emissions is therefore 'a small increase' for the Low DA if GA aircraft do not/cannot take advantage of the DACS to achieve a direct routing and 'negligible' for the Medium DA since few GA operate above FL105. Overall impacts are estimated to be very low as the ACP neither results in an increase in the number of aircraft operating in the local area nor alters the aircraft types. Based on the sponsor's assessment and the information provided, the CAA agrees that there will be no material change in CO_2 emissions due to the number of in-scope aircraft likely to be affected. Moreover, the Class G nature of surrounding airspace makes it difficult to predict how aircraft will operate and therefore accurately calculate impacts in terms of additional track miles flown, fuel burn and thereby CO_2 emissions. Moreover, the implementation of mitigation measures is expected to further reduce impacts. The CAA therefore accepts that the rationale and supporting evidence presented in the change sponsor's final submission is reasonable, and taking account of scalability and proportionality, concludes that further quantified assessments of CO_2 emissions are unlikely to provide any meaningful benefit.	

9. Local Air Quality [for Level 1 and Level M1 airspace change proposals]	**Status**

9.1	Has the impact on Local Air Quality been adequately assessed and presented in both the consultation material and the final submission to the CAA, taking account of scalability and proportionality?	Yes
	CAP1616 paragraph B72 states that assessment of local air quality is only required to be undertaken when the proposed change has the potential to have an impact on emissions (either by volume or distribution) below 1,000 ft. and is in the vicinity of a designated Air Quality Management Area (AQMA). Within the options appraisal, the sponsor has identified two AQMAs both located within Lincoln city centre (approximately 7 km north of RAF Waddington), both of which lie within the lateral extent of the Low DA boundary. The sponsor states that, "*as the AQMAs are within the lateral boundary of the segregated area, civil aircraft affected by the airspace change will not be re-routed adjacent to the AQMAs.*" In addition, the sponsor points out that any re-routed aircraft should not be below 1,000 ft. over a built-up area in accordance with Rules of the Air, Section 3 para 5(c) and further, given the minimal number of civil aircraft consequentially impacted as a result of this ACP (estimated to be less than 30 on peak days), the sponsor considers that there is 'no impact' and therefore air quality assessments are out of scope.	
9.2	If an assessment of the impact on Local Air Quality has not been undertaken by the sponsor, has this decision been adequately explained and evidenced in both the consultation material and the final submission to the CAA, and is the rationale reasonable?	Yes
	The sponsor has presented a rationale and supporting evidence regarding the minimal number of civil aircraft consequentially impacted (estimated to be less than 30 on peak days) as well as their flying altitudes and location of the designated AQMAs relative to the proposed airspace structure to scope out any further detailed air quality assessments. The CAA accepts the sponsor's rationale and supporting evidence and concludes that there are unlikely to be any impacts on local air quality as a result of this ACP.	
9.3	Summary of anticipated impact on Local Air Quality from the final proposed airspace change.	
	The sponsor has identified two AQMAs located within the Lincoln city centre (approximately 7km north of RAF Waddington) and within the lateral extent of the low airspace structure boundary. However, the sponsor reasons that due to their location, there will be no consequential re-routing of civil aircraft adjacent to these AQMAs. Further as all aircraft are required to be above 1,000 ft. over a built-up area, impacts on local air quality caused as a result of this ACP are out of scope. The CAA considers that local air quality impacts are only required where there is the possibility of pollutants breaching legal limits following the implementation of an airspace change (or worsening an existing breach of legal limits). The CAA deems that a breach of legal air quality limits is only likely to become a risk where there is a change in aviation emissions (by volume or location) below 1,000 ft., and the location of the emissions is within or adjacent to a designated AQMA. In this case there are two AQMAs in the vicinity of the proposed airspace	

	structure, but it is considered unlikely that the change would lead to a breach of legal limits given the low number of civil aircraft re-routed and the altitude they are likely to be flying over a built-up area. On this basis the CAA concludes that there is unlikely to be any impact on local air quality as a result of this ACP.

10. Tranquillity [for Level 1 and Level M1 airspace change proposals]		**Status**
10.1	With specific reference to Areas of Outstanding Natural Beauty and National Parks - Has the impact on tranquillity been adequately considered and presented in both the consultation material and the final submission to the CAA, taking account of scalability and proportionality?	Yes
	The assessment of tranquillity is with regards to the impact of the proposed airspace change on Areas of Outstanding Natural Beauty (AONB) and National Parks, in line with the Government's altitude priority that states, "*where practicable, it is desirable that airspace routes below 7,000 feet should seek to avoid flying over Areas of Outstanding Natural Beauty (AONB) and National Parks.*" The sponsor has identified that the proposed airspace does not sit over any AONBs or National Parks. The closest AONB is the Lincolnshire Wolds AONB, which lies approximately 27 km northeast of RAF Waddington. The sponsor also engaged with a wide range of local authorities and environmental stakeholders including Natural England and the Lincolnshire Wolds AONB as any other local areas identified through community engagement are also required to be assessed for impacts on tranquillity. However, the sponsor states that, "*no specific sensitive or locally identified "tranquil" areas have been identified by stakeholders".* The sponsor states that based on historic statistics, the number of GA aircraft that request routing through the Waddington MATZ and overhead below 7000 ft. is less than 30 on peak days. When the ACP is implemented, a similar number will continue to request and obtain a DACS to cross the Low airspace design with only a small percentage re-routing due to activity within the DA. The sponsor states that based on this evidence, a formal assessment of tranquillity impacts would be disproportionate.	
10.2	If consideration of the impact on tranquillity has not been undertaken by the sponsor, has this decision been adequately explained and evidenced in both the consultation material and the final submission to the CAA, and is the rationale reasonable?	Yes
	The sponsor has presented a rationale and supporting evidence regarding the minimal number of civil aircraft consequentially impacted (estimated to be less than 30 on peak days) as well as the location of the designated areas of tranquillity relative to the proposed airspace structure to scope out any further detailed tranquillity assessments. The CAA accepts the sponsor's rationale and supporting evidence and concludes that there are unlikely to be any impacts on tranquillity as a result of this ACP.	
10.3	Summary of anticipated impact on tranquillity from the final proposed airspace change.	

	There are no AONBs or National Parks within the DA and no other local tranquil areas were identified by stakeholders. The Lincolnshire Wolds AONB lies approximately 27 km northeast of RAF Waddington and due to the minimal number of civil aircraft consequentially impacted and re-routed, any further assessment of impacts on tranquillity would be disproportionate. The CAA accepts the sponsor's rationale and supporting evidence and concludes that there are unlikely to be any impacts on tranquillity as a result of this ACP.

11. Biodiversity [for Level 1 and Level M1 airspace change proposals]		**Status**
11.1	Has the impact on biodiversity been adequately assessed and presented in both the consultation material and the final submission to the CAA, taking account of scalability and proportionality?	No
	CAP1616 paragraph B80 indicates that, in general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground-based infrastructure. However, where changes to airspace occur below 7,000 ft. the sponsor of an ACP should take account of local circumstances and include in its consultations and engagement potential biodiversity implications associated with design options and factor in potential impacts identified by stakeholders. The sponsor has not explicitly considered biodiversity within its options appraisal.	
11.2	If assessment of the impact on biodiversity has not been undertaken by the sponsor, has this decision been adequately explained and evidenced in both the consultation material and the final submission to the CAA, and is the rationale reasonable?	No
	The sponsor has presented a rationale and supporting evidence regarding the minimal number of civil aircraft consequentially impacted (estimated to be less than 30 on peak days) to scope out any further detailed environmental assessments. The CAA's working assumption is that impacts on biodiversity occur because of changes to air quality and noise in the vicinity of biodiversity receptors. Therefore, as the sponsor has determined a negligible impact on noise and air quality it is considered unlikely that the ACP would lead to a biodiversity impact.	
11.3	Summary of anticipated impact on biodiversity from the final proposed airspace change.	
	The sponsor has not explicitly assessed biodiversity; however, the sponsor has assessed a minimal number of civil aircraft consequentially impacted and thereby a negligible impact on noise and air quality. As these metrics in turn impact biodiversity, it is also considered unlikely that the ACP would lead to an impact on biodiversity.	

12. Traffic Forecasts	**Status**

12.1	Have traffic forecasts been provided, are they reasonable, and have these been used to reflect the anticipated environmental impacts of the proposal?	Yes
	The sponsor has undertaken a qualitative assessment of environmental impacts and therefore a detailed traffic forecast was not developed. The sponsor only stated in the *Step 2B Options Appraisal (Phase I) Initial, Version 2* document that, *"the MOD is not aware of any significant forecast increase in civil traffic in the local area, from both the commercial and GA perspective"* and that *"the MOD forecasts no increase in air traffic as a result of this airspace change for the years 2023 – 2033 inclusive".* Further, the sponsor has also mentioned that this ACP neither results in an increase in the number of aircraft operating in the local area nor alters the aircraft types. It should be noted that normally, assessments should consider how the environmental impacts would change over a longer-term (i.e., the 10-year forecast period) even for situations where traffic is not expected to grow. This longer-term impact was not assessed by the sponsor. However, it is concluded by the CAA that as the sponsor has assessed all environmental impacts to be negligible, this conclusion of negligible impacts would not change over the longer term.	

13. Consultation		**Status**
13.1	Has the sponsor taken account of any environmental factors (noise, CO_2 emissions, Local Air Quality, tranquillity or biodiversity) raised by consultees or has evidence been provided to indicate why this has not been possible?	Yes
	The sponsor's consultation activities are assessed in the separate CAA Consultation Assessment. This assessment concludes that the sponsor has taken account of all environmental factors raised by consultees. Most environmental factors raised by consultees were in relation to additional noise and pollution impacts caused as a result of new military activities that will be facilitated through the implementation of this ACP. To these, the sponsor responded that as per CAP1616, for airspace change proposals sponsored by the MoD, the environmental impacts that are a direct result of military aircraft or military operations (including civil aircraft carrying out military function under contract) are not required to be considered or assessed. However, consequential environmental impacts from other airspace users (i.e., civil aviation) that are a result of the proposed change must be assessed, and as explained in Q7 to Q12, these are considered to be negligible.	
13.2	Has the sponsor taken account of any consultation response submitted by ICCAN? If so, what are the outcomes?	N/A
	ICCAN did not provide a consultation response to this ACP. The Stage 3 Consult gateway was held in September 2022 and ICCAN was wound down at the end of September 2021 by the Secretary of State for Transport. No consultation response has therefore been	

	forthcoming.

14. Public Evidence Session (if held)		Status
14.1	If a Public Evidence Session has been held, was any new evidence on potential environmental impacts presented?	N/A
	No Public Evidence Session was held for this ACP.	
14.2	If so, was the new evidence relevant and material to the CAA's consideration of the environmental impacts of the submitted airspace change proposal?	N/A
	No Public Evidence Session was held for this ACP.	

15. Compliance with policy and guidance from Government, ICCAN or the CAA		Status
15.1	Has the sponsor satisfied all relevant policy and/or guidance from either the Government, ICCAN or the CAA, with regards to environmental impacts of the proposed airspace change?	Yes
	The sponsor has satisfied all relevant policy and/or guidance with regards to environmental impacts of the proposed airspace change. Any best practice guidance that has been issued by ICCAN specifically on the topic of consultation process/practice will be considered in the CAA's Consultation Assessment report rather than within this Environmental Assessment report.	
15.2	Has the sponsor adequately considered the DfT's Altitude-Based Priorities[4]?	Yes
	The sponsor has adequately considered the DfT's Altitude-Based Priorities and assessed all the required impacts for a Level M1 change with noise being given priority over CO_2.	

16. Other aspects		Status
16.1	Are there any other aspects of the airspace change proposal that have not already been addressed in this report but that may have a bearing on the environmental impact?	No

[4] Paragraph 3.3, DfT's Air Navigation Guidance 2017

	There are no other aspects of the airspace change proposal that have not already been addressed in this report but that may have a bearing on the environmental impact.

17. Recommendations/Conditions/PIR Data Requirements		Status
17.1	Are there any Recommendations which the change sponsor **should try** to address either before or after implementation (if approved)? If yes, please list them below.	No
	There are no recommendations for the sponsor to address.	
17.2	Are there any Condition(s) which the change sponsor **must fulfil** either before or after implementation (if approved)? If yes, please list them below.	No
	There are no conditions for the sponsor to fulfil.	
17.3	Are there any specific requirements in terms of the data to be collected by the change sponsor for the Post Implementation Review (if approved)? If yes, please list them below.	Yes
	The sponsor should collect the following data for the Post Implementation Review (if approved): • Number, timings and duration of the Low and Medium Danger Area activations • Number, type, and altitude of aircraft re-routing around and overhead the Danger Areas, aircraft requesting a Danger Area Crossing Service (DACS) and number of aircraft refused a DACS • Location where re-routed aircraft operate.	

18. Summary of Assessment of Environmental Impacts & Conclusions

This Airspace Change Proposal (ACP) sponsored by the Ministry of Defence (MoD) ('the sponsor') seeks to create a volume of segregated airspace in the vicinity of RAF Waddington to facilitate beyond visual line of sight (BVLOS) operations of the Protector RG Mk1 Remotely Piloted Air System (RPAS) and to enable access to segregated airspace over RAF Waddington for the RAF Aerobatic Team (RAFAT) to conduct aerobatic flying formations and display training. The final proposed airspace design comprises of two distinct Danger Areas (DAs): the 'Low' airspace structure (SFC - FL105) used to contain RAFAT activities and the 'Medium' airspace structure (FL105 to FL195) to allow Protector to climb into other Class A and/or Class C airspace. The Low DA will be used for both the RPAS and RAFAT activities, while the Medium DA will only be used by Protector.

The ACP is scaled as a Level M1 as it has potential to alter civil aviation traffic patterns below 7,000 ft. over an inhabited area and is being sponsored by

the MoD. For Level M1 ACPs, the CAA is directed to disregard the environmental impacts that are a direct result of military aircraft or military operations (including civil aircraft carrying out military function under contract). However, consequential environmental impacts from other airspace users (i.e., civil aviation) that are a result of the proposed change must be assessed in accordance with Level 1 requirements.

The sponsor submitted rationale and supporting evidence gathered from RAF Waddington ATC regarding the frequency of civil air traffic passing within 5nm overhead RAF Waddington which was stated to be 615 GA aircraft for 2019 or an average of 19 MATZ crossings per week for August 2019 (or approximately 3 per day, with maximum 6-10 per day assuming 2-3 busy days per week). Further, once the ACP is implemented, the sponsor continues to estimate a peak of high 20s on the busiest flying days, however, less than 30 on any given day. The sponsor reasons that the majority of civil aircraft will continue to request and obtain a DACS to cross the Low airspace design, with only a few requiring to re-route or hold or instead opting to fly overhead which is expected to be minimal due to good radar equipage levels as indicated during stakeholder feedback. Other mitigation measures such as Letters of Agreement established with potentially impacted stakeholders and efficient management of airspace are also estimated to minimise impacts. GA will also be able to access other airspace over RAF Scampton which will not be active simultaneously. The sponsor also states that the proposed ACP will not result in an increase in the number of aircraft operating in the local area nor alter aircraft types. The sponsor therefore concludes that all environmental impacts will be negligible, and any further quantitative assessment would be disproportionate.

The CAA agrees with this conclusion. This is based on the minimal number of aircraft consequentially affected by the change, the anticipated activation (i.e., not continuously activated), the Danger Area designs having the minimal dimensions required and that any impact will be further mitigated through the introduction of a Danger Area Crossing Service (DACS) and other mitigation measures proposed and implemented.

Level 1 ACP

Environmental assessment sign-off	Name	Signature	Date
Environmental assessment completed by Airspace Regulator (Environment)	[redacted]	[redacted]	07/08/2023
Environmental assessment approved by Airspace Regulator (Environment)	[redacted]	[redacted]	07/08/2023

Environmental assessment conclusions approved by Manager AR	[redacted]	[redacted]	25/08/2023
Environmental assessment conclusions approved by Head AAA	[redacted]		31/8/2023