Ministry of Defence

Modernising Airspace

Formal Submission Document

Development of North Sea Airspace for Military Training

Stage 4B Submit Airspace Change Proposal

Publication History

Version	Month / Year	Change Requests in this Issue
Issue 1.0	Sep 18	Submitted to the CAA for publication

References

	Description	Hyperlinks
1	Stage 1a Assessment Meeting Presentation	LINK
2	Stage 1a Assessment Meeting Minutes	LINK
3	Stage 1b Design Principles	LINK
4	Stage 2a Airspace Change Design Options	LINK
5	Stage 2a Design Principle Evaluation	LINK
6	Stage 2b Options Appraisal (Phase 1 – Initial)	LINK
7	Stage 3 Consultation Strategy	LINK
8	Stage 3 Options Appraisal	LINK
9	Stage 3 Consultation Document	LINK
10	Stage 3 Collate and Review Responses	
11	Stage 4a Options Appraisal (Phase 3 – Final)	
12	WGS 84 Spreadsheet	
13	ADD Spreadsheet	

Contents

1. Introduction

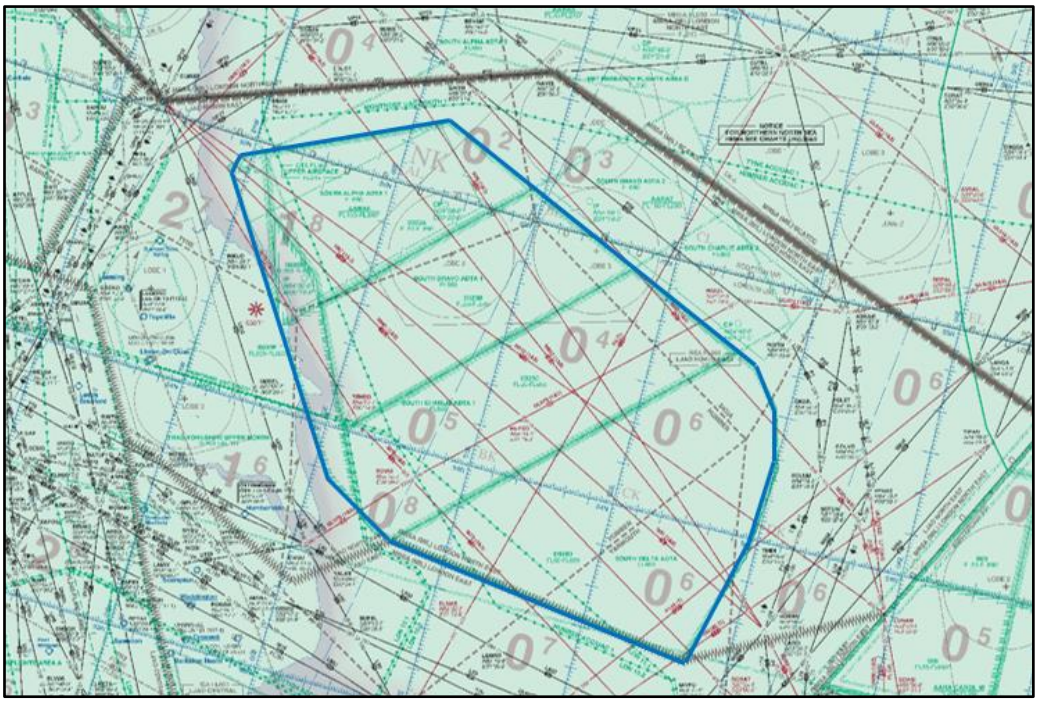
It is widely reported that the UK airspace is congested and commercial air transport flights are increasing globally year on year; the Future Airspace Strategy has been established to ensure developments take place that increase the capacity of the network, reduce delays and improve the efficiency of flight paths. Military aviation activities are also expected to grow significantly between 2019 and 2025, driven principally by the increase in numbers of existing platforms (Typhoon) and the introduction of new aircraft (for example F35 Lightning). The operation of modern combat aircraft with their longer-range sensors and weapon systems also requires larger volumes of airspace in which to train and become proficient.

2. Executive Summary

As a small country with a large demand for aviation that drives business, tourism and economic growth, the UK needs an efficient and effective airspace structure. The military also relies on an efficient and effective airspace structure to provide dedicated areas to be reserved for hazardous activities like training fast jet pilots and testing munitions. With the introduction of new aircraft and systems the MOD has a requirement to conduct an airspace change to provide suitable airspace in which training and Force Generation for modern fast jet aircraft can take place safely and efficiently.

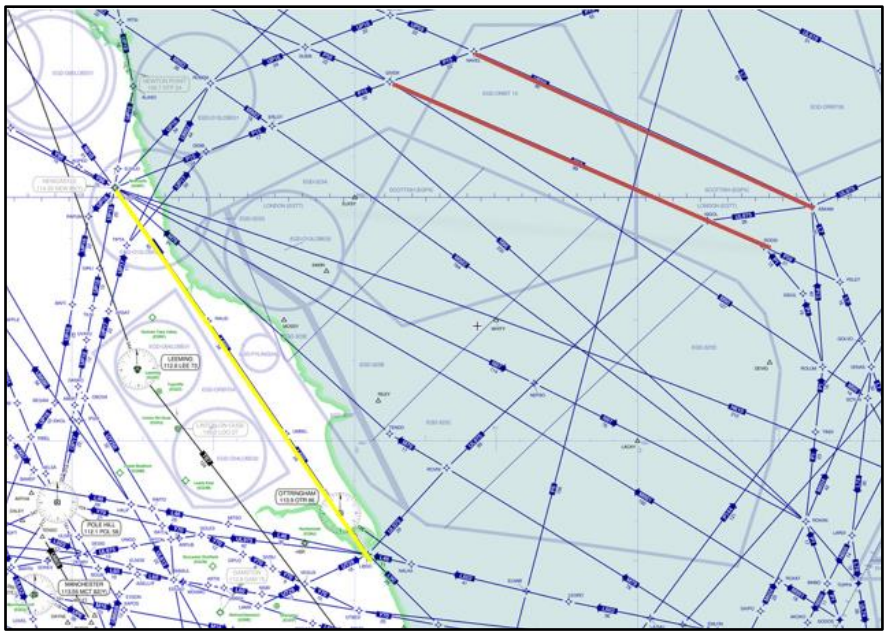
The MOD are proposing to adjust the lateral boundaries of an existing airspace structure, EG D323, to meet this requirement. The MOD are mindful of other airspace users so have worked collaboratively with the UK's Air Navigation Service Provider NATS and will use Flexible Use of Airspace Principles to produce a solution to meet MOD requirements that has the least impact on other airspace users.

3. Current Airspace Description



The current EG D323 complex consists of 7 areas. Activation is via the MABCC at D-1 and published times by NOTAM.

3.1 Structures and Routes



As can be seen above, several Civil Air Routes shown in blue interact with the Danger Area and are available through Flight Planning or tactically when the Danger Area is not active. Of interest to this ACP are Air routes P58 and P59, in red, to the North-East of EG D323 which are used primarily for traffic routing to/from Europe to North America. They are also used by traffic routing to/from Europe to Iceland. L602, shown in yellow, to the west of EG D323 is used by both overflight traffic and traffic routing into and out of the Scottish Terminal Manoeuvring Area. All 3 of these routes are FL245 and above.

3.2 Airspace Usage and Proposed Effect

This current airspace accommodates the following activities:

- Air Combat Manoeuvres
- High Energy Manoeuvres
- Super Sonic Flight

The current EG D323 complex provides a suitable training environment for current fast jet aircraft (F15, Tornado and Typhoon) to produce agile, adaptable and capable modern Military aircrew.

3.3 Operational Efficiency, Complexity, Delays and Choke Points

There are no specific issues with operational efficiency or complexity that need to be rectified as part of this change.

The MOD have initiated this change to address the expected growth between 2019 and 2025, driven principally by the increase in numbers of existing platforms (Typhoon) and the introduction of new aircraft (for example F35 Lightning). The operation of modern combat aircraft with their longer-range sensors and weapon systems requires larger volumes of airspace in which to train and become proficient. It is inefficient to continue to use the current EG D323 as future training can not be completed in the space available.

3.4 Safety Issues

There are no specific safety issues within this area of airspace, in the current operation, to be solved by this proposal. Ensuring the safety of proposed changes is a priority for the MOD and NATS alike.

Following the cooperation between the MOD and NATS, several hazards were identified and mitigated. Details of these Hazard Assessments can be seen in Annex B1 and B2.

3.5 Environmental Issues

There are no specific environmental issues within this area of airspace, in the current operation. The predominant environmental matter relating to this specific proposal is a small annual increase of fuel and CO^2 that the proposed changes would cause for airlines. This is caused by a small increase in track mileage from realigning the N44 and N66 route segments (see WebTAG analysis at Annex C1 and C2).

4. Statement of Need

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

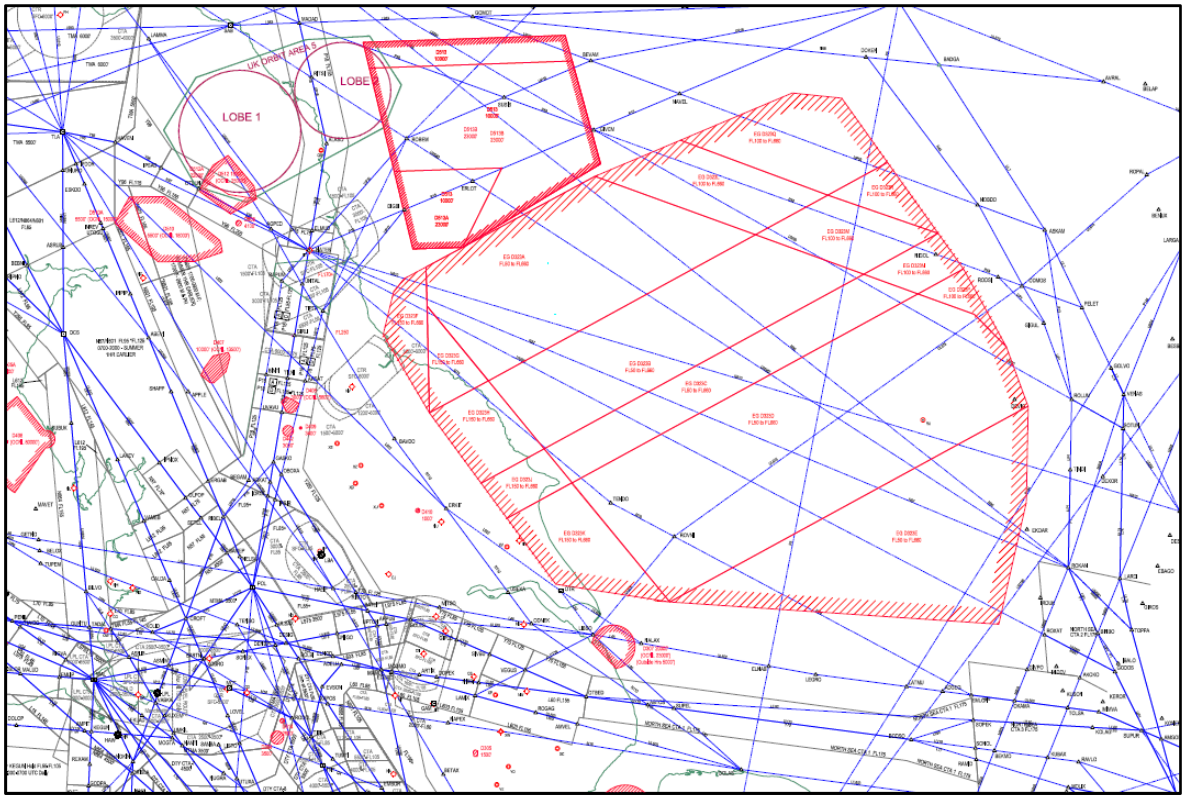
In Jan 19, the UK airspace infrastructure will be much the same as today i.e. fixed route networks and airspace structures; as such, the initial airspace development proposed here is considered a first phase temporary solution to support MOD needs. This work is expected to improve processes, protocols and priorities for ASM that are projected to enhance the effectiveness of the airspace development. This includes:

- Improved usage performance against ARES bookings.
- Enhanced processes to allow increased CDM in accordance with agreed protocols.
- Wider utilisation of ASM tools to improve the transparency and visibility of the booking process.

FUA concepts for how the airspace can be modularised to meet the needs of multiple users, as well as minimising the impact on the civil airspace network will be utilised.

It is intended to introduce the new airspace as soon as possible in 2019. This proposal may be supported by airspace management trials and if required airspace design trials.

5. Proposed Airspace Description



This airspace has been designed to accommodate 5th Gen aircraft training including the following activities:

- High Energy Manoeuvres
- Ordnance, Munitions and Explosives (OME)
- Electronic and/or Optical Hazards
- Super Sonic Flight

The expanded airspace provides overland portions catering for Air to Ground training and interactions with land based sensors. The expansion to the east caters for the 120nm by 60nm box that is a baseline requirement for Lightning aircraft training. The new EG D323 complex will provide a suitable training environment to produce agile, adaptable and capable modern Military aircrew.

Activation will be via the MABCC at D-1 and published times by NOTAM.

Below shows the ADQ compliant coordinates of the new areas.

AREA	Vertical	Co-ordinates Clockwise
A	FL 050 to 660	545744N 0005457W - 551710N 0001428E - 550142.68N 0011753.07E - 543101.61N 0003132.21W - 544840.67N 0005456.16W - 545744N 0005457W
B	FL 050 to 660	550142.68N 0011753.07E - 545058.88N 0020009.69E - 541450.82N 0001028.06W - 543101.61N 0003132.21W - 550142.68N 0011753.07E
C	FL 050 to 660	545058.88N 0020009.69E - 544531.50N 0022109.49E - 540643.85N 0000001.93W - 541450.82N 0001028.06W - 545058.88N 0020009.69E
D	FL 050 to 660	544531.50N 0022109.49E - 543947.64N 0024251.97E - 543142.73N 0025434.36E - 541738.46N 0030109.63E - 533812.98N 0003557.03E - 540643.85N 0000001.93W - 544531.50N 0022109.49E
E	FL 050 to 660	541738.46N 0030109.63E - 541733.26N 0030112.05E - 535535.00N 0025714.00E - 532807.00N 0024241.00E - 533812.98N 0003557.03E - 541738.46N 0030109.63E
F	FL150 to 660	545744.00N 0005457.00W - 544840.67N 0005456.16W - 542402.38N 0005517.90W - 544229.37N 0011250.51W - 545210.00N 0010815.00W - 545513.00N 0010343.00W - 545744.00N 0005457.00W
G	FL150 to 660	544840.67N 0005456.16W - 543101.61N 0003131.21W - 542402.38N 0005517.90W - 544840.67N 0005456.16W
H	FL150 to 660	542402.38N 0005517.90W - 543101.61N 0003132.21W - 541450.82N 0001028.06W - 540726.45N 0003547.32W - 542402.38N 0005517.90W
J	FL150 to 660	540726.45N 0003547.32W - 541450.82N 0001028.06W - 540643.85N 0000001.93W - 535908.04N 0002605.64W - 540726.45N 0003547.32W
K	FL150 to 660	535908.04N 0002605.64W - 540643.85N 0000001.93W - 533812.98N 0003557.03E - 534331.37N 0000805.30W - 535908.04N 0002605.64W
L	FL100 to 660	552429.51N 0004952.07E - 550943.85N 0014758.63E - 550142.68N 0011753.07E - 551710.00N 0001428.00E - 552429.51N 0004952.07E
M	FL100 to 660	550943.85N 0014758.63E - 545903.01N 0023107.05E - 545058.88N 0020009.69E - 550142.68N 0011753.07E - 550943.85N 0014758.63E
N	FL100 to 660	545903.01N 0023107.05E - 545025.48N 0024004.67E - 544531.50N 0022109.49E - 545058.88N 0020009.69E -545903.01N 0023107.05E
P	FL100 to 660	545025.48N 0024004.67E - 543142.73N 0025434.36E - 543947.64N 0024251.97E - 544531.50N 0022109.49E - 545025.48N 0024004.67E
Q	FL100 to 660	553347.35N 0013624.70E - 553149.85N 0015621.95E - 551615.97N 0021300.27E - 550943.85N 0014758.63E - 552429.51N 0004952.07E - 553347.35N 0013624.70E
R	FL100 to 660	551615.97N 0021300.27E - 545903.01N 0023107.05E - 550943.85N 0014758.63E - 551615.97N 0021300.27E

The upper limit booked (of all areas) will be only that required for the training sortie. For the overland areas, F, G, H, J and K, the base level is designed at FL150. The normal configuration

will be for areas to be booked with the published base levels, as this is deemed the least complex mode to operate in. However, in accordance with FUA principles the base levels remain available to be booked at variable levels, should that be deemed to be most efficient. The Danger Area has been sub-divided to permit Airspace Management sharing agreements to be implemented and to enable Military aircraft to book just the lateral size of airspace required. This frees up airspace for other users.

5.1 Objectives / Requirements for Proposed Design

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

5.2 Proposed New Airspace / Route Definition and Usage

The proposal introduces several upper air routes above FL245 to ensure that Civil traffic can continue to flow when the whole or parts of the Danger Area are active. As can be seen above, several Civil Air Routes shown in blue interact with the Danger Area and are available through Flight Planning or tactically when the Danger Area is not active. Of interest to this ACP are Air routes P58 and P59, in red, to the North-East of EG D323 which are used primarily for traffic routing to/from Europe to North America. They are also used by traffic routing to/from Europe to Iceland. L602, shown in yellow, to the west of EG D323 is used by both overflight traffic and traffic routing into and out of the Scottish Terminal Manoeuvring Area. All 3 of these routes are FL245 and above.

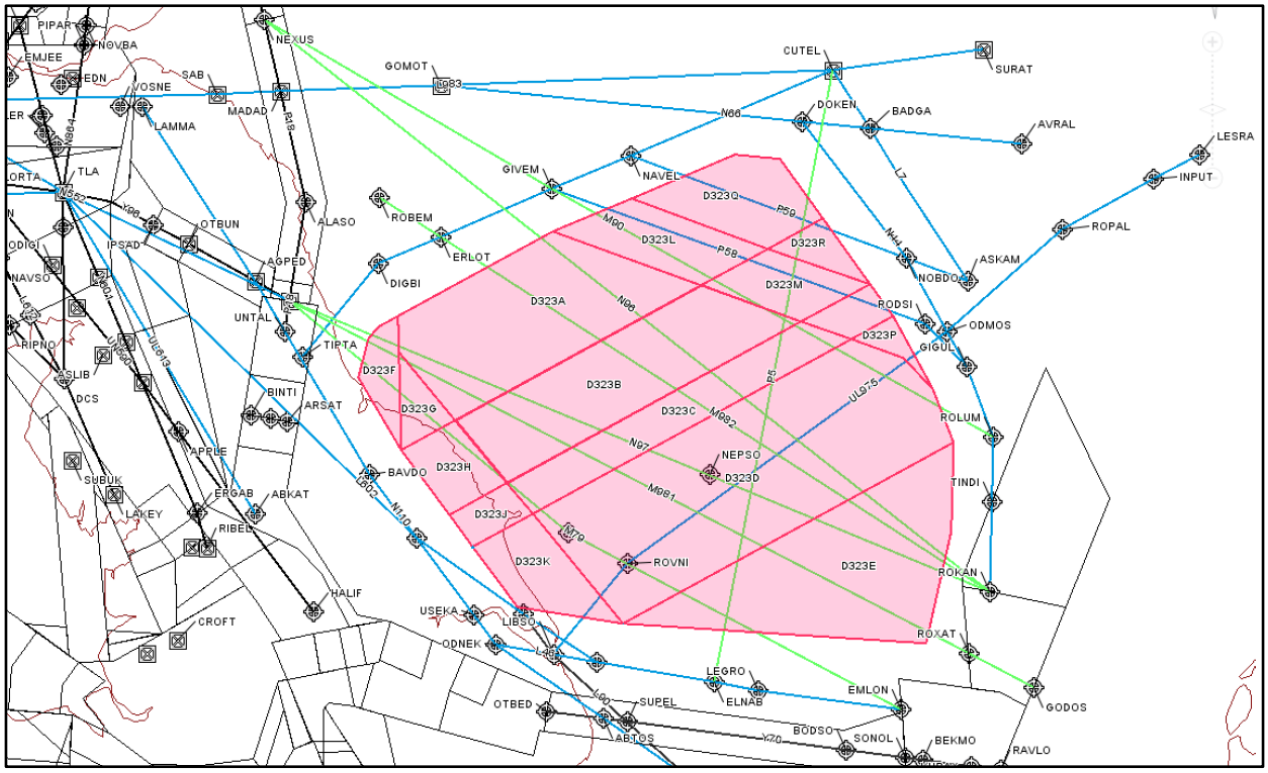
To accommodate traffic when Areas L, M, N, P, Q, R are active 2 new routes (including the newly created five letter reporting points) are proposed:

N44: GIGUL – ODMUS – NOBDO – DOKEN
N66: AVRAL – BADGA – DOKEN – GOMOT

As seen in the image below Conditional Route UL975 will be also be slightly re-routed.

To facilitate the activation of Areas F, G, H, J, K which conflict with L602, it is proposed to re-route L602 and establish a new air route N110:

L602 Conditional Route: OTR – ERKIT
L602: ERKIT – TLA
N110: DOLAS – ABTOS – ODNEK – USEKA – ERKIT – BAVDO – UNTAL – AGPED – LAMMA



New Reporting Point Names and Co-ordinates

NAME	CO-ORDINATES	ROUTE	ROUTE INTERSECTION
ERKIT	540148.85N 0004948.85W	L602 / N110	L602, N110
ODNEK	533437.20N 0001813.05W	N110	L46 (Add to L46)
BAVDO	541819.73N 0010925.35W	N110	-
UNTAL	545435.20N 0014423.27W	N110	UP18 (Add to P18)
BADGA	553749.24N 0023657.62E	N66	L7 (Add to L7)
DOKEN	554054.59N 0020656.05E	N44	N66
ODMOS	544526.32N 0030252.23E	N44	P58, UL975
NOBDO	550453.28N 0024747.63E	N44	UP59
ABTOS	531444.92N 0002536.29E	N110	Y70 (Add to Y70)
USEKA	534202.24N 0002645.13W	N110	-

Amended Reporting Point Names and Co-ordinates

NAME	CO-ORDINATES	REMOVE	INSERT
NIGOL	545418N 0022932E	Remove in total	-
ASKAM	545747N 0031350E	Remove intersection UL975	-
NEPSO	541417N 0011611E	Remove in Total	-
UMBEL	540144N 0002907W	Remove in total	-
RIKUD	542940N 0010208W	Remove in Total	-
LAMMA	555130N 0024603W	-	Insert Intersection N610
TLA (TALLA)	552956.92N 0032110.20W	Remove Intersection N510	Insert Intersection N97
MAC (MACHRIHANISH)	552548.08N 0053901.49W	Remove Intersection N510	Insert Intersection N97
DOLAS	525843N 0010003E	-	Insert Intersection N110
GIGUL	543626N 0031010E	-	Insert Intersection N44
NATEB	550218N 0014154W	Remove Intersection L602	-
AVRAL	553034N 0034259E	-	Insert Intersection N66
GOMOT	555510N 0003239W	-	Insert Intersection N66

Route Availability

Additions to the RAD required as a result of new route introductions or amendments:

Route	Route Portion	Restriction
L602	ERKIT-OTR	Dependant applicability based on D323J & K being active.
	NALAX-ERKIT	Dependant applicability based on D323J & K being active.
	TLA-ERKIT	No restriction (base level FL285)
	ERKIT-TLA	No restriction (base level FL285)

N110	ABTOS-DOLAS	No restrictions. Eastbound only.
	ERKIT-ABTOS	No restrictions.
	ABTOS-ERKIT	No restrictions.
	AGPED-ERKIT	Compulsory for traffic departing Scottish Group via ERKIT.
	ERKIT-AGPED	Compulsory for traffic arriving Scottish Group via NALAX.
	LAMMA-AGPED	Not available for Scottish Group Departures
	AGPED-LAMMA	Not available for Scottish Group Arrivals.
N97	NATEB-TLA	Not available for Scottish Group Arrivals.
	TLA-NATEB	Not available for Scottish Group Departures.
L90	OTR-DOLAS	Dependant applicability based on D323K being active.
N44	DOKEN-ODMOS	Westbound only.
	GIGUL-DOKEN	No restrictions.
N66	GOMOT-AVRAL	No restrictions
	AVRAL-GOMOT	No restrictions
P59	NAVEL- NOBDO	CDR 1/3 H24
	NOBDO-NAVEL	CDR 1/3 H24
P58	ODMOS-GIVEM	CDR 1/3 H24
	GIVEM - ODMOS	CDR 1/3 H24
L975	LIBSO-ROPAL	Current restrictions apply
	ROPAL-LIBSO	Current restrictions apply

5.2.1 Airspace Sharing Protocols

Below details the protocols for how the airspace is proposed to be shared between the MOD and Civil and the triggers that would result in areas **L – R only** being capped to allow the use of P58 and P59. None of the below protocols preclude extant UK ASM CDM throughout all UK airspace via the AMC to balance user and network demand, ensuring the principles of Flexible Use of Airspace (FUA) are considered.

The following points (detailed further in Annex G) are the main themes for sharing of the airspace:

a) At D-5 the AMC will be provided with an indication of the NAT Tracks and the Civil requirements for access to Special Use Airspace (SUA). This is refined further at D-3, when the procedures below may be initiated.

b) The MOD have agreed with NATS that the EG D323 airspace sharing protocols for the North-East quadrant will be available between the hours of 1000 and 1400 local; during these times the MOD will adhere to Civil access to the agreed SUA.
   - Between the hours of 0900 and 1000 local, the MOD will consider the Civil request, following CDM between the MAM and CAM.
   - Following initial notification at D-3, the AMC UK will specify the more detailed timings of the Civil access to SUA and the MOD can liaise with their airspace users to ensure civil airspace reservations are accommodated.

c) If the North Atlantic flow is anticipated to be abeam PIKIL (56ºN) or further north, the CDM process will be triggered.

d) The MOD will cap activity in L – R at FL300 (lowest capped FL), allowing Civil flight planned use from FL320 and above. ACM and AMC Demand capacity balancing and CDM will define the constraining level which may be higher than FL300.

e) From previous analysis, these sharing protocols during a north-about day are expected to be invoked approximately 40% of the year.

These agreements listed above are short term triggers only that will need to be reassessed with the introduction of Free Route Airspace.

5.3 Operational Efficiency, Complexity, Delays and Choke Points for Proposed Design

NATS has undertaken development simulations (Prestwick Sim Reports in Annex D1 and D2) to determine the viability of the airspace design and the resultant impact to its operation. Such simulations have identified that whilst the majority of changes required can be acceptably accommodated (given agreements reached in respect of danger area level activations) the impact to one sector in particular (Montrose South) remains high.

Additional complexity and thus workload associated with the handling of ScTMA in and outbound traffic along with the requirement to affect verbal co-ordination for transiting Military traffic being the primary causal factors. These issues are introduced by the reduction in available airspace as a result of the revised overland portions of EG D323 and the routing of traffic via N110 turning at AGPED.

Mitigations to reduce the operational and customer impact of this additional workload require additional staffing resource to be allocated to Montrose South, thereby providing Tactical **and** Planner staffing levels when activation of the overland portions of EG D323 is implemented. The ability to guarantee such resource for this sector is not assured given the staffing plans for RP2 did not include the impact of this change. Where combined Tactical and Planner Operations (single staffing) is only available, reducing traffic levels remains the only other compensatory measure that can be introduced to reduce complexity and workload. Initial modelling undertaken within the time available indicates reduction in traffic levels has the potential to introduce delay of up to 2500min per day.

Further amendments to the airspace design along with additional mitigations identified as part of the SP406 process will be assessed during validation simulations and incorporated into delivery

training. However, at this stage it is impossible to provide a definitive assessment of potential delay beyond the maximum figure stated above.

6. Impacts and Consultation

The MOD completed a seven-week consultation on the proposed airspace. A total of 39 airlines, NATS, BGA, GA, several airports and a range of other agencies were engaged and targeted for this consultation. The consultation commenced on Monday 30 July 2018 and initially ended on Monday 10 September 2018; a period of six weeks. Following a request from one of the airlines, the period was extended to the end of the day on Friday 14 September 2018. A total of 18 responses were received during this period. A full summary of how the consultation was run and a theming of all responses can be found in Ref 10.

6.1 Net Impacts Summary for Proposed Route

The proposed re-route L602 and the additional new route N110 to the west of segregated airspace have resulted in impacts to track distances. The over flight traffic track distance changes have been estimated at -0.2nm northbound and +2nm southbound. This has been estimated to decrease to -4.3nm northbound and -4.2nm southbound if utilising the CDR portion of L602 (OTR to ERKIT). For traffic into and out of the Scottish TMA, track distance changes are estimated at +5nm northbound and +3.2nm southbound, reducing to +1nm northbound and +0.9nm southbound if utilising the CDR portion of L602.

6.2 Units Affected by the Proposal

It has been noted that both Humberside and Durham Tees Valley traffic patterns adjacent and below proposed segregated airspace sections F to K may be affected by this proposal. Engagement identified concern that Military aircraft could leave segregated airspace into confliction with airport traffic. The MOD agreed that Military aircraft operating in these segments will not be allowed to leave segregated airspace into class G airspace unless under an ATS. Following the public consultation, Humberside were in support of the proposed changes and Durham Tees Valley were Neutral (see Ref 10 for further detail).

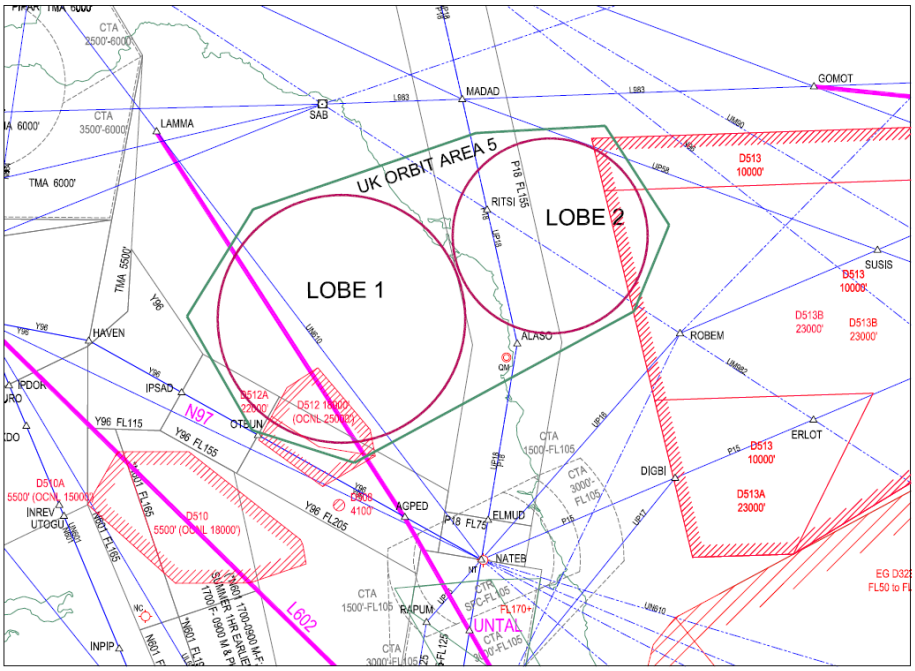
With the removal of the reporting point UMBEL and the creation of point ERKIT, the LoA between Swanwick(Mil), NATS, Newcastle Airport and Durham-Tees Airport has required to be updated (provisional draft copy seen at Annex F4). The changes to the procedures are minimal however a full redraft of the LoA has been conducted. Newcastle International Airport have expressed their concerns regarding the proposed changes and have Strongly Opposed the ACP. The MOD have liaised with the airport and responses to all the comments and queries, including suggested mitigations (see Ref 10).

6.3 Military Impacts

The proposed expansion of the EG D323 complex and the creation of the three new routes has resulted in a requirement to alter two military activities.

6.3.1 UK Orbit Areas

The current location UK AEW Orbit Area 4 (in the Vale of York) will conflict with the new route N110 and the re-routed L602 so will be dis-established. To compensate, a new lobe (Lobe 2) will be added to UK AEW Orbit Area 5 FL270-FL350, as shown below, see Annex A1 for full AIP amendment change.



Outline coordinates:
515123N 0011510W, 553953N 0010247W, 553010N0011022W, 551333N 0020652W, 551723N 0022711W, 553024N 0024003W, 554233N 0022635W, 555053N 0014116W,

UK ORBIT AREA 05 LOBE 01
A circle, 14 nm radius centred at 553000N 0020900W. FL270-FL350.

UK ORBIT AREA 05 LOBE 02
A circle, 11 nm radius centred at 553900N 0012650W. FL270-FL350.

6.3.2 USAFE Refueler Route

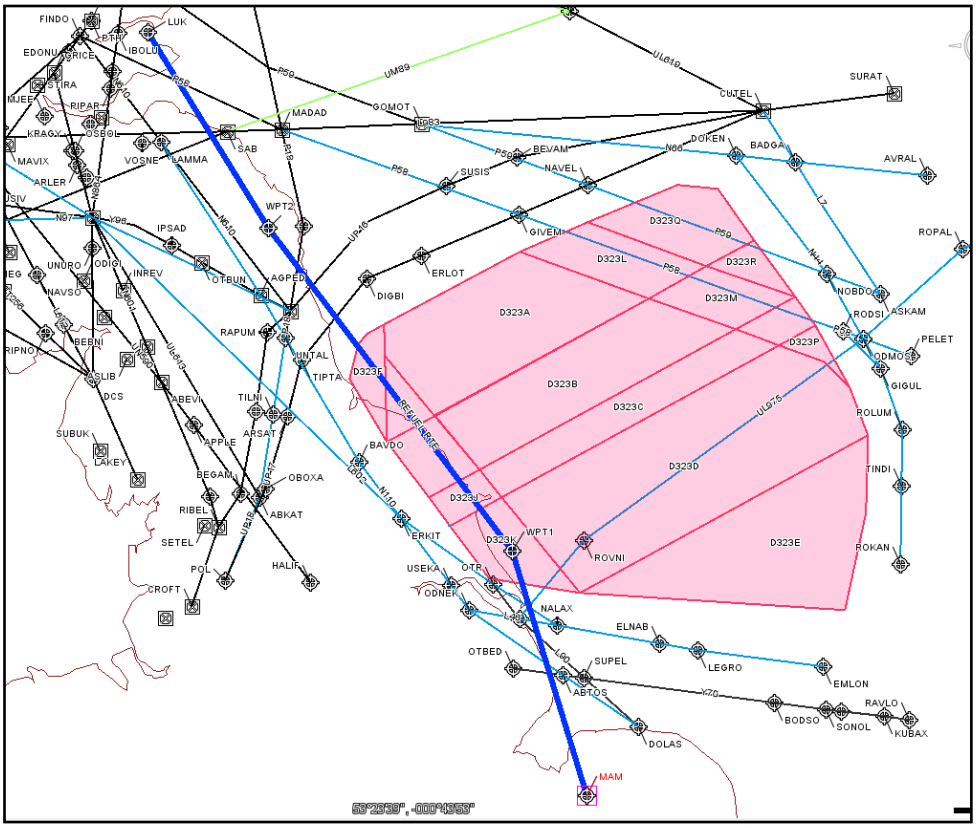
Tactical Military high level USAFE tanker route (west bound through the Scottish FIR) is not compatible with the proposed changes to L602 and N110. In order to ensure this procedure can continue, the MOD have suggested to move the tanker route to the east through areas F to K and de-conflict segregated activity from tanker times. The nuances of the management of this process can be seen at Annex F3.

The USAFE Refueler Route is not published with the UK AIP but is contained with the MOD / NATS Letter of Agreement (LOA) dealing with ATC Co-ordination procedures as well as the PC MATS Part 2.

Details of the Revised Track: MAM - Waypoint 1 (535113N 0000403E) – Waypoint 2 (552631N 0015215W) - LUK then DCT 0930W-DCT 010W, and the reverse. The 10W exit point is dependent on Oceanic North Atlantic Flows.

Vertical Block: FL260 – FL280 along track.

Establishment: Subject to the protocols established with the LOA (see Annex F2) being met and approval for Non-Deviating status being granted by the PC OPS SUP.



6.4 General Aviation Airspace Users Impact and Consultation

The MOD received feedback from a variety of General Aviation airspace users including gliding clubs, minor aerodromes, the BGA and the Light Aircraft Association. All General Aviation who responded supported this proposal and no impacts were identified.

6.5 Commercial Air Transport Impact and Consultation

The MOD engaged with 39 airlines (full list seen at Ref 10). The MOD received several responses from Commercial Air Transport representatives including KLM, Jet2, United Airlines and Virgin Atlantic. The Collate and Review Responses document (Ref 10) summarises all four responses including identifying any common themes and whether they contain detail which could potentially impact the final design.

Responses varied between Neutral and Oppose with concern noted as to appropriate sharing protocols to allow for the peak flow of the North Atlantic Tracks. The MOD have agreed with NATS that the sharing protocols will be available between the hours of 1000 and 1400 **local**; during these times the MOD will adhere to Civil invoked primacy. The MOD will cap activity in L – R at FL300, allowing Civil use from FL320 and above. One airline suggested that this window may not be early enough to meet to requirements of their European transits. The MOD have agreed that they will consider other Civil Suppressions requests outside of this window, following liaison between the MAM and CAM. These sharing protocols will be reviewed at the three-monthly Post Implementation Reviews.

Comments were also made as to the design of the new routes and if these were as efficient as possible to route around the newly expanded airspace. All adjustments and re-designs adhere to the CAA Buffer Policy and have taken into consideration the Civil Network as a whole, rather than the requirements of individual airlines.

Jet2 expressed concerns as to the decision to expand Danger Areas in the North Sea and suggested the activity should take place elsewhere within the UK. The MOD have expressed the need to adhere to the ACP Design Principles and the requirements for suitable training airspace within an acceptable distance of aircraft bases as well as the a minimum of 120nm by 60nm box with an overland portion. Meeting these requirements results in only the North Sea being deemed suitable.

6.6 CO^2 Environmental Analysis Impact and Consultation

Communities There are no proposed changes below 7000ft overland therefore no assessment of environmental impact upon communities is required.

Air Quality There is no requirement for an assessment of Air Quality.

CO^2 Given the wide range of variables, calculating the impact of the option on CO^2 emissions is challenging. There are a number of airspace configurations available that need to be matched up against a number of Civil traffic density scenarios. This is further complicated by Airspace Management protocols that will give priority to Civilian traffic (Annex G). Any results should be further mitigated by the intended use of enhanced Level 3 (tactical) Airspace Management aimed at increasing the timely release of airspace from Military use to the network. This was trialled throughout June and July and provided results proving benefits to Civilian airspace use (see Annex E). As in the most demanding airspace activation configuration, some aircraft will have a small number of additional track miles to fly. It is initially assessed that there will be some dis-benefit for CO^2 emissions over the baseline of 'Do Nothing'. Annex C1 and C2 details the NATS produced WebTAG Analysis from May 18 for the greenhouse gas analysis for two separate scenarios; the implementation of the new routes around the expanded area and without the implementation of the new routes.

6.7 Local Environmental Impacts and Consultation

The proposed re-alignment of some ATS routes would occur at a high level within existing Controlled Airspace. This proposal has been captured as a Level M2 (ACP), with no impact or alterations to traffic patterns below 7000ft. The MOD did not target organisations whose primary interest is environmental impacts such as noise, visual intrusion, tranquillity or local air quality.

More detailed analysis of the environmental impact of the proposed changes is given in Section 6.6 above and in the WebTAG Analysis in Annex C1 and C2. This includes analysis of the current vs proposed routes for the impact on fuel burn and CO^2 emissions. No analysis relating to noise or local air quality has been completed.

6.8 Economic Impacts

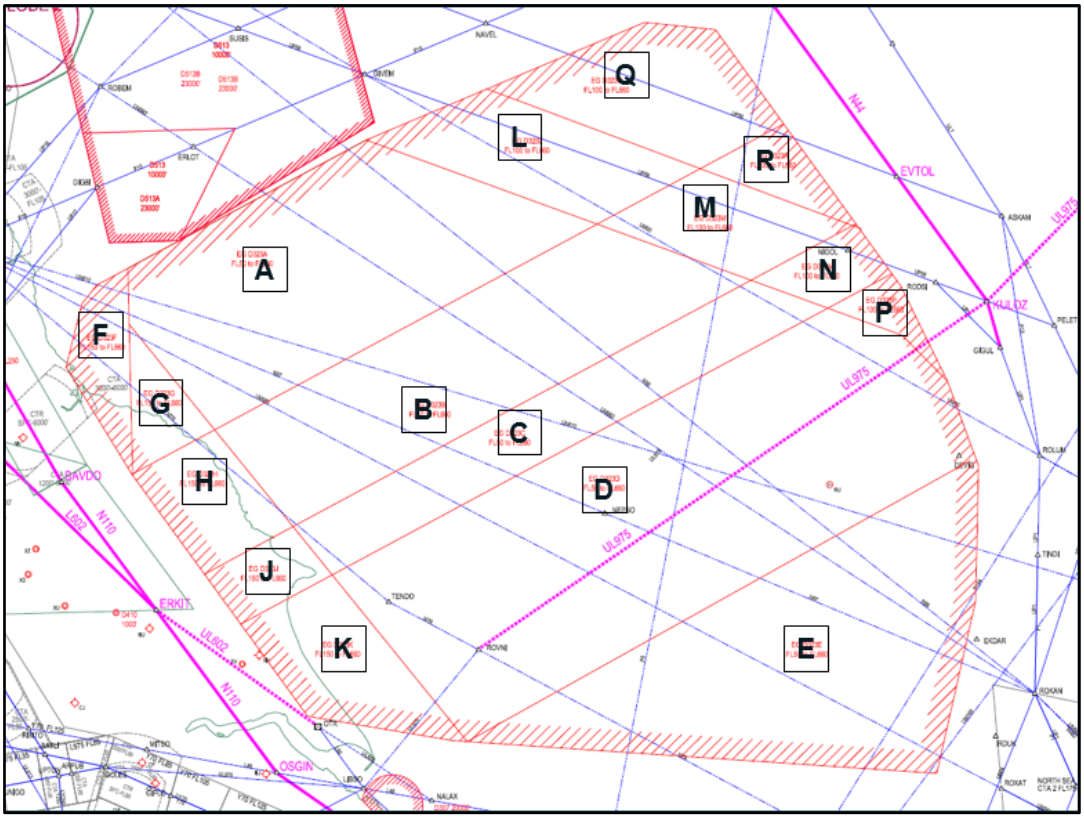
Economic impact upon Commercial Air Traffic Operations has been mitigated to as greater degree as possible, through airspace management protocols and are relatively minimal. Estimated impacts on CO^2 are contained within the WebTAG analysis. The economic benefit to the UK from the ability to operate 5th Generation aircraft is significant. Not only is the UK a major partner in the production of the Lightning II aircraft, there is also ongoing economic benefit to the UK from the supply chain. In addition, local economic impact in Norfolk is significant. Furthermore, USAFE operations within the UK, in addition to the Political, Security and Strategic benefits, bring a large economic benefit to the UK and to the Norfolk/Suffolk area particularly. Not being able to operate these aircraft in UK airspace risks economic activity worth £billions. On balance the negative economic impact upon those aircraft that may have to extend routes

around segregated airspace is easily offset by the contribution made to the UK economy from Defence activity.

7. Analysis of Options

A number of geographical options were examined during Stage 2a. When tested against the design principles the location with the best fit, indeed the only feasible option, without a major redevelopment of UK airspace, was to expand EG D323 in the North Sea. This option achieved the essential requirements of being within reach of RAF/USAFE operating bases, providing airspace that had an overland portion, and was of sufficient size to permit meaningful training. It utilised existing airspace structures and is comparatively simple when compared against a significant redevelopment. There is an impact to the network and potentially some other airspace users, which will be mitigated by the use of Airspace Management protocols and Flexible Use of Airspace principles. Given the lack of geographical options and once Military requirement has been met, other than safety, the need to minimise impact of the network has driven development. Hence rather than a series of options, there has been, through collaboration and negotiations between the MOD and NATS, a series of modifications to the design – thus the process has been highly iterative.

7.1 Most Recent Design



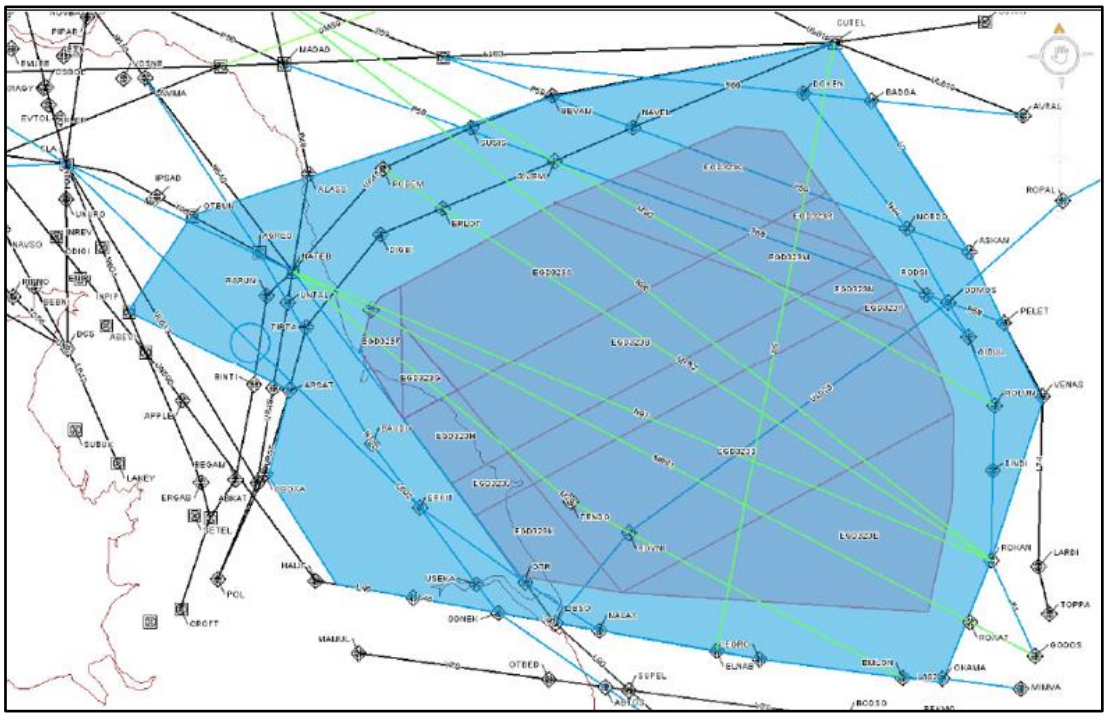
This design option makes use of airspace structures that already exist. The EG D323 Managed Danger Area was introduced as part of large scale UK airspace re-structuring in 2003 to meet MOD requirements. To meet the Statement of Need, the current EG D323 has been expanded by the addition of areas L to R from FL50 to Unlimited and areas F to K from FL 150 to Unlimited. The design is sub-divided to provide airspace configuration options to meet training requirements and to ensure that only the airspace required is booked and not the entire complex. Bookings will also be height sensitive. Activation of the segregated airspace will be via

the Military Airspace Booking Coordination Cell (MABCC) at D-1 in order to allow publication of the Route Availability message.

7.2 Further Impact Mitigation

7.2.1 Reduced Coordination Area

To allow civil traffic more optimal routings NATS have requested a Reduced Coordination Area be established around the enhanced EG D323 complex in order to permit Civil controllers to route aircraft more directly when segregated airspace is not active. Thus, further mitigating the impact of the new segregated airspace. This will deem all Civil aircraft operating within controlled airspace, subject to the vertical limits of EG D323, as being on-route for coordination purposes.



Vertical: FL245 to FL660
Lateral: Bounded by the following co-ordinates:

CUTEL	555309N 0022228E
ASKAM	545747N 0031350E
VENAS	541820N 0033908E
ROKAN	533948N 0031120E
OKAMA	531015N 0024622E
LEGRO	531935N 0013046E
NALAX	532900N 0002406E
RIMTO	534303N 0012559W
OBOXA	541036N 0015420W
ARSAT	543206N 0014419W
INPIP	545236N 0025346W
OTBUN	551650N 0022600W
BEVAM	554353N 0001503E
CUTEL	555309N 0022228E

7.2.2 Congestion in the vicinity of NATEB

It has been noted by NATS that there is potential difficulty for north/south transiting Military traffic in the vicinity of NATEB. When Areas F to K are active there is a potential bottle neck for Military traffic transiting north to south. The MOD amended the design by sub-dividing the north-westerly corner of area F into F and G (seen in paragraph 7.1). It has been agreed that the F segment will only be activated when both Swanwick(Mil) and NATS have transferred onto the common operating platform, estimated March 2020. Prior to the activation of F, NATS and the MOD will conduct a Post Implementation Review of the airspace and assess the current activation protocols to ensure they are fit for purpose.

7.2.3 TRA(G) Activity

The Yorkshire and Spadeadam TRA(G)s above FL245 are currently available Saturday, Sunday and Public Holidays in accordance with the BGA / NATS LoA. This activity would interact with proposed routes L602 and N110. In order to mitigate this interaction, the MOD have agreed that as Areas F to K will not be activated on the weekend or Public Holidays, to accommodate the TRA(G) activity. A provisional updated BGA / NATS LoA can be seen at Annex F2.

7.2.4 Enhanced L3M and Activation Protocols

The EG D323 complex is one of several portions of segregated airspace which are managed by the MABCC. They manage the airspace to produce a plan at D-1. The on-going trials, sponsored by the FSP, examined the potential improvement to tactical (Level 3) Management and the impact this would have on the efficient use of UK airspace for both Military and Civil users.

The first trial indicated that these improvements were certainly having a positive effect (see Annex E for a précis of the FSP Trial 2a Post Trial Report). The trial resulted in a further 133 hours of airspace within the EG D323 complex (total of 7 separate elements) was made available in June that was not available in May for tactical use. This equates to almost an extra hour when the complex has been handed back in its entirety, and therefore available for controller short cuts, for **each** of the 21 MOD flying days in June. If these same protocols were applied in July, a further 128 hours were made available, equating to around 40 extra minutes available for tactical short cuts for each of the 22 MOD flying days in July. Airspace not utilised and not handed back (throughout all of the MDAs) was seen to decrease from 28% in May to 15% and 19% in Jun and Jul respectively resulting in a huge reduction in wastage due to more proactive L3M.

There were approximately 226 flights that could have planned to transit EG D323 complex during the suppressed hours. This equates to an **enabled 42 tonnes of fuel** that could be saved. 61% of flights successfully planned to take advantage of the FUA opportunity during the suppressed hours. This equates to 22 tonnes of fuel saved. An additional 31% of flights were routed through the EG D323 complex by NATS, despite the airline not planning to take advantage of the FUA opportunity. This equates to an additional 14 tonnes of fuel. NATS tactically routed 16% of aircraft through the EG D323 complex during the published hours of activation (through tactical handbacks by the Military) – equating to 6 tonnes of fuel tactically saved.

It has been requested that the MOD introduce a standalone L3 Management Cell at RAF(U) Swanwick alongside this ACP, thus further mitigating any impact created by the activation of new segregated airspace.

Alongside the enhanced L3M protocols NATS and the MOD have agreed a robust set of protocols (seen at Paragraph 3.2.1 and Annex G) to ensure the airspace is shared appropriately and caters for both Civil and Military demands, under the auspices of FUA. The protocols suggest that on a north-about day, the far easterly portions; L to R, may be capped at FL300 between the hours of 1000-1400 (local) to enable the P58 and P59 to be plannable at FL320 and above. The protocols also include the increased necessity for good CDM between NATS and the MOD.

8. Airspace Description Requirements

	The proposal should provide a full description of the proposed change including the following:	Description for this proposal
a	The type of route structure; for example, air way, UAR, Conditional Route, Advisory Route, CTR, SIDs/STRAs, holding patterns etc.	See Section 5.
b	The hours of operation of the airspace and any seasonal variations	Segregated airspace bookable at D-1 via MABCC. Activated by NOTAM. See Section 5.
c	Interaction with domestic and international en-route structures, TMAs or CTAs with an explanation of how connectivity is to be achieved.	Connectivity with the ScTMA is achieved via the interconnection of N110 and Y96 at AGPED. See ADD and WGS84 Spreadsheet for details.
d	Airspace buffer requirements (if any). Where applicable describe how the CAA policy statement on 'Special Use Airspace – Safety Buffer Policy for Airspace Design Purposes' has been applied	RNAV 5 route designs conforms with Buffer Policy (2014). Where routes are closer than the required distance they have been designated as CDR with appropriate RAD restrictions applied. See ADD and WGS 84 spreadsheet for details.
e	Supporting information on traffic data including statistics and forecasts for the various categories or aircraft movements (passenger, freight, test and training, aero club, other) and terminal passenger number	No. of impacted flights – 2019 = 1,425 2024 = 1583
f	Analysis of the impact of the traffic mix on complexity and workload operations	Impact to traffic mix covered in the NATS HAZID.
g	Evidence of relevant draft Letters of Agreement, including any arising out of consultation and/or airspace management requirements	See Annex F.
h	Evidence that the airspace design is compliant with ICAO Standards and Recommended Practices (SARPs) and any other UK policy or filed differences, and UK policy on the Flexible Use of Airspace (or evidence of mitigation where it is not)	See WGS 84 spreadsheet and ADD for route design parameters.

i	The proposed airspace classification with justification for that classification	The newly designed airspace is proposed to be segregated to offer suitable protection for Military aircraft conducting high energy manoeuvres.
j	Demonstration of commitment to provide airspace users equitable access to the airspace as per the classification and where necessary indicate resources to be applied or a commitment to provide them in line with forecast traffic growth. 'Management by exclusion' would not be acceptable	The MOD has committed to sharing airspace and adhering to the FUA principles. See Annex G for a more detailed description of the airspace activation protocols.
k	Details of and justification for any delegation of ATS	No change to delegation of ATS.

9. Safety Assessment

Both the MOD and NATS conducted Safety HAZIDs investigating the impact of the new Airspace Design. It is assessed that any new hazards are those concerned with the introduction of the new airspace i.e. familiarity and complexity.

A number of barriers and mitigations already exist for the detailed hazards that may result from a lack of familiarity. In addition, bespoke training and education will be provided to aircrew, controllers and Airspace Managers.

The additional airspace structures add complexity to both the operation and management of the airspace. There are already barriers and mitigations in place for the hazards that may arise from airspace complexity. Following early simulation work there is some potential concern that the airspace design when fully active will create conflictions for Military aircraft routing north/south through the NATEB crossing, climbing and descending Civil traffic. In the most demanding traffic scenarios it is possible that these conflictions may not be resolvable via normal Air Traffic Control methods. NATS and the MOD have agreed to not introduce the F segment of the design until NATS have introduced their Common Operating Platform (expected March 2020) and the MOD and NATS controllers at Swanwick and Prestwick Centres are operating on the same platform. This will allow for the use of Medium Term Conflict Detection (MTCD) tools and reduce the risk to aircraft transiting in the vicinity of NATEB.

All change creates an element of risk to safe operations. In this case, the potential new hazards are broadly understood and the barriers/mitigations required are either in place already or can be readily applied. It is therefore considered that the proposed design will meet the required level of safety.

The NATS safety assurance argument follows the NATS Safety Management System (compliant to CAP 670 and accepted by the CAA). The safety assurance argument will present safety goals and supporting evidence to demonstrate that the changes to be introduced by the project will be tolerably safe for operation.

Safety observations and comments have been collected from two development simulations undertaken for the project. These were used to draft four hazards which were analysed by controllers holding validations for the sectors impacted by the project changes. Mitigations have been identified for the hazards to reduce the residual risk to an acceptable level.

Following the validation simulation (26 September 18), an additional hazard analysis workshop will be held to re-confirm the safety risk picture. As part of the project's safety assurance strategy there will also be a Post Design Safety Review completed to inform on any net safety benefits or dis-benefits associated with the project and act as an additional, independent review of the hazard analysis output and validation evidence. The project will also produce a Project Safety Assurance Report, presenting the entire safety assurance argument.

10. Operational Impact

	An analysis of the impact of the change on all airspace users, airfields and traffic levels must be provided, and included an outline concept of operations describing how operations within the new airspace will be managed. Specifically, consideration should be given to:	**Evidence of compliance/proposed mitigation**
a	Impact on IFR general air traffic and operational air traffic or on VFR General Aviation (GA) traffic flow in or through the area	See Ref 10 and Section 6 above.
b	Impact on VFR operations (including VFR routes where applicable)	Nil
c	Consequential effects on procedures and capacity, i.e. on SIDs, STARs, and/or holding patterns. Details of existing or planned routes and holds	N/A
d	Impact on aerodromes and other specific activities within or adjacent to the proposed airspace	Nil. Base of newly designed segregated airspace, FL150 over land and FL100 over the sea.
e	Any flight planning restrictions and/or route requirements	See ADD for RAD additions.

11. Supporting Infrastructure and Resources

	General requirements	Evidence of compliance/proposed mitigation
a	Evidence to support RNAV and conventional navigation as appropriate with details of planned availability and contingency procedures	N/A
b	Evidence to support primary and secondary surveillance radar (SSR) with details of planned availability and contingency procedures	As today.
c	Evidence of communication infrastructure including R/T coverage, with availability and contingency procedures	As today.
d	The effects of failure of equipment, procedures and/or personnel with respect to the overall management of the airspace must be considered	As today.
e	Effective responses to the failure modes that will enable the functions associated with airspace to be carried out including details of navigation aid coverage, unit personnel levels, separation standards and the design of the airspace in respect of existing international standards or guidance material	As today.
f	A clear statement on SSR code assignment requirements	N/A
g	Evidence of sufficient numbers of suitably qualified staff required to provide air traffic services following the implementation of a change	As today.

12. Airspace and Infrastructure

	General requirements	Evidence of compliance/proposed mitigation
a	The airspace structure must be of sufficient dimension with regards to expected aircraft navigation performance and manoeuvrability to fully contain horizontal and vertical flight activity in both radar and non-radar environments	No change to CAS. The newly designed segregated meet the Design Principles and requirements; see Section 5.
b	Where an additional airspace structure is required for radar control purposes, the dimensions shall be such that radar control manoeuvres can be contained within the structure, allowing a safety buffer. This safety buffer shall be in accordance with agreed parameters as set down in the CAA policy statement 'Safety Buffer Policy for Airspace Design Purposes Segregated Airspace'. Describe how the safety buffer is applied, show how the safety buffer is portrayed to the relevant parties, and provide the required agreements between the relevant ANSPS/airspace users detailing procedures on how the airspace will be used. This may be in the form of Letters of Agreement with the appropriate level of diagrammatic explanatory detail.	The newly designed adhere to the CAA Buffer Policy. No additional airspace structures are introduced as part of the design. UAR's are designed in accordance with the UK buffer policy (2014). See ADD for details.
c	The Air Traffic Management System must be adequate to ensure that prescribes separation can be maintained between aircraft within the airspace structure and safe management of interfaces with other airspace structures	The ATM system is currently adequate for maintaining separation within the airspace and safe management of the interfaces.
d	Air traffic control procedures are to ensure required separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures	ATC procedures will be created or amended as necessary to accommodate the project changes and maintain required separation. These will be subject to ATC Procedures Safety Analysis (following NATS SP406 process).
e	Within the constraints of safety and efficiency, the airspace classification should permit access to as many classes of user as practicable	When segregated airspace is not active, there is no change to the surrounding airspace classification.
f	There must be assurance, as far as practicable, against unauthorised incursion. This is usually done through the classification and promulgation	See Annex B2 for a more detailed analysis of the risk and mitigation against unauthorised incursions. The MOD will ensure sufficient promotion is completed to ensure maximum awareness of the change and the implication to **all** airspace users.

g	Pilots shall be notified of any failure of navigational facilities and of any suitable alternative facilities available and the method of identifying failure and notification should be specified	Existing contingency procedures would continue to apply.
h	The notification of the implementation of new airspace structures or withdrawal of redundant airspace structures shall be adequate to allow interested parties sufficient time to comply with user requirements. This is normally done through the AIRAC cycle	This will be promulgated via the AIRAC cycle. The MOD will also complete promotion work to ensure maximum understanding by all airspace users.
i	There must be sufficient R/T coverage to support the Air Traffic Management system within the totality of proposed controlled airspace	As today.
j	If the new structure lies close to another airspace structure or overlaps as associated airspace structure, the need for operating agreements shall be considered	See LoAs in Annex F. Procedures and operating agreements will be implemented as per the BM Force Orders and the MATS Part II.
k	Should there be any other aviation activity (low flying, gliding, parachuting, microlight site etc.) in the vicinity of the new airspace structure and no suitable operating agreements or air traffic control procedures can be devised, the change sponsor shall act to resolve any conflicting interests	Annex F detailed the updated LoA with the BGA. No further agreements have been deemed necessary. Should such a conflict occur, the MOD will act to resolve it.

	ATS route requirements	**Evidence of compliance/proposed mitigation**
a	There must be sufficient accurate navigation guidance based on in-line VOR/DME or NDM or by approved RNAV derived sources, to contain the aircraft within the route to be published RNP value in accordance with the ICAO/Eurocontrol standards	N/A
b	Where ATS routes adjoin terminal airspace there shall be suitable link routes as necessary to the ATM task	N/A
c	All new routes should be designed to accommodate P-RNAV navigational requirements	N/A

	Terminal airspace requirements	Evidence of compliance/proposed mitigation
	There are no proposed changes to terminal airspace structures	

	Off-route airspace requirements	Evidence of compliance/proposed mitigation
	There are no proposed changes to off-route airspace structures	

13. Environmental Assessment

	Theme	Content	Evidence of compliance/proposed mitigation
a	WebTAG analysis	Output and conclusions of the analysis (if not already provided else in the proposal)	See Annex C.
b	Assessments of noise impacts	Consideration of noise impacts, and where appropriate the related qualitative and/or quantitative analysis If the change sponsor expects that there will be no noise impacts, the rationale must be explained	N/A – this is a Level M2 change.
c	Assessment of CO^2 emissions	Consideration of the impacts on CO^2 emissions, and where appropriate the relative qualitative and/or quantitative analysis If the change sponsor expects that there will be no impact on CO^2, the rationale must be explained	See paragraph 6.6 and Annex C.
d	Assessment of local air quality	Consideration of the impacts on local air quality, and where appropriate the relative qualitative and/or quantitative analysis If the change sponsor expects that there will be no impact on local air quality, the rationale must be explained	N/A – this is a Level M2 change.
e	Assessment of impacts upon tranquillity	Consideration of any impact upon tranquillity, notability on Ares of Outstanding Natural Beauty or national Parks, and where appropriate the qualitative and/or quantitative analysis If the change sponsor expects that there will be no tranquillity impacts, the rationale must be explained	N/A – this is a Level M2 change.
f	Operational diagrams	Any operational diagrams that have been used in the consultation to illustrate and aid understanding of environmental impacts must be provided	See Sections 3 and 6.

g	Traffic forecasts	10-year traffic forecasts, from the anticipated date of implementation, must be provided (if not already provided else in the proposal)	2024 traffic forecast for impacted area is 1,583. The MOD are currently planning for the introduction of the F35; 9 in 2018, 49 by 2022 and 75 by 2024. The Typhoon fleet is also planned to increase from 90 to 108 aircraft by 2021. The frequency of utilisation of the newly designed airspace is not yet known and will increase over coming years with the increase in Military fast jets.
h	Summary of environmental impacts and conclusions	A summary of all of the environmental impacts detailed above plus the change sponsor's conclusions on those impacts	See Section 6.

Revised EG D323 Complex (AIP ENR 5.2)

AREA	Vertical	Co-ordinates Clockwise	Remarks
A	FL 050 to 660	545744N 0005457W - 551710N 0001428E - 550142.68N 0011753.07E - 543101.61N 0003132.21W - 544840.67N 0005456.16W - 545744N 0005457W	**Vertical Limits:** Upper Limit: As notified up to FL 660; Lower Limit: As notified up from FL 50. **Activity:** Air Combat Manoeuvres / High Energy Manoeuvres / Supersonic Flight. **Hours:** Activated by NOTAM. **Service:** DAAIS: London Information on 124.475 MHz. **Contact:** Pre-flight information: CRC Boulmer, Tel: 01665-572312. Booking: Military Airspace Booking Coordination Cell, Tel: 01489-612495. **Danger Area Authority:** HQ Air.
B	FL 050 to 660	550142.68N 0011753.07E - 545058.88N 0020009.69E - 541450.82N 0001028.06W - 543101.61N 0003132.21W - 550142.68N 0011753.07E	
C	FL 050 to 660	545058.88N 0020009.69E - 544531.50N 0022109.49E - 540643.85N 0000001.93W - 541450.82N 0001028.06W - 545058.88N 0020009.69E	
D	FL 050 to 660	544531.50N 0022109.49E - 543947.64N 0024251.97E - 543142.73N 0025434.36E - 541738.46N 0030109.63E - 533812.98N 0003557.03E - 540643.85N 0000001.93W - 544531.50N 0022109.49E	
E	FL 050 to 660	541738.46N 0030109.63E - 541733.26N 0030112.05E - 535535.00N 0025714.00E - 532807.00N 0024241.00E - 533812.98N 0003557.03E - 541738.46N 0030109.63E	
F	FL150 to 660	545744.00N 0005457.00W - 544840.67N 0005456.16W - 542402.38N 0005517.90W - 544229.37N 0011250.51W - 545210.00N 0010815.00W - 545513.00N 0010343.00W - 545744.00N 0005457.00W	**Vertical Limits:** Upper Limit: As notified up to FL 660; Lower Limit: As notified up from FL150. **Activity:** Air Combat Manoeuvres / High Energy Manoeuvres / Supersonic Flight. **Hours:** Activated by NOTAM. **Service:** DAAIS: London Information on 124.475 MHz.
G	FL150 to 660	544840.67N 0005456.16W - 543101.61N 0003131.21W - 542402.38N 0005517.90W - 544840.67N 0005456.16W	
H	FL150 to 660	542402.38N 0005517.90W - 543101.61N 0003132.21W - 541450.82N 0001028.06W - 540726.45N 0003547.32W - 542402.38N 0005517.90W	
J	FL150 to 660	540726.45N 0003547.32W - 541450.82N 0001028.06W - 540643.85N 0000001.93W -	

		535908.04N 0002605.64W - 540726.45N 0003547.32W	**Contact:** Pre-flight information: CRC Boulmer, Tel: 01665-572312. Booking: Military Airspace Booking Coordination Cell, Tel: 01489-612495. **Danger Area Authority:** HQ Air.
K	FL150 to 660	535908.04N 0002605.64W - 540643.85N 0000001.93W - 533812.98N 0003557.03E - 534331.37N 0000805.30W - 535908.04N 0002605.64W	
L	FL100 to 660	552429.51N 0004952.07E - 550943.85N 0014758.63E - 550142.68N 0011753.07E - 551710.00N 0001428.00E - 552429.51N 0004952.07E	**Vertical Limits:** Upper Limit: As notified up to FL 660; Lower Limit: As notified up from FL 100. **Activity:** Air Combat Manoeuvres / High Energy Manoeuvres / Supersonic Flight. **Hours:** Activated by NOTAM. **Service:** DAAIS: London Information on 124.475 MHz. **Contact:** Pre-flight information: CRC Boulmer, Tel: 01665-572312. Booking: Military Airspace Booking Coordination Cell, Tel: 01489-612495. **Danger Area Authority:** HQ Air.
M	FL100 to 660	550943.85N 0014758.63E - 545903.01N 0023107.05E - 545058.88N 0020009.69E - 550142.68N 0011753.07E - 550943.85N 0014758.63E	
N	FL100 to 660	545903.01N 0023107.05E - 545025.48N 0024004.67E - 544531.50N 0022109.49E - 545058.88N 0020009.69E -545903.01N 0023107.05E	
P	FL100 to 660	545025.48N 0024004.67E - 543142.73N 0025434.36E - 543947.64N 0024251.97E - 544531.50N 0022109.49E - 545025.48N 0024004.67E	
Q	FL100 to 660	553347.35N 0013624.70E - 553149.85N 0015621.95E - 551615.97N 0021300.27E - 550943.85N 0014758.63E - 552429.51N 0004952.07E - 553347.35N 0013624.70E	
R	FL100 to 660	551615.97N 0021300.27E - 545903.01N 0023107.05E - 550943.85N 0014758.63E - 551615.97N 0021300.27E	

Revised UK ORBIT AREAS (AIP ENR 5.3)

UK Orbit Area 4:
Delete in Total

UK Orbit Area 5:
Revised

UK ORBIT AREA 05 555123N 0011510W, 553953N 0010247W, 553010N0011022W, 551333N 0020652W, 551723N 0022711W, 553024N 0024003W, 554233N 0022635W, 555053N 0014116W, ORIGIN	Upper limit: FL350 Lower limit: FL270	Air-1Gp-ISTAR Sentry SO2, Tel: 01522-726448	**Hours**: Permanently available. **Remarks**: Non-RVSM compliant aircraft FL 280 only. Swanwick (Mil) is the ATS provider for this area, crews are strongly encouraged to file a Flight Plan; Swanwick (Mil) Flight Plan address EGZYOATT. Failure to file a Flight Plan may result in delays.
UK ORBIT AREA 05 LOBE 01 A circle, 14 nm radius centred at 553000N 0020900W			
UK ORBIT AREA 05 LOBE 02 A circle, 11 nm radius centred at 553900N 0012650W			

North Sea Reduced Co-Ordination Area (AIP ENR 1.1 Section 1 (1.3))

Introduction of Reduced Co-Ordination Area into ENR 1.1 Section 1 – 1.3.

Definition as set out within CAP 1430 and Eurocontrol Airspace Management Handbook. Managed in accordance with Letter of Agreement between MoD and NATS.

Purpose: To set out the co-ordination requirements between GAT and OAT service providers when GAT are operating off a designated route. Description of Area to be included within ENR 2.2. Depiction of area required in ENR 6.

Time: H24

Vertical: Within CAS; FL195 to FL660 except during periods of notified activation of TRA 5, 6, 7A, 7B.

Lateral: Bounded by the following co-ordinates:

Reporting Points with associated Lat and Longs	CUTEL 555309N 0022228E	ASKAM 545747N 0031350E	VENAS 541820N 0033908E	ROKAN 533948N 0031120E
OKAMA 531015N 0024622E	LEGRO 531935N 0013046E	NALAX 532900N 0002406E	RIMTO 534303N 0012559W	OBOXA 541036N 0015420W
ARSAT 543206N 0014419W	INPIP 545236N 0025346W	OTBUN 551650N 0022600W	BEVAM 554353N 0001503E	CUTEL 555309N 0022228E

Annex B1
NATS Safety Case

The Project Lightning safety assurance argument follows the NATS Safety Management System (compliant to CAP 670 and accepted by the CAA).

The safety assurance argument will present safety goals and supporting evidence to demonstrate that the changes to be introduced by the project will be tolerably safe for operation.

Safety observations and comments have been collected from two development simulations undertaken for the project. These were used to draft four hazards which were analysed by controllers holding validations for the sectors impacted by the project changes.

At this stage mitigations have been identified for the hazards to reduce the residual risk to an acceptable level.

Following a validation simulation, a hazard analysis workshop will be repeated (scheduled for 4 and 5 October 18) to re-assess the hazards (and any new hazards if identified). At this stage the safety risk picture will be confirmed. As part of the project's safety assurance strategy there will also be a Post Design Safety Review completed to inform on any net safety benefit or dis-benefit associated with the project and act as an additional, independent review of the hazard analysis output and validation evidence. The project will also produce a Project Safety Assurance Report, presenting the entire safety assurance argument.

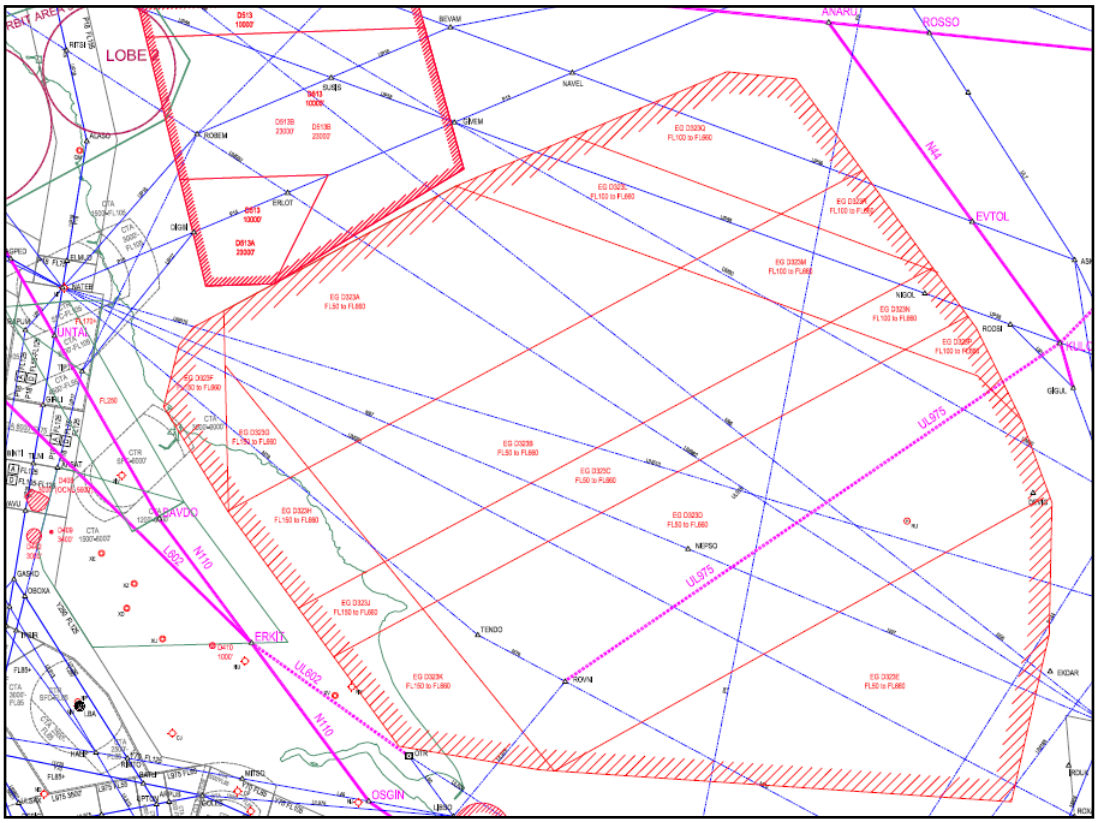
20180824 - Combat Air ACP MOD Safety Assessment

24 Aug 18

Proposal to Redesign the Combat Air Training Airspace in the North Sea

Part 1a: Background	
Introduction	In SDSR 2015, the Government committed the UK to increasing the number of combat aircraft that the MOD will operate and confirmed the intention to buy 5th Gen fast jets. Additionally, as its NATO ally, the US Government has committed to the continued basing of combat aircraft within the UK. Resultantly, there is a projected growth of more capable combat aircraft planned to operate within the UK. To support this Government-directed expansion in military capability, there is a requirement for a larger area of segregated airspace to accommodate training requirements and thus ensure operational capability.
Assessment Process	The following design principles have been established: • The design will provide a suitable training area. • The training area will be within reach of UK/USAFE Main Operating Bases. • The design will provide a sufficient overland portion for siting land based assets (Training Requirement). • Safety – apply current airspace design safety parameters e.g. buffer policy. Final solution Tolerable and ALARP (Safety). • Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). • Minimise impact upon the network where possible (Efficiency + Airspace Sharing). • Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). • Conformity – use standard airspace structures where possible (Simplicity + Safety). • Minimise impact upon any other airspace users (Given the likelihood that any impact will be over the sea and above FL150, it is assessed that there will be relatively few stakeholders. The DAATM hosted a HAZID workshop at CAA House on 23 Aug to ascertain any new hazards associated with this change and the potential mitigations. This workshop was attended by airspace users from Typhoon, Lightning and F15 platforms as well as representatives from RAF(U) Swanwick and RAF Boulmer.

Part 1b: Proposal

Details of Change	Preferred Design Option:  This proposal suggests subdividing airspace for several reasons: 1. To allow the airspace to be configured more precisely to meet user requirement. For example, if the military activity does not need to operate against land based assets then F, G, H, J and K would not be booked. The same principle would be applied to other areas. 2. Where specific management protocols apply. For example, if the predicted North Atlantic Tracks are 'Northerly' then L-R will be level capped between certain times to facilitate this flow of civil traffic. This design also has new CDRs (in pink) that will be available when segregated airspace is activated in order to minimise the effect upon the network. It is intended that any segregated airspace overland will have a base level of FL150.
Proposed Date of Introduction	The DAATM intends to introduce this change in the 28 Feb 19 AIRAC.

Part 2: BM Hazard Analysis	
Hazard 1	Aircraft inadvertently leaves the **lateral** limits of segregated airspace.
Undesirable Event	Loss of Separation (LOS) between military aircraft operating outside of limits of segregated airspace and third-party aircraft transiting in Class G or C airspace.
Causal Factors	1. Misunderstanding of the increased complexity in new design (variable base levels and interchangeable top levels) and management protocols due to nature of the large-scale change. 2. Incorrect / out of date mapping, either on board the aircraft or with the Air Traffic Service provider. 3. Adverse weather conditions and excessive wind. 4. Inexperience of foreign visiting aircrew with a lack of understanding of the changed airspace. 5. Increased pilot workload with the complexities of new aircraft. 6. Failure of BM equipment and lack of ability to monitor or provide a radar service to military sorties. 7. New airspace design not fit for purpose for 5th Gen aircraft (too small) and aircraft overspill out of the segregated area.
Pre-Existing Barriers	1. Aircraft in receipt of a Radar Control Service are subject to mandatory separation standards inside CAS. 2. Civil aircraft are likely to be operating under a DS (outside CAS) therefore in receipt of prescribed separation standards. 3. On board aircraft systems (variations between platforms) allowing for accurate position reporting by Military aircraft and increased situational awareness by 5th Gen air vehicles: • Maps (scrolling/moving maps and tactical displays with zoom functions) • TACAN • Radar • TCAS • Link16 • IFF plus interrogator • MIDS (Mission Integrated Distribution System) • MADL (Multi-function Advanced Data-Link) – SA sharing tool between F35 air vehicles. 4. Appropriate briefing and planning prior to departure ensuring a detailed understanding of any airspace changes. 5. STCA (Short Term Conflict Alert) on prescribed squawks (at Swanwick and Prestwick Centres only) programmed to alert controllers of conflicts between aircraft which can aid to minimise the likelihood of a LOS occurring.

	6. USAFE aircrew utilise the P5 system that allows Range Training Officers (when manned) to provide alerts against approaching conflicting P5 or Link16 equipped aircraft; currently only utilised during D323 Air-to-Air training.

Pre-Existing Mitigations	1. Military aircraft operating within an MDA can receive a service from RAF(U) Swanwick or one of the CRCs and will receive alerts should an aircraft inadvertently leave the airspace. 2. If controllers at RAF(U) Swanwick or one of the CRCs are not be providing a service to autonomous sorties, they **may** still observe jets inadvertently leaving areas and can raise aircraft on Guard or liaise with Civil sectors if required. 3. Civil aircraft transiting or departing from airfields will be in receipt of an appropriate ATS from a controller and will receive TI / AA on conflicting aircraft. 4. Aircraft operating under a BS will need to be VMC and therefore operating under 'see and avoid' principles. 5. Aircraft will monitor guard frequencies at all times.
Consequence	1. An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside – **Minor**. 2. An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside. The aircraft flies within close proximity of a Civil or Military transiting aircraft resulting in a LOS or AIRPROX – **Major**. 3. An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside. The aircraft flies within close proximity of a Civil or Military transiting aircraft resulting in a MAC – **Catastrophic**.
Worst Credible Consequence	An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside – **Minor**.
Potential Additional Barrier Measures	1. Aircraft operating within the new airspace could request a service from an appropriate Air Traffic Service Unit (ATSU) during the early stages following the airspace change (timescale to be determined) with these sorties prioritised appropriately. 2. The DAATM could produce appropriate briefing material for aircrew, operations support staff and ATSUs to ensure the new airspace design and activation protocols are fully understood. 3. Robust briefing procedures to foreign aircrew could be established to ensure full understanding of the complexities of the new airspace. 4. Arrival and departure gates could be established to ensure aircraft leave at preassigned points at known levels. 5. USAFE controllers at the Air Control Squadron based at Aviano could provide radar services to aircraft **within** segregated airspace, relieving the burden on RAF(U) Swanwick and the CRCs.

	6. Military aircraft can request receipt of Link16 surveillance radar tracks (via CRCs) for required time periods (subject to CRC manpower availability and constraints) to increase situational awareness.

Barrier Measures for implementation	The first three barriers listed above would be relatively simple to implement and would provide MOps to ensure safe and efficient operations within the new airspace. Briefing to foreign aircrew are already provided by the Low Flying Booking Cell and could be increased to incorporate en-route briefing material by the Military service providers. When implementation Barrier 1; ASACS and Swanwick manning would be need to be considered to and services provided subject to capacity. The fourth Barrier will require further work and development between service providers and users and could only be implemented as an option for aircrew in the first instance. The fifth Barrier is currently only an aspiration and investigation work between the USAFE and RAF is still in the early stages. If this option was to be implemented, it would realistically be after the change date of this ACP and may only aid inside segregated airspace; services will still be required by UK ATSUs to transiting aircraft. The sixth Barrier is currently utilised in a few sorties but could be expanded to be utilised more routinely in fast jet operations. This would require further work and liaison between aircrew, the CRCs and JDLMO.

Part 2: BM Hazard Analysis	
Hazard 2	Aircraft inadvertently leaves the **vertical** limits of segregated airspace.
Undesirable Event	LOS between military aircraft operating outside of limits; above or below levels of segregated airspace and third-party aircraft transiting in Class G or C airspace.
Causal Factors	1. Misunderstanding of the increased complexity in new design (variable base and top levels) and management protocols due to nature of the large-scale change. 2. Incorrect pressure setting utilised by aircrew operating within segregated airspace. 3. Adverse weather conditions or excessive wind. 4. Inexperience of foreign visiting aircrew with a lack of understanding of the changed airspace. 5. Increased pilot workload with the complexities of 4th and 5th Gen aircraft. 6. Poor communications between aircrew and Air Traffic Service providers causing misunderstanding of airspace levels available for operations. 7. Failure of BM equipment and lack of ability to monitor or provide a radar service to military sorties.
Pre-Existing Barriers	1. Aircraft in receipt of a Radar Control Service are subject to mandatory separation standards inside CAS. 2. Civil aircraft are likely to be operating under a DS (outside CAS) therefore in receipt of prescribed separation standards. 3. Civil aircraft equipped with TCAS, as well as some Military aircraft, can use this system to aid in the prevention of MAC. 4. Appropriate briefing and planning prior to departure ensuring a detailed understanding of any airspace changes. 5. STCA on prescribed squawks (at Swanwick and Prestwick Centres only) programmed to alert controllers of conflict between aircraft which can aid to minimise the likelihood of a LOS occurring. 6. Civil routes allow for a 2000ft buffer above and below Military activity.

Pre-Existing Mitigations	1. Military aircraft operating within an MDA can receive a service from RAF(U) Swanwick or one of the CRCs and will receive alerts should an aircraft inadvertently leave the airspace. 2. Civil aircraft transiting or departing from airfields will be in receipt of an appropriate ATS from a controller and will receive TI or AA on conflicting aircraft. 3. Aircraft operating under a BS will need to be VMC and therefore operating under 'see and avoid' principles. 4. Aircraft will monitor guard frequencies at all times.
Consequence	1. An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside – **Minor**. 2. An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside. The aircraft flies within close proximity of a Civil or Military transiting aircraft resulting in a LOS or AIRPROX – **Major**. 3. An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside. The aircraft flies within close proximity of a Civil or Military transiting aircraft resulting in a MAC – **Catastrophic**.
Worst Credible Consequence	An aircraft conducts high energy manoeuvres autonomously outside of segregated airspace when the pilot believes they are operating inside – **Minor**.
Potential Additional Barrier Measures	1. Aircraft operating within the new airspace could request a service from an appropriate ATSU during the early stages following the airspace change (timescale to be determined) with these sorties prioritised appropriately. 2. The DAATM could produce appropriate briefing material for aircrew, operations support staff and ATSUs to ensure the new airspace design and activation protocols are fully understood. 3. Robust briefing procedures to foreign aircrew could be established to ensure full understanding of the complexities of the new airspace. 4. Controllers providing services within the new airspace could reiterate the operating levels for each of the differing segments (reiterating the changing top levels due to the complex management protocols) during the early stages following the airspace change (timescale to be determined). 5. Controllers could calculate the differences in altitude for aircraft operating on the RPS to what this would be on the SAS to ensure adequate separation for Civil aircraft utilising CDRs above segregated airspace. 6. The DAATM could reassess the design and make all base levels and top levels uniform. 7. Aircrew could only book what airspace is required; if there is no need to book the overland or eastern portions, they should not be booked and therefore minimise the risk of misunderstanding the variable levels.

Barrier Measures for implementation	The first three barriers listed above would be relatively simple to implement and would provide MOps to ensure safe and efficient operations within the new airspace. Briefing foreign aircrew is already provided by the Low Flying Booking Cell and could be increased to incorporate en-route briefing material by the Military service providers. When implementing Additional Barrier 1; ASACS and Swanwick manning would need to be consulted and services provided subject to capacity. The fourth additional barrier will require the usage of extra RT and phraseology. However, it will be necessary (until a determined date) to ensure understanding, especially when operating levels may vary daily. This RT would require to be standardised across the BM Force. The fifth additional barrier would be straight forward to implement; these procedures are utilised when operating aircraft within the confines of smaller DAs. Controllers could ensure that when aircraft are operating in segments of the DA with Civil aircraft operating above or below, they take into account the differences in operating altitudes due to high / low pressures. The sixth Barrier is not feasible given the complexity of the Civil Route Network and the cooperation agreements with other local airspace users. The current CAP1616 process is also a very long and protracted process and changing the design at this late stage would set the implementation back at least two years. Barrier seven is a founding principle of all airspace bookings and will again be reemphasised to all airspace users once this change is implemented.

Part 2: BM Hazard Analysis	
Hazard 3	Increased-congestion and complexity within the vicinity of Newcastle.
Undesirable Event	LOS between transiting Military aircraft and Civil aircraft.
Causal Factors	1. Reduced availability of airspace near NATEB creating a funnelling effect. 2. Increase in Military aircraft requiring segregated airspace, both in the D323 complex and the D613 complex. 3. Increase in Civil traffic growth. 4. The movement of the UARs due to the expanded DA has aided to the complexity around NATEB. 5. The reduction in the Derogated Services provided by the Military has aided to the complexity around NATEB.
Pre-Existing Barriers	1. Aircraft in receipt of a Radar Control Service are subject to mandatory separation standards inside CAS. 2. Civil aircraft are likely to be operating under a DS (outside CAS) therefore in receipt of prescribed separation standards. 3. Civil aircraft equipped with TCAS, as well as some Military aircraft, can use this system to aid in the prevention of MAC. 4. STCA on prescribed squawks (at Swanwick and Prestwick Centres only) programmed to alert controllers of conflict between aircraft which can aid to minimise the likelihood of a LOS occurring.
Pre-Existing Mitigations	1. Military aircraft transiting below FL195 operating autonomously in VFR conditions utilising good 'see and avoid' to main safe separation. 2. High numbers of aircraft filing to use the CDRs around NATEB will be detected by the Civil Airspace Capacity Management and Flow Management teams at Swanwick. Sector capacity is managed pre-tactically.
Consequence	1. The extended DA creates a funnelling effect where there is insufficient space between CAS and the active DA to achieve the prescribed separation minima; separation minima is lost – **Minor**. 2. The increased airspace complexity within the vicinity of NATEB results in increased workload for the Civil sectors causing a controller overload – **Minor.** 3. The increased airspace complexity in the vicinity of NATEB results in congested airspace. A military aircraft climbs / descends through a conflicting level of a Civil aircraft resulting in an AIRPROX – **Major**. 4. The increased airspace complexity within the vicinity of NATEB results in over congested airspace. A military aircraft climbs / descends through a conflicting level of a Civil aircraft resulting in a MAC – **Catastrophic**.

Worst Credible Consequence	The extended DA creates a funnelling effect where there is insufficient space between CAS and the active DA to achieve the prescribed separation minima; separation minima is lost – **Minor**.
Potential Additional Barrier Measures	1. Military aircraft could aim to transit outside of peak civil transit times. 2. Military aircraft could aim to transit above or below civil transit levels where practicable (e.g. above FL400 or below FL240). 3. Military controllers could endeavour to utilise a wider range of transiting profiles, e.g. the west of NATEB to avoid congestion in one area. 4. Aircraft operating in Class G around NATEB could be required to receive a service from an appropriate ATS provider to ensure proactive coordination agreements can be made. 5. The DAATM could engage with the local GA and commercial traffic community to discuss the potential funnelling effect near NATEB and the impact this may have; this could be utilised as an education opportunity to reduce risk of LOS in the future. 6. Segment F (in the north-west corner of the new DA) could be restricted from being booked until NATS introduce their new operating systems and both Military (ATC) and Swanwick Civil controllers are utilising the same platform (not a mitigation for ASACS operations). 7. There could be an increase in standing coordination agreements between Military and Civil controllers to reduce the need for verbal coordination. 8. NATS could review the current route structures to address the confluence of routes around NATEB.
Barrier Measures for implementation	Barrier one would not be feasibly implemented without having an untenable impact on Military flying training. Barriers two and three would be implemented wherever practicable. Barrier four would be an aspiration however would be difficult to implement across the wider GA community who chose to operate autonomously. It would also add a further burden on ATSUs where many resources are already stretched; further work and liaison would be required to investigate this further. The DAATM aim to implement Barrier five as part of the ACP consultation work. Barrier six has been agreed between Military airspace users and NATS and will be incorporated into the activation protocols and final submission document to the CAA. Barrier seven will require further development between the Military and NATS but is deemed achievable in certain Civil sectors. Barrier eight would have a large cost burden for NATS and require a huge amount of development work; unfeasible in the near future.

Part 2: BM Hazard Analysis	
Hazard 4	Aircraft **deliberately** enters segregated airspace.
Undesirable Event	Loss of Separation between military aircraft operating inside segregated airspace and third-party aircraft operating in Class G or C airspace.
Causal Factors	1. Misunderstanding of the increased complexity in new design (variable base and top levels) and management protocols due to nature of the large-scale change. 2. Gilders operating in active TRA(G) enter segregated airspace as the operations have not been deconflicted. 3. Aircraft in an Emergency. 4. Adverse weather conditions cause controllers to provide vectors into segregated airspace to avoid patches of weather. 5. Aircraft in receipt of an AA or in response to a TCAS(RA) 6. New airspace design not fit for purpose for 5th Gen aircraft (too small) and aircraft deliberately overspill into segregated airspace assigned to another user.
Pre-Existing Barriers	1. Aircraft in receipt of a Radar Control Service are subject to mandatory separation and could receive accurate information on any conflicting aircraft, whether inside or outside of segregated airspace. 2. Civil aircraft are likely to be operating under a DS (outside CAS) therefore in receipt of prescribed separation standards against any conflicting aircraft, whether inside or outside of segregated airspace. 3. STCA on prescribed squawks (at Swanwick and Prestwick Centres only) programmed to alert controllers of conflict between aircraft which can aid to minimise the likelihood of a LOS occurring. 4. USAFE aircrew utilise the P5 system that allows Range Training Officers (when manned) to provide alerts against approaching conflicting P5 or Link16 equipped aircraft; currently only utilised during D323 Air-to-Air training.

Pre-Existing Mitigations	1. Military aircraft operating within an MDA can receive a service from RAF(U) Swanwick or one of the CRCs and will receive alerts should a conflicting aircraft penetrate the airspace. 2. If controllers at RAF(U) Swanwick or one of the CRCs are not be providing a service to autonomous sorties, they will still observe jets inadvertently leaving areas and can raise aircraft on Guard or liaise with Civil sectors if required. 3. Aircraft operating under a BS will need to be VMC and therefore operating under 'see and avoid' principles. 4. Aircraft will monitor guard frequencies at all times.
Consequence	1. An aircraft conducting high energy manoeuvres inside of segregated airspace and is not aware of a conflicting aircraft that has entered their operating area – **Minor**. 2. The sortie being conducted inside segregated airspace is disrupted or cancelled due to penetrating aircraft – **Minor**. 3. An aircraft conducting high energy manoeuvres inside of segregated airspace and is not aware of a conflicting aircraft that has entered their operating area inside. The Military aircraft flies within close proximity of the manoeuvring aircraft resulting in a LOS or AIRPROX – **Major**. 4. An aircraft conducting high energy manoeuvres inside of segregated airspace and is not aware of a conflicting aircraft that has entered their operating area inside. The Military aircraft flies within close proximity of the manoeuvring aircraft resulting in a MAC – **Catastrophic**.
Worst Credible Consequence	The sorties being conducted inside segregated airspace is disrupted or cancelled due to penetrating aircraft – **Minor**.
Potential Additional Barrier Measures	1. Aircraft operating within the new airspace could request a service from an appropriate ATSU ensuring aircrew are well informed of any potential penetrators to operating areas. 2. The DAATM could extend the current design to ensure all Military sorties can be contained within segregated airspace. 3. The DAATM could consider less complex segmentation of the new design and reduce complexity. 4. Aircrew could only book what airspace is required; if there is no need to book the overland or eastern portions, they should not be booked and therefore minimise the risk of misunderstanding the variable levels. 5. A robust LoA could be established with the BGA to ensure any Glider operations are appropriately deconflicted with the new airspace design.

Barrier Measures for implementation	Barrier one would be straight forward to implement. Both RAF(U) Swanwick and the CRCs will endeavour to provided services to all sorties within the new airspace however this is subject to Unit capacity. Given the complexity of the CAA CAP1616 process and the advanced level of the proposed design, the DAATM have deemed that Barriers two and three are not feasible. There will be quarterly post-implementation reviews of the newly implemented airspace and should these issues become apparent, the complexity and size of the segments could be reviewed. Barrier four is a founding principle of all airspace bookings and will again be reemphasised to all airspace users once this change is implemented. The DAATM are currently liaising with the BGA to update the current LoA and implement Barrier five.

Part 2: BM Hazard Analysis	
Hazard 5	Aircraft conducting Non-IFF training inadvertently leaves segregated airspace.
Undesirable Event	Loss of Separation (LOS) between military aircraft operating outside of limits of segregated airspace and third-party aircraft transiting in Class G or C airspace.
Causal Factors	1. Requirements for UK Military to train and complete Non-IFF sorties. 2. Pilot error; they forget to reset the IFF prior to leaving segregated airspace. 3. Increased pilot workload with the complexities of 4th and 5th Gen aircraft. 4. New airspace design not fit for purpose for 5th Gen aircraft (too small) and aircraft overspill out of segregated area.
Pre-Existing Barriers	1. Aircraft systems on board 5th Gen allowing for accurate position reporting: • Maps (rolling map and tactical displays with zoom functions) • TACAN • Radar • Link16 • IFF plus interrogator • Multi-function Advanced Data-Link (MADL) 2. Appropriate briefing and planning prior to departure ensuring a detailed understanding of any airspace changes. 3. Current SOPs dictate that aircraft should be squawking appropriately and good two-way communication with an appropriate ATSU prior to departing segregated airspace.
Pre-Existing Mitigations	1. Military aircraft operating within an MDA can receive a service from RAF(U) Swanwick or one of the CRCs and will receive alerts should they operate outside of radar cover. 2. Aircraft operating under a BS will need to be VMC and therefore operating under 'see and avoid' principles.
Consequence	1. An aircraft conducts Non-IFF manoeuvres outside of segregated airspace when the pilot believes they are operating inside – **Minor**. 2. An aircraft conducts Non-IFF manoeuvres outside of segregated airspace when the pilot believes they are operating inside. The aircraft flies within close proximity of a Civil or Military transiting aircraft resulting in an AIRPROX – **Major**. 3. An aircraft conducts Non-IFF manoeuvres outside of segregated airspace when the pilot believes they are operating inside. The aircraft flies within close proximity of a Civil or Military transiting aircraft resulting in a MAC – **Catastrophic**.

Worst Credible Consequence	An aircraft conducts Non-IFF manoeuvres outside of segregated airspace when the pilot believes they are operating inside – **Minor**.
Potential Additional Barrier Measures	1. Aircraft conducting Non-IFF sorties should have at least two of the following on-board aids serviceable: • On board Radar • Link16 • IFF • MADL 2. When the airspace is introduced on 28 Feb 19, Non-IFF training will not occur until 1 Apr 19 to give NATS an understanding of the pattern of Lightning training operations. Non-IFF training will not be regularly trained for in a live environment (one serial per fortnight is likely) and mitigations can be made with Red air training enablers (Typhoon and other Fast Jet operators) in order for Lightning to maintain squawks in the training areas. 3. Aircraft conducting Non-IFF sorties will only utilise the main body of the new DA complex. If required, the overland and far eastern portions could be booked as a 'buffer' to these unusual sorties. 4. Aircraft conducting Non-IFF sorties should have good two-way comms with an ATSU and therefore be informed when they are no longer visible on radar. 5. Non-IFF training will be specifically planned for with dates and timings through the current planning and communication channels. If required, mitigations can then be made through NATS/Swanwick and the CRC if necessary. 6. More detailed SOPs could be developed to ensure a detailed understanding of these sorties is had by all and they are managed appropriately. Similar to live firing sorties, aircraft check the 'switches are safe' on entering and existing airspace, IFF could be checked in the same way.
Barrier Measures for implementation	Given the unknown training requirements and detail of 5th Gen aircraft, the above Barriers may all require further understanding prior to implementation. Barriers one and two would be straight forward to implement once agreed by 5th Gen Sqns. Further investigation as to the requirement to Barrier three will need to be discussed. This does not adhere to current FUA practices and may not be a requirement given the reliability of 5th Gen aircraft performance. Barrier four and five would be very simple to implement. Liaison between ATSUs and 5th Gen aircrew could increase the understanding of mission details and therefore lead to the establishment of robust SOPs for specific sorties. This sixth Barrier should be simple to implement and will be continuously developed as 5th Gen aircraft training in increases in the UK and how the aircraft is going to be utilised is further understood.

Greenhouse Gases Workbook - Worksheet 1

Scheme Name:	EGD323 - no route changes
Present Value Base Year	2010
Current Year	2018
Proposal Opening year:	2019
Project (Road/Rail or Road and Rail):	road/rail

Overall Assessment Score:

Net Present Value of carbon dioxide equivalent emissions of proposal (£): -£9,369,397

*positive value reflects a **net benefit** (i.e. CO2E emissions reduction)

Quantitative Assessment:

Change in carbon dioxide equivalent emissions over 10 year appraisal period (tonnes): 329,560
(between 'with scheme' and 'without scheme' scenarios)

Of which Traded 94913.28

Change in carbon dioxide equivalent emissions in opening year (tonnes): 28,038
(between 'with scheme' and 'without scheme' scenarios)

Net Present Value of traded sector carbon dioxide equivalent emissions of proposal (£): -£1,755,886

*positive value reflects a **net benefit** (i.e. CO2E emissions

(N.B. this is not additional to the appraisal value in cell I17, as the cost of traded sector emissions is assumed to be internalised into market prices. See TAG Unit A3 for further details)

Change in carbon dioxide equivalent emissions by carbon budget period:

	Carbon Budget 1	Carbon Budget 2	Carbon Budget 3	Carbon Budget 4
Traded sector	0	0	32964.0192	43695.936
Non-traded sect	0	0	81494.3808	108026.064

Qualitative Comments:

This scheme does not include any new routes to mitigate the impact of the enlarged danger area

The proportion of traded vs non-traded has been calculated according to the following:
The proportion of Intra-EU flights is 71.2% (classed as traded)
Flights starting or finishing outside of the EU make up 28.8% fo all flights (classed as non-traded)

Sensitivity Analysis:

Upper Estimate Net Present Value of Carbon dioxide Emissions of Proposal (£):	-£14,054,096
Lower Estimate Net Present Value of Carbon dioxide Emissions of Proposal (£):	-£4,684,699

Data Sources:

Computer simulation using AirTOP modelling tool, with BADA performance data.
Traffic data extracted using Eurocontrol's Network Strategic Tool (NEST).
Traffic growth rates as per NATS base case traffic forecasting

Greenhouse Gases Workbook - Worksheet 1

Scheme Name:	EGD323 - with new routes
Present Value Base Year	2010
Current Year	2018
Proposal Opening year:	2019
Project (Road/Rail or Road and Rail):	road/rail

Overall Assessment Score:

Net Present Value of carbon dioxide equivalent emissions of proposal (£): -£1,642,458

*positive value reflects a **net benefit** (i.e. CO2E emissions reduction)

Quantitative Assessment:

Change in carbon dioxide equivalent emissions over 10 year appraisal period (tonnes): 57,772
(between 'with scheme' and 'without scheme' scenarios)

Of which Traded 16638.336

Change in carbon dioxide equivalent emissions in opening year (tonnes): 4,915
(between 'with scheme' and 'without scheme' scenarios)

Net Present Value of traded sector carbon dioxide equivalent emissions of proposal (£): -£307,809

(N.B. this is not additional to the appraisal value in cell I17, as the cost of traded sector emissions is assumed to be internalised into market prices. See TAG Unit A3 for further details)

*positive value reflects a **net benefit** (i.e. CO2E emissions reduction)

Change in carbon dioxide equivalent emissions by carbon budget period:

	Carbon Budget 1	Carbon Budget 2	Carbon Budget 3	Carbon Budget 4
Traded sector	0	0	5778.5472	7659.936
Non-traded sector	0	0	14285.8528	18937.064

Qualitative Comments:

This scheme includes the addition of new routes to mitigate the impact of the enlarged danger area.
The proportion of traded vs non-traded has been calculated according to the following:
The proportion of Intra-EU flights is 71.2% (classed as traded)
Flights starting or finishing outside of the EU make up 28.8% fo all flights (classed as non-traded)

Sensitivity Analysis:

Upper Estimate Net Present Value of Carbon dioxide Emissions of Proposal (£):	-£2,463,687
Lower Estimate Net Present Value of Carbon dioxide Emissions of Proposal (£):	-£821,229

Data Sources:

Computer simulation using AirTOP modelling tool, with BADA performance data.
Traffic data extracted using Eurocontrol's Network Strategic Tool (NEST).
Traffic growth rates as per NATS base case traffic forecasting

Executive Summary

With the exception of a turn performance assessment, which has been subsequently undertaken, all aims and objectives associated with the ATC function were achieved within the simulation; it can therefore be determined that:

The impact to Tyne and Humber sectors is considered minimal provided that P58 and UP59 remain available, at and above FL320, to ensure capacity to meet peak flow requirements. The impact to LAC S10/11 is considered minimal, but protocols on the simultaneous use of L602 and MU2 need to be developed. The impact to Deancross is considered minimal, but airspace delegations used within the simulation need to be revised.

The primary workload driver for East sector remains the suspension of the Former Pennine Task by Swanwick Military and the consequential handling of Newcastle in/out bounds, which is not directly attributable to the re-design of EG D323. Alternative airspace or service structures should be considered as part of RP3 to alleviate this issue. The availability of MU2 facilitates both joins and turboprop transits and is considered essential to mitigate for the loss of L602. The availability of MU1 at FL260 and above produced undesirable interaction issues with MTMA departures. The lowest available FL for this route should be amended and raised to remove the route from East sector.

Montrose South is the most impacted sector by the proposed change, effectively reducing the sector dimension by 50% when all segments of the re-designed danger area are activated. The use of capped activation levels (areas F to J) for overflight using the existing L602 route is not considered viable where activation exceeds FL250 (area F being of particular concern). The availability of MU2 mitigates for the loss of L602 and the availability of MU1 removes some traffic from the NATEB area which was considered beneficial. The presence of UK 4 significantly restricts climbing and descending traffic on the new routes and a recommendation is therefore made that this area should be removed as part of the re-design proposal. The presence of the USAFE ‘Refueler’ tanker formation route produces the same effect as UK 4; this route should therefore be amended so that it is removed from Montrose South and an alternative join and break up position north of Newcastle introduced.

The observed compression of traffic in the vicinity of NATEB increased sector complexity and workload and has the potential to reduce the Monitor Value of the sector when full activation of the danger area is undertaken. Compression also limits the available space to accommodate co-ordination requests for OAT transits; something especially pertinent for Non-RVSM capable aircraft. The MoD should therefore consider the overall wider impact on GAT and OAT affect by its proposed design, which produces funnelling, with a view to removing this issue either by amendment to the design or by facilitating the transit of OAT through the danger area itself. In addition, alternative airspace structures should be considered within RP3 to facilitate ScTMA arrivals and departures to central European destinations thereby reducing the funnelling affect. Furthermore, the route availability document should be amended to offer more efficient routings which bypass Montrose South where appropriate.

The introduction of a Reduced Co-ordination Area was considered beneficial by all sectors and essential by Montrose South. Its introduction allowed for the optimum tactical use of airspace freed up by non-activated segments of the danger area and should therefore be seen as an extension to the concept of Flexible Use Airspace. Additionally, for Montrose South this area provided the ability to vector aircraft to facilitate climb and decent profiles within the limited airspace available. Military feedback indicated that there was little impact associated with the concept.

Additional routes designed in accordance with the CAA buffer policy introduce larger turn requirements than those within the current operation. ATC simulation was unable to assess the flyablity and acceptability of these turns. However, following discussion with industry, airline and CAA representatives these turn requirements were considered flyable and thus acceptable with minimal impact.

Recommendations

1	The MoD should consider the overall effect of its proposed design, which produces funnelling in the vicinity of NATEB (between OAT and GAT), with a view to removing this issue either by amendment to the design or by facilitating the transit of OAT through the re-designed EG D323 complex.
2	The MoD should consider the overall effect of its proposed design, which produces funnelling in the vicinity of NATEB (between OAT and GAT), with a view to removing this issue either by amendment to the design or by facilitating the transit of OAT through the re-designed EG D323 complex.
3	The MoD and CAA should remove UK Orbit Area 4 in conjunction with the re-design of the EG D323 complex.
4	The MoD should modify the USAFE 'Refueler Route' so that formation joins and break ups are conducted to the north of Newcastle.
5	Within the RP3 airspace programme, NATS should consider alternative airspace structures to facilitate Newcastle in and out bound traffic currently utilising L602 and Mil ATS provision.
6	Within the RP3 airspace programme, NATS should consider alternative airspace structures to facilitate ScTMA arrivals and departures from central Europe.
7	NATS should raise the proposed minimum FL availability on MU1 to FL300 and thereby remove this route from East Sector.
8	NATS should undertake a workshop between S10/11 and Montrose South to develop protocols for dual availability of L602 and MU2.
9	NATS should review the proposed delegation of airspace between Deancross North and South to Montrose South to facilitate new route MU1.
10	NATS, MoD and CAA should note the potential for a lower Monitor Value being applied within Montrose South Sector as a result of activation of Areas J to K.
11	NATS should make changes to the UK Standard Routing Document to ensure that outbound traffic from Norwich joins at SUPEL and not OTBED.
12	NATS should review and amend the Route Availability Document with a view to restricting overflight traffic through Montrose South sector where alternative and more efficient routings are available.

Executive Summary

As observed within the first simulation, the suppression of danger area activity to accommodate peak flow on P58 and P59 worked well, with lower flow rates accommodated with minimal impact by the use of N44 and N66. The revised USAFE Refueler Route was incorporated without issue; however, questions were raised in respect of the lowest available FL available for overflight of D513 which would impact upon standing agreements associated with this transit. Further investigation of this issue is required with questions on D513 usage being asked of the MoD.

As anticipated, the removal of UK Orbit Area 4 removed all issues associated with this area. The compensatory enlargement of UK Orbit Area 5, with the addition of a second Lobe, was incorporated without issue. However, questions were raised in respect of the extant Lobe 1, these observations were not universally endorsed, however, subsequent questions were asked of the MoD.

Re-designed delegations of airspace between Deancross South, Montrose South and Deancross North were incorporated without significant issue, as were the imposed limitations on level availability on the re-defined L602 route. However, mapping depictions are still required to be resolved and internal procedures defined if tactical routings below the promulgated levels are to be accommodated.

The redesigned routes impacting on LAC S10/11 were incorporated without significant issue; although an additional reporting point on N110 was considered beneficial to enable better integration of Southbound tracks with Eastbound tracks being presented by Lakes and East sectors.

The use of the Reduced Co-ordination Area (RCA) was considered beneficial by all sectors and remains an essential element associated with Montrose South for sequencing and separating traffic in and outbound from the ScTMA. Utilisation of the RCA did however highlight differences within the LAC and PC MATS Part 2 regarding interpretation of the UK Buffer Policy in respect of traffic off a route; this difference needs to be addressed as part of the HAZID process to produce a unified position between both units.

As observed within the first simulation the brunt of changes associated with the re-design of EG D323 falls within the Montrose South Sector. The compression of available airspace and the change of the approach angle associated with the N110/Y96 intersection at AGPED being the primary catalyst. Whilst overall the design was considered manageable this assessment came with a number of caveats internal to the operation which impact upon resource and inter-sector agreements. These issues will be addressed as part of the HAZID process.

Evidence collected during this development simulation indicates that whilst Prestwick Centre controllers may be able to cope with the proposed airspace changes, some issues with an associated human performance impact were reported during the simulation and participating controllers reported increased complexity compared to current operations, particularly on the Montrose South sector. A number of workload drivers were identified which would require mitigation prior to validation of the proposed airspace changes and will be addressed as part of the HESAP process.

As a result of this second simulation and in conjunction with the findings from the first simulation held in Apr 18, the Airspace Design (with the exception of further internal sub-division of one

area of EG D323 and the inclusion of an additional reporting point on N110) is considered stable.

Recommendations

The following recommendations are made in addition to and building upon those provided following the first development simulation:

	Recommendation	Comment
1	The MoD should consider the overall effect of its proposed design, which produces funnelling in the vicinity of NATEB (between OAT and GAT), with a view to removing this issue either by amendment to the design or by facilitating the transit of OAT through the re-designed EG D323 complex.	Recommendation progressed and agreement reached to further sub-divide the EG D323 complex.
2	NATS, CAA and MoD should introduce a Reduced Co-ordination Area in conjunction with the re-design of the EG D323 complex to enable optimum tactical use of the available airspace and facilitate vectoring to sequence and separate ScTMA arrival and departures.	Recommendation progressed and agreement reached to introduce a reduced co-ordination area subject to protocols established as part of the HAZID process.
3	The MoD and CAA should remove UK Orbit Area 4 in conjunction with the re-design of the EG D323 complex.	Recommendation agreed. Compensatory enlargement of UK Orbit Area 5 introduced.
4	The MoD should modify the USAFE 'Refueler Route' so that formation joins and break ups are conducted to the north of Newcastle.	Recommendation modified to reposition the track through the overland portions of the re-designed EG D323 complex. New track incorporated within design.
5	Within the RP3 airspace programme, NATS should consider alternative airspace structures to facilitate Newcastle in and out bound traffic currently utilising L602 and Mil ATS provision.	Ongoing recommendation.
6	Within the RP3 airspace programme, NATS should consider alternative airspace structures to facilitate ScTMA arrivals and departures from central Europe.	Ongoing recommendation.
7	NATS should raise the proposed minimum FL availability on MU1 to FL300 and thereby remove this route from East Sector.	Recommendation progressed, route availability changed and assessment undertaken within simulation.
8	NATS should undertake a workshop between S10/11 and Montrose South to develop protocols for dual availability of L602 and MU2.	Recommendation progressed and modifications to the design undertaken as a result.
9	NATS should review the proposed delegation of airspace between Deancross North and South to Montrose South to facilitate new route MU1.	Recommendation progressed and modifications to the design undertaken as a result.
10	NATS, MoD and CAA should note the potential for a lower Monitor Value being applied within Montrose South Sector as a result of activation of Areas J to K during single manned operations.	Recommendation **re-emphasised** following second development simulation.
11	NATS should make changes to the UK Standard Route Document (SRD)to ensure that outbound traffic from Norwich joins at SUPEL and not OTBED.	Recommendation progressed as part of the design.
12	NATS should review and amend the Route Availability Document with a view to restricting overflight traffic through Montrose South sector where alternative and more efficient routings are available.	Recommendation re-emphasised following second development simulation.
1	NATS should clarify its interpretation of the lateral distance required between aircraft issued with vectoring instructions and the boundary of an active Managed Danger Area in order	New Recommendation

	to align the operating procedures between both Prestwick and Swanwick ACCs.	
2	NATS should add an additional reporting point to N110 in the vicinity of the Humber river estuary to facilitate integration of southbound and eastbound traffic.	New Recommendation
3	The MoD should clarify the nature of activities undertaken within D513 so that appropriate buffers may be applied upon activation and thereby facilitate the transit of the USAFE Refueler Route.	New Recommendation

Overview

In order to successfully design and test new airspace configurations that best balance civil and MOD future requirements, improvements in ASM Level 2 and 3 (L2M and L3M) processes must be made. Current inefficient use of the airspace denies access to en-route traffic but also constrains MOD UK and USAFE access. With the arrival of F35, an increase in fast jet numbers, and future QEC operations the MOD has a requirement for larger portions of airspace to facilitate training. Managing airspace efficiently is a **pre-requisite** for the MOD to gain additional airspace access. If airspace management does not significantly improve, not only will access be limited but current airspace training will be cumulatively impacted.

Three ASM Trials, high level objectives, summarised below, were recommended to be conducted in a phased approach throughout 2018 and early 2019 in order to appropriately prepare for future airspace designs throughout 2019 and beyond.

a. Centralisation of ASM – develop a single organisation, staffed by knowledgeable and skilled personnel, for the activation, deactivation, short-term cancellation, amendment and reallocation of airspace reservations.

b. Increased and improved Collaborative Decision Making – increased communication between civil and Mil airspace users to accommodate both airspace requirements.

c. Access to live Special Use Area information – access to live airspace information for key airspace users (external to Swanwick).

Trial 2a, detailed objectives listed below, was conducted at RAF(U) Swanwick from 04 Jun – 27 Jul 18. The areas managed throughout the trial were:

EG D064 A – C
EG D323 A – G
EG D513 & D513 A – B
EG D613 A – D
EG D712 A – D
ED D809 S, C & N
EAMTA High – Introduced to the Trial from 02 July onwards.
NWMTA High – Introduced to the Trial from 02 July onwards.

Statistical Analysis

3.1 Airspace Bookings

The number of hours booked relates to the total hours booked for each individual DA. The EG D323 complex comprises of seven separate elements; if there was a one-hour of booking of the entire complex, this would result in seven hours of airspace total booked. Given the MOD's sponsored ACP to expand the EG D323 complex, focus throughout these trials was on this area. The stats below show the utilisation of all MDAs as well as the utilisation of the EG D323 complex alone.

3.2 Airspace Utilisation

The stats obtained by the L3M Cell throughout the trial were combined with the returns from the Sqn and the CRCs to ensure as much data as possible was gained for each sortie. The data provides analysis on both airspace utilisation **and** airspace that has been handed back correctly and therefore made available for tactical use. Both figures combined have been displayed as 'airspace utilisation'. Throughout the trial, airspace was utilised or handed back correctly 80% of the time.

Airspace is seen to be not utilised or not handed back for several reasons. Firstly, time is spent on the process of handing back airspace; liaison phone calls between Sqns and the CRCs and check of understanding between users takes time and therefore results in lost minutes. Secondly, sorties that have commenced five or ten minutes late, and therefore minutes are lost at the beginning of sorties. These together account for the 'wasted' airspace seen in the statistics.

Although the airspace was only flown in for approximately 30% of all pre-tactical bookings, on completion of sorties airspace was seen to be released back to all users for tactical use as soon as three minutes after the jets had vacated. Comparing data between months prior to and after the trial has seen that true utilisation remains constant. A lot of efficiencies have been made in the tactical releasing of airspace however, it is still apparent that Sqns are booking more than what is required for the sorties, either to retain operational flexibility or to provide a 'buffer' in the event of unpredictable serviceability and weather.

3.3 May Breakdown (prior to L3M Trial)

Data Returns 88% 87%

	RAF	**USAFE**	**Total**
No of Hours of all MDAs Booked	694	329	1023
Hours Utilised	228 / 39%	88 / 22%	316 / 32%
Hours Utilised plus Hours Handed Back (including both tactical and pre-tactical handbacks)	474 / 68%	263 / 80%	737 / 72%
Hours not Utilised and not Handed Back	220 / 32%	66 / 20%	286 / 28%

Hours Handed Back Prior to H-3	77	20	97 / 9%
924 Hours Still Booked at H-3			
Hours Used for L3M	25	19	44 / 4.3%
Hours Handed Back H-3 to H-0	143	135	278 / 27%

63% of all Apr MDA Bookings were in the 323 complex.

	RAF	**USAFE**	**Total**
No of Hours **323** Bookings Only	411	232	643
Hours Utilised plus Hours Handed Back (including both tactical and pre-tactical handbacks)	240 / 58%	174 / 75%	414 / 64%
Hours not Utilised and not Handed Back	171 / 42%	58 / 25%	229 / 36%

3.4 June Breakdown (Trial Commenced Mon 04 Jun), NWMTA and EAMTA not included.

Data Returns 95% 94%

	RAF	USAFE	Total
No of Hours of all MDAs Booked	613	474	1087
Hours Utilised	190 / 31%	145 / 31%	335 / 31%
Hours Utilised plus Hours Handed Back (including both tactical and pre-tactical handbacks)	520 / 85%	406 / 86%	926 / 85%
Hours not Utilised and not Handed Back	93 / 15%	68 / 14%	161 / 15%

Hours Handed Back Prior to H-3 89 112 201 / 18%

886 Hours Still Booked at H-3

Hours Used for L3m 11 6 17 / 1.6%

Hours Handed Back H-3 to H-0 229 144 373 / 34%

56% of all Apr MDA Bookings were in the 323 complex.

	RAF	USAFE	Total
No of Hours **323** Bookings Only	258	350	608
Hours Utilised plus Hours Handed Back (including both tactical and pre-tactical handbacks)	212 / 82%	299 / 85%	511 / 84%
Hours not Utilised and not Handed Back	43/ 17%	49 / 14%	92 / 15%

3.5 July Breakdown (Trial Completed Fri 27 Jul), NWMTA and EAMTA included from 02 Jul.

Data Returns 93% 90%

	RAF	USAFE	Total
No of Hours of all MDAs Booked	670	568	1238
Hours Utilised	264 / 39%	121 / 21%	385 / 31%
Hours Utilised plus Hours Handed Back (including both tactical and pre-tactical handbacks)	541 / 81%	456 / 81%	997 / 81%
Hours not Utilised and not Handed Back	128 / 19%	110 / 19%	238 / 19%

Hours Handed Back Prior to H-3 63 55 118 / 10%

1120 Hours Still Booked at H-3

Hours Used for L3M	14	49	63 / 5%
Hours Handed Back H-3 to H-0	200	231	434 / 35%

48% of all Apr MDA Bookings were in the 323 complex.

	RAF	**USAFE**	**Total**
No of Hours **323** Bookings Only	299	296	595
Hours Utilised plus Hours Handed Back (including both tactical and pre-tactical handbacks)	242 / 81%	234 / 79%	476 / 80%
Hours not Utilised and not Handed Back	57 / 19%	62 / 21%	119 / 20%

LETTER OF AGREEMENT

between

NATS (ENROUTE) plc,

Scottish Control (Prestwick) &

London Control (Swanwick)

BRITISH GLIDING ASSOCIATION (BGA)

RAF (U) SWANWICK

and

BAE SYSTEMS WARTON

RELATING TO

Airspace sharing agreements in regard to activation of Temporary Reserved Areas (Gliding) (TRA(G)s).

Effective: 28th February 2019

1. GENERAL

This Letter of Agreement supplements glider operations above FL195 procedures published in the UK Aeronautical Information Publication (AIP) and further defines procedures between RAF (U) Swanwick, affiliated gliding clubs of the British Gliding Association (BGA), NATS (En Route) plc (Scottish Control (Prestwick) and London Control (Swanwick)) and BAE Systems Warton that will permit Visual Flight Rules (VFR) glider operations above FL195 within defined airspace called Temporary Reserved Airspace (Gliding) (TRA(G)).

2. DESCRIPTION OF AIRSPACE

There are 29 areas of defined airspace covered by this LOA which are categorised as TRA(G)s. All areas are from FL195 or above and retain Class C status at all times as detailed in the UK Aeronautical Information Publication.

ANNEX F

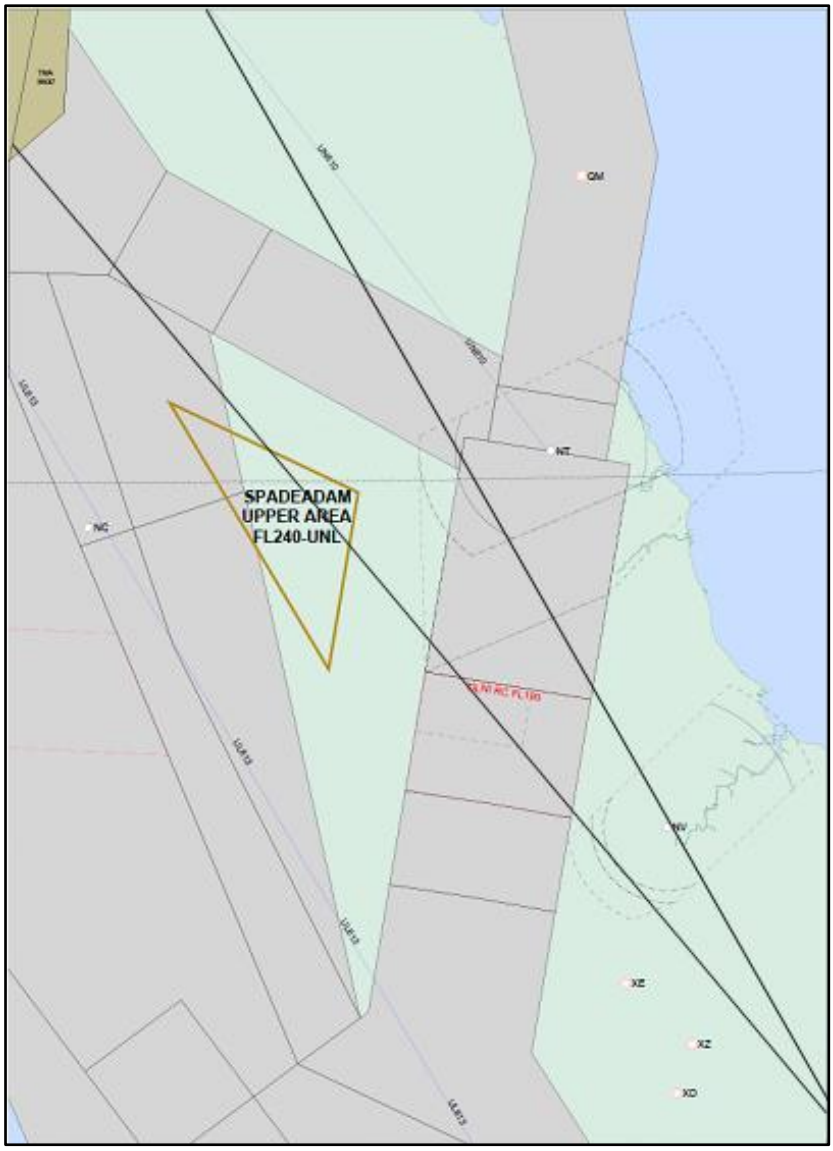
Spadeadam Upper and Lower Areas

Effective: 28th February 2019

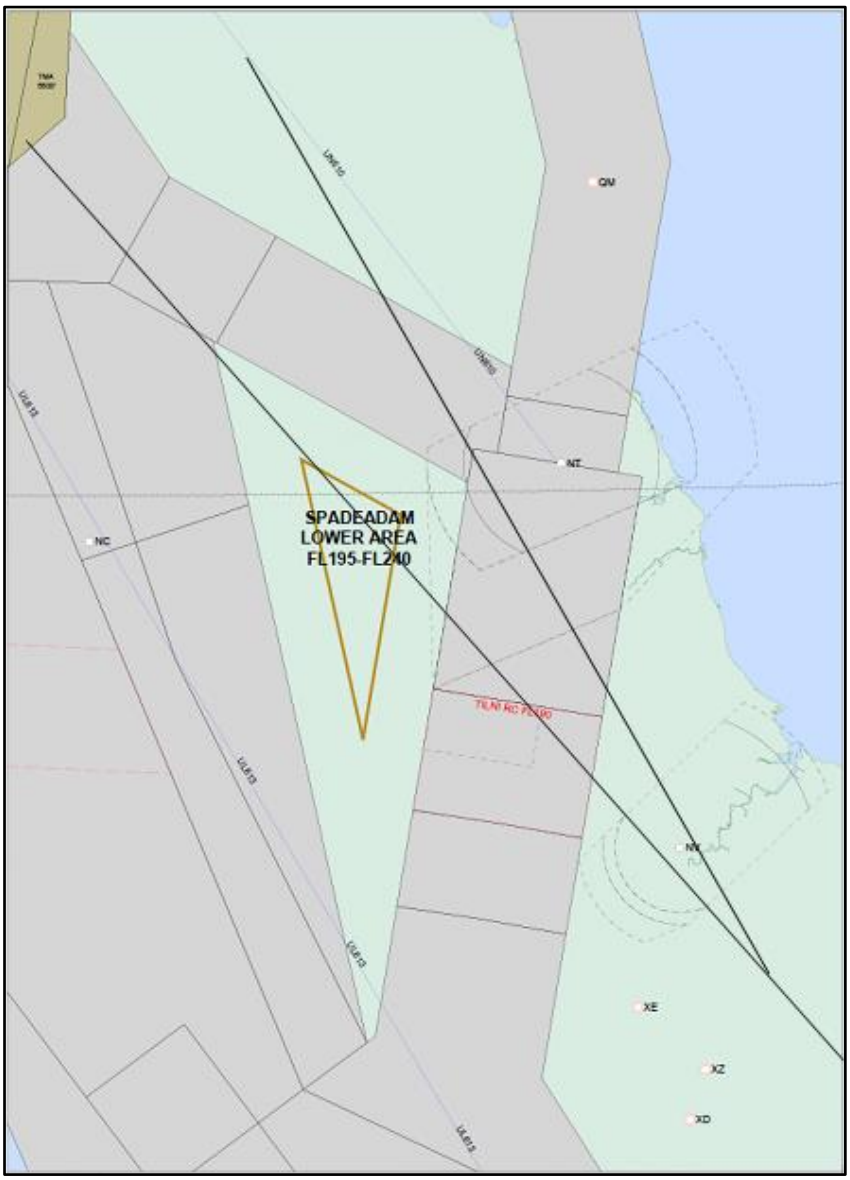
F.1. Description of Airspace

F.1.1 The defined areas are detailed at LoA 2.10 and 2.11 maps depicting the area is shown below.

Spadeadam Upper Area



Spadeadam Lower Area



F.2 Eligibility

F.2.1 Pilots utilising the procedures in this LoA must be members, or affiliated members, of Northumbria or Eden Gliding Clubs.

F.2.2 Failure of an organisation to comply with the conditions specified in this LoA may result in withdrawal of the privileges of the LoA.

F.3 Hours of Operation

F.3.1 Activation of the defined areas is restricted to weekends and published English Public Holidays (daylight hours only).

F.4 Condition of Use - Spadeadam Upper Area

F.4.1 Due to the orientation of UAR L602 and the dimensions of EG D323, acceptance of the activation of Spadeadam Upper Area will be subject to the activation status of D323.

F.4.2 Should D323 be notified as active within the hours of operation, as set out within F.3.1, the Prestwick Centre Operations Supervisor may propose restrictions to upper vertical limits of gliding activity for consideration.

F.5 Notification

F.4.1 Northumbria and Eden Gliding Clubs may request activation of the defined airspace by telephoning the Prestwick Centre Operations Supervisor at least 2 hours prior to the start time of the activity, stating the defined area, a start time, requested upper flight level if appropriate and de-activation time.

F.5.2 If a TRA(G) has been activated and a subsequent request for activation is received from the other club, the Prestwick Centre Operations Supervisor shall inform that club of the current activation period and agreed upper flight level.

F.5.3 On receipt of a request to activate the defined airspace the Prestwick Centre Operations Supervisor shall coordinate the activation with the Swanwick (Mil) North Supervisor. If a Basic Service cannot be provided by Swanwick (Mil) as per F.6.3, approval to operate above FL240 will not be granted.

F.5.4 On agreement to activate one or both defined areas, the Swanwick (Mil) North Supervisor shall notify BAE Systems Warton.

F.5.5 If multiple activations of a TRA(G) are approved the Prestwick Centre Operations Supervisor, Swanwick (Mil) North Supervisor and BAE Systems Warton Supervisor shall promulgate the TRA(G) activity from the earliest activation to latest notified de-activation time. The TRA(G) will be taken as active within these time periods unless notification has been received by the Prestwick Centre Operations Supervisor of the cessation of activity by both clubs operating in the airspace that day.

F.5.6 The Prestwick Centre Operations Supervisor will notify the Swanwick (Mil) West Supervisor of early deactivation of the defined area(s). Should Swanwick (Mil) no longer be able to provide a service above FL240, the procedure at F.8.2 shall be applied and the Prestwick Centre Operations Supervisor shall be notified.

F.5.7 Activation of a TRA(G) for glider activity does not preclude VFR operations within that area by other traffic.

F.6 Service

F.6.1 Scottish Control (Prestwick) may provide a Basic Service to aircraft operating within the Spadeadam Lower Area subject to workload, on frequency 124.5 MHz.

F.6.2 When operating within Spadeadam Lower Area any glider pilot not accepting a Basic Service shall monitor frequency 130.1MHz

F.6.3 When operating in Spadeadam Upper Area, Swanwick (Mil) shall provide a Basic Service in accordance with the UK AIP. Swanwick (Mil) will provide the frequency on approval of activation.

F.7 Procedures

F.7.1 When the defined airspace is activated, Scottish Control (Prestwick), Swanwick (Mil) and BAE Systems Warton shall not allow IFR traffic to transit the active TRA(G) at or below the levels reserved for gliding activity.

F.7.2 Scottish Control (Prestwick), Swanwick (Mil) and BAE Systems Warton shall not allow IFR traffic under a control service to operate within 5nm of the edge of an activated TRA(G), or vertically within 1000ft of Upper Areas where a level restriction has been agreed.

F.8 Emergencies

F.8.1 If, due to an emergency situation, IFR traffic needs to transit the defined airspace the following shall be undertaken:

F.8.2 The Prestwick Centre Operations Supervisor shall endeavour to close the TRA(G) by telephoning Northumbrian and Eden Gliding Clubs or the Swanwick (Mil) West Supervisor and via messages relayed on the appropriate frequency.

ANNEX G

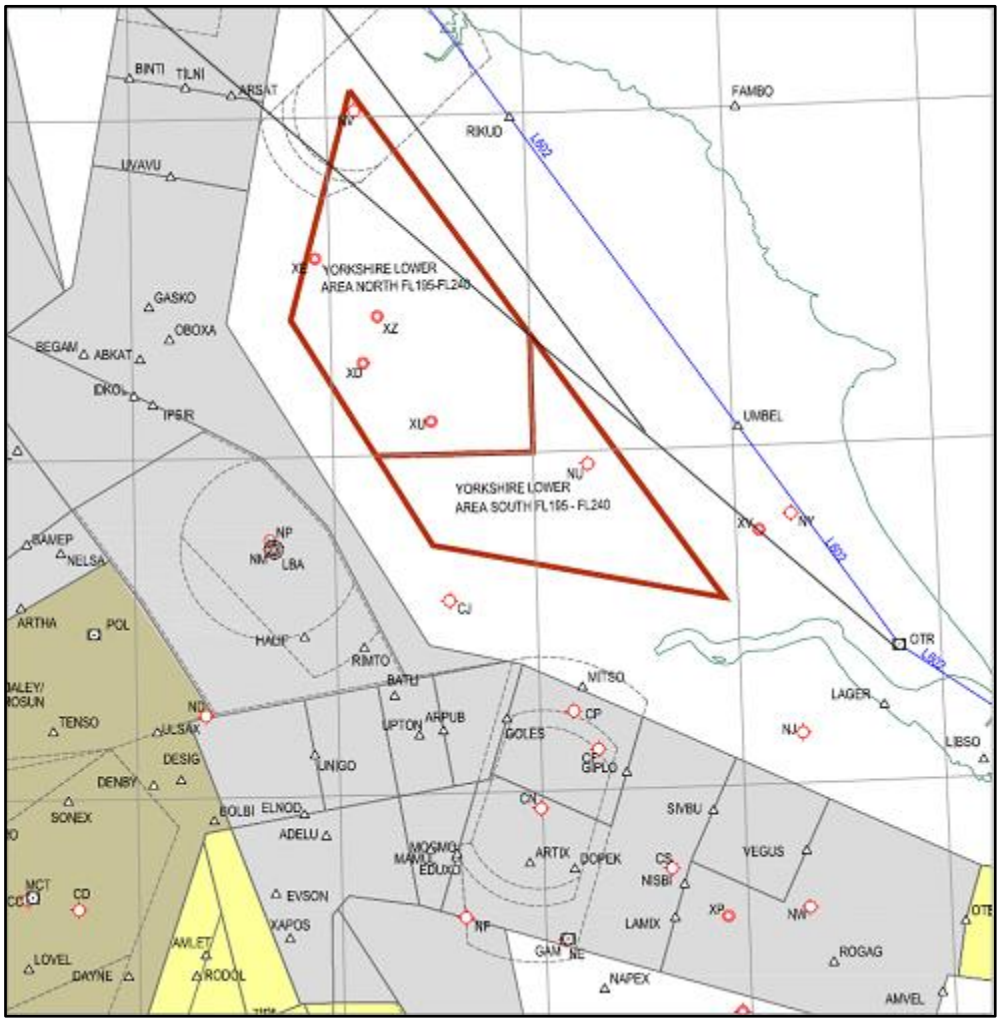
Yorkshire Areas

Effective: 28th February 2019

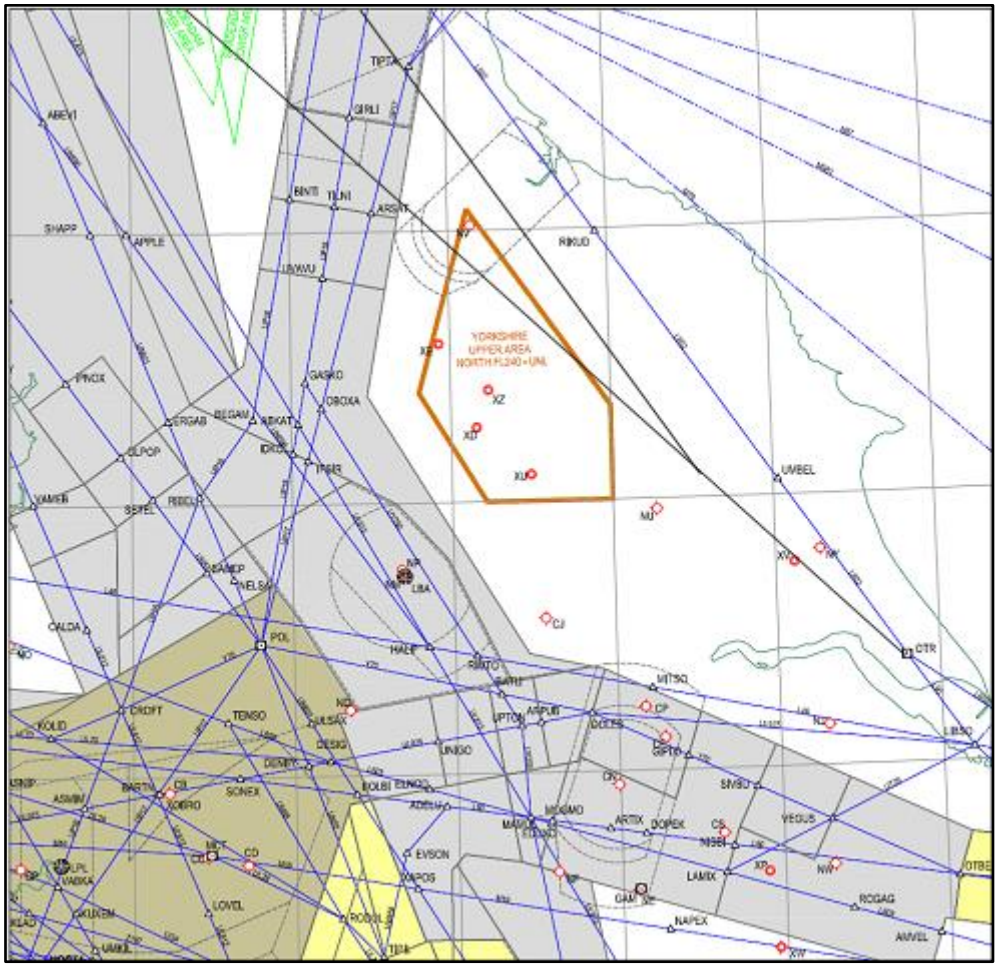
G.1 Description of Airspace

G.1.1 The defined areas are detailed at LoA 2.12, 2.13 and 2.14. Maps depicting the defined areas are shown below.

Yorkshire Lower Area North and South



Yorkshire Upper Area North



G.2 Eligibility

G.2.1 Pilots utilising the procedures in this LoA must be members, or affiliated members of York Gliding Centre (Rufforth), The Yorkshire Gliding Club (Sutton Bank), RAFGSA (Cleveland), Burn Gliding Club and Wolds Gliding Club (Pocklington).

G.2.2 Failure of an organisation to comply with the conditions specified in this LoA may result in withdrawal of the privileges of the LoA.

G.3 Hours of Operation

G.3.1 Activation of the defined areas is restricted to weekends and published English Public Holidays (daylight hours only).

G.4 Condition of Use - Yorkshire Upper Area North

G.4.1 Due to the orientation of UARs L602 / N110 and the dimensions of EG D323, acceptance of the activation of Yorkshire Upper Area North will be subject to the activation status of D323.

G.4.2 Should D323 be notified as active within the hours of operation, as set out within G.3.1, the Prestwick Centre Operations Supervisor may propose restrictions to upper vertical limits of gliding activity for consideration.

G.5 Notification

G.5.1 Any of the clubs listed at G.2.1 may request activation of the defined airspace by telephoning the Prestwick Centre Operations Supervisor at least 2 hours prior to the start time of the activity, stating the defined area, a start time, requested upper flight level if appropriate and de-activation time.

G.5.2 If a TRA(G) has been activated and a subsequent request for activation is received from another club, the Prestwick Centre Operations Supervisor shall inform that club of the current activation period and agreed upper flight level.

G.5.3 On receipt of a request to activate the defined airspace the Prestwick Centre Operations Supervisor shall coordinate the activation with the Swanwick (Mil) East Supervisor. If a Basic Service cannot be provided by Swanwick (Mil) as per G.6.3, approval to operate above FL240 will not be granted.

G.5.4 On agreement to activate any or all of the defined areas, the Swanwick (Mil) North Supervisor shall notify BAE Systems Warton.

G.5.5 If multiple activations of a TRA(G) are approved, the Prestwick Centre Operations Supervisor, Swanwick (Mil) North Supervisor and the BAE Systems Warton Supervisor shall promulgate the TRA(G) activity from the earliest activation to the latest notified deactivation time. The TRA(G) will be taken as active within these time periods unless notification has been received by the Prestwick Centre Operations Supervisor of the cessation of activity by both clubs operating in the airspace that day.

G.5.6 The Prestwick Centre Operations Supervisor will notify the Swanwick (Mil) East Supervisor of early deactivation of the defined area(s). Should Swanwick (Mil) no longer be able to provide a service above FL240, the procedure at G.8.2 shall be applied and the Prestwick Centre Operations Supervisor shall be notified.

G.5.7 Activation of a TRA(G) for glider activity does not preclude VFR operations within that area by other traffic.

G.6 Service

G.6.1 Scottish Control (Prestwick) may provide a Basic Service to aircraft operating within Yorkshire Lower North and South Areas subject to workload, on frequency 124.5 MHz. A Basic Service may also be available from Swanwick (Mil) subject to workload. Swanwick (Mil) will provide a frequency, if required, on approval of activation.

G.6.2 When operating within Yorkshire Lower North and South Areas any glider pilot not accepting a Basic Service shall monitor frequency 130.1MHz

G.6.3 When operating in the Yorkshire Upper Area, Swanwick (Mil) shall provide a Basic Service in accordance with the UK AIP. Swanwick (Mil) will provide the frequency on approval of activation.

G.7 Procedures

G.7.1 When the defined airspace is activated, Scottish Control (Prestwick), Swanwick (Mil) and BAE Systems Warton shall not allow IFR traffic to transit the active TRA(G) at or below the levels reserved for gliding activity.

G.7.2 Scottish Control (Prestwick), Swanwick (Mil) and BAE Systems Warton shall not allow IFR traffic under a control service to operate within 5nm of the edge of an activated TRA(G), or vertically within 1000ft of Upper Areas where a level restriction has been agreed.

G.8 Emergencies

G.8.1 If, due to an emergency situation, IFR traffic needs to transit the defined airspace the following shall be undertaken:

G.8.2 The Prestwick Centre Operations Supervisor shall endeavour to close the TRA(G) by telephoning the appropriate club(s) and Swanwick (Mil) North Supervisor and via messages relayed on the appropriate frequency.

LETTER OF AGREEMENT

between

NATS (En Route) PLC
4000 Parkway, Whiteley, Fareham, Hampshire PO15 7FL

Airspace operated by

London Control (Swanwick) *and* Scottish Control (Prestwick)

Sopwith Way,
Southampton,
S031 7AY

Fresson Avenue,
Prestwick,
KA9 2GX

and

Ministry of Defence
Battlespace Management Force Head Quarters
HQ Air Command
Walters Ash,
Buckinghamshire
HP14 4UE

and

Ministry of Defence
Royal Navy
Aviation Directorate NCHQ
MP 2-4 Leach Building,
Whale Island,
Portsmouth
PO2 8BY

and

BAE Systems
Warton Aerodrome
Preston
PR4 1AX

Together referred to as **"the Parties"**.

Effective Date: 01/03/2018
Valid until: 28/02/2022

1 GENERAL

1.1 The purpose of this Letter of Agreement is to define the coordination procedures to be applied between NATS, Ministry of Defence and BAE Systems Warton to permit the Airspace User operating as Operational Air Traffic*,* VFR *or* IFR to fly within the airspace as set out within this Agreement.

1.2 The signatories to this Agreement are accountable for ensuring that the obligations set out by the Procedures in this Agreement are met in full.

1.3 This Agreement shall start on the Effective Date and shall end exactly four years thereafter. No prior notice of the end date shall be given by NATS. This Agreement shall be reviewed at least every two years for safety and applicability.

2 PROCEDURES

2.1 The procedures to be applied between NATS, and the other Airspace Operators as applicable, and the Airspace Users, are detailed in the Annexes to this Letter of Agreement:

Annex A: General Coordination Procedures

Annex B: Standing Coordination Procedures

Annex C: Non Deviating Status (NDS) Procedures

Annex D: On/Route/Off Route Status and Quiet Hours Procedures

Annex E: Procedures for the coordination between military traffic operating within UK Managed Danger Areas, UK Military Training Areas and military transit traffic or civil traffic utilising Conditional Routes

Annex F: Refuelling Flight PROCEDURES

Annex G: Abbreviations and Definitions and Abbreviations

Annex H: Checklist of Pages

ANNEX B

STANDING COORDINATION PROCEDURES

Specific to Scottish Control (Prestwick), London Control (Swanwick), RAF(U) Swanwick and BAE Systems Warton.

Effective: 1 MARCH 2018 (Revised 28th February 2019)

B.1 Standing Coordination Procedures (SCP)

B.1.1 SCP Airspace is shown in Appendix 1. SCP applies H24 throughout the UK FIR/UIR FL450 and below, except in the exclusion areas listed in paragraph B.2.5.

B.1.2 SCP applies between RAF(U) Swanwick, BAE Systems Warton and Scottish Control (Prestwick) and London Control (Swanwick) in respect of code callsign converted On Route GAT and crossing OAT with validated and verified SSR codes.

B.2 Overview

B.2.1 Whilst this Annex details procedures for Standing Coordination, nothing in it prevents a controller at any of the units from initiating tactical coordination when deemed necessary

B.2.2 SCP allows RAF(U) Swanwick and BAE Systems Warton to apply a minimum vertical separation of 1000ft (2000ft if relevant aircraft are either non Reduced Vertical Separation Minimum (RVSM) approved in RVSM airspace or above FL410) without the need for verbal coordination, between subsonic aircraft up to and including FL450 as follows:

a. Crossing OAT above descending GAT displaying a 2 letter destination code (including DW, EB, EX and AM).

b. Crossing OAT below climbing GAT displaying a single letter NAS intention code or single letter plus number NAS intention code.

B.2.3 Conditions for applying SCP are as follows:

a. GAT is to be established upon a UAR, or within an airway structure, Direct Route Airspace or The North Sea Reduced Coordination Area (RCA).

b. RAF(U) Swanwick and BAE Systems Warton will identify GAT against which SCP may be applied by recognition of the SSR data block.

c. RAF(U) Swanwick and BAE Systems Warton will monitor the GAT to ensure that it is proceeding in the anticipated sense before applying vertical separation.

d. RAF(U) Swanwick and BAE Systems Warton will ensure that the minimum vertical separation is not based on anticipated rates of climb or descent of the GAT alone. If necessary they will impose a 'stop-off' level to the OAT to ensure the minimum vertical separation is achieved.

e. SCP vertical separation minima of 2000ft is applicable if any of the relevant aircraft are either non RVSM in RVSM airspace or above FL410.

f. SCP is not applicable if aircraft are operating in supersonic flight.

g. SCP is not applicable in the exclusion areas detailed in paragraph B.2.5.

g. SCP may be applied against GAT when Off Route, when Off Route status has been granted.

B.2.4 If any of the above conditions cannot be met or there is any doubt as to the intentions of the GAT aircraft, then RAF(U) Swanwick and BAE Systems Warton shall either:

a. Request coordination with the appropriate sector, or

b. Apply 5nm radar or 5000ft vertical separation (Take 5) between the crossing OAT and the GAT, unless detailed in paragraph B.8.6.

B.2.5 SCP will not be applied in the following UK airspace;

a. Talla and Galloway Sectors, except between HAVEN and NATEB.

b. Within the Manchester TMA up to FL195.

c. Within STAFA/TRENT Sectors.

d. When the OAT aircraft is within airspace where ATS have been delegated to an external unit.

e. London Control (Swanwick) TC Airspace.

f. Between DVR and KONAN.

B.3 Changes in Vertical Profile

B.3.1 If climbing or descending GAT is levelled off, RAF(U) Swanwick and BAE Systems Warton will provide 2000ft vertical separation or 5nm lateral separation as soon as possible, unless SCP is permitted against such traffic in level flight.

B.3.2 If climbing GAT is given descent, or descending GAT is given climb, it is the responsibility of the civil controller to coordinate with the relevant RAF(U) Swanwick Controller/BAE Systems Warton Controller if the GAT comes in to conflict with an OAT crosser previously applying SCP.

B.4 Transponder Unserviceability/CCDS Failure

B.4.1 If a civil controller becomes aware of any GAT with transponder unserviceability, including Mode C discrepancies or Mode A 0000, they must inform the civil Operations Supervisor who shall inform the RAF(U) Swanwick Supervisor and BAE Systems Warton as soon as possible. This shall include non-transponding traffic which has been given a clearance to cross CAS.

B.4.2 Reciprocal arrangements apply for RAF(U) Swanwick/BAE Systems Warton.

B.4.2.1 Due to systems limitations at Prestwick Centre, within specific sectors, military aircraft with a transponder failure may be asked to descend below these sectors to enable identity to be maintained. The sectors are:-

- Rathlin East
- Rathlin West
- Central
- Hebrides High
- Moray High
- Montrose North
- Montrose South
- Tyne
- Humber
- Deancross North
- Deancross South

If traffic is not descended RAF(U) Swanwick/BAE Systems Warton controllers may be asked to inform the PC controller when aircraft with a transponder failure are clear of a sector.

B.4.3 SCP shall not be applied if the GAT/OAT experiences any transponder unserviceability or if there is a CCDS failure.

B.5 Aircraft in Emergency and SCP

If an aircraft is in emergency and is squawking 7700, 7600 or 7500 (or has been notified to RAF(U) Swanwick/BAE Systems Warton or civil controllers as having an emergency but retaining its assigned code), SCP will not apply.

B.6 Reduced Vertical Separation Minimum (RVSM)

B.6.1 When applying SCP, the RVSM status of all the relevant aircraft must be considered. A minimum of 1000ft Separation may be applied between RVSM approved aircraft operating within RVSM airspace between FL290 and FL410 inclusive.

B.6.2 A minimum separation of 2000ft must be applied if any of the relevant aircraft are non RVSM approved or are engaged in a task which precludes the use of RVSM separation.

B.7 Suspension of SCP

SCP may be suspended by the relevant civil Operations Supervisor or by the RAF(U) Swanwick Supervisor or BAE Systems Warton, either in total or in prescribed areas in the event of a system or workstation failure.

B.8 Additional Specific Agreements to Standing Coordination Procedures

B.8.1 Direct Route Airspace or UARs without an associated Airway below

B.8.1.1 Subject to the maintenance of at least 1000ft vertical separation, RAF(U) Swanwick and BAE Systems Warton may deem vertical separation to exist between OAT operating below Direct Route Airspace, the North Sea RCA or a UAR without an associated Airway, and GAT operating within Direct Route Airspace, the North Sea RCA or on a UAR.

B.8.1.2 If GAT is descended off the UAR or below Direct Route Airspace/the North Sea RCA it is the responsibility of the civil sector to initiate coordination if there is any conflicting OAT, unless Off Route status FL195+ has been granted.

B.8.2 Level Flight SCP

B.8.2.1 Level Flight SCP airspace is shown in Appendix B-2. Subject to the maintenance of at least 1000ft (2000ft if any of the relevant aircraft are either non RVSM approved within RVSM airspace or above FL410) RAF(U) Swanwick and BAE Systems Warton may deem vertical separation to exist between OAT crossing below GAT in level flight if displaying a single letter, or single letter plus number NAS intention code, without the need for coordination within the following Scottish Control (Prestwick) sectors: Montrose North and South, Tay, Tyne, Humber and Moray High.

B.8.2.2 When applying, or intending to apply, SCP against GAT in level flight, RAF(U) Swanwick/BAE Systems Warton shall ensure OAT is maintaining level flight prior to the specified horizontal separation minima being eroded, unless any change in vertical profile would increase separation.

B.8.2.3 If level flight SCP is being applied by RAF(U) Swanwick/BAE Systems Warton against GAT working Scottish Control (Prestwick) sectors listed in Para B.8.2.1 above, the Scottish Control (Prestwick) Controller shall effect coordination with the appropriate RAF(U) Swanwick/BAE Systems Warton Controller and pass the coordination on to the receiving civil sector (where such SCP does not apply) prior to transferring the aircraft or will wait until the crossing OAT is clear and then transfer the GAT.

B.8.3 P600/UP600 between GRICE and ADN

Within the airspace between GRICE and ADN, and subject to the maintenance of at least 1000ft vertical separation, RAF(U) Swanwick may deem vertical separation to exist where OAT crosses beneath climbing GAT displaying a 2 Letter NAS intention code that indicates the aircraft will be landing outside the Scottish TMA, without the need for coordination.

B.8.4 N97,Y96 and N110 – AM/EB/EX Destination Code

Subject to the maintenance of at least 1000ft vertical separation, RAF(U) Swanwick may deem vertical separation to exist where OAT crosses beneath climbing GAT leaving the ScTMA displaying AM, EB or EX intention code within the confines of Y96 between HAVEN and NATEB and upon UAR N110 between AGPED and ERKIT. This agreement also applies where aircraft have been vectored off these routes within the North Sea RCA providing such interaction occurs north of ERKIT.

B.8.5 SCP in Deancross Sector

SCP may be applied between OAT within the Deancross sector and descending GAT displaying a 2 letter designator operating within the Talla/Galloway sectors.

B.8.6 Standard Separation/Deconfliction Minima

B.8.6.1 RAF(U) Swanwick/BAE Systems Warton are authorised to provide a separation minima of 5nm or 5000ft (Take 5) in all UK controlled airspace where they have approval to operate autonomously (noting that UK FIS applies in active TRAs, MTAs, MDAs and to VFR flight in Class E+TMZ Airways), with the following constraints:

B.8.6.1.1 RAF(U) Swanwick may Take 5 within the ScTMA, subject to the following:

- OAT transits within 20nm of EGPH, EGPF or EGPK at or below FL90 shall be coordinated with the appropriate Scottish Control (Prestwick) sector and airfield approach radar.

- Separation of OAT transits below descending aircraft or above climbing aircraft displaying a 2 letter intention code shall be coordinated with the appropriate Scottish Control (Prestwick) sector.

- OAT shall transit the ScTMA IFR in all classes of airspace.

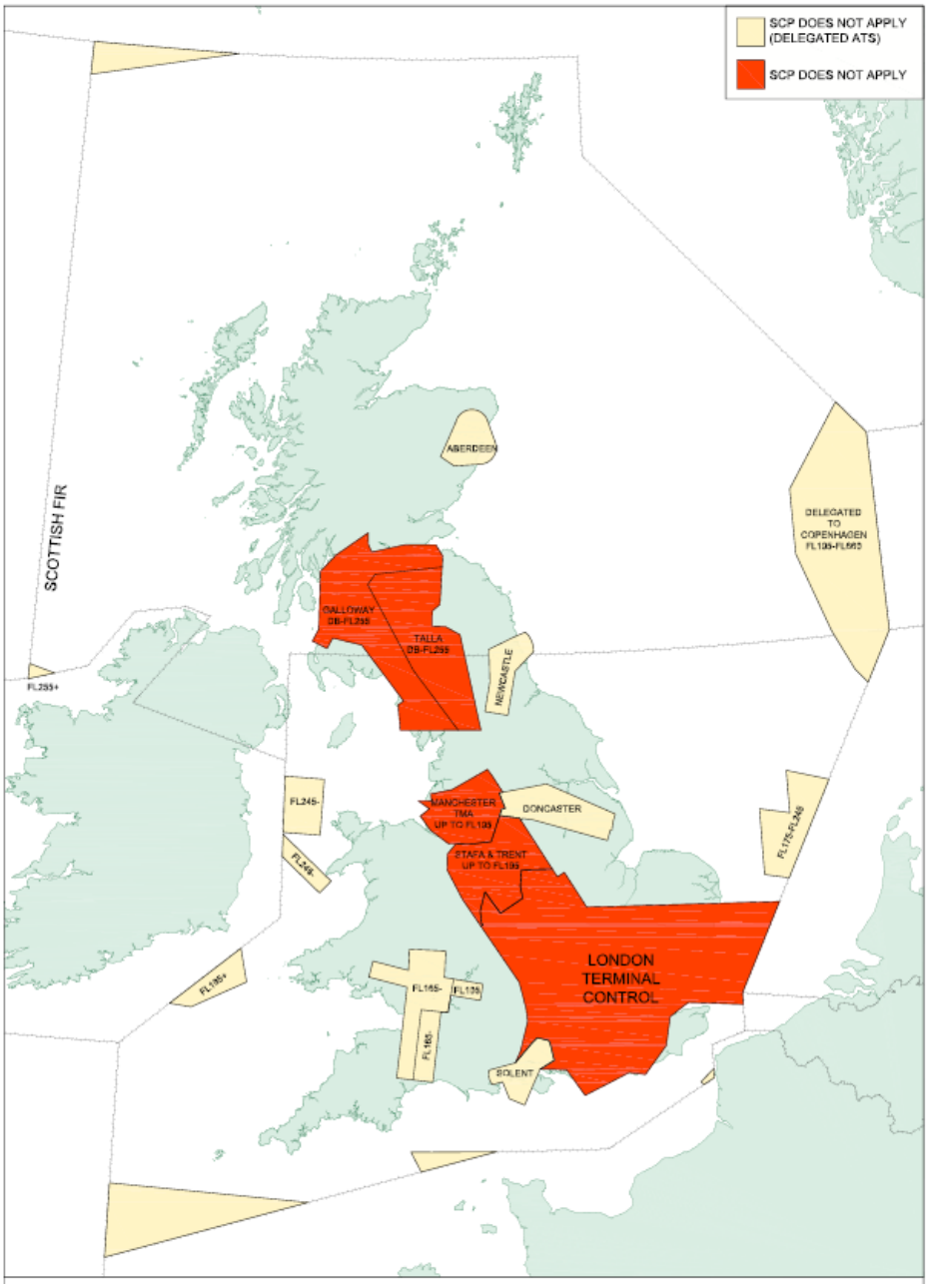
B.8.6.1.2 RAF(U) Swanwick shall not "Take 5" within the MTMA up to FL195. Such transits shall require a CFP unless the flight has been afforded NDS.

B.8.6.1.3 RAF(U) Swanwick shall not "Take 5" within the London Control (Swanwick) TC North/South/Capital sectors. RAF(U) Swanwick will minimise requests to penetrate TC airspace wherever possible.

Appendix B-1

STANDING COORDINATION PROCEDURE AIRSPACE

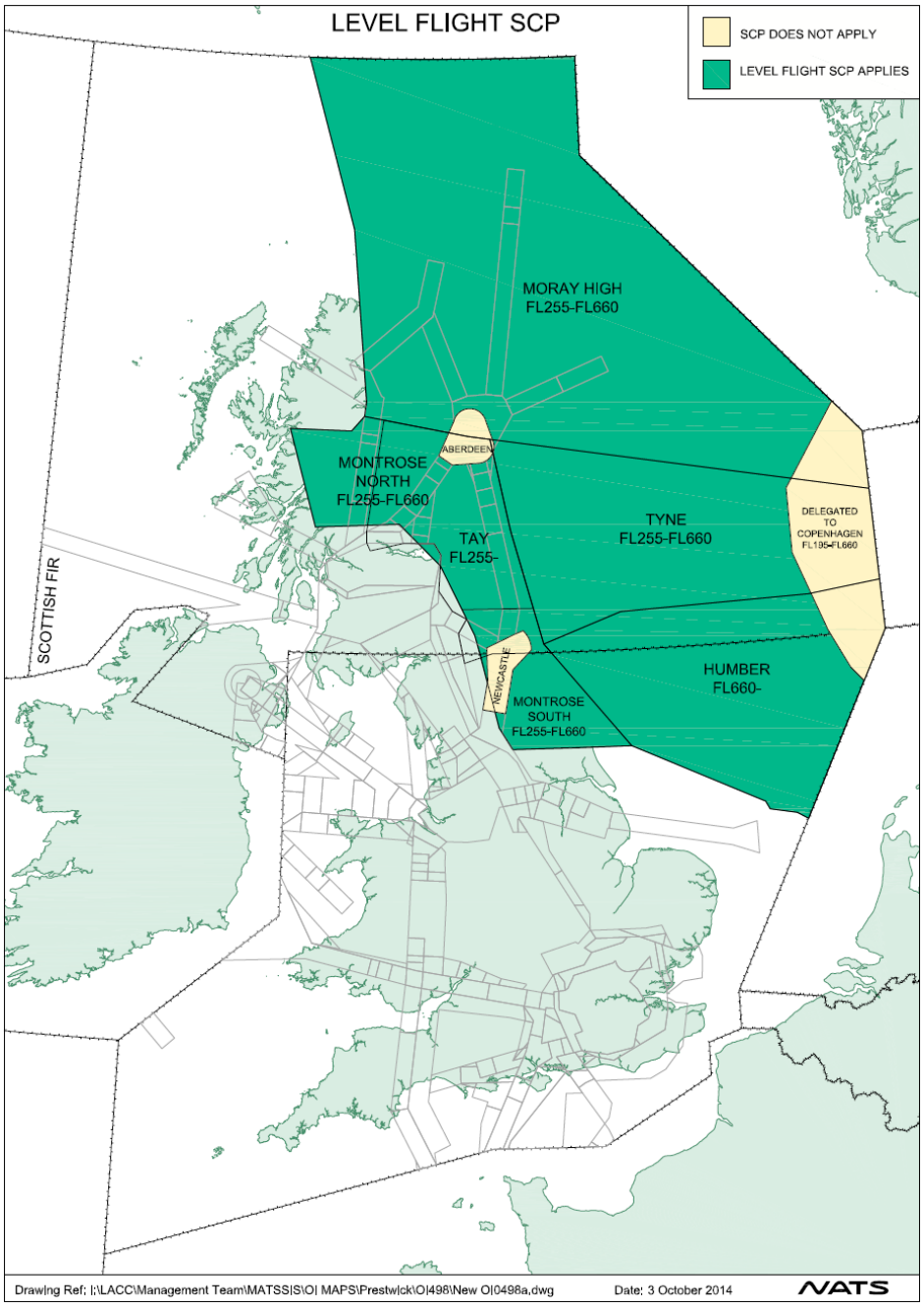
Effective: 28 February 2019



Appendix B-2

LEVEL FLIGHT SCP AIRSPACE

Effective: 28 February 2019



ANNEX C

NON DEVIATING STATUS (NDS) PROCEDURES

Specific to Scottish Control (Prestwick), London Control (Swanwick), RAF(U) Swanwick and BAE Systems Warton.

Effective: 1 MARCH 2018

C.1 Procedure

C.1.1 Flights, both civil and military, may be afforded NDS where aircraft operating on time or profile critical tasks may be required to maintain a specific track, level or flight profile wholly or partially within UK controlled airspace.

C.1.2 NDS flights are usually notified in advance by AUS in the form of an Airspace Coordination Notice (ACN) and could include permanently notified flights. These flights will normally be requested by the designated operating authority of the NDS flight and approved, where possible, by the civil Operations Supervisor on activation of the ACN.

C.1.3 The nature of some of the tasks may result in short notice activation or short notice requests for NDS for individual flights. These requests will normally be made by the appropriate RAF(U) Swanwick Supervisor/Controller or BAE Systems Warton Controller through the civil Operations Supervisors at London Control (Swanwick) or Scottish Control (Prestwick), or the Duty Technical Support at Scottish Control (Prestwick), and all endeavours will be made to accommodate and approve the NDS.

Occasions may arise where the request is made to the controller via the RTF or by telephone but approval of all requests remains the responsibility of the relevant civil Operations Supervisors. Requests for NDS from ASACs units should normally be made through the RAF(U) Swanwick Supervisor.

C.1.4 Civil Operations Supervisors shall consider the effect of the proposed profile, in consultation with adjacent affected agencies where appropriate, before approving such flights.

C.1.5 Once a NDS flight has been approved, the civil Operations Supervisor, in conjunction with the military sector/BAE Systems Warton controlling the NDS aircraft, shall ensure CFPs are distributed as appropriate.

C.1.6 Civil Operations Supervisors are responsible for providing NDS flight details to sectors and adjacent ATSUs as and when required.

C.1.7 Once a NDS flight has been notified or identified to another unit or controller (or subsequent controller), it is that unit's or controller's responsibility to avoid the NDS flight, and the responsibility of both controllers to coordinate as appropriate - see paragraph C.2.2.

C.1.8 It is imperative that a NDS aircraft is not deviated from its pre-planned flight path as this may render the flight operationally ineffective. In the event of issuing essential avoiding action an explanation is to be given to NDS aircrew as soon as practicable and for civil controllers a CA4114 is to be submitted.

C.2 Flight Priority

C.2.1 NDS flights are to be afforded priority of passage over all other GAT and OAT except for the following:

a. Aircraft in emergency.

b. Royal Flights.

c. Notified Air Defence Priority Flights.

d. Special Flights notified as having a higher priority.

C.2.2 NDS does not confer GAT priority in terms of ATC clearance or flow control. For priority flights subject to such constraints, AUS may authorise Category E or B Status in conjunction with NDS.

ANNEX D

ON ROUTE/OFF ROUTE STATUS AND QUIET HOURS PROCEDURES

Specific to Scottish Control (Prestwick), London Control (Swanwick) RAF(U) Swanwick and BAE Systems Warton

Effective: 1 MARCH 2018 (Revised 28th February 2019)

D.1 Definition

D.1.1 For the purpose of coordination, GAT is to be considered as:

On Route when:

a. Within the UAR structure or along the alignment of and within 5nm of the centre-line of a published Upper ATS (or associated link route);

b. Within a published airway above FL195;

c. Within CAS below FL195;

a. Within Reduced Coordination Areas (RCAs) when authorised and where procedures are defined in unit MATS Part 2s and/or Military Unit Order Books;

e. Following the NTFSR between the hours of 0001 and 0600 UTC (1 hour earlier in summer).

Off Route when: flying outside the parameters of sub paras above.

D.2 Notification

D.2.1 GAT may be cleared to fly Off Route above FL195 outside of Quiet Hours Procedures (See D.3 and D.5.1.) at the discretion of the civil controller. If a civil controller clears aircraft Off Route outside of Quiet Hours Procedures, he/she then assumes responsibility for initiating coordination whenever Off Route GAT appears in conflict with OAT.

D.2.2 GAT holding will have On Route priority provided the appropriate military units have been notified.

D.3 Quiet Hours Procedures

D.3.1 RAF(U) Swanwick is responsible for granting Quiet Hours Procedures North, East and West. See Appendix 1.

D.3.2 On Route Status may be afforded to Off Route GAT outside the lateral confines of the airways structure at FL195+ when military activity allows, either by individual coordination or for extended periods of time or when Off Route is granted by the Military when Quiet Hours Procedures are initiated.

D.3.3 The core periods for Quiet Hours are 1700-0800 UTC winter (1 hour earlier summer) daily, weekends and English Public Holidays.

D.3.4 Civil Operations Supervisors may request Quiet Hours Procedures outside of the core periods. Requests may be made in terms of specified routes, geographical areas or traffic flows for agreed periods. Such approval is at the sole discretion of the RAF(U) Swanwick Supervisor and civil Operations Supervisors are to log such requests. In advance of awarding this concession, the RAF(U) Swanwick Supervisor is to obtain the agreement of the Master Controller (MC) at the relevant Control and Reporting Centre (CRC).

D.3.5 Controllers are reminded that other ATC and/or Air Defence Units may be operating under Autonomous/Authorised Radar Unit status both within and outside the lateral limits of the UK Route Structure. Controllers at such units are responsible for resolving conflictions and ensuring appropriate vertical or lateral separation is achieved.

D.3.6 Any direct routeings offered during Quiet Hours Procedures are to take into account current Danger Area activity.

D.4 Quiet Hours Conditions

D.4.1 Quiet Hours Procedure is subject to the following conditions:

a. May only be authorised or withdrawn by the RAF(U) Swanwick Supervisor when no military flying is planned or the intensity of military traffic is, or is expected to be, sufficiently light.

b. Remains the prerogative of the RAF(U) Swanwick Supervisor and can be withdrawn at any time.

c. The procedures are only to be applied in a radar environment above FL195.

d. When in force, the phrase 'Quiet Hours in force above FL195' is to be used.

e. Introduction and termination of Quiet Hours Procedure is to be notified within the Units' ops rooms in accordance with Units' MATS Part 2s/Military Unit Order Books.

D.5 On Route/Off Route Procedures Specific to London Control (Swanwick) and RAF(U) Swanwick

D.5.1 In addition to paragraphs D1-D4, within the London Control (Swanwick) Area of Responsibility, the RAF(U) Swanwick Supervisor or ATCO i/c is to be notified of the intention to clear GAT Off Route, giving 5 minutes notice when possible. The information passed is to include route, flight level (including any proposed change) and SSR code.

D.5.2 This notification does not constitute coordination.

D.5.3 <u>On Route Status for GAT</u>

D.5.3.1 GAT flying direct Off Route tracks west of 5°W within the airspace illustrated in Appendix D-2 is considered to be continuously On Route subject to the following conditions:

- Applies to aircraft at or above FL290 only.

D.5.3.2 GAT flying between (U)M185 and (U)N859 and south of TELTU (as illustrated in Appendix D-3 is considered to be continuously On Route FL125-FL460.

D.5.3.3 The On Route status may be withdrawn at any time by any agency which has access to the airspace subject to a minimum of one hours notice to the RAF(U) Swanwick Supervisor.

D.5.4 Notification of Withdrawal

D.5.4.1 The RAF(U) Swanwick Supervisor will immediately inform the London Control (Swanwick) LAS (W) of the withdrawal of the On Route status and will advise when the withdrawal is terminated. The London Control (Swanwick) LAS (W) is to inform the London Control (Swanwick) Operations Supervisor and the appropriate sectors.

D.5.4.2 Withdrawal may be for limited periods or in connection with longer term exercises which may have been published by ACN, in which case notification by the RAF(U) Swanwick Supervisor will still apply.

D.5.4.3 The RAF(U) Swanwick Supervisor is responsible for notifying withdrawal timings to relevant military ATC/Air Defence agencies and Aberporth who will be responsible for providing separation from GAT or coordinating their tracks.

D.6 Hebrides Upper Control Area (HUTA)

The HUTA serves as a transition area for flights between the airways system and Oceanic airspace.

D.6.1 Lateral Limits: As described in AIP United Kingdom, see map at Appendix D-4.

Vertical Limits: From FL255 to FL 660

D.6.2 The following applies for the area:

- To facilitate the transition, all traffic in the HUTA is considered to be on-route, whether or not it is flying on established UARs.
- Within the HUTA, the use of Opposite Direction Levels (ODLs) is permitted.

- RAF(U) Swanwick (Mil)/BAE Systems Warton are responsible jointly with Scottish Control (Prestwick) sectors for the provision of standard separation between flights operating within the HUTA.
- The responsibility for initiating coordination of military/civil traffic in the HUTA rests with the RAF(U) Swanwick Controller/BAE Systems Warton Controller.

D.7 North Sea Reduced Coordination Area

The North Sea RCA allows for the optimum tactical use of airspace freed up by non or de-activated segments of EG-D 323 complex, as well as enabling tactical vectoring to facilitate climb and descent profiles for ScTMA arrivals and departures.

The reduced coordination area is therefore an extension of the flexible use airspace concept under which the establishment of D323 conceived.

D.7.1 Lateral Limits: Within the area bounded by the following coordinates, see map at Appendix D-5

Reporting Points with associated Lat and Longs	CUTEL 555309N 0022228E	ASKAM 545747N 0031350E	VENAS 541820N 0033908E	ROKAN 533948N 0031120E
OKAMA 531015N 0024622E	LEGRO 531935N 0013046E	NALAX 532900N 0002406E	RIMTO 534303N 0012559W	OBOXA 541036N 0015420W
ARSAT 543206N 0014419W	INPIP 545236N 0025346W	OTBUN 551650N 0022600W	BEVAM 554353N 0001503E	CUTEL 555309N 0022228E

Vertical Limits: Within Controlled Airspace at all levels, inclusive of FL195 to FL245, except during periods of notified activation of TRA 5, 6, 7A, 7B.

D.7.2 The following applies for the area:

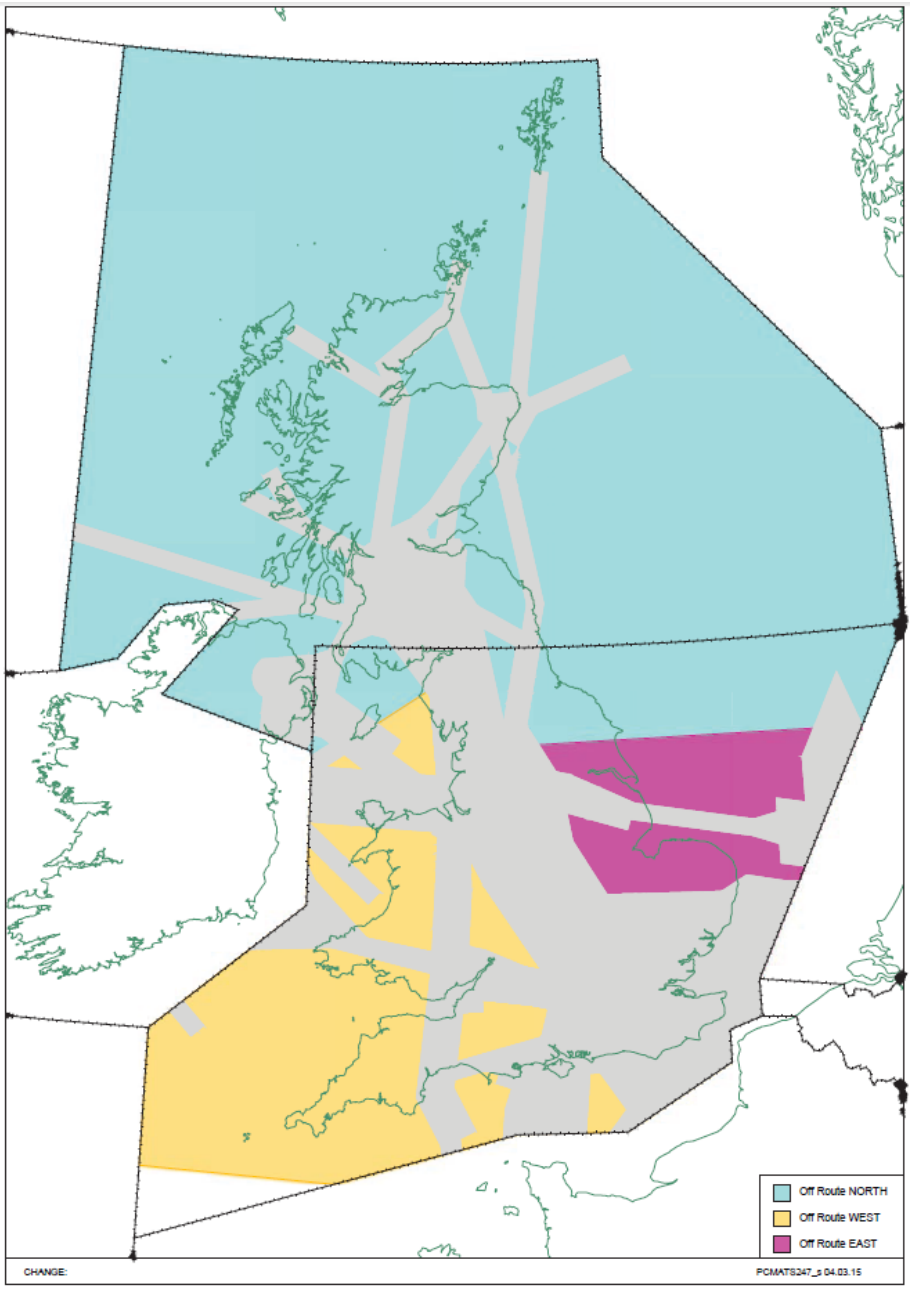
- To facilitate the optimisation of available airspace, all GAT within the North Sea RCA is considered to be on-route for the purposes of coordination, whether or not it is flying on established UARs.
- Military ATC (including BAE Systems Warton) and Air Defence Organisations are responsible jointly with Scottish Control (Prestwick) and London Control (Swanwick) sectors for the provision of standard separation between flights operating within the North Sea RCA.

- The responsibility for initiating coordination of military/civil traffic in the North Sea RCA rests with Military ATC (including BAE Systems Warton) and Air Defence Organisations.

Appendix D-1

OFF ROUTE/QUIET HOURS PROCEDURE

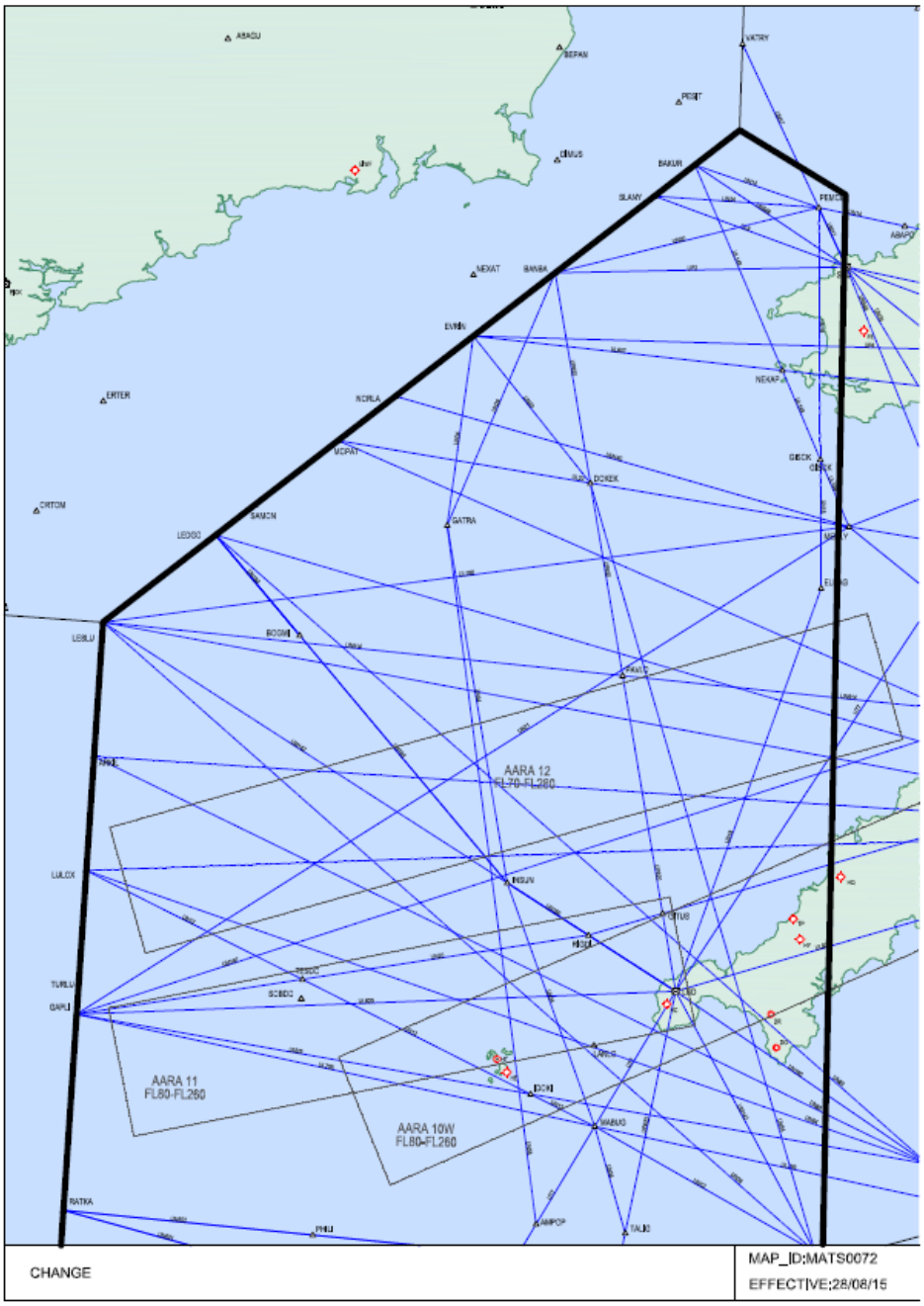
Effective: 28 February 2019



Appendix D-2

ON ROUTE AREA FOR GAT SPECIFIC TO LONDON CONTROL (SWANWICK) AND RAF(U) SWANWICK

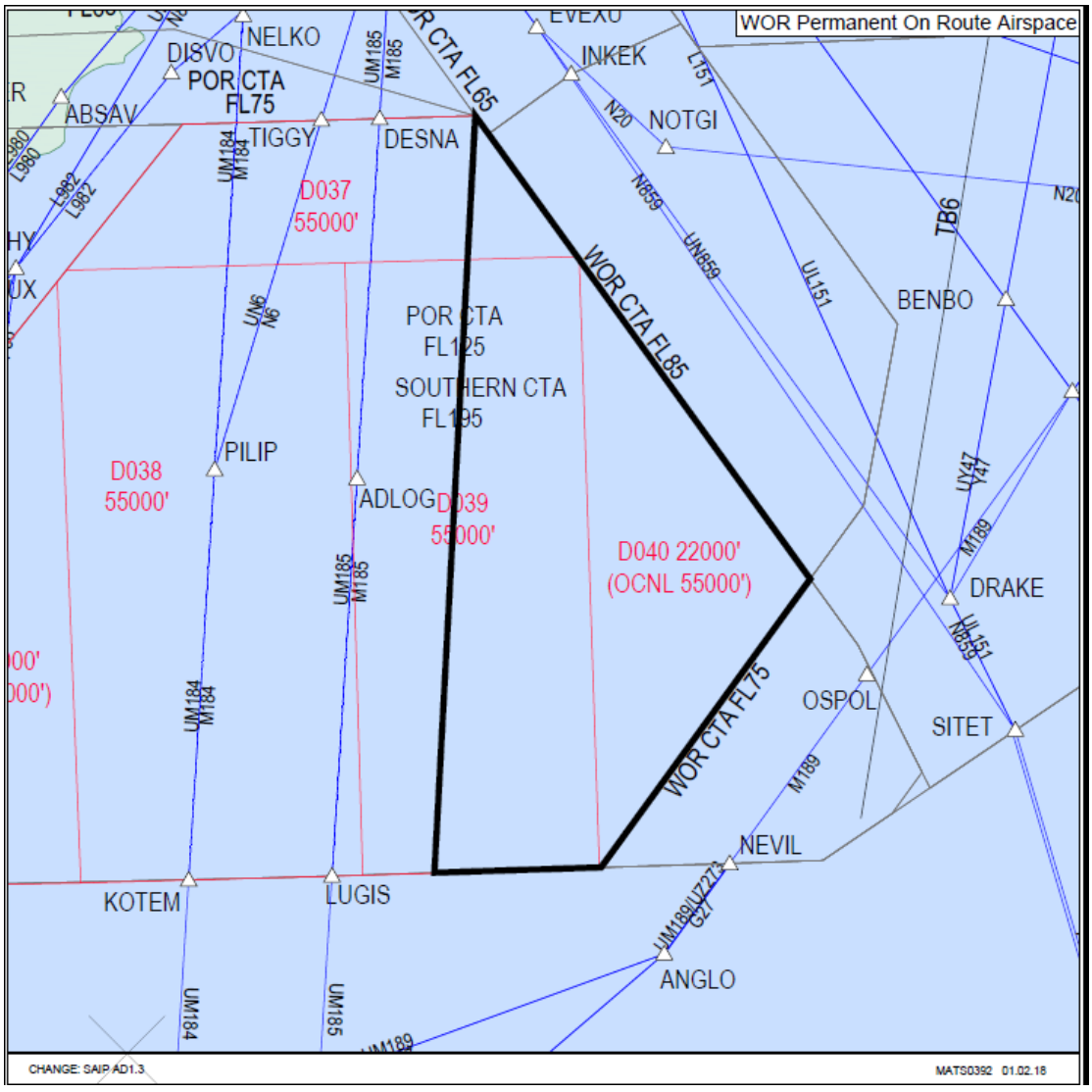
Effective: 1 MARCH 2018



Appendix D-3

ON ROUTE AREA FOR GAT SPECIFIC TO LONDON CONTROL (SWANWICK) AND RAF(U) SWANWICK

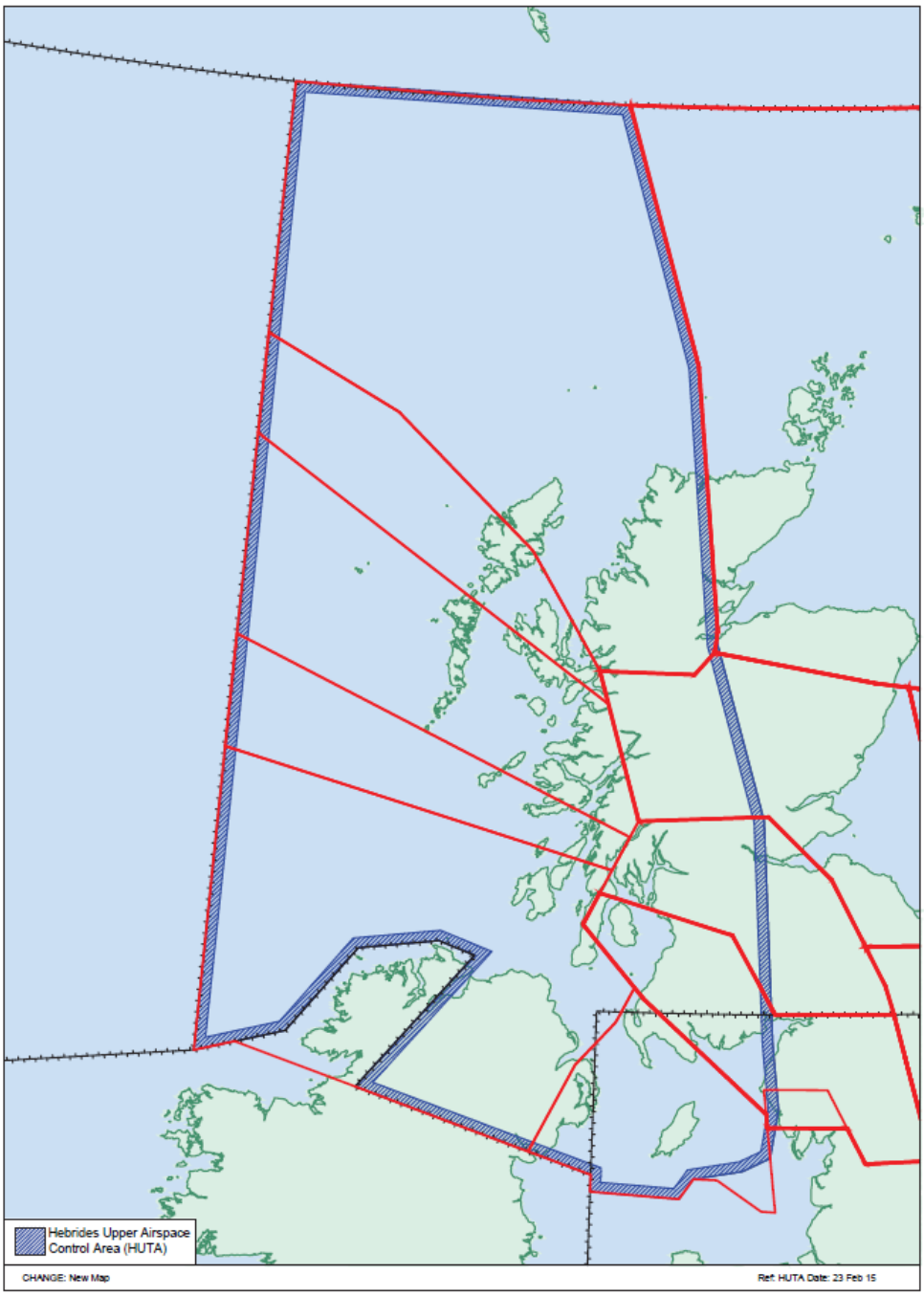
Effective: 1 MARCH 2018



Appendix D-4

HEBRIDES UPPER CONTROL AREA (HUTA)

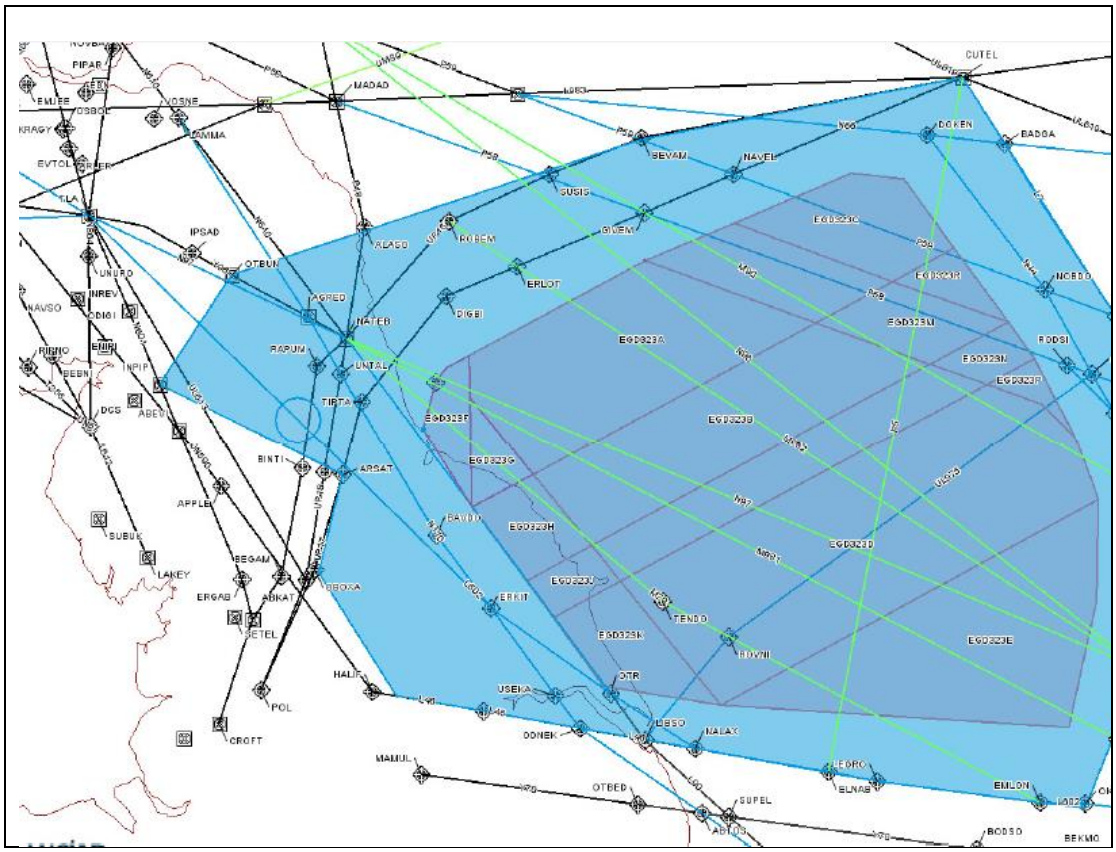
Effective: 1 MARCH 2018



Appendix D-5

North Sea Reduced Coordination Area

Effective: 28 February 2019



ANNEX E

Procedures for the coordination between military traffic operating within UK Managed Danger Areas, UK Military Training Areas and military transit traffic or civil traffic utilising Conditional Routes

Effective: 1 MARCH 2018 (Revised 28th February 2019)

E.1 INTRODUCTION

E.1.1 The UK Airspace Management Cell (UK AMC) renders appropriate ATS routes and allowable directs (DCT) unavailable for flight planning during military activity that is planned to take place within a UK MDA or MTA.

E.1.2 To increase capacity and extend the application of FUA, the UK AMC will effect level sensitive measures wherever practicable. This will enable ATS routes and DCT to remain available above the maximum upper limit of relevant notified MDA or MTA activity, yet allow the ATS routes and DCT which are unavailable for flight planning below the upper level, but vertically clear of stepped portions of the MDAs or MTAs, to be tactically utilised safely and effectively.

E.1.3 This LoA will grant all GAT operating along or within 5nm of a CDR 1, 2 or 3, within the notified levels and times of that CDR, and within the North Sea RCA as described in para D.7, On Route status for the purposes of coordination, regardless of that route's published status for flight planning purposes, for example:

- for a CDR notified as existing from FL245-FL460, this would apply to an aircraft flying at FL250, but not for an aircraft flying at FL240 in an inactive TRA (unless 'Off Route' status had been agreed separately).

- for an aircraft flying along a CDR notified as existing from FL290-FL450, On Route status would apply to an aircraft flying at FL290, but not at FL280.

- Within the North Sea RCA at all levels above FL195 subject to the vertical activation status of D323 segments and relevant TRAs. Where overflight of D323 is permissible the lowest level used should be 2000ft above the maximum vertical extent of the activated danger area segment i.e. D323 A activated to FL300, lowest permissible overflight level FL320.

E.1.3.1 For the majority of CDRs, these vertical level parameters are FL245-FL460; however, there are exceptions to this, for example:

- Some CDRs are established in the lower airspace with varying base levels.

E.1.4 Controllers may deem separation to exist between aircraft flying in transit above an MDA or MTA and aircraft within segregated airspace. This deeming arrangement is subject to the application of a 2,000ft vertical buffer being applied above the specified upper limit of the segregated airspace, in accordance with the CAA's 'Special use Airspace – Safety Buffer Policy for Airspace Design Purposes, 2014'. This deeming arrangement only applies up to FL450.

E.2 PROCEDURES

Military controllers already provide services to aircraft in transit over active Danger Areas; however, some aspects of operations require clarification as follows:

E.2.1 In the event that there are consecutive military bookings with a gap of 1 hour or less, the affected ATS Routes will only be available tactically.

E.2.2 UK policy requires 2000' of buffer to be applied above MDA or MTA activity. For CDRs, this buffer will be applied at source by the Airspace Management Cell (AMC) during the D-1 process (only up to FL450). An example of this is:

a. MDA/MTA activity is up to FL300.

b. The AMC will ensure the CDR is not available for flight planning between FL240 to FL310.

c. The lowest useable FL for Flight Planning will then be FL320.

E.2.3 There are occasions where different sections of the MDAs or MTAs will be active to different upper levels i.e. D323C - FL350, D323B - FL300 and D323A - FL300. In such cases, for simplification, the appropriate ATS route will be made unavailable for flight planning to the highest booked level for the whole complex/route, if applicable.

E.2.4 It is accepted by MOD on behalf of CinC Fleet, RAF Battlespace Management Units, that aircraft flying along the route of a CDR, out with the vertical limits of an active MDA or MTA, are classed as On Route, regardless of the vertical parameters of the CDRs closure. This will enable routes to be utilised as CDR3s (i.e. tactically) wherever necessary, whilst still affording

the aircraft and controller the protection and convenience of On Route status.

E.2.5 It is the responsibility of aircrew operating within an MDA or MTA where segregation is required (including autonomous operations) to ensure that their activity is contained wholly within the segregated airspace. Units providing an ATS above an MDA or MTA (civil or military) may deem such traffic within the MDA or MTA, as being not above the upper limit of the segregated activity, provided that:

a. The traffic in transit above the MDA or MTA is flying at least 2000' above the notified upper limit of the segregated activity.

b. At least 2000' separation must be evident between the subject aircraft on Mode C, up to FL450.

c. This deeming arrangement does not normally apply below segregated activity or above FL450; however, with suitable coordination between Civil and Military Supervisors, a CDR 3 may be used tactically below segregated activity.

E.2.5.1 It is incumbent on units providing an ATS to traffic operating within an MDA or MTA to initiate coordination if aircraft under their control are going to fly outside the vertical or lateral limits of a segregated MDA or MTA.

E.2.5.2 Once civil aircraft depart laterally from CDRs (more than 5 miles from the centreline), they become "Off Route" and normal coordination rules apply, other than when operating within the North Sea RCA. Current regulations regarding lost aircraft or aircraft in an emergency remain extant.

ANNEX F

Refuelling Flight PROCEDURES

Specific to Scottish Control (Prestwick) and RAF(U) Swanwick

Effective: 1 MARCH 2018 (Revised 28th February 2019)

F.1 Refuelling Flights General

F.1.1 USAF tanker aircraft operating from RAF Mildenhall and RAF Fairford are tasked to provide refuelling facilities over the UK mainland, within the London and Scottish UIRs, for USAF aircraft transiting UK Airspace.

F.1.2 The refuelling route, depicted at Appendix 1, is between MAM-Way Point 1 (535113N 0000403E)– Waypoint 2 (552631N 0015215W)-LUK then Dct 0930W-Dct 010W, and the reverse.

F.1.3 For refuelling flights above FL245 (FL195 when the TRAs are inactive), the agreed blocked level band is FL260-FL280 within the sectors east of 0930W. The formation will transition to/from its OAC reservation level between 0930W and 010W. In order to assist in busy traffic situations, the military or civil sector controller may coordinate a change to the blocked level band.

F.1.4 An email detailing refuelling flights shall be sent to Scottish Control (Prestwick) no later than D-1. This email shall confirm the de-activation of D323 Areas F, G, H and J to facilitate the transit of the refuelling flight.

F.1.5 Any delays to the estimated start time of the refuelling flight are to be notified to the Scottish Control (Prestwick) DTS.

F.2 Eastbound Procedures

F.2.1 Eastbound flights entering UK airspace North of 54N will flight plan directly from the 010W entry point to LUK.

F.2.2 It is the responsibility of the RAF(U) Swanwick North Supervisor to obtain Non Deviating Status (NDS) and associated CFP for Eastbound tracks, pre-noting the Scottish Control (Prestwick) Duty Technical Support (DTS) at

least 15 minutes before entry into the Scottish Control (Prestwick) AoR. The pre-note shall include an estimate for the start fix, the levels to be blocked and the SSR code.

F.2.3 In all cases where NDS for a route is requested, routing details should be included within the request, either stating that the standard refuelling route is to be used or deviations from it.

F.2.4 Scottish Control (Prestwick) will grant NDS and associated Cleared Flight Path (CFP) in accordance with notified procedures and inform the RAF(U) Swanwick North Supervisor when such NDS/CFP status has been approved and the allocated callsign to be used for the formation. Swanwick (Mil) shall not assume NDS/CFP until approval has been confirmed.

F.2.5 RAF(U) Swanwick North Tactical Controllers are to identify the formation to Scottish Control (Prestwick) Sector Controllers by use of NAS CCDS-R database, converting the formation callsign to the callsign allocated by Scottish Control (Prestwick), which will be REFUEL followed by a number e.g. REFUEL1, once NDS is granted. The Tactical Controller is also to verbally identify the formation to the first Scottish Control (Prestwick) Sector that it will enter upon crossing the FIR boundary.

F.2.6 RAF(U) Swanwick North Supervisor is to identify the formation to the relevant CRC.

F.2.7 If it becomes necessary, on the grounds of safety, to temporarily turn the formation off its flight plan route after NDS has been granted, the formation will retain NDS but should be returned to the Flight Plan route as soon as possible.

F.2.8 When a formation separates, NDS will cease to apply. RAF(U) Swanwick Tactical Controllers will change the NAS CCDS-R database to reflect the call-sign of the individual elements of the formation and treat the individual elements as standard OAT.

F.2.9 For Eastbound tracks where all elements are still in formation, the RAF(U) Swanwick North Sector shall handover the formation to RAF(U) Swanwick North East Sector with coordination, stating the route that NDS has been granted for.

F.2.10 If, for whatever reason, NDS has not been granted or the formation will not have joined by the time that a handover is due to take place, the RAF(U) Swanwick North Supervisor is to inform the RAF(U) Swanwick East Supervisor at the earliest opportunity.

F.3 Westbound Procedures

F.3.1 It is the responsibility of the RAF(U) Swanwick East Supervisor to obtain NDS for Westbound tracks north of the Airway/UAR structure (Y70/UL46) in the vicinity of OTBED, pre-noting the Scottish Control (Prestwick) DTS 15 minutes before entry into the Scottish Control (Prestwick) AoR. This pre-note will include an estimate abeam OTBED, the levels to be blocked and the SSR code.

F.3.2 Scottish Control (Prestwick) will grant NDS and associated CFP in accordance with notified procedures, informing the RAF(U) Swanwick East Supervisor when such NDS/CFP status has been approved and the callsign to be assigned to the formation . If a 15 minute pre-note is not achievable and NDS has not been granted by the time the formation enters the Scottish Control (Prestwick) AoR, the RAF(U) Swanwick East Controllers will tactically coordinate until NDS is granted.

F.3.3 In all cases where NDS for a route is requested, routing details should be included within the request, either stating that the standard refuelling route is to be used or deviations from it. Such routing details should also include the 10W exit point.

F.3.4 RAF(U) Swanwick Tactical Controllers are to identify the formation to Scottish Control (Prestwick) Sector Controllers by use of NAS CCDS-R database, converting the formation callsign to the callsign allocated by Scottish Control (Prestwick), which will be REFUEL followed by a number e.g. REFUEL1, once NDS is granted.

F.3.5 The Tactical Controller is also to verbally identify the formation to the Montrose Sector Planner and obtain a CFP through Y70 with the Scottish Control (Prestwick) East Planner, if required.

F.3.6 RAF(U) Swanwick East Supervisor is to identify the formation to the relevant CRC.

F.3.7 If it becomes necessary, on the grounds of safety, to temporarily turn the formation off its flight plan route after NDS has been granted, the formation will retain NDS but should be returned to the Flight Plan route as soon as possible.

F.3.8 When a formation separates, NDS will cease to apply. RAF(U) Swanwick Tactical Controllers will change the NAS CCDS database to reflect the call-

sign of the individual elements of the formation and treat the individual elements as standard OAT.

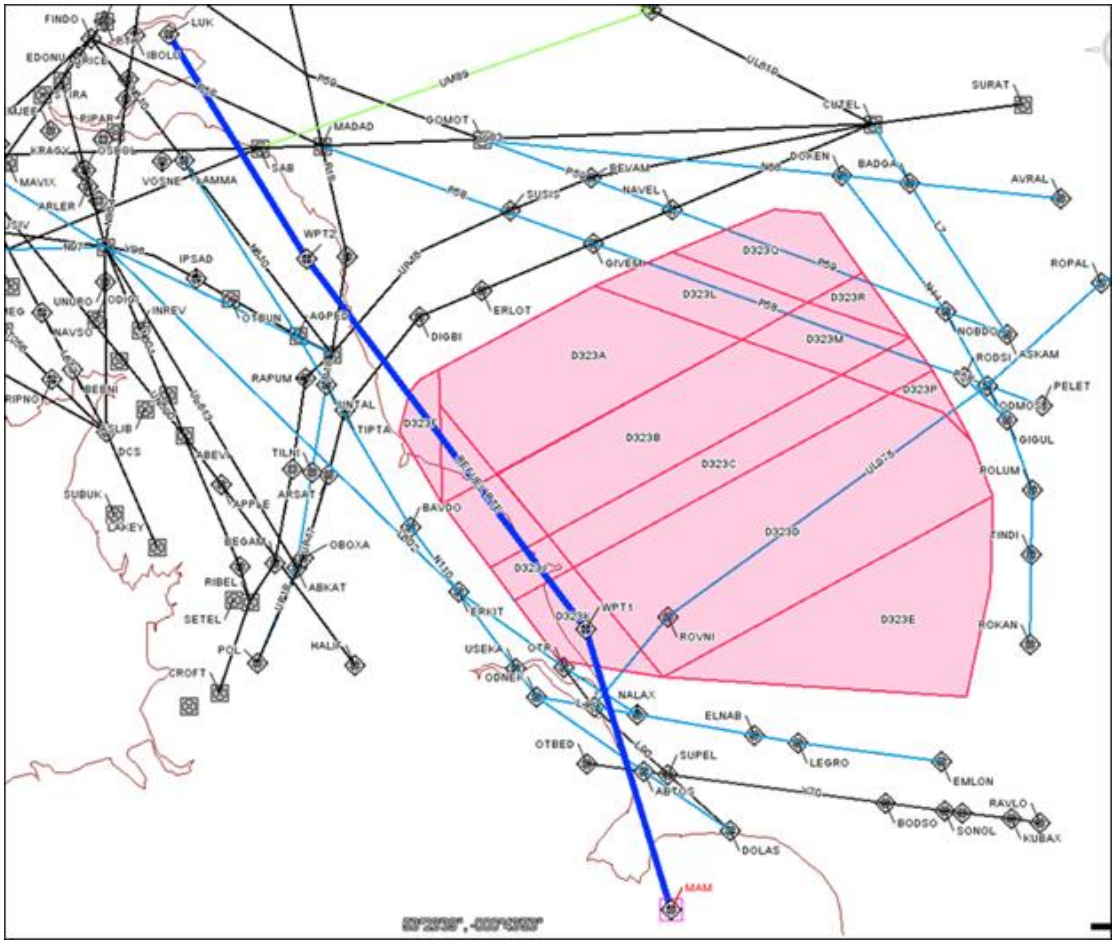
F.3.9 For Westbound tracks where all elements are still in formation, the RAF(U) Swanwick North East Sector Tactical Controller shall handover the formation to North with coordination, stating the route that NDS has been granted for.

F.3.10 If, for whatever reason, NDS has not been granted or the formation will not have joined by the time that a handover is due to take place, the RAF(U) Swanwick East Supervisor is to inform the RAF(U) Swanwick North Supervisor at the earliest opportunity.

Appendix F-1

'REFUELLING' ROUTE (FL260 TO FL280)

Effective: 1 MARCH 2018 (Revised 28th February 2019)



MEMORANDUM OF UNDERSTANDING

Between

MILITARY OPERATIONS ASSISTANT (MILOPS ASST), RAF(U) SWANWICK

And

MILITARY AIRSPACE BOOKING AND COORDINATION CELL (MABCC), RAF(U) SWANWICK

And

EUROPEAN CENTRAL ALTITUDE RESERVATION FACILITY HQ USAFE, RAMSTEIN AB, GERMANY

1. INTRODUCTION: This Memorandum of Understanding (MOU) establishes Altitude Reservation (ALTRV) coordination procedures between the Military Operations Assistant (MilOps Asst) at RAF(U) Swanwick and European Central Altitude Reservation Facility (EUCARF). This Memorandum replaces the MOU between EUCARF and the MilOps Asst dated Aug 17. Additionally, this Memorandum designates EUCARF as the US central point of contact for REFUELR Track reservations, and establishes the REFULER Track booking process between EUCARF and the Military Airspace Booking and Coordination Cell (MABCC). This MOU does not prevent any pilot, air traffic controller, controlling authority or airspace service provider from using discretion in case of emergency. All parties are to be informed of any departure from the agreed procedures as soon as possible.

2. OBJECTIVE: The objective of this MOU is to declare a common understanding of the routine procedures used by the Military Operations Assistant and EUCARF to ensure that ALTRVs are accomplished in a timely fashion and without undue restrictions to other airspace users. Additionally, this Memorandum establishes coordination procedures for REFUELR Track reservations between EUCARF and MABCC.

3. SCOPE.

3.1. Geographical Boundaries: This MOU is valid for the area in which the MilOps Asst exercises strategic jurisdiction; namely the UK FIR/UIR. EUCARF coordinates ALTRV Approval Requests (APREQs) for aircraft crossing the adjacent FIR/UIRs directly with the respective air traffic control centres.

3.2. ALTRVs: Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. See Annex A for ALTRV procedures.

3.2.1. ALTRVs must receive Special Handling from ATC facilities and shall be defined by routes, altitudes, and timing.

3.2.2. Aircraft established on an approved ALTRV must not be changed except in the interest of flight safety.

3.2.3. ALTRV routes are dependent primarily upon the origins and destinations of the participating aircraft and are not restricted to a specific route/corridor.

3.2.4. ALTRV APREQs are submitted to the Military Operations Assistant by EUCARF when a formation or group of aircraft:

3.2.4.1. Must be flown at proximities lower than standard ATC criteria.

3.2.4.2. Must operate within prescribed altitudes, timings and/or areas.

3.2.4.3. Cannot be accommodated within the normal rules of the ATC system.

3.2.5. The following missions must be on an ALTRV while in UK airspace:

3.2.5.1. Missions comprised of five or more aircraft.

3.2.5.2. Missions flying as Operational Air Traffic (OAT).

3.2.5.3. Missions requiring Non- Deviating Status (NDS).

3.2.5.4. Missions requiring in-flight refuelling.

3.2.5.5. Other missions deemed necessary by EUCARF, the MilOps Asst, or the Project Officer.

3.3. REFUELR Track Reservations are submitted to the MABCC by EUCARF for missions which shall utilize the REFUELR Track as described/illustrated in Annex B/Attachment 4. Where possible, for transits through the East of England a REFUELR request should be submitted in preference to an ALTRV due to complexity of airspace and GAT on the East coast.

4. GENERAL ASSUMPTIONS.

4.1. Common Abbreviations: When coordinating ALTRVs and REFUELR Track reservation, the Military Operations Assistant and EUCARF shall use the abbreviations listed in Attachment 1.

4.2. Hours of Operation.

4.2.1. EUCARF normally operates from 0700-2100 CET Mon-Fri excluding US holidays. Outside of normal operating hours, EUCARF can be reached by calling the HQ USAFE-AFAFRICA Command Centre and asking to be connected to the EUCARF On-Call Controller, see Figure 1.

4.2.2. The Military Operations Assistant operates H24. See Figure 1 for contact information.

4.2.3 The MABCC operates 0730-1800L Mon-Thurs, 0730-1700L Fri.

4.3. Security Grading/Classification: ALTRV and REFUELR Track messages between EUCARF and the MilOps Asst/MABCC shall be unclassified and for official use only (FOUO).

4.4. Separation Requirements. EUCARF shall apply the following criteria prior to submitting requests to the Military Operations Assistant.

4.4.1. ALTRVs.

4.4.1.1. Longitudinal or Crossing Routes: 30 mins OR

4.4.1.2. Vertical: 1,000ft

4.4.1.3. Shall not be approved at FL250.

4.4.2. REFUELR Tracks.

4.4.2.1. Same Direction: 5-minute interval between successive missions.

4.4.2.2. Opposite Direction: 30-minute interval between exit of first mission and entry of second mission. NOTE: In lieu of a 30-minute interval, and when agreed in advance, the MilOps Asst may, through the appropriate Mil Supervisor, coordinate and assure real-time lateral separation by offsetting tracks.

5. NON- DEVIATING STATUS: In UK airspace, the assignment of Non- Deviating Status (NDS) affords priority passage over other Operational Air Traffic and General Air Traffic (GAT), except for emergency aircraft, Royal Flights, Air Defence Priority Flights, or Special Flights which have a higher priority. The granting of NDS by the appropriate sector does not confer flight priority in terms of GAT departure clearance or Flow Control. NDS is not assigned to aircraft which penetrate UK Military Training Areas, Military Temporary Reserved Airspace or Danger Areas during their hours of operation. Elsewhere in UK airspace, NDS may be assigned by UK authorities to specified aircraft if they are operating between FL245 and FL660. NDS may be assigned below FL245 only within Regulated Airspace.

Annexes
A: Altitude Reservation Procedures
B: REFUELR Track Procedures

Annex A

Altitude Reservation Procedures

1. Communication: Messages concerning ALTRV APREQs, Delays, Amendments, Approval, and Cancellations shall be transmitted via email. In the event of email failure, messages may be sent via fax.

2. Procedures.

2.1. EUCARF shall:

2.1.1. Review and de-conflict all ALTRV APREQs from other known ALTRV APREQs prior to submitting to the MilOps Asst.

2.1.2. Submit ALTRV APREQs no later than 5 calendar days before mission ETD. Exceptionally, APREQs for short notice missions shall be submitted as soon as possible.

2.1.3. Submit all necessary amendments, delays and cancellations regarding previously APREQ'd missions to the MilOps Asst as soon as possible.

2.1.4. Transmit to the MilOps Asst a copy of the Final ALTRV APVL message (normally one duty day prior to mission ETD).

2.1.5. Coordinate directly with Swanwick Mil Watch Supervisors as necessary for amendments, delays, no-notice missions, etc. which occur outside of the routine booking hours and cannot wait until the next duty day.

2.1.6. Provide the MilOps Asst with Information Copy on all ALTRV APREQs/APVLs that start or stop on the UK FIR/UIR boundary

2.2. The MilOps Asst shall:

2.2.1. Upon receipt of an ALTRV APREQ from EUCARF, plot and de-conflict the details with other known activities before negotiating strategic ATC clearances with the UK ATC authorities.

2.2.2. Process the ALTRV APREQ to a logical conclusion and inform EUCARF of any route, level, or other changes required to accommodate other known conflicting activities.

2.2.3. Submit ALTRV APVL and any NDS assignments to EUCARF at least 48 hours before the mission's planned ETD. If mutually acceptable, a shorter period may be permitted.

2.2.4. Issue ALTRV coordination message containing details of the action taken to accommodate the ALTRV.

Annex B

REFUELR Track Procedures

1. Description (see Attachment 3)

1.1. Route: Eastbound
ENTRY: 010W
CKPT: 0930W
ARIP: 5715N 00615W
ARCP: 5649N 00432W
CKPT: LUK (5622N 00251W)
CKPT: 5526N 00152W
CKPT: 5351N 00004E
EXIT: MAM (5238N 00033E)

1.2. Route: Westbound
ARIP: MAM (5238N 00033E)
ARCP: MAM 350/60
CKPT: 5351N 00004E
CKPT: 5526N 00152W
CKPT: LUK (5622N 00251W)
CKPT: 5715N 00615W
CKPT: 0930W
EXIT: 010W

Note: Northings at CKPTs and Entry/Exit points 0930W and 010W will vary dependent upon activation status of D701 which will be advised by MABCC upon approval.

1.3. Altitudes Available: FL260B280

2. IFPFP Routes to/from REFUELR Track for tanker operations to/from EGUN:

2.1. Eastbound: MLD DCT CGY OAT DCT OTR GAT L602 ERKIT L602 TLA DCT GOW DCT 5715N 00615W/N0420F260 OAT DCT 5649N 00432W DCT LUK DCT 5526N 00152W DCT 5351N 00004E DCT MAM OAT MAM DCT EGUN

2.2. Westbound: MLD DCT MAM OAT MAM/N0420F260 DCT MAM350060 DCT 5351N 00004E DCT 5526N 00152W DCT LUK DCT 5649N 00432W DCT 5715N 00615W DCT GOW GAT L612 CALDA DCT DESIG L603 MAMUL OAT MAM DCT EGUN

3. Discrete Frequencies
Primary: 243.65
Secondary: 244.825
A/A TACAN: 29/92Y

2. COORDINATION PROCEDURES

2.1. EUCARF shall:

2.1.1. Normally initiate coordination with the MABCC at least 48 hours prior to mission ETD. For short notice missions, EUCARF shall contact the MABCC as soon as possible; if later than 1700L D-1, contact the MilOps Asst.

2.1.2 Submit the following details to the MABCC

2.1.2.1. Call signs (receivers/tankers)

2.1.2.2. Type/number of aircraft

2.1.2.3. Mission Date

2.1.2.4. Entry/Exit Times

2.1.2.5. Altitude requested (should be FL260-280)

2.2. The MABCC shall:

2.2.1. Review EUCARF request

2.2.2. Review the MDA plan to identify any bookings of D323 F-J and deconflict in accordance with mission priority

2.2.3. Notify EUCARF of conflicting missions and offer alternative times, altitudes, etc. to accommodate EUCARF request

2.2.4. Provide EUCARF with an Approval (APVL) Message with the MilOps Asst copied in, which authorizes +/- 2 hours for the REFUELR TRACK missions. NOTE: APVL shall specify an alternate 10W entry/exit point when necessary to de-conflict from EGD701 activity.

LETTER OF AGREEMENT

between

NATS (En Route) PLC (NATS)
4000 Parkway, Whiteley, Fareham, Hampshire PO15 7FL

Airspace operated by

Scottish Control (Prestwick)
Prestwick Centre, Fresson Avenue, Prestwick KA9 2GX

and

RAF(U) Swanwick (Swanwick (Mil))
Box 13, Sopwith Way, Swanwick, Hampshire, SO31 7AY

and

Newcastle International Airport (EGNT)
Woolsington, Newcastle upon Tyne NE13 8BZ

and

Durham Tees Valley Airport (EGNV)
Registered Office - Peel Dome, The Trafford Centre, Manchester, M17 8PL

Together referred to as **"the Parties"**.

Effective Date: 28th February 2019
Valid until: 28th February 2021

3 GENERAL

3.1 The purpose of this Letter of Agreement is to define the co-ordination procedures to be applied between NATS and the Airspace User, to permit the Airspace User operating as General Air Traffic or Operational Air Traffic to fly within the airspace as set out within section 2 of this Agreement.

3.2 This LOA details the operating procedures between NATS (En Route) plc Scottish Control (Prestwick), Newcastle International Airport, Durham Tees Valley Airport and RAF(U) Swanwick, with respect to aircraft being transferred from either of the two airports to Swanwick (Mil) or Scottish Control (Prestwick) and vice versa and leaving or joining Controlled Airspace at ERKIT.

3.3 Swanwick (Mil) retains the right to refuse the provision of an ATS, subject to the limitations of Unit capacity. When such refusals are necessary, notification will be given to Newcastle International Airport, Durham Tees Valley Airport and Scottish Control (Prestwick).

3.4 The signatories to this Agreement are accountable for ensuring that the obligations set out by the Procedures in this Agreement are met in full.

3.5 This Agreement shall start on the Effective Date and shall end exactly two years thereafter. No prior notice of the end date shall be given by NATS.

4 DESCRIPTION OF AIRSPACE

2.1 A Map of the Airspace is contained in Annex A. The lateral extent of the area is defined by the following co-ordinates: (540148.85N 0004948.85W) and Newcastle International Airport/Durham Tees Valley Airport.

5 PROCEDURES

5.1 The procedures to be applied between NATS, and the other Airspace Operator as applicable, and the Airspace User, are detailed in the Annexes to this Letter of Agreement:

Annex A: Procedures

Annex B: Telephone Communications

Annex C: Abbreviations and Definitions

Annex D: Checklist

6 OPERATIONAL STATUS

6.1 All parties shall keep each other advised of any changes to operational facilities or any other matters which may affect the procedures specified in this Letter of Agreement.

7 REVISIONS

7.1 Any revision to the Letter of Agreement, excluding the Appendix and Annexes, requires the mutual written consent of the Letter of Agreement signatories or the successor to their position/roles.

7.2 Any revision to the Annexes of the Letter of Agreement requires the mutual written consent of the designated representatives of the signatories.

8 DEVIATIONS

8.1 When necessary the appropriate operational Supervisor(s) and responsible representative of the Airspace User may introduce, by mutual agreement, temporary modifications to the procedures laid down in the Annexes to the Letter of Agreement for a specific time period within the existing term of this Letter of Agreement.

8.2 Instances may arise where incidental deviations from the procedures specified in the Annexes to this Letter of Agreement may become necessary. Under these circumstances air traffic controllers are expected to exercise their best judgement to ensure the safety and efficiency of air traffic.

9 CANCELLATION

9.1 Cancellation of this Letter of Agreement by one of the Signatories (or their successors) is possible at any time. Every effort will be given to provide at least one month notice of such cancellation however this Agreement may be terminated by any party on immediate notice on safety grounds as necessary.

10 INTERPRETATION AND SETTLEMENT OF DISPUTES

10.1 Should any doubt or diverging views arise regarding the interpretation of any provision of the present Letter of Agreement or in case of dispute regarding its application, the parties shall endeavour to reach a solution acceptable to them all.

10.2 Should no agreement be reached, each of the parties shall refer such dispute to the CAA for determination.

11 REQUESTING A RENEWAL OF THE LETTER OF AGREEMENT

11.1 Access to the Airspace is granted to the Airspace User by NATS as the designated authority responsible for the airspace detailed in this Agreement, on the terms set out in this Letter of Agreement. It is the responsibility of the Airspace User to seek NATS' agreement to any renewal or replacement of this Letter of Agreement.

11.2 Where the Airspace User wishes to enter into a renewal or replacement Letter of Agreement with NATS for access to the Airspace then the Airspace User will send a written request to do so to the NATS Unit no later than three (3) months prior to the end date of this Letter of Agreement.

11.3 NATS will endeavour to agree a renewal or replacement of this Letter of Agreement where requested to do so but this cannot be guaranteed.

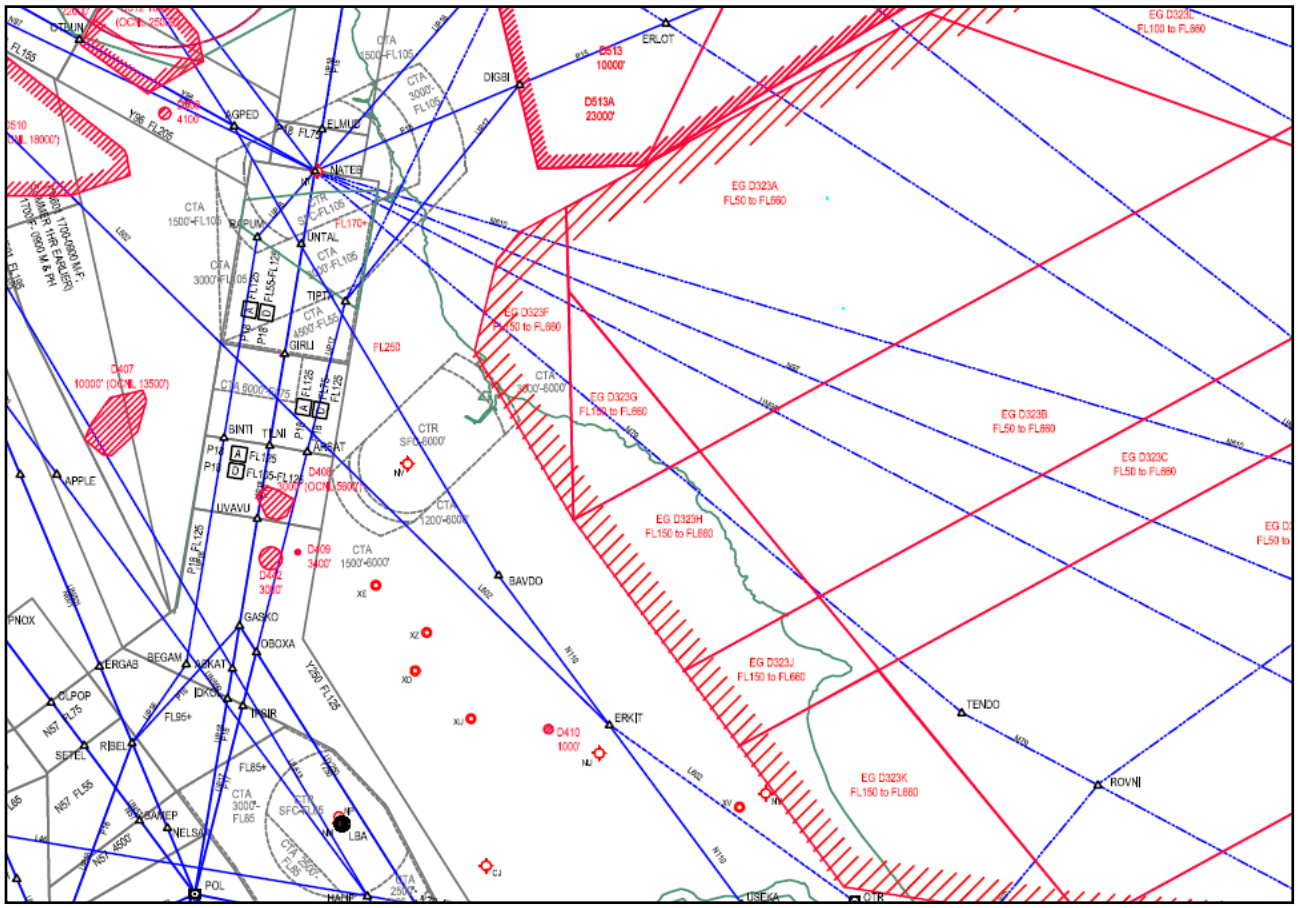
11.4 A review of the Letter of Agreement may be requested by any of the Signatories and at any time during the validity period.

ANNEX A

PROCEDURES

Effective: 28/03/2019

A.1 Map of the Airspace



A.2 Procedures

A.2.1 Newcastle (EGNT) and Durham Tees Valley (EGNV) IFR Inbound Traffic Leaving L602 or N110 at ERKIT

A.2.1.1 **<u>The following procedures are applicable to aircraft inbound to EGNT or EGNV, leaving L602 or N110 at ERKIT:</u>**

A.2.1.2 The PC East Support will pre-note the Swanwick (Mil) North East (NE) Planner via landline, with the flight details including: Callsign, ERKIT estimate (not more than 10 minutes before the NALAX time), SSR code and destination. Swanwick (Mil) North East will issue a frequency.

A.2.1.3 The PC East Sector will descend the aircraft to FL260 routing via OTR/ERKIT or ODNEK ERKIT. When the aircraft is 'clean'[1] and has passed NALAX or ODNEK the PC East controller may transfer the aircraft to Swanwick (Mil). However, PC East controller shall endeavour to retain the aircraft until it has reached ERKIT. Swanwick (Mil) will accept the flight on the allocated CCAMS SSR code and will assign a military squawk if required.

A.2.1.4 Transfer of control will take place when the following conditions are met:

1. The aircraft has passed NALAX or ODNEK and is descending to FL260
2. Transfer of communications has been achieved

A.2.1.5 If multiple aircraft wish to depart at ERKIT then PC East Sector will ensure that standard separation exists between these aircraft before the aircraft are transferred to Swanwick (Mil) and if required, PC East will effect coordination with Swanwick (Mil) North East.

A.2.1.6 In the event that PC East Sector has conflicting traffic at FL260, then an alternative level will be coordinated with Swanwick (Mil) North East Sector.

A.2.1.7 On transfer, Swanwick (Mil) may deem separation to exist between the aircraft being transferred and all other GAT within PC East Sector airspace including those aircraft transferred to the PC East Sector by Swanwick (Mil) in accordance with the procedure set out in Paragraph A.2.2.1.

A.2.1.8 Swanwick (Mil) will not issue further descent instructions below FL260 to transferred aircraft until standard lateral separation is observed to exist between that aircraft and any other conflicting traffic.

A.2.1.9 Swanwick (Mil) will ensure the descent profile of the traffic avoids Montrose sector (i.e. traffic to be FL250 or below by BAVDO). If this is not possible, Swanwick (Mil) must coordinate the traffic with Montrose in accordance with current procedures.

A.2.1.10 Swanwick (Mil) NE will identify the aircraft from the SSR code.

A.2.1.11 Swanwick (Mil) NE will call EGNT with an accurate NATEB estimate or EGNV with an accurate TD estimate, and Swanwick (Mil) squawk.

A.2.1.12 EGNT will provide Swanwick (Mil) with a FL and Runway in use. On approaching 40nms from EGNT, Swanwick (Mil) NE will re-issue the CCAM squawk and transfer the aircraft to EGNT frequency 124.380 (unless otherwise notified).

A.2.1.13 EGNV will provide Swanwick (Mil) with a FL, EGNV squawk and Frequency. On approaching 40nms from EGNV, Swanwick (Mil) NE will issue the EGNV squawk and transfer the aircraft to EGNV frequency.

A.2.1.14 The procedures contained within A.2.1 relating to EGNT traffic are suspended when Newcastle are notified as non-radar. Traffic that has planned to leave L602 or N110 at ERKIT shall be retained by PC East sector and re-routed via GOLES – RIMTO – GASKO.

A.2.2 **Newcastle (EGNT) and Durham Tees Valley (EGNV) IFR Outbound Traffic Joining N110 at ERKIT**

A.2.2.1 **<u>The following procedures are applicable to aircraft outbound from EGNT, joining N110 at ERKIT:</u>**

A.2.2.1.1 EGNT will call Swanwick (Mil) NE with an airborne estimate and CCAM squawk.

A.2.2.1.2 Swanwick (Mil) NE will issue a FL.

A.2.2.1.3 EGNT will climb to FL190, or FL issued by Swanwick (Mil) on the ERKIT route, unless coordination is effected, and release aircraft to Swanwick (Mil) NE VHF ICF 135.075 (unless otherwise notified).

A.2.2.1.4 Swanwick (Mil) NE will identify the aircraft from the CCAM squawk, and will issue a Swanwick (Mil) NE squawk whilst the aircraft transits the NE AoR.

A.2.2.1.5 Swanwick (Mil) will climb the traffic to FL250 (or other coordinated FL) to join CAS on track ERKIT and transfer the traffic by silent handover to the PC East Sector. The Swanwick (Mil) North East Controller will issue the CCAM SSR code and release the traffic once passing FL240.

A.2.2.1.6 Swanwick (Mil) may deem separation to exist between the aircraft being transferred and all other GAT on L602 and N110 and within the PC East Sector.

A.2.2.1.7 Where such joining traffic conflicts with leaving traffic transferred to Swanwick (Mil) North East Sector, in accordance with the procedure set out at paragraph A.2.1, PC East Sector will not climb the joining traffic above FL250 until standard separation exists between the conflicting aircraft.

A.2.2.1.8 In the event of there being multiple aircraft wishing to join at ERKIT, Swanwick (Mil) North East Sector will ensure that standard separation is applied to the multiple tracks before the aircraft are transferred to the PC East Sector. If necessary, Swanwick (Mil) North East Sector will effect co-ordination with PC East Sector.

A.2.2.2 **<u>The following procedures are applicable to aircraft outbound from EGNV, joining N110 at ERKIT:</u>**

A.2.2.2.1 EGNV will call Swanwick (Mil) NE with an airborne estimate and an EGNV squawk.

A.2.2.2.2 Swanwick (Mil) NE will issue a FL and Swanwick (Mil) squawk.

A.2.2.2.3 Swanwick (Mil) will verbally activate the Flight Plan with PCLA-S Support, passing the airborne estimate and Swanwick (Mil) squawk.

A.2.2.2.4 The PCLA-S Support will issue the CCAM squawk and PC East VHF Frequency.

A.2.2.2.5 EGNV will release aircraft to Swanwick (Mil) NE VHF ICF 135.075 (unless otherwise notified) on the Swanwick (Mil) squawk.

A.2.2.2.6 Swanwick (Mil) NE will identify the aircraft from the Swanwick (Mil) squawk.

A.2.2.2.7 Swanwick (Mil) will climb the traffic to FL250 (or other coordinated FL) to join CAS on track ERKIT and transfer the traffic by silent handover to the PC East Sector. The Swanwick (Mil) North East Controller will issue the CCAM SSR code and release the traffic once passing FL240.

A.2.2.2.8 Swanwick (Mil) may deem separation to exist between the aircraft being transferred and all other GAT on L602 and N110 and within the PC East Sector.

A.2.2.2.9 Where such joining traffic conflicts with leaving traffic transferred to Swanwick (Mil) North East Sector, in accordance with the procedure set out at paragraph A.2.1. PC East Sector will not climb the joining traffic above FL250 until standard separation exists between the conflicting aircraft.

A.2.2.2.10 In the event of there being multiple aircraft wishing to join at ERKIT, Swanwick (Mil) North East Sector will ensure that standard separation is applied to the multiple tracks before the aircraft are transferred to the PC East Sector. If necessary, Swanwick (Mil) North East Sector will effect co-ordination with PC East Sector.

A.2.2.3 Temporary Suspension of Traffic Joining CAS at ERKIT

A.2.2.3.1 PC Tay Sector is responsible for coordinating southbound traffic at FL250 with Swanwick (Mil) North East Sector.

A.2.2.3.2 PC East Sector is responsible for coordinating northbound traffic at FL250 (ODL) with Swanwick (Mil) North East Sector.

A.2.2.3.3 Swanwick (Mil) shall suspend the standing agreement whilst the aircraft is between UNTAL and ODNEK.

A.2.2.3.4 In the event that overflying traffic conflicts with traffic operating under the outbound procedure detailed above, Swanwick (Mil) North East Sector shall contact PC East Sector and an individual joining clearance shall be obtained.

A.2.2.4 EGNT Non Radar Procedures

A.2.2.4.1 The PC Ops Supervisor shall inform the Swanwick (Mil) East Supervisor when EGNT non-radar procedures commence and cease.

A.2.2.4.2 During this period of time, the procedure for EGNT traffic joining N110 at ERKIT (detailed in paragraph A.2.2.1) is cancelled.

A.2.2.4.3 All EGNT outbounds via N110 shall be routed via the GIRLI SID to GASKO and transferred to PC East sector.

A.2.2.4.4 The procedure for EGNV outbounds joining via ERKIT detailed in A.2.2.2 remain extant.

A.2.3 Conditions for Silent Handovers Between Swanwick (Mil) and Newcastle International Airport/Durham Tees Valley

A.2.3.1 Silent Handovers from Newcastle/Durham Tees Valley to Swanwick (Mil)

A.2.3.1.1 Silent handovers from Newcastle/Durham Tees Valley to Swanwick (Mil) may only take place provided that all of the following conditions are met:

A.2.3.1.2 The aircraft must have a serviceable transponder. SSR Mode 3/A must be validated and Mode C verified by Newcastle/Durham Tees Valley.

A.2.3.1.3 Newcastle/Durham Tees Valley must have serviceable Primary and Secondary radars available.

A.2.3.1.4 Swanwick (Mil) must have sufficient radar cover available.

A.2.3.1.5 The aircraft must be clear of controlled airspace, clear of confliction, clear of active danger areas and must not be subject to any coordination.

A.2.3.2 Silent Handovers from Swanwick (Mil) to Newcastle/Durham Tees Valley

Silent handovers from Swanwick (Mil) to Newcastle/Durham Tees Valley may only take place provided that all of the following conditions are met:

A.2.3.2.1 The aircraft is to be pre-noted to Newcastle/Durham Tees Valley, at least 15 min before ETA, with the aircraft's callsign, ETA and Swanwick (Mil) SSR code. Newcastle/Durham Tees Valley will issue a Newcastle/Durham Tees Valley discrete SSR code or CCAM squawk, pre-briefed frequency and FL to which the aircraft may be descended to.

A.2.3.2.2 The aircraft must have a serviceable transponder. SSR Mode 3/A must be validated and Mode C verified by Swanwick (Mil).

A.2.3.2.3 Newcastle/Durham Tees Valley must have serviceable Primary and Secondary radars available.

A.2.3.2.4 To ensure aircraft are transferred to Newcastle/Durham Tees Valley free from confliction, Swanwick (Mil) must have sufficient radar sources available, which provide at least 3000ft of solid radar coverage below an aircraft's intended descent level. Where outages exist, Swanwick (Mil) will inform Newcastle/Durham Tees Valley of the lowest level an aircraft may be descended to, to meet this requirement.

A.2.3.2.5 The aircraft must be clear of controlled airspace, clear of confliction, clear of active danger areas, and must not be subject to any co-ordination.

A.2.3.2.6 If any of the conditions, above, cannot be met a verbal handover is to be carried out. Furthermore, either controller retains the right to insist on a verbal handover as defined in RA3233(1) and MATS Part 1.

A.2.3.3 Clear of Confliction

Notwithstanding the fact that standard separation between 2 aircraft may be present at the time of transfer, handing-over controllers are to be aware that the profile of some conflicting aircraft might present a problem for the receiving controller. Controllers at Swanwick (Mil) routinely operate on large scale radar selections and conflictions outside the limits of terminal radar coverage might exist unknown to the terminal controller. If any doubt exists as to the intentions of a potentially conflicting aircraft a verbal handover is to be carried out.

A.2.3.4 EGNT Non Radar Procedures

A.2.3.4.1 When EGNT are operating in accordance with non-radar procedures, no traffic will be transferred between Swanwick (Mil) and EGNT. Paragraph A.2.3 will be suspended with regard to EGNT traffic for the duration of EGNT non-radar procedures being in force. The PC Ops Supervisor shall inform Swanwick (Mil) NE when EGNT non-radar procedures commence and cease.

A.2.3.4.2 Paragraph A.2.3 is still extant for EGNV traffic.

A.2.4 Newcastle (EGNT)/Durham Tees Valley (EGNV) Transits To and From Aberdeen (EGPD)

A.2.4.1 EGNT Outbound transits to Aberdeen (EGPD)

A.2.4.1.1 EGNT will call Swanwick (Mil) North with an airborne estimate and CCAM squawk.

A.2.4.1.2 EFPS and EFD interoperability will negate Swanwick (Mil) verbally activating the Flight Plan with the PC Tay Sector Support.

A.2.4.1.3 EGNT climb traffic to the FPL level, unless coordination if effected, and release aircraft to Swanwick (Mil) North VHF ICF 124.050 (unless otherwise notified).

A.2.4.1.4 Swanwick (Mil) North will identify the aircraft from the CCAM squawk, and will issue a Swanwick (Mil) North squawk whilst the aircraft transits the North AoR.

A.2.4.2 EGNV Outbound transits to EGPD

A.2.4.2.1 EGNV will call EGNT with airborne estimate.

A.2.4.2.2 EGNT will activate flight via EFPS.

A.2.4.3 EGNT/EGNV Inbound transits from EGPD

A.2.4.3.1 Swanwick (Mil) North will call EGNT with an accurate NATEB estimate and Swanwick (Mil) squawk.

A.2.4.3.2 EGNT will issue a FL.

A.2.4.3.3 On approaching 40nms from EGNT Swanwick (Mil) North will re-issue the CCAM squawk and transfer the aircraft to EGNT frequency 124.380 (unless otherwise notified).

A.2.4.3.4 EGNT will transfer to EGNV on the CCAM squawk.

A.2.4.4 EGNT Non Radar Procedures

When notified that EGNT non-radar procedures are in force, the following procedures replace paragraphs A.2.4.1 to A.2.4.3 for all Newcastle (EGNT)/Durham Tees Valley (EGNV) transits to and from Aberdeen (EGPD):

A.2.4.4.1 EGNT outbound transits to EGPD will be transferred from EGNT to PC Tay sector. Paragraph A.2.4.1.2 remains extant. PC Tay sector will be responsible for onward coordination with Swanwick (Mil) North. Paragraph A.2.4.1.4 remains extant.

A.2.4.4.2 EGNV will call Newcastle ATC with an airborne estimate for EGNV outbound transits to EGPD. Durham will route these flights to the east of EGNT and coordinate them with Swanwick (Mil) North prior to transfer to Swanwick (Mil) North on the notified frequency. Swanwick (Mil) will activate the flight with Tay Support.

A.2.4.4.3 Swanwick (Mil) North will call PC Tay sector with an accurate NATEB estimate and Swanwick (Mil) squawk for EGNT/EGNV Inbound transits from EGPD. Swanwick (Mil) will coordinate an acceptance level at the NT Hold with PC Tay sector. PC Tay sector will have agreed the level with PC East sector before issuing the level to Swanwick (Mil) North. On approaching 20nms from EGNT, Swanwick (Mil) North will re-issue the CCAM squawk and transfer the aircraft to the PC East frequency 133.8 (unless otherwise notified).

A.2.4.4.4 PC East will transfer traffic to EGNT/EGNV on the CCAM squawk.

A.2.5 Supplementary Procedures

A.2.5.1 **STANDING AGREEMENT COORDINATION – Newcastle/Durham Tees Valley and Swanwick (Mil)**

A.2.5.1.1 Newcastle SSR Mode 3/A Code 3767 will be allocated to aircraft operating within 25nm of Newcastle at 5000ft or below.

A.2.5.1.2 When providing a de-confliction service, Swanwick (Mil) controllers may deem separation to exist between their traffic and the above Newcastle traffic, providing their traffic is at an appropriate level to provide at least 1000ft separation, above 5000ft (based on the lowest of the Tyne or Barnsley RPS).

A.2.5.1.3 Durham Tees Valley SSR Mode 3/A codes in the band 7030-7047, operating within 40nm of Durham Tees Valley, can be deemed as operating at 5000' or below on the appropriate QNH or Regional Pressure Setting (RPS).

A.2.5.1.4 When providing a de-confliction service, Swanwick (Mil) controllers may deem separation to exist between their traffic and the above Durham Tees Valley traffic, providing their traffic is at an appropriate level to provide at least 1000ft separation, above 5000ft (based on the lowest of the Tyne or Barnsley RPS).

A.2.5.2 **RETURN TO STAND, GO-AROUNDS, HOLDING AND DIVERTING – Newcastle and Scottish Control (Prestwick)**

A.2.5.2.1 **Change to Start-up Status**

A.2.5.2.2 In the event an aircraft returns to stand the Newcastle ATCO shall inform PC Support who will hold the flight active in NAS. When the aircraft starts-up again, the Newcastle ATCO shall inform PC Support to reactivate the flight.

A.2.5.2.3 **Go-Arounds**

A.2.5.2.4 In the event of a go-around, no action need be taken by Newcastle unless the aircraft is not expected to land within 13 minutes. Should it be expected that the aircraft will not land within 13 minutes; the Newcastle ATCO shall inform PC Support.

A.2.5.2.5 **Holding and Diversions**

A.2.5.2.6 In the event of aircraft holding at Newcastle the ATCO shall inform PC Support. In the event the holding aircraft diverts from Newcastle, the Newcastle ATCO shall telephone PC Support to advise the intended destination airfield.

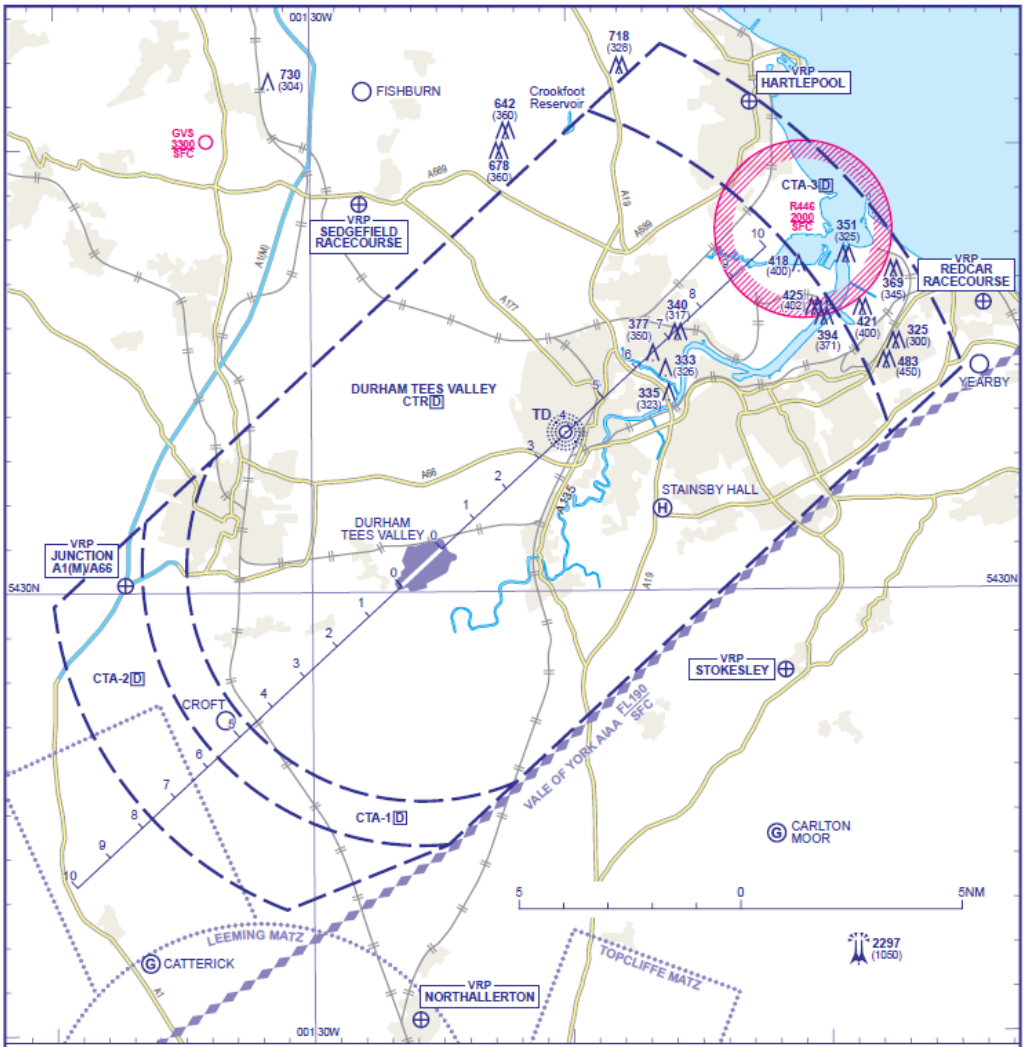
Appendix 1 to Annex A

Newcastle Control Zone and Control Area

ATS AIRSPACE VERTICAL LIMTS Controlled airspace with an upper vertical limit of FL195 and above is not shown.							
NEWCASTLE			NEWCASTLE				
CTR	D	FL105 / SFC	CTA-6	D	FL55 / 4500		
CTA-1	D	FL105 / 1500	CTA-7	D	FL75 / 6000		
CTA-2	D	FL105 / 1500					
CTA-3	D	FL105 / 3000					
CTA-4	D	FL105 / 3000					
CTA-5	D	FL55 / 3000					

Appendix 2 to Annex A

Durham Tees Valley Control Zone and Control Area



ATS AIRSPACE VERTICAL LIMTS						
DURHAM TEES VALLEY			DURHAM TEES VALLEY			
CTR	D	6000 / SFC	CTA-1	D	6000 / 1200	
			CTA-2	D	6000 / 1500	
			CTA-3	D	6000 / 3000	

AMC procedure for the extended EGD323 complex

Introduction

The EG D323 complex is to be extended to the North East with additional Special use airspace (SUA). Military activity within this airspace will affect civil traffic on CDR's P58 and P59. Given the overall Network impact of this SUA extension, it is now appropriate to design and apply airspace activation protocols to the Airspace Management process of the EG D323 complex.

The following procedure will describe how the AMC will manage day to day operations within the EGD 323 airspace volume.

Procedure

Strategic Planning ASM level 1

- The AMC and MABCC will collate long term planning data and populate LARA with the appropriate Airspace Reservation (ARES). The CAM and MAM will take particular note of the following significant Military activity:
    - Formidable Shield. *
    - High Level Activity within the D701 (Hebrides) complex. *
    - Military activity published through ACN that could affect the Network in the EG D323 area*.

Pre-tactical Planning ASM level 2

In the event of concurrent activity within the key airspace volumes (noted above*) and the EG D323 complex, the CAM and the MAM will collaborate and apply appropriate protocols.

In the event there is no concurrent and/or significant Military activity*, the EG D323 complex will be considered as follows:

Firstly - Is activity in areas L – R affected by the 323 protocol?

Secondly – Has a civil request for access to the remainder of the 323 complex been created in the ASM tool?

- ASM Level 2 assessment will begin at D-5. The ASM outcome (airspace allocation) will depend on the EG D323 complex protocol and associated CDM by the CAM and the MAM.
- The ASM outcome will be communicated to both Civil and Military parties at D-3.
- The SUA activation plan may be refined until 1200 on D-1.

Tactical ASM level 3.

There will be no change to the tactical ASM of the EG D323 complex. The AMC will issue a UUP if the appropriate parameters are met or exceeded.

Note some further development post CAA decision in readiness for implementation:

- The EG D323 protocol will be defined by London and Scottish ACC's.
- The CAA and MOD will ratify the ASM Protocol.
- The Protocol shall form part of the Southern MDA LOA.