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IDOC_0002010839 SOUTH WEST DANGER AREAS PSR UPGRADES TEMPORARY ACP (ACP-2019-16)

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REFERENCE DOCUMENTS

Ref	Document Reference	Issue	Issued By	Document Title
[Ref. 1]	CAP 1616	3.0	UK Civil Aviation Authority	Airspace Change Document
[Ref. 2]	CAA Policy Statement	Dated 14 August 2015	UK Civil Aviation Authority (Safety and Airspace Regulation Group – (SARG))	Policy for Radio Mandatory Zones and Transponder Mandatory Zones
[Ref. 3]	CAP 032	N/A	UK Civil Aviation Authority / NATS	UK Air Information Publication (AIP), En Route Information (ENR 1)
[Ref. 4]	CAP 393	25 Aug 2016 (as amended)	UK Civil Aviation Authority	Air Navigation: The Order and Regulations (ANO) 2016
[Ref. 5]	(EU) 923/2012	26 Sept 2012	Official Journal of the European Union	Commission Implementing Regulation (EU) 923/2012.
[Ref. 6]	CAA Policy Statement	22 Aug 2014	UK Civil Aviation Authority (Safety and Airspace Regulation Group – (SARG))	Policy for Special Use Airspace – Safety Buffer Policy for Airspace Design Purposes.
[Ref. 7]	RA 3241	Issue (2) 26 Sept 2017	UK MOD - Military Aviation Authority (MAA)	Regulatory Article (RA) 3241 – Secondary Surveillance Radar Alone Operations
[Ref. 8]	RA 3240	Issue (3) 26 Sept 2017	UK MOD - Military Aviation Authority (MAA)	Regulatory Article (RA) 3240 – Contingency Operations for Simultaneous Failure of Surveillance Radars and/or Air Traffic Management Communications Systems.
[Ref. 9]	CAP 1711	1	UK Civil Aviation Authority	Airspace Modernisation Strategy

GLOSSARY

Acronym	Definition
Aquila ATMS	Aquila Air Traffic Management Services Limited (Aquila ATMS Ltd)
ACAS	Airborne Collision Avoidance System
ACP	Airspace Change Process
ADEX	Air Defence Exercise
ADQ	Aeronautical Data Quality
AGL	Above Ground Level
AIP	Air Information Publication
ALARP	As Low As Reasonably Practicable
AMSL	Above Mean Sea Level
ANO	Air Navigation Order
AOI	Area Of Interest
ATC	Air Traffic Control
ATM	Air Traffic Management
ATS	Air Traffic Service
BHD	Berry Head (Airway reporting point designator)
CA	Commercial Aviation
CAA	Civil Aviation Authority
CAS	Controlled Airspace
CAP	Civil Aviation Publication
CO	Commanding Officer
CONOPS	Concept of Operations
CO ₂	Carbon Dioxide
COTS	Commercial Off The Shelf
CTA	Control Area
CTC	Corporate and Technical Centre (NATS – National Air Traffic Services)
DA	Danger Area
DAATM	Defence Airspace and Air Traffic Management
DAAIS	Danger Areas Information Service
DACS	Danger Areas Crossing Service
DDH	Delivery Duty Holder
EIA	Environmental Impact Assessment

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Acronym	Definition
FAASRR	FAA Safety Risk Register
FAQs	Frequently Asked Questions
FIR	Flight Information Region
FL	Flight Level
FOST	Flag Officer Sea Training
FPL	Flight Plan
ft / FT	Feet
FUA	Flexible Use of Airspace
GA	General Aviation
GAA	General Aviation Alliance
HGVs	Heavy Goods Vehicles
HMNB	Her Majesty's Naval Base
HMP	Her Majesty's Prison
idc	In due course
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
Km / KM	Kilometre
Kts	Knots
LARS	Lower Airspace Radar Service
LoA	Letter of Agreement
MAA	Military Aviation Authority
MAC	Mid-Air Collision
MOD	Ministry of Defence
MSA	Minimum Safe Altitude
NAS	Naval Air Squadron
NATMAC	National ATM Advisory Committee
NATO	North Atlantic Treaty Organisation
NATS	National Air Traffic Services
NCHQ	Navy Command Head Quarters
NLT	No Later Than
nm / NM	Nautical Mile
NOTAM	Notices to Airmen
ODH	Operating Duty Holder

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Acronym	Definition
ORA	Operational Risk Assessment
PLOG	Pilot's Log
PSR	Primary Surveillance Radar
RAP	Recognised Air Picture
RMZ	Radio Mandatory Zone
RNAS	Royal Naval Air Station
ROA	Rules Of the Air
SA	Situational Awareness
SARG	Safety and Airspace Regulation Group
SCXAs	South Coast Exercise Areas
SDH	Senior Duty Holder
SOPs	Standard Operating Procedures
SPLOT	Senior Pilot
SSR	Secondary Surveillance Radar
TBC	To Be Confirmed
TCAS	Traffic Alert and Collision Avoidance System
TI	Traffic Information
TLS	Target Level of Safety
TMA	Terminal Manoeuvring Area
TMZ	Transponder Mandatory Zone
TS	Technical Service (e.g. Technical Service 07 = TS 07)
UAS	Unmanned Air Systems
UK MOD	UK Ministry of Defence
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
WGS	World Geographic Standard

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1 INTRODUCTION

1.1 THE AIM OF THIS DOCUMENT

- (1) The aim of this document is to provide information with specific focus on Aquila's Temporary Airspace Change Proposal (ACP) providing answers to the questions that are commonly asked of most projects or ventures, namely:
 - (a) Who;
 - (b) What;
 - (c) Where;
 - (d) Why;
 - (e) How;
 - (f) When.
- (2) This document will:
 - (a) Describe the work that Aquila are undertaking on behalf of the UK MOD to upgrade and replace key surveillance sensors in the South Western Support Region, namely the Wembury Point and Portland Watchman Primary Surveillance Radars (PSRs).
 - (b) Deliver background and contextual information on matters relating to the proposal and explain the importance of sustaining the current realism and fidelity of the essential training task that is conducted by the UK MOD in the areas concerned.
 - (c) Provide details of the range of options which have been considered in order to provide a suitable mitigation for the reduction in Situational Awareness whilst the PSRs are unavailable.
 - (d) Explain why it is likely to take longer to complete the equipment upgrade work at these particular sites than it usually would to install and set-to-work a new PSR at a typical airfield site. Full details can be found at Section 4.1 on Page 26 of this document.
 - (e) Outline the proposed solution and provide details of the Stakeholder Engagement process followed by Aquila to help refine the proposed airspace design.

1.2 DOCUMENT STRUCTURE

- (1) The document sections are ordered and arranged so as to meet with CAP 1616 template requirements [Ref. 1] and include 14 x main sections, 25 x Appendices and 4 x Annexes as outlined below:
 - (a) Section 1 provides an introduction to the document and Project MARSHALL;
 - (b) Section 2 contains the Executive Summary and Implementation Schedule;
 - (c) Section 3 provides a description of the current airspace design;
 - (d) Section 4 outlines the need for the change and provides an explanation as to why Aquila are requesting an extended duration Temporary Airspace Change to complete the necessary work;
 - (e) Section 5 gives a detailed description of the proposed airspace;
 - (f) Section 6 considers the possible impacts of the proposed design and provides an overview of the 13 week Stakeholder Engagement activity conducted by Aquila. Elements such as Safety and Environmental are introduced here, but due to their size the formal responses to these areas are enclosed as stand-alone documents in their own Annexes;
 - (g) Section 7 outlines the various Design Options that were considered and describes how the Preferred Design Option further evolved following analysis of the feedback received during the stakeholder engagement (This is supported by examples of stakeholder engagement information contained in the Appendices to this document);

- (h) Section 8 Airspace Description Requirements Table;
- (i) Section 9 Safety Assessment - A stand-alone Safety Assessment is enclosed (See Annex 3);
- (j) Section 10 Operational Impact Table;
- (k) Section 11 Supporting Infrastructure/ Resources Table;
- (l) Section 12 Airspace and Infrastructure Table;
- (m) Section 13 Environmental Assessment Table referring out to an enclosed Environmental Assessment (also see Annex 4);
- (n) Section 14 Various Annexes and Appendices.

1.3 GENERAL

- (1) Aquila Air Traffic Management Services Limited (Aquila ATMS Ltd) are contracted to the UK Ministry of Defence (UK MOD) to provide a wide range of ATM services and equipment support at a number of UK and overseas sites as part of Project Marshall. The geographic locations of the main sites are shown at Figure 1 below.
- (2) The current military ATM infrastructure has provided exceptional service over several decades, but in many cases it is now approaching obsolescence and will soon be non-compliant with mandatory international regulations. It has also become extremely costly to support and much of the equipment no longer meets the UK MOD's availability requirements. Furthermore, the current equipment does not benefit from some of the commonly accepted ATM efficiency and safety tools.



- (3) The Primary Surveillance Radar (PSR) upgrade work at Wembury Point will involve the PSR being unavailable for a circa 9 month period. As soon as the PSR upgrade work is complete at Wembury Point the Portland PSR will then be taken offline for a similar duration. These PSR sensors make an important contribution to the surveillance data provision supporting the delivery of Air Traffic Services (ATS) to both military and civil aircraft by the controllers at the Plymouth Military (Plymouth (Mil)) Air Traffic Control Radar Unit located within Her Majesty's Naval Base (HMNB) Devonport, Plymouth. The airspace over the sea, where surveillance coverage is normally provided, is used by aircraft and Unmanned Air Systems (UAS) working with ships and submarines to conduct essential operational training in the South Coast Exercise Areas (SCXAs).

-
- (4) The unavailability of the Wembury Point and Portland PSRs during an extended period of refurbishment and upgrade will impact on the provision of key ATC services, as only aircraft equipped with (and operating) serviceable transponders will be visible to controllers when conducting “Secondary Surveillance Radar (SSR) only” operations. Whilst the PSRs are unavailable any non-transponding traffic within the airspace will not be detectable.
- (5) The proposal is to use strategically placed Transponder Mandatory Zones (TMZs) in areas where the Military aircraft conduct the majority of their activities and transits to provide both controllers and aircrew in any aircraft equipped with Airborne Collision Avoidance Systems (ACAS) with much greater Situational Awareness (SA) during the periods when only SSR surveillance data is available.
- (6) Impact upon GA traffic will be minimal as the proposed TMZs are predominantly superimposed over existing DAs and all over the sea.
- (7) As the current commercial and military flight profiles and routes will continue to be used as normal throughout the period of the works there will be no apparent change to the existing noise / tranquillity experienced by stakeholders or habitats in the ground environment. The Environmental Impact Assessment (EIA) (enclosed at Annex 4), has therefore been conducted on the basis of making qualitative assessments of the consequential CO2 emissions, noise, air quality and biodiversity impacts.
- (8) In an attempt to mitigate the loss of the key surveillance sensors, consideration was given to a number of different options, these deliberations are covered fully from Section 7.3 of this document. Following assessment against various criteria, the list was reduced to a single preferred option.
- (9) The phases of the preferred option can be summarised as follows:
- (a) Phase 1 - The establishment of two TMZs (TMZs A and B) during the period when the Wembury Point PSR is unavailable. Coverage from the legacy Portland PSR will remain available during this Phase.
 - (b) Phase 2 - The establishment of single TMZ (TMZ C) during the period when the Portland PSR is unavailable. Coverage from the upgraded Wembury Point PSR will be available during this Phase.
 - (c) If the proposal is approved by the CAA, Phase 1 of the proposed design would be implemented on 30 November 2021 (for a circa 9 month period), followed by Phase 2 implementation on 1 September 2022 (also for a circa 9 month period).
 - (i) As shown in Figure 2 below, the new equipment and associated infrastructure changes will be rolled out across a number of different categories known as Technical Service (TS) areas.

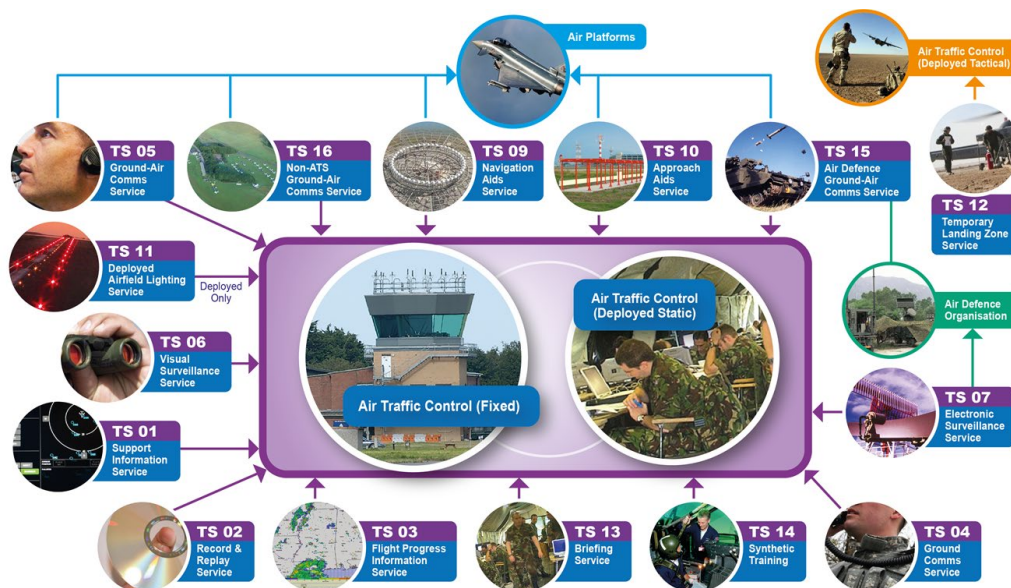


Figure 2 The Project Marshall Technical Services (TS)

- (10) Understandably, the programme underpinning the introduction of the new equipment and the delivery of the Technical Services (TS) is both extensive and complex. In the case of this airspace change it is being proposed in order to assist with the introduction of new equipment assets and upgrades as part of the Electronic Surveillance Service known as Technical Service (TS 07).
- (11) As a minimum, the delivery of this equipment and capability transformation will involve:
- Obtaining the necessary site clearances and any planning or development permissions required,
 - Completion of any new infrastructure and groundworks,
 - Completing the install / integration, testing, acceptance into service activities and operator / maintainer training on the new systems (some of which are first of type installations), and
 - Removal and decommissioning of any legacy equipment.
- (12) As part of the extensive equipment replacement programme in the South West of the UK, Aquila are proposing to introduce Temporary Changes to the airspace encompassing the Portland and Plymouth South Coast Exercise Areas (SCXAs) / Danger Areas (DAs) and a small portion of the Class G airspace that lies between these blocks.

2 EXECUTIVE SUMMARY

- (1) In support of the UK MOD's Project Marshall ATC equipment replacement and upgrade programme of work, Aquila is making this application to the CAA for a Temporary Airspace Change in accordance with the Temporary Airspace Change process outlined in [Ref. 1] - CAP 1616 (Part 1a).
- (2) Aquila's approach throughout has been to develop the design of the proposed airspace constructs by closely following many of the key stages in the process specified in CAP 1616 (Part 1) for the Permanent Airspace Change. By doing this, Aquila has attempted to mirror a much more demanding process, using it as a 'hand-rail' to ensure submission of a comprehensive proposal which meets with established 'best-practice' principles. Whilst not a pre-requisite for a Temporary Change application, Aquila decided to develop Design Principles and complete a full Options Development and Assessment Stage with stakeholders in support of this proposal,
- (3) The airspace under consideration is entirely over the sea and overlays many of the Plymouth and Portland South Coast Exercise Areas (SCXAs) / Danger Areas (DAs) and an area of the Class G airspace that lies between these blocks.

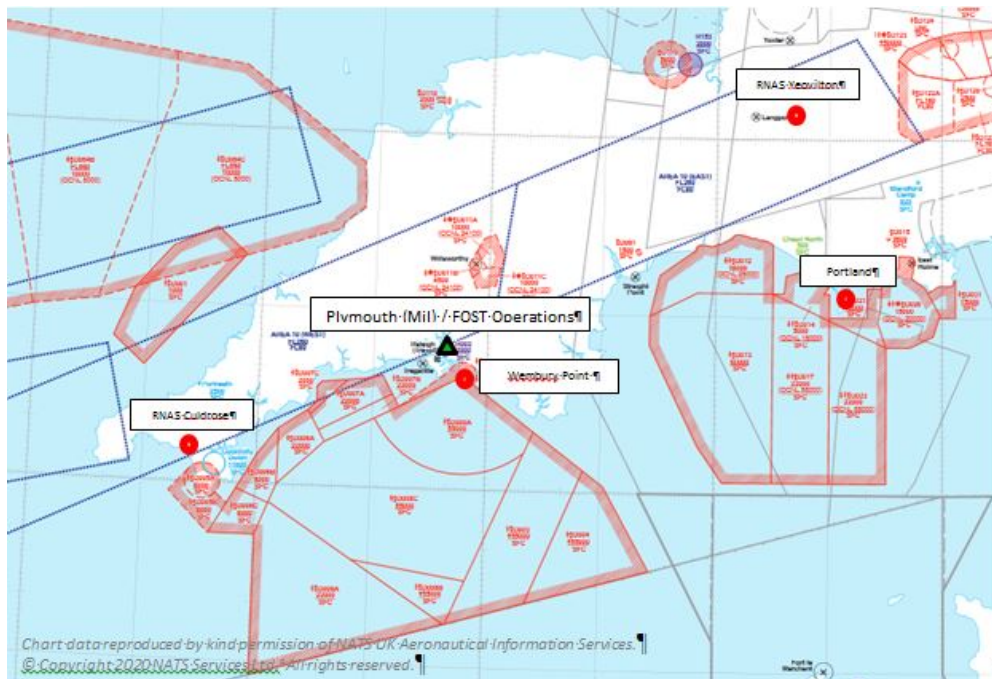


Figure 3 The Sensors contributing ATC data to Plymouth (Mil)

2.1 THE ISSUE BEING ADDRESSED

- (1) The two radar site inputs which are the most critical to the provision of the above services within the sea areas off Plymouth and Portland are the ones located at Wembury Point and Portland shown as red dots in Figure 3 above, and they are due to undergo extensive upgrade and replacement work in accordance with the schedule at Figure 4 below during the period Q4 2021 – Q2 2023.

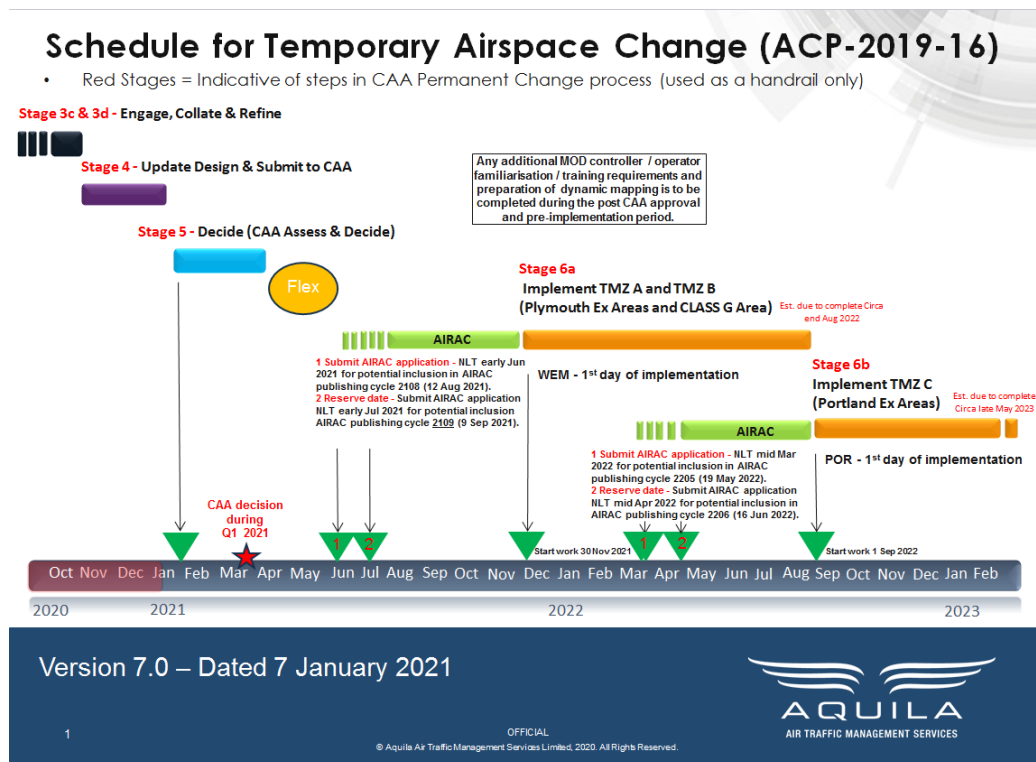


Figure 4 The Schedule for the Temporary Airspace Change

- (4) The prime objective is to ensure that the UK MOD can continue to deliver essential operational maritime training in these exercise areas for the duration of the essential upgrade and replacement work, when some of the legacy ATC PSR sensors supporting this activity will be unavailable.
- (5) The transition from the 'old to the new' surveillance equipment is complex, and forms part of a much larger programme of activities involving many inter-dependencies. In the absence of the Wembury Point and Portland PSR sensors it becomes necessary to consider how best to manage the loss of this significant contribution to the surveillance of the Recognised Air Picture (RAP) and where possible to mitigate the resulting reduction in situational awareness for the benefit of all airspace users.

2.2 THE PROPOSED SOLUTION

- (1) As the change Sponsor, Aquila is concerned with trying to ensure that the UK MOD can continue to deliver operational training without impacting the safety of airspace users. The aim has been to try and achieve this objective whilst also ensuring compliance with airspace policy documentation to deliver a proportionate, least restrictive and flexible solution option for consideration. Aquila has worked collaboratively with key stakeholders, engaging with the UK MOD and members of the General Aviation (GA) community in accordance with the guidelines in the CAA's Airspace Design Document (CAP 1616) and a number of potential solution options have been considered.
- (2) The preferred solution option was refined during the conduct of a 13 week formal public engagement period. In response to the feedback received some adjustments were agreed to the initial proposal as they did not impact upon safety. These changes involved the exclusion of some coastal / overland extensions of Danger Areas airspace from the proposed TMZs, a reduction of the vertical limits of the proposed TMZs and the provision of flexible activation times for the airspace concerned. These amendments do not compromise the objectives of providing both controllers and all aircrew with greater situational awareness when using Secondary Surveillance Radar (SSR) only data, during the extended period whilst the legacy Primary Surveillance Radar (PSR) sensors are being upgraded.
- (3) The proposed solution involves the establishment of three Transponder Mandatory Zones (TMZs). Two of these TMZs (TMZs A and B) will be activated during Phase 1 (to cover the Wembury Point PSR upgrade works), and the other TMZ (TMZ C) will be activated during Phase 2 (to cover the Portland PSR upgrade works). The proposed TMZ areas are shown below at Figure 5.

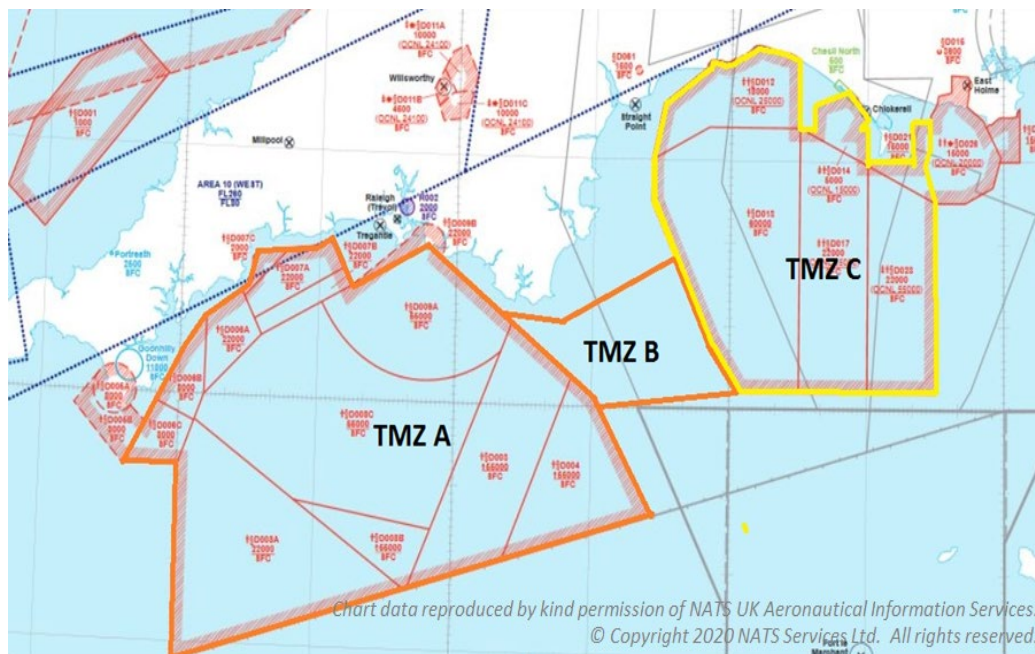


Figure 5 The proposed TMZs

- (4) A detailed explanation of why a longer than usual Temporary Airspace Change duration is being requested is provided at Section 4.1 of this document.

-
- (5) The selection of the proposed TMZ constructs aligns with the CAA's Safety and Airspace Regulation Group Policy Statement for TMZs (Dated 14 Aug 2015 – ([Ref. 2] - See Annex 2), which states *"Where additional measures to enhance flight safety are required, but the establishment of a more restrictive classification of airspace is not warranted, proportionate measures are necessary. Such measures include the establishment of either an RMZ or a TMZ. The creation of an RMZ/TMZ allows the airspace to retain its original classification, yet also allows for enhanced situational awareness for all users and for ATC. This therefore increases safety for all aircraft flying in that block of airspace while imposing minimal additional restrictions."*
 - (6) It is anticipated that Aquila's proposed solution will be able to provide an effective and proportionate mitigation to the temporary loss of the PSR data during the periods that the systems at Wembury Point and Portland are unavailable.
 - (7) All TMZs are designed as Surface to FL100, except the portion of TMZ B that is underneath Class A airspace, which will be Surface to FL85 beneath the Class A.

3 CURRENT AIRSPACE DESCRIPTION

- (1) The chart extract below at Figure 6 shows the current Plymouth Danger Areas complex. The complex consists of a number of individual, conjoined Danger Areas (EG D003, EG D004, EG D005A, EG D005B, EG D006A, EG D006B, EG D006C, EG D007A, EG D007B, EG D007C, EG D008A, EG D008B, EG D008C, EG D009A, and EG D009B).

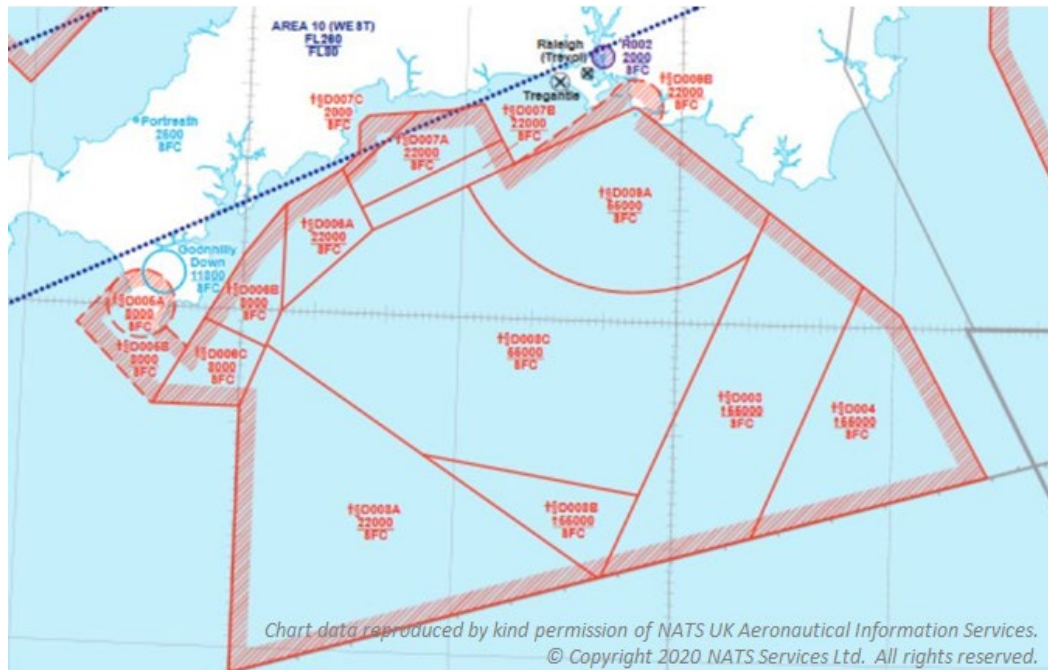


Figure 6 The current Plymouth Danger Areas complex

- (2) The area between the Plymouth and Portland Danger Area (DA) blocks (in the vicinity of the area circled in green at Figure 7 below), has an area of Class G airspace, with a corridor of Controlled Airspace (CAS) along its eastern side. This CAS (Airway N862) has a base level of Flight Level 85 (and runs approximately north west / south east. To the south of the 50N line (in the vicinity of the SKERY reporting point) the CAS joins the Channel Islands CTA and TMA which extends further to the south and east as shown on the chart extract below.
- (3) To the north of the Berry Head (BHD) reporting point (shown as a Blue Triangle at Figure 7 below) the airway divides, N862 diverges to the north east slightly and continues with a base level of Flight Level 105 towards the LAMAT reporting point near Weston-Super-Mare. The other fork is designated N864 and follows a more northerly track towards the EXMOR reporting point and the Cardiff Control Zone (CTZ) initially with a base of Flight Level 65.

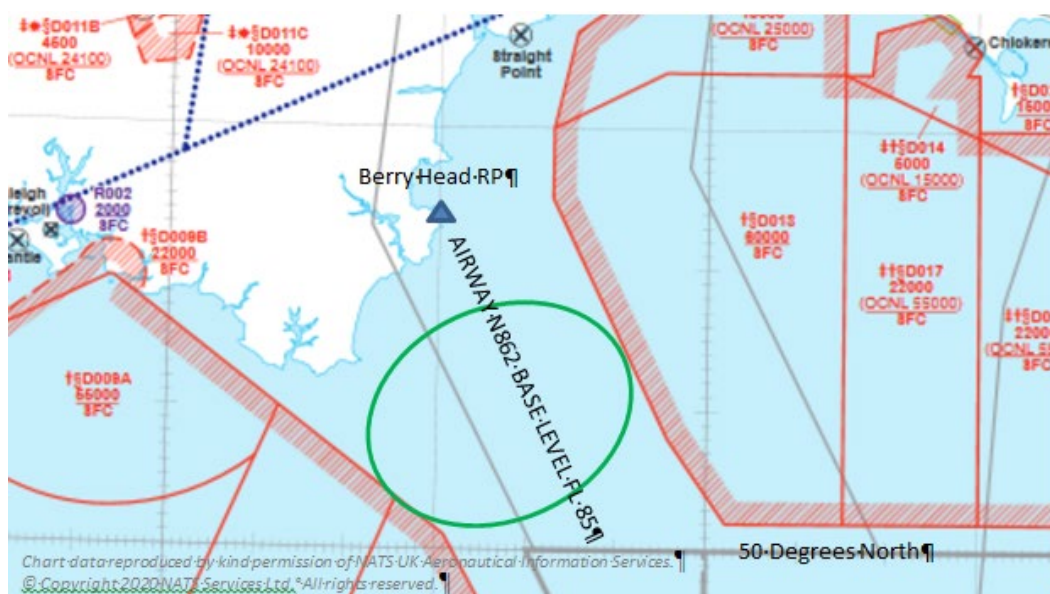


Figure 7 The current Class G airspace between the Plymouth and Portland DAs

- (4) The Portland Danger Areas (DAs) complex shown in the chart extract below at Figure 8 also comprises a number of individual, conjoined DAs. These include EG D012, EG D013, EG D014, EG D017, EG D021, EG D023, EG D026, and EG D031.

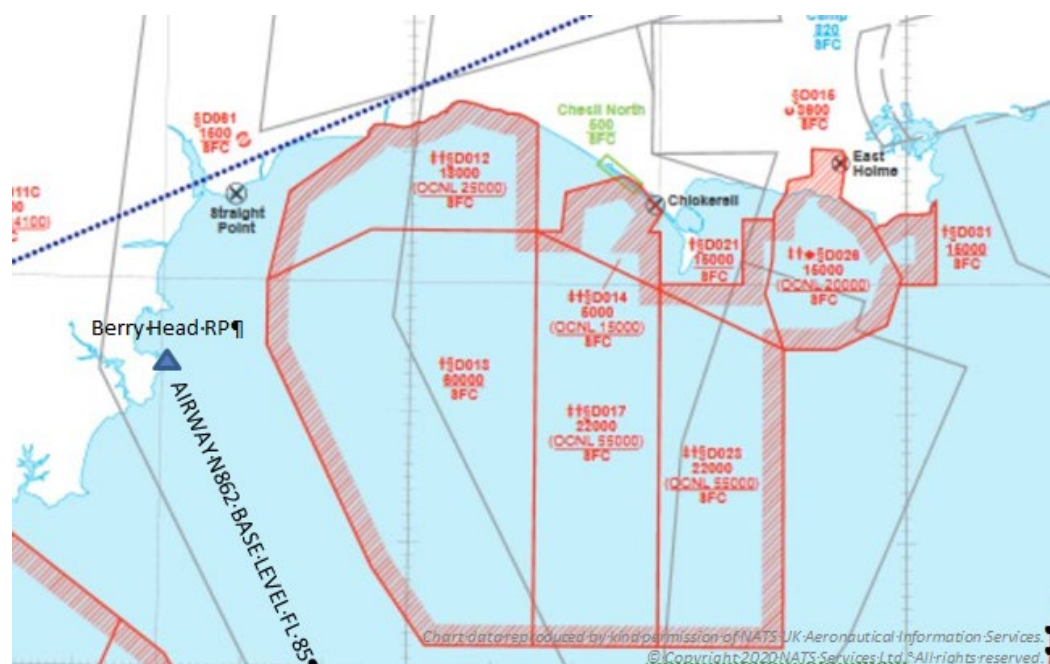


Figure 8 The current Portland Danger Areas complex

3.1 STRUCTURES AND ROUTES

- (1) Several civil air routes / Controlled Airspace (CAS) interact with the DAs but no changes are envisaged to their operation or the routing of traffic as a result of the proposed change. They will remain available for use as normal through the advance submission of a Flight Plan (FPL) or tactically in the usual manner through co-ordination with the relevant controlling authorities.
- (2) Though of course excluded from the TMZs, of key regard to this ACP are Airways N862 / N864, which are regularly used by Commercial and General Aviation traffic. Heading south, these airways merge at Berry Head and thereafter continue as N862 running approximately north-south with a base level of FL85 adjacent to proposed TMZs B and C. Within EG D012 Airways N17 and L620 with a base level of FL195 converge towards the DAWLY reporting point from OTMET and GIBSO respectively. Conditional routes nearby include N90, Y91, and N866.

3.2 AIRSPACE USAGE

- (1) The Plymouth and Portland DAs airspace accommodate many of the following activities during the Flag Officer Sea Training (FOST) training serials:-
 - (a) Air Combat Manoeuvres
 - (b) High Energy Manoeuvres
 - (c) Close Formation Flying
 - (d) Helicopter Flying - Sonar-buoy / torpedo drops
 - (e) High and Low level attack profiles
 - (f) Radar and Communications jamming
 - (g) Chaff and Flare usage
 - (h) Target Towing
 - (i) Live weapons firing from surface vessels
 - (j) Unmanned Air Systems (UAS) operations
 - (k) Parachute drops
- (2) The Plymouth and Portland DA complexes provide a suitable training environment for operational maritime and aviation training involving ships, submarines, fast jet aircraft, helicopters and Unmanned Air Systems (UAS) which are used to develop a wide range of realistic threat simulations and maritime / aviation support training scenarios both for the Royal Navy and for the naval forces of other International partners and NATO allies.
- (3) The Class G airspace between the Plymouth and Portland DA complexes is commonly used by military helicopters and fast jet traffic conducting transits between the DA blocks under Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) and experiences low volumes of civilian GA aircraft routeing to and from continental Europe and the Channel Islands.
- (4) The loss of PSR coverage, first from the Wembury Point sensor and then from the Portland sensor, will severely reduce the situational awareness of ATC controllers working both military and civilian traffic in this airspace.
- (5) If a TMZ solution is approved then (subject to coverage), cooperative, transponder equipped traffic will be detectable by the Secondary Surveillance Radar (SSR) allowing the controllers to deliver a limited radar service using SSR only in accordance with Regulatory Article RA 3241[Ref. 7]. Aircrew whose aircraft are equipped with an Airborne Collision Avoidance System (ACAS) will also have situational awareness independent of any available ground based radar system information and this reduces the risk of a Mid Air Collision (MAC) with any non-transponding traffic.
- (6) Traffic should, therefore, be able to continue to operate as near-normal as possible within the DAs and Class G airspace between them with a Danger Areas Activity Information Service (DAAIS) and Danger Areas Crossing (DACS) still being able to be provided. Arrangements can be made for aircraft which are either non-transponder equipped or have an unserviceable transponder via making contact with the controlling authority thus enabling them to make a conditional transit of the TMZs when activated.
- (7) The nearest Controlled Airspace (CAS) is Airway N862 which has a base level of FL85 in the vicinity of the proposed airspace change. Whilst this is quite a busy route carrying a mixture of Commercial and GA traffic to and from continental Europe and the Channel Islands, a good working relationship based on sound working level agreements and practices has been built up over many years between the Civil Sector controllers and the military ATC teams at both Plymouth and Swanwick.
- (8) The proposal has no affect on current CAS operations.

3.3 OPERATIONAL EFFICIENCY, COMPLEXITY, DELAYS AND CHOKE POINTS

- (1) A tried and tested Concept of Operations (CONOPS) for the safe and efficient use and operational management of the military training areas concerned has been established and developed by the UK MOD over many years. It is assessed that no specific issues with operational efficiency, complexity, delays or choke points need to be addressed as part of this change.

3.4 SAFETY ISSUES

- (1) The key issue to be addressed by this proposed ACP is the reduction in situational awareness during the unavailability of the Wembury Point and Portland Primary Surveillance Radars (PSRs). This planned outage will last for approximately 9 months for each site in series whilst they undergo essential upgrade periods. A panel of safety and operations experts conducted an Operational Risk Assessment (ORA) and concluded that during the period of PSR unavailability there is an increased risk of Mid-Air Collision (MAC) from any undetected non-transponding traffic. This can be mitigated by the introduction of TMZs to provide the controllers and aircrew users with suitable SA during Secondary Surveillance Radar (SSR) only operations.
- (2) There are no other specific safety issues within this area of airspace related to current operations to be resolved by this proposal. Ensuring a tolerable Target Level of Safety (TLS) is maintained throughout the period of the proposed PSR equipment outages is the priority for the UK MOD and Aquila alike.
- (3) Full details of the Safety Assessment / Operational Risk Assessment (ORA) can be found at Annex 3 of this document.

3.5 ENVIRONMENTAL ISSUES

- (1) There are no specific environmental issues resulting from the current operations within this area of airspace to be addressed. Full details of the Environmental Assessment can be found at Annex 4 of this document.
- (2) Given that the volume of civilian traffic transiting the areas concerned was assessed to be low, and that the MOD will maintain the provision of crossing / transit services throughout the period of establishment of the proposed TMZs (even to non-equipped traffic), any re-routing of GA or military traffic is extremely unlikely.
- (3) If the “do nothing” option were to be followed, or the application for the proposed TMZs be refused, it may be necessary to move the activities to other areas further to the west. This would result in a significant increase in track mileage and fuel burn for both the aircraft and the ships involved and the repetition of key serials to compensate for any reduction in the ‘time on task’ for the MOD’s contracted Falcon aircraft which participate in the operations from their base at Bournemouth Airport. Any reduction in SA could also result in the additional re-routing of tracks within the airspace concerned.

4 STATEMENT OF NEED

- (1) The proposed Temporary Airspace Change within the Plymouth and Portland Danger Areas has become necessary to enable the activities detailed in Section 3.2 to continue to be accommodated during a period of Primary Surveillance Radar coverage unavailability. The proposed TMZ across the portion of Class G airspace between the DA blocks will also provide situational awareness across a frequently used transit route. With a large number of ships and aircraft operating in close proximity to each other, the safety oversight and de-confliction of the various activities and training serials must be carefully managed and choreographed by experienced Air Traffic Controllers and Operations Officers from the staff of Flag Officer Sea Training (FOST) located in HMNB Devonport. The availability of surveillance data from the sensors at Wembury Point and Portland, therefore, plays an important part in achieving the UK MOD's training objectives.
- (2) Plymouth (Mil) provides ATS to civil and military traffic in The SCXAs and the surrounding airspace, utilising radar feeds from Wembury Point and Portland, amongst other sites. To achieve future regulatory compliance and improve system performance and availability, the Wembury and Portland surveillance equipment is due to undergo planned replacement and upgrade work. During this work there will be necessary periods of Primary Surveillance Radar (PSR) unavailability.
- (3) The impact of PSR unavailability on the RAP currently provided, is that any non-transponding traffic entering the DAs or operating within the Class G airspace between them will no longer be visible to controllers when using SSR data only. Due to the nature of the airspace and the activity in the areas concerned, it is essential that the safety of the military and GA traffic is preserved by enhancing the situational awareness available to the controllers at Plymouth (Mil) during the PSR outages. This requirement can be addressed through the introduction of Temporary Airspace Changes which will allow all airspace users to benefit from mitigated situational awareness with SSR surveillance when operating within the existing Plymouth and Portland Danger Area blocks or transiting through the Class G airspace which lies between them (to the south east of Start Point).
- (4) Any measures incorporated in the design of the Temporary Airspace Changes will be proportionate to meet the above needs and applied flexibly so as to minimise any potential inconvenience to airspace users.
- (5) The proposed airspace change will not conflict with the UK's Airspace Modernisation Strategy [Ref. 9].
- (6) The equipment upgrade activity in the South West forms part of a much larger programme of work and, as a result, the scheduling may be subject to change.

4.1 WHY IS A TEMPORARY AIRSPACE CHANGE LASTING LONGER THAN 90 DAYS FOR EACH SITE NECESSARY?

- (1) As a Joint Venture (JV) between NATS and Thales, Aquila can draw upon a wealth of specialist surveillance system installation and system support experience to deliver Project Marshall in the most expeditious manner.
- (2) The period of time required to complete the upgrade work has been realistically estimated at circa 9 months for each of the two sites. It is possible that the Portland timescale may be reduced slightly, as a result of the improved system integration knowledge and experience gained during the preceding Wembury Point upgrade. These estimates were produced after careful consideration of the many additional constraints likely to impact these particular site schedules, factoring in the adverse conditions that make working at these locations a challenge.
- (3) Aquila will ensure that the important upgrade activities are completed as quickly as possible to minimise the impact of outages..
- (4) All UK MOD operational training delivery is subject to exacting safety standards and it is incumbent on all participants to remain within the strict limits specified in the relevant Safety Cases and Standard Operating Procedures (SOPs) / Concept Of Operations (CONOPS) documentation when executing their training tasks.
- (5) Without effective airspace mitigation, the conduct of this tasking during an extended period of known PSR surveillance unavailability would be severely restricted or curtailed. The establishing of the TMZs to cover the periods of upgrade work, allows a safety case for the delivery of military training to continue.
- (6) At most aerodrome sites, the build period from starting the ground works, through the construction of a radar tower and installation of a new PSR antenna, can fit within the much shorter timeframe specified for a normal Temporary Airspace Change request. However, at the Portland and Wembury sites, it is necessary to upgrade existing equipment which has no suitable replacement. This makes the project far more complex and is the reason for the longer timeframe.
- (7) On a typical aerodrome site the location of the legacy PSR and the site for the new PSR are often physically separated. This allows the construction and optimisation / installed performance testing of the new antenna and supporting infrastructure to be progressed as a parallel activity, without any interruption to the service delivery. What follows then is a 'seamless' switch-over from the old to the new systems at an appropriate time.
- (8) Due to the nature of the UK MOD task being conducted in the South West region, the performance requirement specification for the RNAS Culdrose, Wembury Point and Portland Watchman PSRs is considerably different to that of a standard military aerodrome PSR. The legacy systems installed in the South West were specifically designed to meet the needs of the Royal Navy (RN) with the incorporation of an additional "Seawatch" processing channel, enabling the detection and tracking of air contacts over the sea, as well as providing visibility of any surface contacts which may be present within this high clutter environment. These are essential enablers for the delivery of the operational sea training.
- (9) The new PSRs being supplied to sites elsewhere as part of Project Marshall are a cost effective Commercial Off The Shelf (COTS) solution which is relatively quick to install and commission into service, but they can not deliver the specialised capability required at these RN sites.
- (10) The work to develop this type of new PSR to deliver a similar bespoke capability as the legacy systems, across such a small number of sites, was not considered to be a cost

effective option. It was, therefore, decided that the legacy PSRs should be retained and upgraded in order to meet these enduring specific performance requirements.

- (11) In this case, the Wembury Point and Portland antennae and their electronic sub-systems equipment and infrastructure are not 'factory fresh'. Much of the system is circa 40 years old technology, and being 'suitably (salt-water) weathered' many components will require careful refurbishment. This work may need to be undertaken in sub-optimal exposed conditions on-site, if moving the larger pieces of equipment back to a factory site is not logistically viable.
- (12) The technology used to 'combine' the radar data received from all the various sites into a composite picture is also a 'one-off' bespoke design of a similar age. This essentially makes the integration task akin to a 'first of type' installation with all the associated additional risk that comes with any integration activity of older equipment of this kind. The Integration, optimisation and validation of these older systems is highly likely to take much longer to complete, and achieve a successful Flight Check outcome, than a more modern system where much of the 'setting to work' and data analysis is automated.
- (13) The environmental conditions must also be factored; this is especially the case as Wembury Point and Portland are essentially elevated 'cliff-top sites' which leaves them exposed to the worst of the British weather. This can quickly 'consume' any contingency allowance made in both the schedule and the budget for the PSR upgrade work. There is also a PSR schedule dependency linked to the successful completion of the installation and setting to work of the new SSRs (RSM 970) and tower constructions at both sites which are essential pre-cursors to the commencement of the PSR upgrade work.



Figure 9 Wembury Point radar tower, compound and restricted access route.

- (14) Road access to both sites is severely restricted. The 'winding' country lanes leading to the Wembury point site (shown in Figure 9 above) have been surveyed and are extremely narrow, being bounded by immovable vegetation-covered stone banks on either side. Access to the site can also be restricted by visitors to the clifftop walks parking illegally and blocking the access roads. Deliveries to site are at risk and local traffic control measures will be required. Liaison with Devon & Cornwall police is already underway to try and reduce the problems which may be caused by this. As shown in the images at Figure 10 below, access to the Portland PSR compound is also extremely difficult. The legacy PSR compound is set within the confines of Her Majesty's Prison (HMP) Verne. The access involves a steep climb with a number of tight 'switchbacks'

being required to pass through a housing estate to reach the site on the summit which is some 400 ft AMSL.



Figure 10 Portland Radar tower and restricted access route

- (15) As illustrated by Figure 11 below, the main entrance to the prison is via a very narrow tunnel which further restricts access. Cabins and equipment loaded on HGVs will not fit through this tunnel and all loads will therefore have to be offloaded by a large mobile crane situated on the outside of the perimeter walls then lifted over the walls back onto a flatbed trailer parked within the citadel walls.



Figure 11 The narrow entrance tunnel into HMP Verne and the lorry offload plan via craneage necessary to avoid it.

- (16) Historically, use has occasionally been made of the MOD's heavy-lift helicopter capability (shown at Figure 12 below) to airlift some equipment and empty cabins to site, but this is not without risk to the sometimes delicate equipment being transported. Before carriage is even considered, each internal or underslung load must be rigorously assessed at the Joint Air Delivery Test and Evaluation Unit (JADTEU), RAF Brize Norton in Oxfordshire. These tests help ensure that the load does not constitute a hazard in flight and they assess the weight, balance / Centre of Gravity (C of G), structural integrity and 'flight' characteristics of each load before carriage certification. Even if a load is approved for aerial delivery, achieving the safe carriage by air to site is not a given, and remains subject to weather conditions and the operational availability of the helicopter, aircrew and ground crew personnel.



Figure 12 Restricted access can be a real problem.

- (17) In view of the above access to site constraints, all the tasks that would normally be completed using heavy plant, lifting equipment and deliveries by HGV (as illustrated at Figure 13 below) can be expected to take much longer. To reduce weight for lifting within smaller crane operating limits, any structures required might have to be designed so that they can be broken down and lifted into place in smaller sections, cabins may have to be delivered to site without their internal fittings, equipment racks and air conditioning units pre-installed. This is much less efficient as it further adds to the on-site fitting-out task list and extends the schedule. Local inhabitants in the vicinity of both sites also need to be considered and it might be that a daily quota of site delivery traffic is required in order to reduce the risk of site traffic causing disturbance and traffic delays during peak times.



Figure 13 The normal methods of transfer of materials to site and infrastructure construction are likely to need adaptation.

- (18) In summary, it can be seen that the challenging working conditions at these sites will drive considerably longer implementation to completion schedule times than installations at a regular aerodrome location.
- (19) The proposed TMZ A and TMZ C are to be established over existing DAs, and will, therefore, have no impact on GA. TMZ B (Class G airspace between the two DA blocks) is only proposed during Phase 1, enabling suitable situational awareness during the busier planned training activity windows when Wembury Point PSR is unavailable.
- (20) The 9 month period of Phase 1 equates to approximately 39.13 weeks. Broken down this becomes approximately 242 days, of which (excluding weekends) there are approximately 175 working days.

-
- (21) Should the usual FOST peak training activity days of Tuesdays and Thursdays be required every week for 100% activation of TMZ B, then this would amount to circa 80 days usage in total.
- (22) On those 80 days the likelihood is that only a few hours morning and afternoon on a Tuesday and Thursday will actually be required, leaving TMZ B inactive for the remaining time. Even when activated, TMZ B will still remain available for transits in the normal manner by all traffic (subject to traffic de-confliction).
- (23) Allowing for any other additional shorter-term periods of use which may be required for training serials on the remaining weekdays (and the occasional requirement to re-schedule the normal Tuesday / Thursday serials to accommodate bad weather, etc.), it can be seen that, although the 9 month overall duration of the works at each site might extend well beyond the normal 90 day limit set by the CAA for a temporary change, where possible every attempt has been made by the Sponsor to minimise the actual impact periods resulting from conducting these essential works. It is acknowledged that this is particularly important for TMZ B, where considerable efforts have been made to propose a flexible solution.

5 PROPOSED AIRSPACE DESCRIPTION

5.1 THE PROPOSED TMZ AIRSPACE

- (1) It would clearly be overly restrictive and impractical to suggest the establishment of TMZ airspace across all the areas along the South Coast and the overland South West peninsula which might be impacted by the loss of the Wembury Point and Portland PSR coverage. Analysis of the risks associated with the removal of PSR coverage, has identified that there would be an increased potential of MAC for aircraft supporting essential maritime operational training activity, which will obviously be concentrated over the sea.
- (2) It was, therefore, decided to focus on establishing TMZ airspace only in those key areas where it is critical to replace the lost SA when using SSR only data.
- (3) This led to the selection of the areas where the military fixed-wing aircraft regularly support the maritime operational training serials, relying on the ATS and SA provided by Plymouth (Mil). Restricting the TMZ establishment to only being over the sea, minimises the impact upon GA.
- (4) Much of the proposed TMZ airspace over lies the existing boundaries of airspace already designated as UK MOD Danger Areas. Therefore, the airspace involved will be operationally managed throughout by FOST Operations / Plymouth (Mil) ATC staff.
- (5) Reducing the potential for MAC, which will exist during outage periods when the PSR data is not available, is critical to maintaining safe activity. The establishment of a TMZ during these times, will replace the lost SA and allow the controller to provide an appropriate ATS. This SA is also required for the controllers at Plymouth (Mil) to continue to provide a Danger Area Crossing Service (DACS) to both civil and military users.
- (6) The TMZ over the Plymouth DAs is designated as TMZ A and the TMZ over the Portland DAs as TMZ C.
- (7) There is also a portion of Class G airspace, which varies between approximately 17nm and 22nm wide and lies between the Plymouth and Portland DA blocks. Although not used regularly by civilian transit traffic, it is routinely transited by military aircraft during certain maritime training serials, as the aircraft cross between the Portland and Plymouth DA blocks.
- (8) As part of the stakeholder engagement process, initial discussions were held with representatives of the military and civilian aircrew who fly the training serials, as well as the ATC controllers / operations managers who organise and control the UK MOD's operational training activities. This allowed Aquila, as the Sponsor, to understand their flight profiles alongside any technical and operational management challenges, before drafting the requirements that the proposed airspace constructs would have to meet.
- (9) As a regularly used crossing point, the establishment of a TMZ in this area of Class G airspace is critical to the replacement of lost situational awareness when conducting SSR only operations. This area is designated as TMZ B; three different lateral options for its design were considered and are described in Paras 7.5.1 through 0.

5.2 THE PHASES OF THE PROPOSED AIRSPACE CHANGES

- (1) The equipment upgrade work is divided into two separate phases; the first phase is established to cover the PSR outage during work at the Wembury Point site and the second phase for the work at the Portland site.
- (2) The straight line distance between the two geographically separate surveillance sensor site locations (approximately 65 nm) makes it necessary to establish bespoke TMZ configurations for each phase of the upgrade works.

5.3 PHASE 1 – WEMBURY POINT

- (1) Phase 1 covers the duration of the Wembury Point equipment upgrade and will involve the establishment of a TMZ across elements of the existing blocks of airspace commonly known as the Plymouth Danger Areas. For the purpose of this document, this TMZ will be known as TMZ A.
- (2) A second TMZ known as TMZ B will also be activated during Phase 1 to provide a link from the eastern edge of TMZ A to the western edge of the Portland DA block, effectively providing controllers and aircrew transiting between the DAs with replacement situational awareness when reliant on using SSR only.

5.3.1 TMZ A Lateral Limits.

- (1) The lateral limits for TMZ A are shown below on the chart extract enclosed at Figure 14 below.

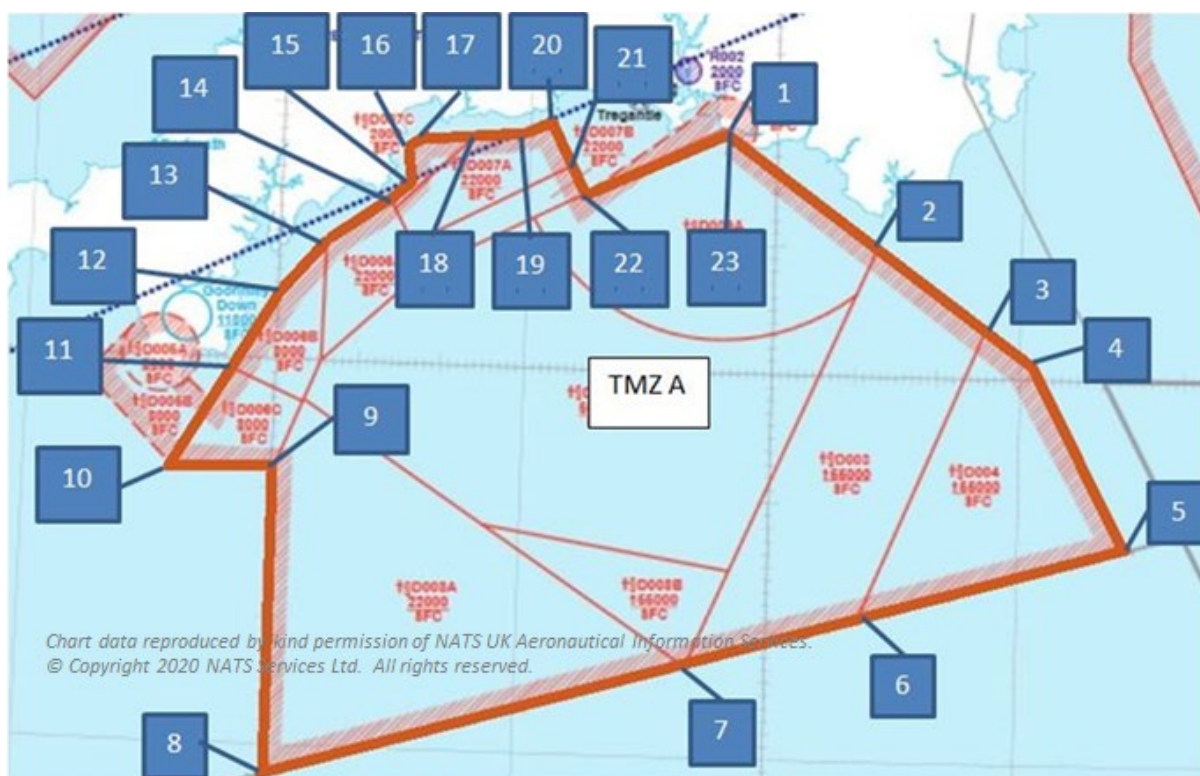


Figure 14 Lateral limits of TMZ A during Phase 1.

- (2) Detailed WGS 84 Spheroid co-ordinates for the numbered vertices of TMZ A in Figure 14 above are shown in Table 1 below.

- (3) Copies of the CAA Aeronautical Data Quality (ADQ) Validation Tables are included within this document at Appendix A.3.
- (4) EG D 005A, EG D 005B (in the vicinity of Predannack Airfield and Lizard Point) and EG D009B (adjacent to Wembury, Plymouth) were excluded from the proposed TMZ A construct following feedback received during the engagement process.
- (5) As the boundaries of TMZ A are contiguous with the boundaries of the pre-existing Plymouth Danger Areas it was considered that there should already be adequate airspace buffers established which satisfy the continuance of the current operations and activity being conducted in the DAs.

Table 1 WGS-84 Co-ordinates for TMZ A during Phase 1.

TMZ A Point	Latitude	Longitude
Point 1	501904.00N	0040633.00W
Point 2	501001.00N	0034740.00W
Point 3	500339.00N	0033430.00W
Point 4	500103.00N	0032910.00W
Point 5	494653.00N	0031655.00W
Point 6	494105.00N	0034912.00W
Point 7	493719.00N	0040938.00W
Point 8	492745.00N	0050000.00W
Point 9	495124.00N	0050000.00W
Point 10	495124.00N	0051200.00W
Point 11	495906.6162N	0050505.9954W
Point 12	500500.00N	0045948.00W
Point 13	500924.00N	0045430.00W
Point 14	501244.00N	0044659.00W
Point 15	501414.00N	0044441.00W
Point 16	501647.00N	0044447.00W
Point 17	501733.00N	0044334.00W
Point 18	501801.00N	0043643.00W
Point 19	501820.00N	0043152.00W
Point 20	501857.00N	0042738.00W
Point 21	501550.00N	0042458.00W
Point 22	501342.00N	0042309.00W
Point 23	501904.00N	0040633.00W

5.3.2 TMZ A Vertical Limits.

- (1) TMZ A will extend from the Surface (Mean Sea Level) to FL100.

5.3.3 TMZ A Activation Periods.

- (1) Phase 1 is scheduled to commence on 30 November 2021 and complete in late August 2022, with TMZ A activation mirroring these dates.
- (2) TMZ A is proposed to be established within the boundaries of published DAs and, to avoid any confusion, the TMZ airspace will be activated in line with the DAs published operating hours. These are currently Monday to Thursday 0800-2359 (0700-2300), Friday 0800-1600 (0700-1500) and as activated by NOTAM. Figures in brackets represent daylight saving hours.
- (3) Activation will be managed by the Danger Area Authority (HQ Navy) via the AIRAC cycle and times published by NOTAM. The first choice and reserve AIRAC cycle dates being targeted are shown in the schedule diagram at Figure 4.
- (4) Another corridor of TMZ airspace is also proposed to be established by this ACP across the Class G airspace between the eastern side of the Plymouth DA block and the western edge of the Portland DA block for the duration of Phase 1. This TMZ will be known as TMZ B.
- (5) TMZ B is orientated approximately east – west and passes beneath the existing airway route N862.

5.3.4 TMZ B Lateral Limits.

- (1) The lateral limits for TMZ B are shown on the chart extract enclosed at Figure 15 below.



Figure 15 Lateral limits of TMZ B during Phase 1.

- (2) Detailed WGS 84 Spheroid co-ordinates for the numbered vertices of TMZ B in Figure 15 above are shown in Table 2 below.

- (3) Copies of the CAA Aeronautical Data Quality (ADQ) Validation Tables are included within this document at Appendix A.3.
- (4) TMZ B is established within Class G airspace and is bounded by DA airspace on both its eastern and western boundaries making the establishment of buffer zones unnecessary, as traffic within these areas should already be known to the controllers at Plymouth (Mil).
- (5) The southern border is located well offshore and close to the CAS of the Channel Islands CTA. It was therefore assessed unlikely to encounter non-transponding traffic in the vicinity of this boundary.

Table 2 WGS-84 Co-ordinates for TMZ B during Phase 1

TMZ B	Latitude	Longitude
Point 1	501103.2056N	0034949.1088W
Point 2	501000.00N	0033600.00W
Point 3	501830.3620N	0031230.8118W
Point 4	500800.00N	0030430.00W
Point 5	500200.00N	0025800.00W
Point 6	500000.00N	0032815.2371W
Point 7	500103.00N	0032910.00W
Point 8	501103.2056N	0034949.1088W

5.3.5 TMZ B Vertical Limits.

- (1) TMZ B will extend from the Surface (Mean Sea Level) to FL85.

5.3.6 TMZ B Activation Periods.

- (1) Phase 1 is scheduled to commence on 30 November 2021 and complete in late August 2022, with TMZ B being flexibly activated between these dates.
- (2) It was initially proposed that TMZ B activation times should be aligned with the activation periods published for the adjacent Danger Areas. Having obtained feedback from the GA community during the engagement period, the Sponsor conducted further discussions with the UK MOD stakeholders and in recognition that TMZ B was being introduced to an area of Class G airspace it was agreed to try and provide additional flexibility, wherever possible, with regard to the activation timings.
- (3) TMZ B will be dynamically managed and, therefore, will only be activated on an 'as required' basis during periods when there is a known requirement for military fixed-wing traffic to transit between the Portland and Plymouth Danger Areas, in support of planned serials detailed within the Flag Officer Sea Training (FOST) weekly training programme. Like the other TMZs, these specified periods will fall within the time windows of Monday to Thursday 0800-2359 (0700-2300), Friday 0800-1600 (0700-1500) and as activated by NOTAM.

- (4) The majority of transits between the DAs usually occur on a Tuesday and Thursday when FOST hold their ADEX training serials. Wherever possible, a minimum of 48 hours advance notice will normally be given for the activation of TMZ B. However, this activation period could be reduced to 24hrs notice if, for example, weather reasons should force FOST Staff to re-schedule the larger ADEX serials to other days.
- (5) Note: In extreme circumstances, the period of advance notice may be reduced to 3 hours in order to meet essential emergent tasking requirements. In the same way that any GA traffic will have access to this portion of Class G airspace when TMZ B is inactive, military traffic may also be required to operate freely within the airspace in conformance with the ROA / ANO (See [Ref. 4]) even when there is no TMZ activation in force.
- (6) Activation will be managed by the Danger Area Authority (HQ Navy) and will be via the AIRAC cycle and times published by NOTAM. The first choice and reserve AIRAC cycle dates being targeted are shown in the schedule diagram at Figure 4.

5.4 PHASE 2 – PORTLAND.

- (1) Phase 2 covers the duration of the Portland equipment upgrade and will involve the establishment of a TMZ across elements of the existing blocks of airspace commonly known as the Portland Danger Areas. This TMZ is designated as TMZ C.
- (2) EG D 026 (in the vicinity of Lulworth Cove) and EG D031 (adjacent to Durlleston Head, Swanage) were excluded from the proposed TMZ C construct following feedback received during the engagement process.

5.4.1 TMZ C Lateral Limits.

- (1) For lateral limits please see chart extract enclosed at Figure 16 below.

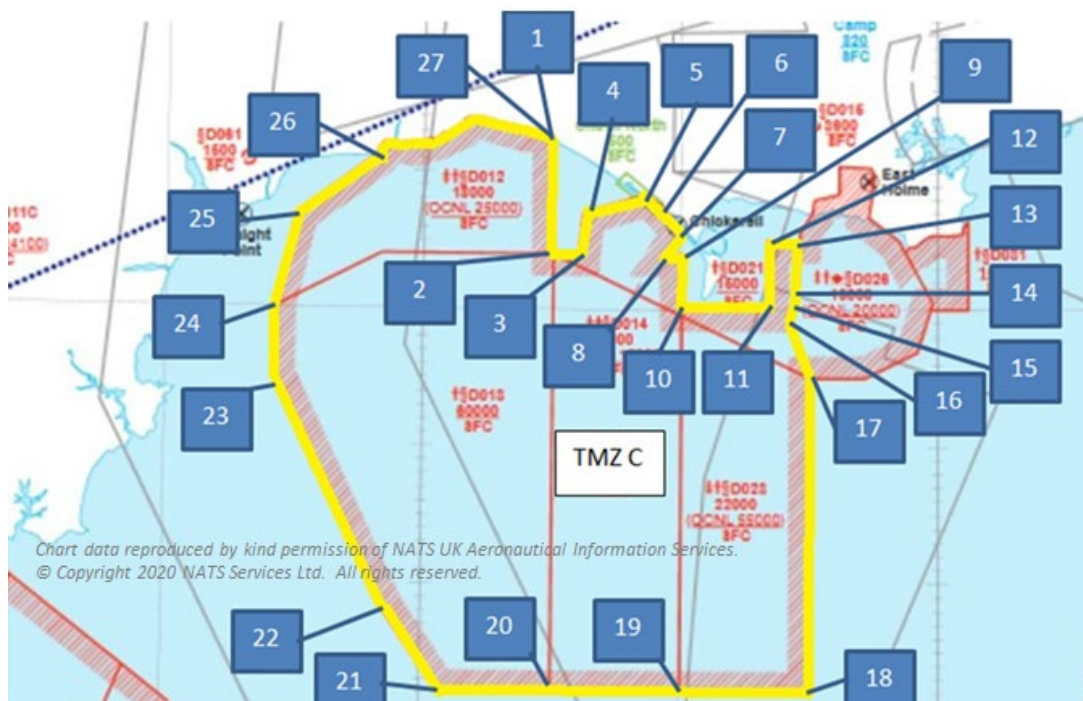


Figure 16 Lateral limits of TMZ C during Phase 2.

- (2) Detailed WGS 84 Spheroid co-ordinates for the numbered vertices of TMZ C in Figure 16 above are shown in Table 3 below.

- (3) Copies of the CAA Aeronautical Data Quality (ADQ) Validation Tables are included within this document at Appendix A.3.
- (4) As the boundaries of TMZ C are contiguous with the boundaries of the pre-existing Portland DAs, adequate airspace buffers are already established, which satisfy the continuance of the current operations and activity being conducted in the DAs.

Table 3 WGS-84 Co-ordinates for TMZ C during Phase 2

TMZ C Point	Latitude	Longitude
Point 1	504220.00N	0024500.00W
Point 2	503400.00N	0024500.00W
Point 3	503400.00N	0024200.00W
Point 4	503700.00N	0024130.00W
Point 5	503818.00N	0023424.00W
Point 6	503736.00N	0023230.00W
Point 7	503530.00N	0022948.00W
Point 8	503400.00N	0023124.00W
Point 9	503400.00N	0023000.00W
Point 10	503000.00N	0023000.00W
Point 11	503000.00N	0022000.00W
Point 12	503500.00N	0022000.00W
Point 13	503500.00N	0021614.00W
Point 14	503154.00N	0021624.00W
Point 15	503000.00N	0021700.00W
Point 16	502918.00N	0021718.00W
Point 17	502500.00N	0021500.00W
Point 18	500200.00N	0021500.00W
Point 19	500200.00N	0023000.00W
Point 20	500200.00N	0024500.00W
Point 21	500200.00N	0025800.00W
Point 22	500800.00N	0030430.00W
Point 23	502500.00N	0031730.00W
Point 24	503000.00N	0031730.00W
Point 25	503650.00N	0031500.00W
Point 26	504106.00N	0030544.00W then along the coastline to Point 27.
Point 27	504220.00N	0024500.00W

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5.4.2 TMZ C Vertical Limits.

- (1) TMZ C will extend from the Surface (Mean Sea Level) to FL100.

5.4.3 TMZ C Activation Periods.

- (1) Phase 2 is scheduled to commence on 1 September 2022 and complete in late May 2023, with TMZ C activation mirroring these dates.
- (2) TMZ C will be activated during the specified hours of activation for the Danger Areas over which it is established. These are currently Monday to Thursday 0800-2359 (0700-2300), Friday 0800-1600 (0700-1500) and as activated by NOTAM.
- (3) Activation will be managed by the Danger Area Authority (HQ Navy) and will be via the AIRAC cycle and times published by NOTAM. The first choice and reserve AIRAC cycle dates being targeted are shown in the schedule diagram at Figure 4.

5.5 OBJECTIVES / REQUIREMENTS FOR THE PROPOSED DESIGN

- (1) The use of TMZs is being proposed as a proportionate measure to provide mitigated situational awareness, to both controllers and aircrew using ACAS, during the periods that PSR coverage is unavailable across the areas concerned.
- (2) Where the TMZs are established over the Danger Areas, controllers will be able to continue to maintain track identity, and be able to provide a limited ATS to all traffic either operating in, or crossing these areas.
- (3) Similarly, the TMZ corridor across the Class G airspace between the DA blocks (TMZ B) will mitigate the MAC risk from the loss of situational awareness. This area will be used for individual tracks and formations of military aircraft either ingressing or egressing from the DAs themselves prior to, and post, the conduct of their training serials. To avoid 'congestion / compression' being introduced by the establishment of a corridor type structure, the TMZ B airspace structure was designed with key stakeholder inputs so that it will be wide enough to safely accommodate aircraft on a number of different vectors simultaneously. It was also designed with typical traffic levels involved in the FOST training serials in mind, to ensure that it will be large enough vertically to enable the military traffic to achieve vertical separation above the Minimum Safe Altitude (MSA) at their allocated IMC sanctuary altitudes / levels, as and when required.

Note: During their transits of the Class G airspace and the proposed TMZ B, all military and civilian traffic operating under contract to the UK MOD will be operating in conformity with the instructions received from an ATC service provider or as appropriate when flying under either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) [Ref. 4].

- (4) Although this caution is normally well understood by most airspace users, it is worth repeating here. [Ref. 3] UK Air Information Publication (AIP), En-Route Information (ENR 1) General Rules and Procedures, ENR 1.1 General Rules (5.1.3.2.2) states "In the immediate vicinity of Danger Areas in which military aircraft operate many of those aircraft fly arrival, holding and departure patterns. Pilots of itinerant aircraft flying close to Danger Areas are advised to keep an especially sharp lookout for such aircraft and, by taking any necessary evasive action (unless the Rules for avoiding aircraft collisions require otherwise) in good time, permit them to continue their manoeuvres."
- (5) Vertically, the TMZ B corridor will accommodate high, medium and low-level profiles in Visual Meteorological Conditions (VMC). In Instrument Meteorological Conditions (IMC) the aircraft may still be required to operate within the full vertical extent of the TMZ but will normally conduct their runs whilst maintaining a level profile with individual aircraft occupying separate 'sanctuary' levels as allocated by the controllers at Plymouth (Mil).
- (6) TMZ B will extend from Surface to an upper limit of FL 85, with aircrew being responsible for ensuring that when within the TMZ, their aircraft remain below the base level of Airway N862 at all times unless penetration has been approved by the controlling authority of the Controlled Airspace (CAS).
- (7) The proposed design solution mitigates the risk resulting from the unavailability of PSR coverage from the Wembury Point and Portland sites to a tolerably safe level (ALARP).
- (8) Noise, Environmental – Little or no noise or environmental impacts to consider as extremely low volumes of traffic involved and the majority of operations are intended to continue as normal over the sea. The 'do nothing' option, or a proposal refusal, is more likely to generate additional re-routes and delays to traffic .
- (9) Economic - An economic factor to consider, is the additional costs to the Sponsor (and the MOD) of any unforeseen equipment upgrade / installation delays, or re-work encountered as a result of having to conduct an extended application process. Furthermore, there will be significant economic impact if the maritime training activities were to be relocated elsewhere, from the additional fuel and flying time required.
- (10) Minimise the airspace management overhead – Maintain as much operational normality as possible and minimise the amount of additional work / resource required to manage the air and sea space. Utilise FUA principles (Efficiency + Airspace Sharing).
- (11) Minimise impact upon the existing airspace network where possible (Efficiency + Airspace Sharing).
- (12) Simplicity - utilise existing structures wherever possible (Efficiency, Simplicity + Safety).
- (13) Conformity – use standard airspace structures where possible (Simplicity + Safety).
- (14) Minimise impact upon any other airspace users.

6 IMPACTS OF THE PROPOSED TMZS AND STAKEHOLDER ENGAGEMENT

6.1 NET IMPACT SUMMARY FOR PROPOSED AIRSPACE

- (1) Aquila are aiming to ensure that the proposed TMZ solution allows all aviation communities to continue their diverse range of day to day operations as near to normal as possible, whilst mitigating the loss of situational awareness due to PSR unavailability. If no mitigation is put in place for the extended period that the Wembury Point and Portland PSRs are unavailable, then the provision of a range of Air Traffic Services provided by Plymouth (Mil) to both civilian and military aviation airspace user communities will be significantly impacted. With the proposed TMZs in operation, it will allow controllers to maintain effective control of their Area Of Interest (AOI) whilst using SSR data only.
- (2) In line with CAA policy, it is posited that the proposed establishment of TMZ airspace offers the lowest impact and least restrictive option available to provide mitigated situational awareness.
- (3) Given the low volumes of GA and Commercial transits within the proposed TMZ airspace, it is assessed that there will be little, if any, impact noticed by the majority of airspace users.

6.1.1 Airfield and Airport Impact Assessment

- (1) Cornwall Airport Newquay is located approximately 13nm to the North West of the closest part D007C which is included as part of TMZ A.
- (2) Due to the close proximity of the pre-existing DA complex and the approach and departure routes of runway 12/30 at Newquay, there may be a slight increase in the amount of co-ordination / liaison effort required between Cornwall Airport Newquay and Plymouth (Mil). This is, however, more likely to be as a direct result of the reduced SA caused by the lack of PSR data throughout the Plymouth (Mil) AOI rather than the establishment of the proposed TMZs themselves. Whilst there is not a formal Letter of Agreement (LoA) between FOST ATC and Cornwall Airport Newquay, there is a good working relationship which supports the conduct of effective liaison.
- (3) Should the ATC controllers at Cornwall Airport Newquay require access to any of the EG D 007 complex of DAs they always call to enter. When any military aircraft are holding prior to entry in the DAs for their serials, the Cornwall Airport Newquay controllers contact Plymouth (Mil) and request Traffic Information / co-ordination as necessary.
- (4) Exeter Airport is located beneath Airway N864, approximately 20 nm north of the Berry Head (BHD) reporting point, and approximately 10 nm from the proposed north western boundary of TMZ C and EG D012. N864 and N862 merge at BHD where the CAS continues to the South as N862. The northern boundary of the proposed TMZ B airspace lies a further 10 nm to the South of BHD where the base level of Airway N862 is FL 85.
- (5) Discussions with the controllers at Plymouth (Mil) have indicated that Commercial traffic on Airway N862 inbound to Exeter from the South, usually remains within controlled airspace until north of BHD. Similarly, any traffic departing from Exeter and joining N864 / N862 south-bound, are usually established within CAS by BHD. Any requirements for transits of EG D012 by Exeter Radar will continue to be handled in the current manner (in accordance with the Letter Of Agreement (LoA) – copy at Appendix A.1 of this document).

- (6) It is, therefore, assessed that the proposed TMZs would have minimal (if any) impact on the commercial or GA traffic flight profiles of either Exeter Airport or Cornwall Airport Newquay.
- (7) There will remain a provision for any non-transponder equipped General Aviation (GA) traffic to make co-ordinated transits (subject to other activity) of the coastal Danger Areas, even where they are overlaid with TMZs A and C. Similarly, transit / penetration of TMZ B (overlaid on the Class G airspace between the Plymouth and Portland DA blocks), will still be available to non-transponder equipped GA traffic by making contact with the Controlling Authority and requesting use of the DACS and DAAIS services provided by Plymouth (Mil). A leaflet containing full details of the ATC services provided by Plymouth (Mil), and how to make contact with them, was sent out to all potential stakeholders as part of the engagement activity information mail-shot. A copy of the leaflet is at Appendix B.6.

6.1.2 Military Airspace Users Impact Assessment

- (1) The proposed TMZ airspace changes are being requested to enable the UK MOD's operational maritime training serials to continue as normal, whilst retaining key elements of their training fidelity. There are no changes anticipated to the horizontal or vertical profiles currently being flown either in the proposed TMZs themselves or the surrounding areas.
- (2) Adjustments to the established CONOPS in order to meet Safety Case requirements resulting from any non-mitigation of the loss of PSR surveillance data could lead to a loss of training fidelity and disruption to training schedules / course throughput. The establishment of the TMZ airspace supports this activity to continue normally, by delivering mitigation to both controller and aircrew situational awareness when reliant on using SSR only data.
- (3) The UK MOD and some commercial operators have been fully supportive, and extensively engaged, in the development of the proposal from the outset, with active involvement provided by members of the Defence Airspace and Air Traffic Management (DAATM), Navy Command Head Quarters (NCHQ), Flag Officer Sea Training (FOST), ATC Plymouth (Mil), [REDACTED] Naval Air Squadron, RNAS Culdrose, and the MOD's civilian contractor [REDACTED]

6.1.3 General Aviation Airspace Users Impact Assessment

- (1) Whilst transponder carriage is not mandated within all UK airspace, many civilian aircraft are transponder equipped nowadays and may also carry ACAS to benefit from proximity alerts and conflict resolution advisories generated by the SSR signals received from other co-operative, transponding traffic.
- (2) Whilst the pilots of some non-transponder equipped aircraft may consider re-routing themselves to avoid penetrating TMZ airspace, this is seldom a necessity. Often, as in this case, a procedure exists to allow them to access TMZ airspace subject to them making contact with the Controlling Authority to establish if a conditional transit clearance is available.
- (3) Civilian traffic routeing to and from the Channel Islands CTA / CTZ should be compliant with transponder carriage and operation and, therefore, unaffected by the introduction of the TMZs.
- (4) A DACS and DAAIS will continue to be provided by Plymouth (Mil) / Swanwick (Mil) throughout.

- (5) Given the extensive 'over the sea' location of the proposed Temporary Airspace Change airspace and the low volumes of Commercial and GA community traffic routing through it on a regular basis who are non-transponder equipped, it was assessed that only occasional, minor variations in the routing requirements for any non-transponder equipped aircraft might occur.
- (6) The anticipated minimal impact to the GA community, in no way reduced the level of effort expended by Aquila in making sure that as many stakeholders as possible were contacted, made aware of the proposed airspace change and given the opportunity to further engage.

6.1.4 Economic Impacts

- (1) It is extremely difficult to find a reliable and proportionate methodology for accurately calculating the economic impacts resulting from making changes such as this to any airspace. In this case, a qualitative assessment has been conducted.
- (2) Aquila is keen to avoid any delays to the Project Marshall schedule, as these could have significant cost implications. A delay at the sites under consideration here could also cause longer term disruption to the schedule, producing 'knock-on' impacts elsewhere in the Project Marshall programme, as well as potentially introducing legal / commercial costs and reputational damage.
- (3) The UK MOD may also face increased costs should it not be possible to adequately mitigate the reduction in situational awareness during the period when PSR data will be unavailable.
- (4) As part of their Safety Cases, both MOD (and their contracted civilian aircraft operators) operate under strict conditions which are regularly reviewed and rigorously policed by the relevant Duty Holders. Any changes in operating conditions (such as the un-mitigated loss of Primary Surveillance Radar (PSR) coverage), would initiate a review of their existing Safety Cases and require an amendment to be made to their Concept of Operations (CONOPS) documents. A failure to gain approval for the proposed TMZs may result in the cessation of activity, if it is considered that the Risk to Life (RtL) through Mid-Air Collision (MAC) has increased as a result of the un-mitigated decrease in surveillance coverage and situational awareness.
- (5) Adjusting the normal FOST operating procedures in order to conduct operational training much further to the West, to use PSR coverage provided by RNAS Culdrose sensor, would incur additional fuel burn and transit time penalties for repositioning both the warships receiving the training and for some of the aircraft involved in the delivery of the training.

6.1.5 Environmental Assessment

- (1) A full Environmental Assessment is at Annex 4.

6.1.6 Safety Assessment

- (1) A full Safety Assessment and Operational Risk Assessment (ORA) are at Annex 3.

6.2 STAKEHOLDER ENGAGEMENT

6.2.1 Introduction

- (1) As the Sponsor of the proposed change, Aquila was required to conduct a comprehensive engagement process to develop a full understanding of how the various stakeholder communities might be impacted.
- (2) Contact details for NATMAC members were provided by the CAA to Aquila, and the process used to identify the other key stakeholders is described in Section 6.3 and 0 of this document below.
- (3) A full list of stakeholders is at Appendix C.1 and C.2 to this document.
- (4) The Temporary Airspace Change in the South West 13-week public consultation began on 16 July 2020 and ran until 15 October 2020.
- (5) Due to COVID-19 restrictions around social distancing and mixing of households, a consultation meeting was not possible. Therefore, to ensure stakeholders were still able to participate in the process, they were invited to participate in the engagement via postal and electronic communications which are detailed below and in the Appendices at B.1, B.2 and B.3 of this document.
- (6) Given the pandemic, as well as making contact with the lead stakeholder organisations and representatives, where possible information on the proposed change was also passed directly to their local and regional level representatives to ensure the timely dissemination of the information to as many sub-levels of the organisations concerned.

6.2.2 Communications and Engagement Objectives

- (1) The Aquila communication and engagement campaign aimed to meet the following objectives:
 - (a) To ensure Aquila meet the regulatory requirements within the Airspace Design Document (CAP 1616).
 - (b) To conduct an engagement process aligned with recognised best practice (e.g. following the 'Gunning' / 'Sedley' principles).
 - (c) To ensure that Aquila have a process which enables communication links to be maintained with the appropriate stakeholders throughout the application process and until the project implementation is completed and the airspace concerned is reverted to normal.
 - (d) To forge positive relationships with the local community, interested parties and stakeholders and ensure they are fully engaged with the Airspace Change project.
 - (e) To present the proposal to the wider aviation community, other interested parties and stakeholders in a timely manner and respond to any concerns that they may have.
 - (f) To listen with an open mind so that Aquila can gain a clear understanding of the potential alternative solution options available before making any assessment of their technical and operational feasibility as well as their benefits and impacts.
 - (g) To act upon stakeholder feedback and where possible accommodate any beneficial changes or suggestions within the Airspace Change proposal.

6.2.3 Communications Strategy

- (1) To meet the above communication objectives Aquila:
 - (a) Created a stakeholder and target audience matrix to ensure we communicated to the appropriate interested parties in a timely manner via the communication channels set out within this campaign.
 - (b) Developed communication material explaining what the Airspace Change project is trying to achieve, why Aquila needs to complete this project, how it might impact a number of different interested parties, how long the airspace will be changed for, how it will impact the local environment and community groups and when the project will take place. Due to the COVID-19 pandemic it was not possible to conduct the planned series of face to face 'Town Hall' face to face stakeholder meetings. The communication material was however successfully made available to all via the Aquila Website.
 - (c) Developed communication channels between Aquila and any interested parties / stakeholders, ensuring that there was an opportunity for a two-way communication process and that in the absence of face to face dialogue, all interested parties had the opportunity to contact us via email and telephone links.
- (2) As part of the strategy Aquila engaged with interested parties using a phased approach: Six simple tests as recommended by the CAA were used to identify potential stakeholders. Aquila first assessed the likely impact of the ACP (either direct, indirect or potential) on the various stakeholders and communities. Alongside this, an assessment of whether or not they were 'needed to make it work', 'knew about the subject' or 'had an interest in the subject' was also made to determine which phase of the consultation process was most applicable for the inclusion of each individual, body or group.

6.3 OVERVIEW OF THE ENGAGEMENT PROCESS

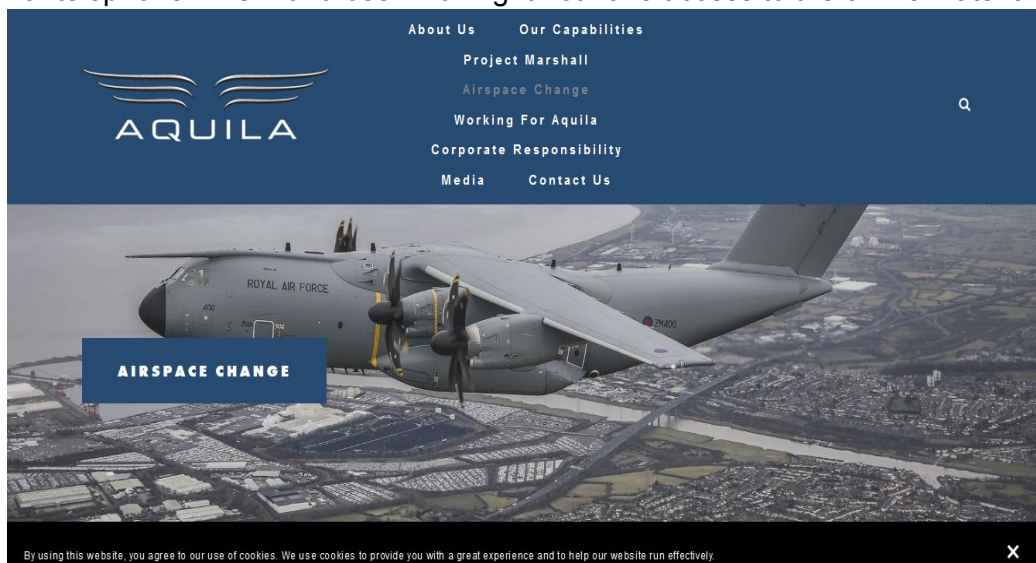
6.3.1 Engagement Phase 1

- (1) Phase 1 commenced in Q4 2019 and involved engagement with the key agencies that are responsible for managing and operating within the airspace concerned on a daily basis.
- (2) The CAA recognises that Sponsor dialogue with these key stakeholders is essential in order to collect detailed information on the airspace usage such that the airspace change solution proposed could best meet these key users' needs and would support the achievement of the operational maritime and aviation training outputs on behalf of the UK MOD.
- (3) This engagement was conducted to establish the operational 'need' and to enable design principles to be developed before effective GA Community and wider stakeholder engagement could be commenced.
- (4) This early engagement chiefly involved a number of airspace users and allowed inputs from Operations Planners, Aircrew and the Duty Holders who have responsibility for the safety of their operations. They included members of [REDACTED] [REDACTED] based at Bournemouth Airport, Hurn, [REDACTED] Naval Air Squadron Air Operations planners, Aircrew and Duty Holders from RNAS Culdrose in Cornwall and Air Traffic Controllers and Maritime Operations planners from the staff of Flag Officer Sea Training (FOST) Operations based in HM Naval Base, Devonport, Plymouth.

- (5) Although this started off initially as face-to-face engagement in the period before the COVID-19 lockdown, it was forced to continue on a 'virtual' basis post the 23 March 2020 and this in itself provided a good test for the virtual engagement methodology that became the norm for communication operations throughout the entire period of wider stakeholder engagement.
- (6) The dialogue with the above airspace users was important in that it shaped Aquila's embryonic thinking and allowed consideration of a wide range of potential design options. By providing the Sponsor with the all-important detail behind their operational requirements and mission objectives it has possible to arrive at a preferred option which is considered to offer a safe, low impact solution which minimises restrictions and will be practical for all airspace users. The dialogue involved discussion on the specific vertical and lateral geographic constraints which needed to be met, as well as bounding the temporal constraints of the operational training activities to introduce greater flexibility for all airspace users.

6.3.2 Engagement Phase 2

- (1) Phase 2 of the engagement ran for a 13 week period between 15 July 2020 and the 16 October 2020. A slightly longer period of engagement than the recommended 12 weeks was allocated to minimise the impact of the COVID 19 pandemic on the reduction in stakeholder community meetings and interaction opportunities. Phase 2 was dedicated to Aquila establishing 2-way contact with the majority of the GA Community in the wider South West area and beyond. Aquila needed to gather all views (both positive and negative) on the proposed change in order to demonstrate understanding of the potential impacts or concerns from the widest possible stakeholder perspective. Some beneficial adjustments to the proposed design resulted from this wider engagement activity.
- (2) It commenced initially with a postal mail-drop and email campaign. The information provided included outline details of the proposed change as well as providing directions to a more detailed information presentation which was made available online via the Aquila website (www.aquila-atms.com/airspace-change - See Figure 17 below). Aquila reproduced an information leaflet outlining the services provided by Plymouth Military ATC (copy enclosed at Appendix B.6 of this document), which was also included in the initial information drop. Aquila made full use of electronic messaging (Email) with the ability to ask questions via the designated mailbox. Aquila also offered to maintain postal or telephone links with those who might not have access to the online material.



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Figure 17 The Aquila website - Airspace Change area.

- (3) Some of the feedback received by Aquila led to some proposal design modifications being agreed with the MOD stakeholders during this phase.

6.3.3 Engagement Phase 3

- (1) Due to COVID 19 the planned Phase 3 activities were cancelled.
- (2) Prior to the COVID-19 lockdown it was intended to issue invitations to stakeholders to attend one of the 'Town Hall Briefs' that were planned to take place as a parallel activity within the Phase 2 timeframe. These events aimed to give interested parties from both the GA and non-Aviation communities the opportunity to engage with the Sponsors face to face.
- (3) Due to social distancing and the restrictions imposed during the pandemic on meetings and gatherings of any sort, it was not felt sensible to hold such events as they were likely to put the health of those attending at unnecessary risk.

6.3.4 Engagement Phase 4

- (1) Phase 4 involved the collation and assimilation / assessment of all the information, comments and feedback given and received during Phases 1, 2 and 3.
- (2) This consisted of reviewing meeting minutes / Records of Discussion, stakeholder engagement records and response analysis, as well as consideration of any informal conversational outcomes, whatever is deemed appropriate to the level of change activity under consideration.
- (3) All comments and feedback were collated and an Impact Assessment made against the proposed change solution design options. This activity demonstrates that, wherever possible, stakeholders' concerns have been acknowledged and steps taken to incorporate adjustments to the proposal where possible.

6.4 ORGANISATIONS AND INDIVIDUALS INVOLVED IN ENGAGEMENT

- (1) As the proposed change involves airspace usage continuing as normally as possible, and concerns airspace which is principally over the sea and not over-land, there is no impact to the general public from additional on-shore noise or other environmental factors. These areas were, therefore, not specifically targeted for detailed analysis within the airspace change process engagement activities.
- (2) There is an entirely separate public consultation processes associated with achieving the necessary site Planning Permissions for the equipment installations, which will run in parallel to this ACP. These will address the aesthetic and environmental impacts arising from the physical siting, appearance, construction and operation of the actual Surveillance Sensors themselves.
- (3) As the airspace covered by the proposed TMZs is large, the physical area considered in relation to the geographic catchment of the potential key stakeholders is correspondingly large. In broad terms, Aquila chose to target the corporate and private GA community, considering their need for basing, operating and transiting throughout the whole of the mainland SW peninsula and the over-sea areas. This extended the notional catchment area as far afield as Cardiff International and Gloucester Staverton Airports to the North and Shoreham, Goodwood and Popham Airports to the East and North East. Due to the airspace location, the Isles of Scilly and Channel Islands were also included.
- (4) The chart extract shown below in Figure 18, is only illustrative and does not attempt to show the full extent of the stakeholder mapping Aquila have conducted. Some sites contacted fell just outside the charted area shown (St Mary's Aerodrome in the Isles of Scilly for example) and there were several other National and Regional bodies who were also contacted just in case they had members or operators who have an interest in any changes to the airspace in this area. National Flying Training organisations, the UK MOD and Airspace Regulatory bodies, plus other members of the NATMAC list provided by the CAA, were also contacted to ensure completeness of awareness.
- (5) In total, approximately 160 individual stakeholders, associations or organisations were engaged.

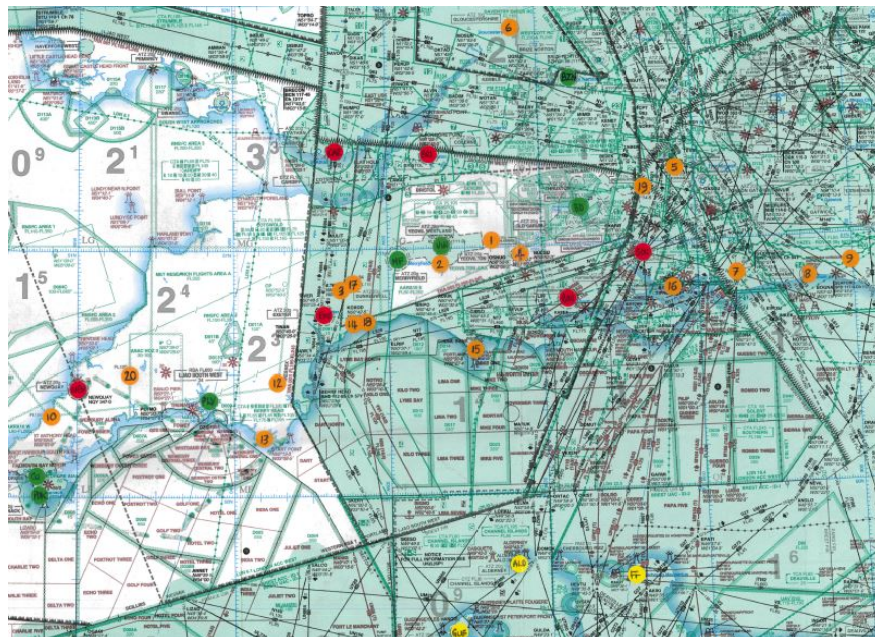


Figure 18 Geographic Overview of Stakeholder Distribution

- (6) Using the local knowledge of Air Traffic Control Officers (ATCOs) who have worked at the various ATC units across the South West, coupled with their understanding of the Lower Airspace Radar Service (LARS) traffic routings, Aquila developed a comprehensive stakeholder list. This ensured that all of the key stakeholders across the wider geographic area were captured, allowing them to participate in the engagement to 'air and share' their views.
- (7) The stakeholders are shown graphically at Figure 19 below and included 6 x Major / International Airport sites, 7 x MOD military airfields/units, 20 Minor Aerodrome sites, 4 x (non UK mainland) Aerodrome sites and circa 90 x Other Agencies or bodies with a potential interest. These were then categorised by assessment of their likely impact from the proposed change (as described in Para 6.2.3 (2) above).

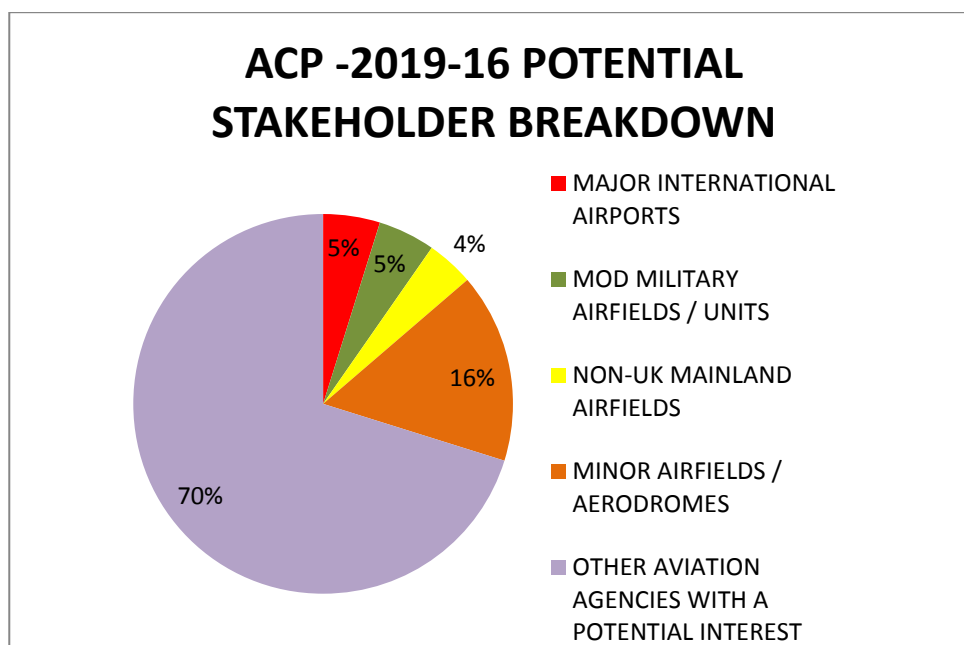


Figure 19 ACP Potential Stakeholder Breakdown

- (8) A breakdown of the 70% of other potentially interested aviation agencies is included at Figure 20 below.

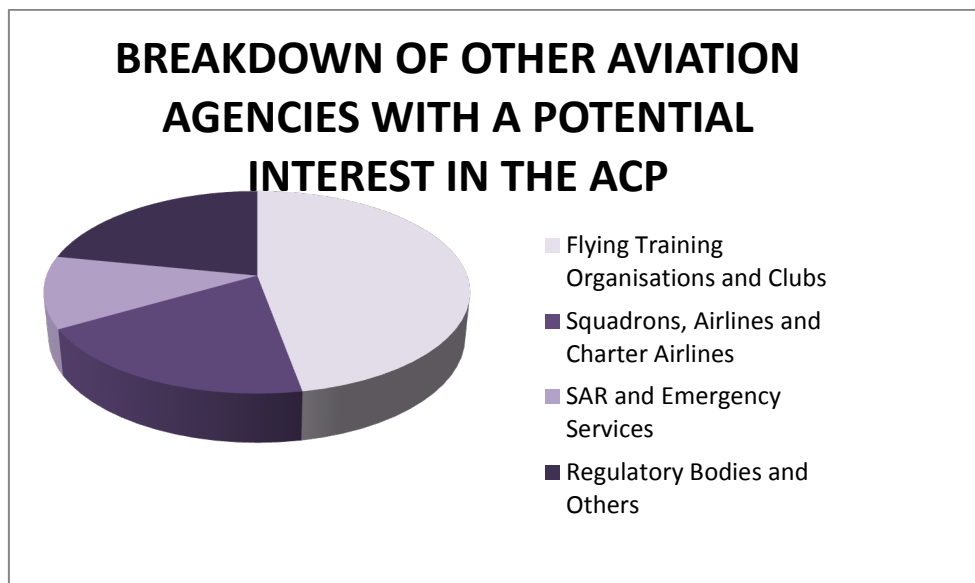


Figure 20 Breakdown of other Aviation Agencies with a potential interest in the ACP

6.5 ENGAGEMENT DIARY

6.5.1 Postal Communications

- (1) 14 July 2020 - 97 stakeholders were contacted via postal communications. This included an introductory letter providing an overview of the process, how to get involved and directing them to the designated [Airspace Change](#) microsite on the Aquila website for further information. The microsite would become the central hub for the consultation, which included supporting literature which could be downloaded and contact details of where to submit questions, queries and objections to and sign up to the mailing list for further information regarding the process.
- (2) A [leaflet](#) containing further information regarding the process and how to contact the team with any questions or queries and a [poster](#) to display on site was also included with the postal communications. Examples of copies of the documents included in the information drop are enclosed at Appendices B.6, B.7 and B.8 of this document.

6.5.2 Electronic Communications

- (1) 15 July 2020 - An electronic version of the information sent out via the postal communication was issued to 81 stakeholders as a reminder about the process and to capture additional stakeholders that were not included in the postal communication distribution.
- (2) 21 July 2020 - Stakeholders were emailed information advising that further information is available on the designated airspace change section of the Aquila website. This consisted of a [presentation](#) of the proposed changes which was put together following feedback from the GAA regarding the need for further information regarding the proposed changes. Stakeholders were invited to put forward questions or queries regarding the proposed changes. Full details of the engagement communication messaging can be found in APPENDIX B.

- (3) A series of questions from the GAA followed. Due to the complexity of the questions asked, a number of the MOD stakeholders were engaged to provide a comprehensive response to the GAA. Aware this would take some time to gather the information and detail the GAA required, an Aquila representative called the GAA representative and explained the process, ensuring that the lines of communication were maintained whilst a response was being prepared. Full details of this correspondence are outlined in Appendix B.1 and B.2, APPENDIX B and the final response is detailed in Appendix B.3 to this document.
- (4) Once the official response was made a summary of the information was made available to all other interested stakeholders via the Aquila website in the form of a Frequently Asked Questions ([FAQs](#)) section. Stakeholders were all emailed on 17 September and made aware of the new document that had been added to the website and reminded that further questions or queries should be sent via the designated email address due to COVID 19 restrictions and not being able to hold a face to face meeting with members of the public.
- (5) 16 October 2020 - Following a successful engagement period a final email communication was sent to all stakeholders thanking them for their participation in the process and advising them the consultation period was now closed and that we are working through their feedback and making the necessary adjustments to the proposal before it is submitted to the CAA. Stakeholders were told to expect further communication once we had an update on our proposal following consideration and feedback from the CAA.

6.6 STAKEHOLDER MEETINGS

- (1) Full details of stakeholder meetings are at APPENDIX D.

6.7 OBJECTIONS

- (1) Of the circa 160 stakeholders engaged, only one objection was received on behalf of the General Aviation Alliance (GAA). Full details of the engagement correspondence is provided at Appendix B and Aquila's reaction to stakeholder feedback alongside changes made to the design as a result of the stakeholder feedback is outlined in Para 7.5.4) below.

6.8 ENGAGEMENT SUMMARY

- (1) The overall engagement process was assessed as successful, with only three concerns arising from the process. The first from the GAA, which was responded to, with follow up communications with the GAA being made since to check their concerns have been addressed. The second and third enquiries were from a member of the public and a representative from the Airfield Operators Group who were both asking for further detail on the proposal. These were followed up with an email advising that the more detailed information presentation they required was available on the Aquila website. No further correspondence was received, indicating all stakeholders were largely satisfied with the response and the information provided.
- (2) Engagement from other stakeholders was positive with 13 stakeholders asking to join the database to receive further updates. No further questions regarding the process were received from them once they had been directed to the supporting literature, indicating that their needs were met by the available information.

- (3) Some comments received were supportive of Aquila's application:

██████████ *fully supports your application and will
take appropriate steps to make available all information
concerning the change to our airspace users."*

██████████

7 ANALYSIS OF OPTIONS

7.1 OVERVIEW OF THE DESIGN EVOLUTION PROCESS

- (1) As previously stated, (though not required under the process for a Temporary Airspace Change), for completeness Aquila decided to follow some of the elements specified in the process for Permanent Airspace Changes (described in Appendix D of CAP 1616 (see [Ref. 1])). Prior to the commencement of any solution design work, Aquila initially developed a set of Design Principles with key UK MOD stakeholders (as shown in Para 7.2 below). Although not fully objective criteria, the DPs did prove useful when it came to assessing the suitability of the each of the various initial design options against the local safety, technical and operational constraints. These Design Principles were then shared with the wider stakeholder community via the Aquila website during our Targeted Engagement window.
- (2) These assessments focussed on establishing the practicality and effectiveness of each design in providing suitable mitigation for the reduction in situational awareness due to the loss of PSR, whilst also meeting the need for delivering the least restrictive and most flexible solution for all airspace users.

7.2 AQUILA'S DESIGN PRINCIPLES

- (1) Aquila developed the following Design Principles as part of the initial engagement activity with key stakeholders:
 - (a) To maintain safe separation of all aircraft operating in and around the South Coast Exercise Areas, minimising impact to the local population and civilian airspace users whilst ensuring the operational capability of Military traffic during an extended period of Primary Surveillance Radar unavailability. (Safety, Efficiency + Airspace Sharing, Low impact / least restrictive).
 - (b) To ensure that during the period of the upgrade and installation works the MOD can continue to provide a safe training environment for fast jet aircraft, helicopters and ships enabling a wide range of hi-fidelity threat simulation and maritime aviation support training to both the Royal Navy and to the naval forces of other International partners and NATO allies. (Important to the defence and security of the UK and other nations).
 - (c) To apply current airspace design policy such that when using 'SSR only' within the selected airspace constructs it can be shown to be as tolerably safe as if operating with the current Primary and Secondary Surveillance coverage when in the open FIR / Class G Airspace. (Safety).
 - (d) To support effective management of airspace utilising Flexible Use of Airspace (FUA) principles including the establishment of procedures for non-compliant users. (Efficiency + Airspace Sharing).
 - (e) To operate the proposed airspace constructs flexibly on an 'only when needed' basis wherever possible. (Efficiency + Flexibility + Airspace Sharing).
 - (f) To utilise existing airspace structures / constructs wherever possible (Conformity, Efficiency, Simplicity + Safety).
 - (g) To minimise the impact upon the surrounding airspace network users and airport operations wherever possible (Efficiency + Airspace Sharing).
 - (h) To return the airspace to its original status as soon as possible after the equipment installation, set to work and commissioning work is complete and Primary Surveillance Radar coverage of the area is restored (Efficiency).
 - (i) To minimise additional costs (Economic).

- (j) To reduce the duration of the lack of Primary Surveillance causing disruption and the associated reduction in Air Traffic Surveillance services to all airspace users (Operational).
- (k) To achieve MODE-S equipment regulatory compliance in the shortest possible timescale. (Regulatory).
- (l) To have minimal environmental impact (Environmental).

7.3 THE DESIGN OPTIONS ANALYSIS

- (1) The paragraphs below illustrate that a number of alternative designs and options were considered in an attempt to mitigate the unavailability of the Wembury Point and Portland PSR coverage across parts of the airspace concerned. Assessments of suitability or practicality based solely on the Design Principles was not always possible, as often a solution could be seen to be technically problematic or impractical from the outset. In situations where this was the case and a potential solution was discounted for operational constraints or technical reasons a brief explanation of why this was the case is given.

7.4 INITIAL MITIGATION OPTIONS ASSESSMENT

- (1) The following options to mitigate the extended period of PSR coverage unavailability were considered by Aquila:-
 - (a) Mitigation Option 1 - Do nothing.
 - (b) Mitigation Option 2 - Use of alternative sources of PSR data by the controllers at Plymouth (Mil).
 - (c) Mitigation Option 3 - Utilise any control capability or situational awareness which may be available from other sites or mobile sensor platforms.
 - (d) Mitigation Option 4 - Apply to establish Radio Mandatory Zone (RMZ)
 - (e) Mitigation Option 5 - Apply to establish Transponder Mandatory Zone (TMZ) Airspace.
- (2) The applicability of each option against the Design Principles outlined at Para 7.2 of this document is shown in a series of graphics below and each option was qualitatively assessed using the following criteria:-

MET (or partially met) A DP	DID NOT MEET A DP	DP NOT APPLICABLE
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7.4.1 MITIGATION OPTION 1 – Do-nothing

- (1) It was important to consider the 'do-nothing' option, as aviation regulations clearly enable the conduct of safe flight in both VMC and IMC in certain categories of airspace without the need for any surveillance sensors or communication equipment of any kind being required. However, when defining the operating limits in the Operating Safety Cases for Military operations the availability of surveillance is usually factored as a beneficial thing to have.
- (2) It has been shown that the UK MOD's training activity in and around the airspace concerned can be safely continued in both VMC and IMC during periods when PSR outages occur, such as in the event of an unexpected PSR system component failure.
- (3) This safe operation is achieved tactically by careful operational management of the various scenarios, making adjustments to the traffic volumes and the use of modified or alternative profiles. It is accepted that for periods of short-term surveillance unavailability situations these operational 'constraints' on the aircraft participating in the training are reasonable.

- (4) Whilst this may be reasonable during short-term PSR outages, it was considered that this would not be so acceptable where the loss of situational awareness could be anticipated to occur over an extended period (such as in this case). Safety Case compliance reviews resulting in scaled adjustments to operating procedures would almost certainly have to be made and this would in turn directly impact on the fidelity and realism of the training serials themselves and potentially impact on the wider conduct of defence operations.
- (5) Short-term periods of PSR unavailability may therefore be tolerable, but given that this period of upgrade work involves a much longer duration outage of a key part of the surveillance system infrastructure, it was felt that in the interests of UK National Security where effective mitigations to enhance situational awareness and reduce the Risk to Life (RtL) are clearly available (RA 3240 [Ref. 8] refers), these should be fully explored for the safety and benefit of all airspace users. **The 'do-nothing' option was therefore discounted.**

OPTION 1 - Applicability to Design Principles											
1	2	3	4	5	6	7	8	9	10	11	12
MET (or partially met) A DP				DID NOT MEET A DP				DP NOT APPLICABLE			

7.4.2 MITIGATION OPTION 2 - Use of alternative sources of PSR data by the controllers at Plymouth (Mil)

- (1) The feasibility of 'importing' radar data from or using services provided by other nearby ATC units or sources was investigated in an attempt to supplement the recognised air picture available to the controllers at Plymouth (Mil) in-situ.
- (2) Because of the extended distances involved from the sensors, even if it were to be available and integration efforts successful, the data imported from the closest alternative PSR data source at Exeter Airport was unlikely to deliver the required assured PSR coverage for the airspace under consideration at the lower altitudes.
- (3) Use of a mobile stand-alone Deployable Radar unit was also considered as part of an attempt to mitigate the unavailability of the legacy fixed PSRs during their upgrade.
- (4) Finding a suitable, compatible and available deployable system was only the first of many challenging issues encountered when investigating this as an option.
- (5) The installation of a Deployable Radar was seriously constrained by the narrow road access to both the Wembury Point and Portland sites and the limited compound space available. An equipment cabin has in the past had to be airlifted into the Wembury Point site compound as a result of the narrow lanes preventing its delivery to site by road. It was estimated that up to four such airlifts might be necessary to deploy and recover the larger components of a deployable system to each site. This method of load transportation is also not without risk.
- (6) It would also not be possible to mount a Deployable system on an elevated tower once on -site, therefore being trailer or ground mounted this carried with it the potential for possible interference from any adjacent metallic infrastructure such as the legacy PSR radars and their supporting lattice towers. Obscuration from existing site buildings and other infrastructure such as antennas and perimeter security fencing could also be a problem and could significantly limit the range of the assured coverage envelope.

- (7) There was also a significant integration risk associated with achieving the successful union of an alternative data feed, as the radar data combiner in use with the legacy system at Plymouth (Mil) is of a complex, bespoke design. Even if it were to be successfully integrated first time around, given the additional time it would then take to complete the necessary system optimisation, assurance testing and Flight Checking activity required to support safety of use it was not felt to be a viable means of providing a solution. This option would also involve a period of down-time on completion of the first deployment to cover the Wembury Point PSR upgrade in order to complete the re-location of the deployable system to the Portland site, and complete set-to-work and flight calibration activities pre-use. A solution would also be required to cover operations during both set to work periods, as it would not be possible to have the deployable sensor conducting optimisation testing with the legacy Watchman Radars transmitting at the same time.
- (8) Having investigated the coverage limitations of the nearest available airfield based sensor it was felt that neither the importing of PSR radar data from Exeter or the use of a ground mounted deployable system were likely to be able deliver the required assured coverage in the necessary areas to satisfy the first three of the Design Principles in the absence of the legacy PSR sensors. Given the lack of availability of a deployable sensor and the likely transportability issues, the integration complexity, additional programmatic risk and potentially high costs involved, it was decided that given the constraints and limitations identified, **the provision of PSR data from an alternative source option could not be guaranteed to deliver much if any benefit and should therefore be discounted.**

OPTION 2 - Applicability of Design Principles											
1	2	3	4	5	6	7	8	9	10	11	12
MET (or partially met) A DP				DID NOT MEET A DP				DP NOT APPLICABLE			

7.4.3 MITIGATION OPTION 3 - Utilise any control capability which may available from other sites or mobile sensor platforms

- (1) The utilisation of any alternative control capability or Situational Awareness which may be available from other sites or from mobile sensor platforms was briefly considered.
- (2) To call on other agencies such as Swanwick (Mil) to provide the full range of services normally provided by Plymouth (Mil) was deemed to be extremely impractical, as not only would there be a resourcing issue associated with delivering this additional tasking burden for circa 18 months but even Swanwick (Mil) do not have access to the assured low-level coverage needed for visibility of the surface contacts in the area concerned and this is a key enabler for the provision of the full range of specialised services required.
- (3) Utilisation of any UK Airspace Surveillance And Control (ASACs) or maritime surveillance assets whenever they are available on station was ruled out almost immediately as they have other important tasking to conduct and neither are suitably resourced or equipped to provide the full range of Air Traffic Control services supported by Plymouth (Mil).
- (4) **In summary, the utilisation of other control agencies or capabilities was assessed as not viable.**

OPTION 3 - Applicability of Design Principles											
1	2	3	4	5	6	7	8	9	10	11	12
MET (or partially met) A DP				DID NOT MEET A DP				DP NOT APPLICABLE			

7.4.4 MITIGATION OPTION 4 - Establish Radio Mandatory Zones (RMZs)

- (1) On its own, the establishment of Radio Mandatory Zone (RMZ) airspace could be used to provide ATC (and other users on the same frequency), with very limited information obtained via rudimentary position reporting using 2-way voice communication. However, an RMZ offers no real-time assistance to the detection, identification and the maintenance of track identity of traffic and these underpin the whole provision of separation and accurate Traffic Information (TI). When controllers are operating using SSR only (as will be the case here), unless the aircraft concerned is also operating a transponder it remains undetected.
- (2) Non-transponder equipped aircraft entering the area concerned further undermines the controllers' and other aircrews' situational awareness as unless the traffic is detected by SSR or Traffic Collision Avoidance System (TCAS) / Airborne Collision Avoidance System (ACAS) a radio alone cannot be effectively used to provide separation against un-detected, non-transponder equipped traffic.
- (3) **Whilst it might appear to align with several of the Design Principles, establishing an RMZ in isolation provides little or no mitigation to the enhancement of real-time situational awareness problem and was therefore discounted on that basis in favour of a more beneficial option.**

OPTION 4 - Applicability of Design Principles											
1	2	3	4	5	6	7	8	9	10	11	12
MET (or partially met) A DP				DID NOT MEET A DP				DP NOT APPLICABLE			

7.4.5 MITIGATION OPTION 5 - Transponder Mandatory Zones (TMZs) Airspace.

- (1) By definition, TMZ airspace is airspace of defined dimensions wherein the carriage and operation of pressure altitude reporting transponders is mandatory. As many aircraft are radio and transponder equipped nowadays this imposes relatively few compliance problems, especially where there are alternative arrangements available for any non-compliant airspace users as in this case.
- (2) The establishment of TMZ airspace should therefore provide the necessary situational awareness in the areas it is felt most needed during the period that the Wembury Point PSR and Portland PSR are unavailable. Both the controllers at Plymouth (Mil) providing ATC services using SSR only as well as any airspace users equipped with TCAS / ACAS would benefit. It could be designed to be flexible and proportionate allowing civilian traffic to conduct their normal day to day business and recreational flying whilst allowing the UK MOD to continue to meet their enduring need to safely deliver high-fidelity maritime and aviation operational training in support of UK National Security within the South Coast exercise Areas (SCXAs)
- (3) As an option, establishing TMZ airspace aligns well with the guidelines contained in the CAA's Policy Statement (See Annex 2 – CAA Policy for Radio Mandatory Zones and Transponder Mandatory Zones on Page 167), which describes the use of TMZs as appropriate for use *"where additional measures to enhance flight safety are required, but the establishment of a more restrictive classification of airspace is not warranted, proportionate measures are necessary. Such measures include the establishment of either an RMZ or a TMZ. The creation of an RMZ/TMZ allows the airspace to retain its original classification, yet also allows for enhanced situational awareness for all users and for ATC. This therefore increases safety for all aircraft flying in that block of airspace while imposing minimal additional restrictions"*.

- (4) Given the suitability of a TMZ to mitigate the problem of PSR unavailability it was agreed that the TMZ option would be the option taken forward for further development.

OPTION 5 - Applicability of Design Principles											
1	2	3	4	5	6	7	8	9	10	11	12
MET (or partially met) A DP				DID NOT MEET A DP				DP NOT APPLICABLE			

7.5 THE DEVELOPMENT OF THE PREFERRED TMZ OPTION DESIGNS

- (1) An Airspace Change Working Group was initially formed which included key representatives of the Aquila Engineering, Programme Delivery, Communications, Safety and Environmental teams, UK MOD Air Traffic Controllers, Aircrew, FOST Operations Staff and [REDACTED] Aircrew.
- (2) The UK MOD and [REDACTED] stakeholders were all suitably qualified and experienced personnel, being involved in the day to day management and execution of the operational maritime and aviation training serials being conducted in the airspace concerned. The MOD ATC controllers in particular have extensive knowledge of the airspace and user profiles as they provide a range of control services to both civil and military airspace users across the South West region. The Aircrew representatives also fully understood the airspace and were able to add the all-important operational context to the design, providing details of the requirements for the profiles being flown for the various scenarios.
- (3) Initially, it was proposed that TMZ A should cover the Plymouth Danger Areas block in its entirety and similarly, TMZ C should cover the whole of the Portland Danger Areas block as the TMZ boundaries could then be easily aligned with recognised, pre-existing airspace constructs as shown in Figure 21 below.
- (4) As a result of stakeholder feedback received during the engagement process, this initial design was later amended and the proposed TMZ boundaries were reduced in size to remain within the brown and yellow borders shown. At the request of the GAA following discussion with the MOD Controlling Authority representatives it was agreed that the coastal DAs bordered in green in Figure 21 below could be excluded from the TMZs A and C in order to provide more flexible use of the coastal transit areas which is where it was felt that airspace users flying in non-transponder equipped aircraft were most likely to wish to operate.

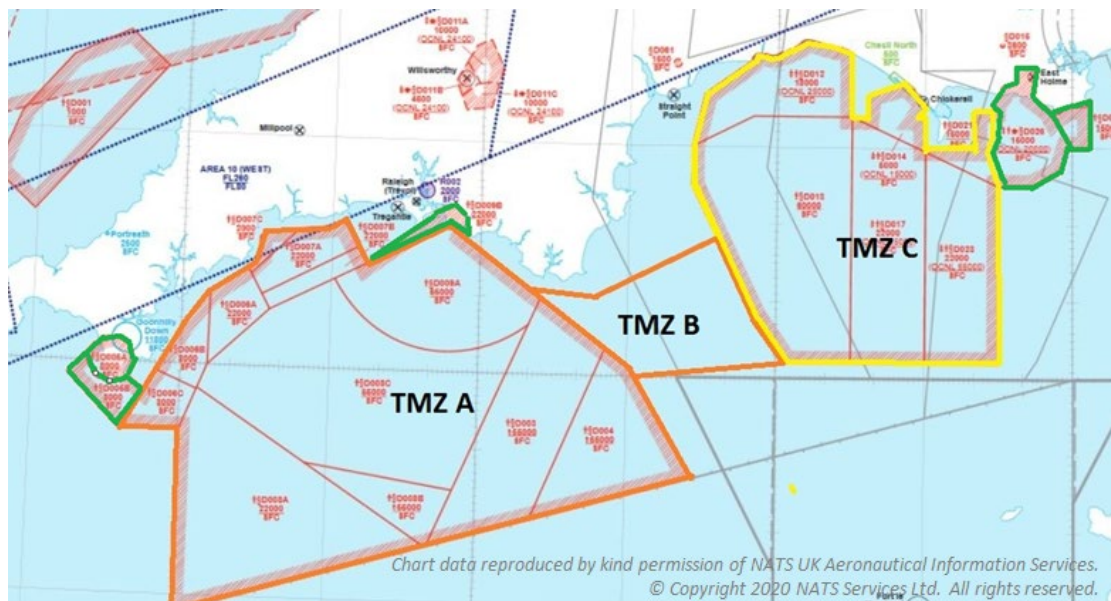


Figure 21 The original TMZ Design and variances made as a result of the stakeholder feedback received.

- (5) TMZ B however, which was to provide a TMZ corridor effectively linking the two DA blocks, was to prove more a difficult design as it had to accommodate a number of key operational requirements. The detailed knowledge provided by the MOD and [REDACTED] key stakeholders was therefore extremely beneficial during the evolution of the preferred TMZ B design.
- (6) A shortlist of 3 x potential TMZ B options was drawn up for further consideration as described in Paras 7.5.1 to 7.5.3 below.

7.5.1 TMZ B Option 1

- (1) Consisting of a 10nm wide corridor design (shown in Figure 22 below), TMZ B Option 1 was the simplest and smallest in area of the three proposed TMZ B construct lateral design options under consideration.
- (2) Whilst it clearly would offer a corridor of appropriate situational awareness within the Class G airspace it was not wide enough to accommodate the desired flexibility of transit vectors required to meet the tasking. It was quickly apparent that this design would not therefore meet the needs of the operators, as due to its limited breadth it was difficult for aircraft to remain within it whilst still being able to deliver the diversity of training profile vectors required.
- (3) The various start gates and target position combinations have been developed and refined by the UK MOD over many years. They have been optimised to ensure that they can deliver the maximum number of safe training interactions within a complex programme of Air, Surface and Sub-Surface daily training serials.

- (4) Of particular concern to the operators was the scenario when ships were positioned in the northern part of D009A. The northern part of D009A is an important area due to its close proximity to the main naval base at Plymouth as it is through this area that the majority of ships will enter and leave the exercise areas. The superimposed blue hashed lines on the figure below illustrate the limits of the geometry available for aircraft remaining within the TMZ Option 1 corridor whilst flying a straight line track in order to target a ship in the Plymouth DAs. It clearly shows that the area in the northern part of D009A (circled in yellow in Figure 22Figure 24 below) lies outside the target area supported by the corridor.
- (5) As the ships manoeuvre further away from the harbour and coastal areas so it becomes necessary for the starting position for East Gate in the Portland DAs to be moved further to the north. Sometimes depending on the disposition of ships themselves it can be required to be positioned as far north as within D012 (Lyme Bay North) for certain serials. If this option was adopted then use of the East Gate (shown by the blue triangle) to reach the northern part of D009A and several other gate positions would more than likely need to be discontinued
- (6) To benefit fully from the enhanced situational awareness provided by the corridor proposed in TMZ B Option 1, both the surface targets and the air threat starting 'gate' positions would have to be 'compressed' to fall within the blue hashed 'bow-tie' area shown. This compression of surface assets within a much smaller space is in itself unsatisfactory as freedom to manoeuvre is required. Positioning of surface units anywhere other than that would introduce unrealistic 'dog-leg' turns into the aircraft attack profiles which is unacceptable from a simulation realism perspective. Most real-world missiles do not make the sort of abrupt track adjustments that a fast jet constrained by this narrow TMZ corridor would have to make in order to exercise elements of a dispersed fleet.
- (7) For a realistic training scenario both the Hawk aircraft simulating the missile in flight and the Falcon aircraft simulating the launching aircraft platform need to be on the same track bearing after leaving the gate pointing directly towards their intended target. The Falcon can then use its electronics pods to simulate the missile's electronic emissions as the Hawk accelerates ahead towards the target. If turns need to be introduced by the Hawk then the Falcon aircraft (running some miles behind the hawk and simulating the launching platform) will become misaligned and not be pointing directly at the intended target ship during key stages of the profile. The target ship may not therefore receive the focussed electronic threat simulations.
- (8) Travelling in the other direction, attacks on ships within the Portland DAs from a West Gate starting position (perhaps some 30nm to the south, south west of RNAS Culdrose) would also suffer from similar geometric limitations.

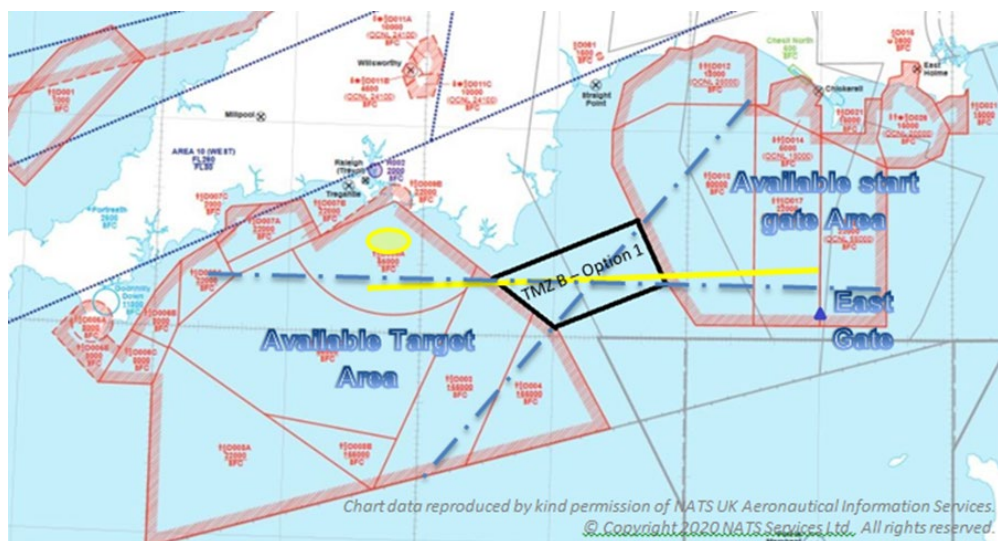


Figure 22 TMZ B Option 1

7.5.2 TMZ B Option 2

- (1) In order to improve the spread of attack angles and to enable continued use of the current most southerly East Gate position, the TMZ B Option 1 corridor was widened further on the southern side (as shown in Figure 23 below).
- (2) This improved the situation slightly, but when maintaining within the corridor it still did not provide the necessary alignment that was required for 'attacking' shipping in the northern part of D009A (circled in yellow) without introducing an unacceptable 'dog-leg' turn to the profile.

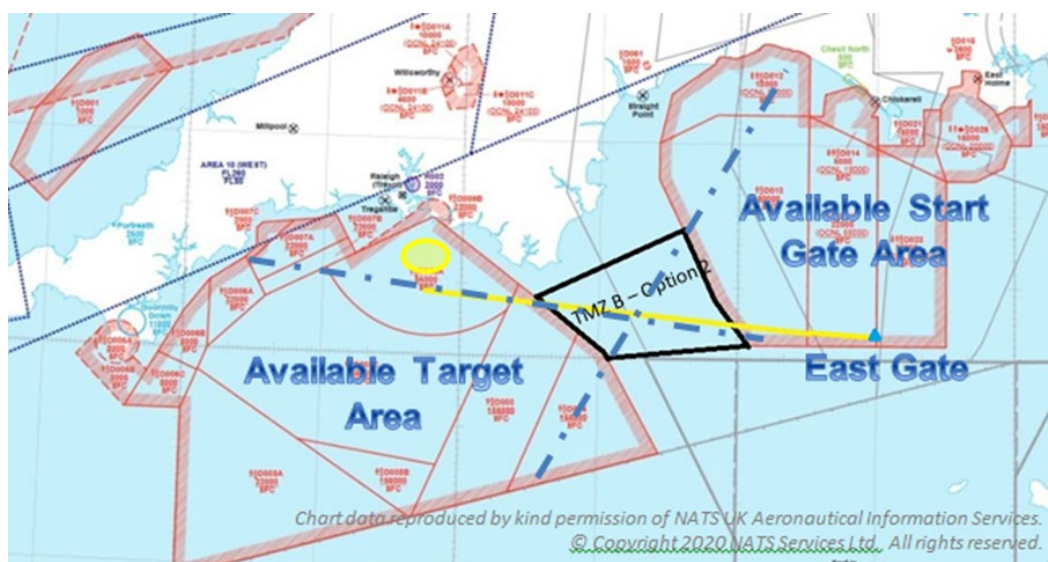


Figure 23 TMZ B Option 2

7.5.3 TMZ B Option 3

- (1) TMZ B Option 3 (shown in Figure 24 below) was considered to be a significant improvement on TMZ B Option 2, as it had the benefit of an angled 'fillet' of TMZ airspace in the north western corner. Due to the 'fillet' it became possible to open up a sector providing another 4nm to 6nm of extra coverage to the key areas in the north of D009A. This enhanced the range of positioning and manoeuvring options available for the ships as well as providing the aircraft with much better start gate options to achieve the required straight line track to reach shipping within the northern part of EG D 009A avoiding the need for unrealistic major track adjustments to be made.

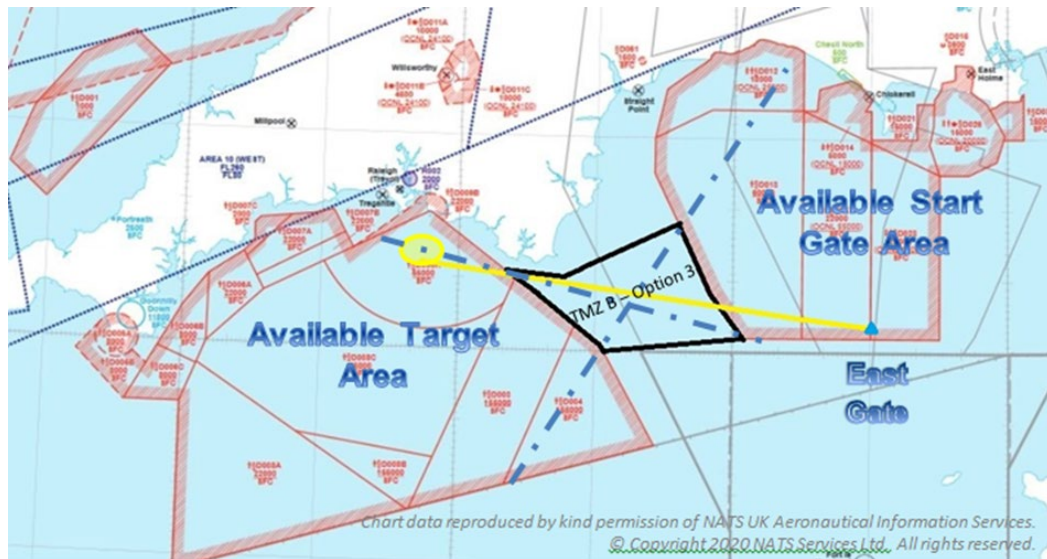


Figure 24 TMZ B Option 3

- (2) TMZ B Option 3 was subsequently taken forward as the preferred solution to 'bridge' the Class G airspace.

7.5.4 Other stakeholder feedback which influenced the design

- (1) During the wider stakeholder engagement period the General Aviation Alliance (GAA) provided the majority of the valuable stakeholder feedback received by Aquila. The GAA's website states that they "are an independent group and partnership of organisations representing UK General Aviation (GA), and Sports and Recreational Aviation interests (S&RA). Their objective is to promote and protect the cost-effective use of GA and S&RA aircraft, and their owners, pilots and the associated operations, and to actively participate in the formulation of regulations and actions that may affect their interests so as to ensure the welfare and the free and safe movement of these aircraft, pilots, owners and the associated operations."
- (2) The GAA's principle concern was to preserve the ability for non-transponder equipped aircraft to make transits along the coast and to that end it was communicated that in their opinion the TMZs being proposed by Aquila were "too broad-brush as the activity to be protected could be entirely out at sea, yet overland and coastal portions of the TMZs would be activated unnecessarily."

- (3) They also commented that the information supplied on the initial material we provided did not provide them with the adequate clarity of the areas themselves or the rationale behind their design and activation. Aquila accepted this and explained that in line with the CAA's engagement guidance the data provided in the first information drop was principally aimed at making people aware of the proposed change so that they could then make a judgement on whether they might be impacted by it and wish to find out more. The information package contained contact details to steer them towards the website where the more detailed information could be found should they wish to examine things in more detail.
- (4) A full copy of the Aquila responses is available at APPENDIX B to this document. In summary, Aquila accepted the GAA's objection and undertook to try and address the GAA's concerns by providing:
- (a) Additional clarity on details of the airspace overlaid on a CAA VFR chart to show precisely which of the Plymouth and Portland DAs will be incorporated within TMZ A and TMZ C.
 - (b) An explanation of the rationale as to why the TMZs are not all activated simultaneously.
 - (c) The rationale behind the design of TMZ B and why it was felt necessary to establish it during the extended period of Primary Surveillance Radar unavailability.
 - (d) An explanation of how the TMZs have been designed (with airspace user flexibility in mind), in order to minimise restrictions to airspace users.
- (5) Further to receiving the GAA's feedback, as the proposed TMZ A and TMZ C were to be established over pre-existing Danger Areas (some of which do have coastal overland extensions), Aquila also approached the DA Controlling Authority representatives to discuss if reducing the footprint of the TMZ along the coastal stretches might be possible.
- (6) By way of a concession, it was agreed with the MOD stakeholder that certain of the coastal areas which had an extension overland could be excluded from the proposed TMZs in order to try and reduce the impact on non-transponder equipped GA traffic making their transits along the coast.
- (7) In the Plymouth DA complex this led to the removal of EG D005A and EG D005B (in the vicinity of Predannack Airfield and Lizard Point), and D009B (in the vicinity of Plymouth) from TMZ A. In the case of TMZ C it removed EG D026 (in the vicinity of Lulworth Cove) and D031 (adjacent to Durlleston head, Swanage).
- (8) A more flexible and dynamic approach to the activation timings for TMZ B was also brokered to further minimise the impact on any GA traffic wishing to operate within the Class G airspace between the DA blocks.
- (9) The proposed vertical dimensions of the TMZs were also reduced from a Flight Level (FL) 110 to FL100 upper limit for TMZ A and TMZ C. A decision to reduce the proposed upper limit of TMZ B to FL85 was similarly taken to eliminate the potential complication resulting from introducing 'steps' in the TMZ on either side of the Airway N862.
- (10) In a follow up communication, the GAA further added that "Whilst we understand the need for the ACP and are grateful for the changes made so far we still wish to see some other changes, namely that the areas A and C are sub-divided to minimise the potential effects upon VFR aircraft wishing to follow the coast. We understand that the boundaries of Areas A and C are contiguous with the existing Danger Areas. We do not have the facilities to confirm this but it would make sense that the Danger Areas were designed so that portions of the total can be used as needed thus minimising the impact upon other aviation e.g. EGD013 and/or EGD017 and/or EGD023 could be in use yet EGD012 not and thereby the DACS would be automatically able to grant a transit along that bit of the

coast, keeping right if heading east. With the proposed TMZ only transponder equipped aircraft would be able to seek such a transit. However were Areas A and C to be subdivided into "A offshore", a series of "A coastal", "C offshore" and a series of "C coastal", using the existing DA boundaries, so that those DAs with any portion within say 1nm of the coast would be in one of the "coastal" TMZs and the rest in one of the three "offshore" TMZs, A, B and C."

- (11) It can be seen in Figure 21 above, that along the approximately 160nms of coastline between Lizard Point in Cornwall and Durlleston Head, near Swanage in Dorset the concessions already agreed in response to the GAA's engagement feedback mean that there are now only two stretches of coastline remaining where the proposed TMZ boundary would actually run immediately along the seaward side of shoreline itself. The first is an approximately 13 nm stretch of the coast between Seaton and Burton Bradstock bordered by EG D012, and the second is a 5 nm stretch roughly between Abbotsbury and Wyke Regis bordered by EG D014, where existing DAs are to be overlaid by TMZ C. All other DA boundaries included in the TMZs would appear to start a sufficient distance offshore to allow any non-transponder equipped aircraft to complete an eastbound coastal transit and still obey the VFR Right Hand Traffic Rule when following a line feature such as the shoreline. Given the above the Airspace Change Working Group decided that investigating further sub-divisions of the Danger Areas and TMZ airspace involved was somewhat unnecessary, especially as a process would exist for any non-transponding traffic to arrange a co-ordinated transit simply by contacting Plymouth (Mil).
- (12) Full details of Aquila's responses to the GAA and other stakeholders can be found in APPENDIX B of this document.

8 AIRSPACE DESCRIPTION REQUIREMENTS

Table 4 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 or structure; for example airway, UAR, Conditional Route, CTR, SIDs / STARs, holding patterns, etc.	TMZs (see Section 5 for full details), extracts from CAA Aeronautical Data Template showing WGS-84 (AQD checked) co-ordinates also enclosed at Appendix A3 and also in Table 1, Table 2 and Table 3 in Section 5.
b	The hours of operation of the airspace and any seasonal variations.	TMZ A and TMZ C: Monday to Thursday 0800-2359 (0700-2300), Friday 0800-1600 (0700-1500); and as activated by NOTAM. TMZ B: Activated dynamically by NOTAM as required within the time windows above. (Timings in brackets show seasonally adjusted activation times)
c	Interaction with domestic and international en-route structures, TMAs or CTAs with an explanation of how connectivity is to be achieved. Connectivity to aerodromes not connected to CAS should be covered.	It is assessed that this proposal would have little or no impact on current interactions or CAS connectivity. See Section 6.1.1 Airfield and Airport Impact statement.
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.	N/A – Majority of TMZ airspace is to be established over pre-existing Danger Areas. This proposal does not change any existing or introduce any new buffers.
e	Supporting information on traffic data including statistics and forecasts for the various categories of aircraft movements (passenger, freight, test and training, aero club, other) and terminal passenger numbers.	N/A – It is assessed that this proposal would have little or no impact on airspace usage (see Section 6).
f	Analysis of the impact of the traffic mix on complexity and workload of operations.	N/A - It is assessed that this proposal would have no impact on the traffic mix (see Section 6).
g	Evidence of relevant draft Letters of Agreement, including any arising out of consultation and/or airspace management requirements.	N/A – It is assessed that this proposal does not change any existing/ introduce new LOAs; cross-border elements are not impacted (see Section 6 and copy of LOA between Exeter Airport and FOST at Appendix A1).

	The proposal should provide a full description of the proposed change including the following:	Description for this proposal
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).	The TMZs are proposed to be implemented as per Regulation (EU) No. 923/2012, SERA.6005 (See [Ref. 5]). CAA Policy for Radio Mandatory Zones and Transponder Mandatory Zones (See Annex 2 of this document).
i	The proposed airspace classification with justification for that classification.	No changes to existing airspace classifications are intended.
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.	Many references made within the document set to Aquila's commitment to provide all users with equitable access to the airspace, but please see Sections 5.3.6 (2) and (3), 5.5 (2), 6.1 (3) and 7.5 (4).
k	Details of and justification for any delegation of ATS.	N/A – Delegation of service provision was considered but discounted as part of the options analysis process. There are no plans to change or delegate the provision of the current ATS delivery.

9 SAFETY ASSESSMENT

- (1) A full Safety Assessment and Operational Risk Assessment developed in accordance with CAP 760 guidance are included at Annex 3 of this document.

10 OPERATIONAL IMPACT

Table 5 Operational Impact

	An analysis of the impact of the change on all airspace users, airfields and traffic levels must be provided, and include 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.	It is assessed that this proposal will not introduce any changes or impacts to current GAT or OAT airspace usage patterns, as it should only affect those aircraft flying without a transponder. A procedure will be available to facilitate transits for any non-transponder equipped traffic through making contact with ATC at Plymouth (Mil). (See Section 0 and Section 6)
b	Impact on VFR operations (including VFR routes where applicable).	It is assessed that this proposal will introduce few if any changes or impacts to current VFR operations or airspace usage patterns, as it should only affect those aircraft flying without a transponder. A procedure will be available to facilitate transits for any non-transponder equipped traffic through making contact with ATC at Plymouth (Mil). (See Section 6)
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 - No impacts on SIDs, STARs or holding patterns have been identified.
d	Impact on aerodromes and other specific activities within or adjacent to the proposed airspace.	N/A - No impacts on adjacent aerodromes or other specific activities have been identified. (See Section 6.1.1).
e	Any flight planning restrictions and/or route requirements.	Operation of a serviceable transponder will be required during the periods of TMZ activation. Subject to other activity, non transponder equipped traffic may also be provided with a conditional clearance to transit the TMZs and the Danger Areas by making contact with the Controlling Authority (Plymouth (Mil)).

Use, duplication or disclosure of data contained on this sheet is subject to the restrictions on page 1 of this document.

11 SUPPORTING INFRASTRUCTURE AND RESOURCES

Table 6 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 – No changes to RNAV or conventional navigation methodology or procedures are being proposed.
b	Evidence to support primary and secondary surveillance radar (SSR) with details of planned availability and contingency procedures.	As part of Aquila's surveillance equipment transition planning it is a pre-requisite for the legacy co-mounted Cardion SSR equipment to be replaced first by new stand-alone, tower mounted Thales RSM 970 antennae at both the Wembury Point and Portland sites. This work at both sites must be completed and the new SSR fully operational prior to any work commencing on the first of the PSR equipment upgrades at Wembury Point. ATC Plymouth (Mil) already has established contingency procedures in place for surveillance equipment failures.
c	Evidence of communications infrastructure including R/T coverage, with availability and contingency procedures.	The existing communications infrastructure and coverage for the proposed TMZ areas will remain adequate. Main, Stand-by and Emergency radios will continue to remain available as normal throughout the period of the PSR outages.
d	The effects of failure of equipment, procedures and/or personnel with respect to the overall management of the airspace must be considered.	Any variance from the legacy arrangements in the display of the equipment status or the actions to be taken in the event of an equipment failure will be briefed as part of the introduction to service training package. The existing contingency procedures and management of the airspace will continue throughout the activation periods of the proposed TMZs as per current operations. See RA 3240 – Contingency Operations for Simultaneous Failure of Surveillance Radars and / or Air Traffic Management Communications Systems. [Ref. 8]
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.	The existing responses to failure modes and employment of contingency procedures and management of the airspace will continue throughout the activation periods of the proposed TMZs as per current operations.

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	General requirements	Evidence of compliance/ proposed mitigation
f	A clear statement on SSR code assignment requirements.	N/A – No change to current SSR code assignment for TMZ operations is envisaged.
g	Evidence of sufficient numbers of suitably qualified staff required to provide air traffic services following the implementation of a change.	<p>Plymouth (Mil) have confirmed that they will have adequate SQEP resources available to meet the Operational Airspace Management task. (Please see confirmatory statement of resource availability enclosed at Appendix D.13).</p> <p>Additional training on the new equipment and any differences to the presentation of information / symbology will be provided as part of the introduction to service activities package.</p>

12 AIRSPACE AND INFRASTRUCTURE

Table 7 Airspace and Infrastructure

	General Requirements	Evidence of compliance / proposed mitigation
a	The airspace structure must be of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to fully contain horizontal and vertical flight activity in both radar and non-radar environments.	The proposed TMZ is designed to contain the various vertical and lateral flight profiles required by the Military users whilst balancing the need to provide a least restrictive solution for itinerant GA traffic (See Section 5 and Section 7.5).
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 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.	<p>The proposed TMZ A and TMZ C are intended to be established over the pre-existing Plymouth and Portland Danger Areas blocks. It is therefore assumed that any existing Buffer Zone requirements or Policy Dispensations established to ensure that the many activities described in Section 3.2 can be safely conducted within these DAs in accordance with [Ref. 6] should also prove adequate for the establishment of contiguous temporary TMZ airspace.</p> <p>(See proposed airspace diagram at Figure 5 also Sections 5.3.4 (4) and 5.3.4 (5)).</p> <p>During the engagement process the MOD aircrew who were assisting with the design development felt that it was unnecessary to provide additional buffers within the proposed TMZ B as they would need to be able to continue to operate on their normal transit routes in both VMC and IMC in compliance with the ANO. It was stated that they would continue to exercise enhanced vigilance in VMC and maintain their allocated sanctuary level when transiting in IMC near the proposed northern border, as being situated near the coast within Class G airspace this was the most likely place for them to encounter any non-transponding GA traffic. TMZ B is bordered on the eastern and western sides by the aforementioned Plymouth and Portland Danger Area blocks within which it was considered that any other traffic present should be known to their controllers. The proposed western end of the TMZ B southern border lies some 15nm offshore from Start Point and the eastern end is some 28 nm offshore and adjacent to the Channel Islands CTA. Transponder carriage is already a pre-requisite, within the Channel Islands CTA therefore given this and the distance from the nearest point of land it significantly reduces the risk from encountering itinerant non-transponding GA traffic approaching TMZ B from the south.</p>

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	General Requirements	Evidence of compliance / proposed mitigation
c	The Air Traffic Management system must be adequate to ensure that prescribed separation can be maintained between aircraft within the airspace structure and safe management of interfaces with other airspace structures.	Promulgation of the TMZ co-ordinates and activation times will ensure that surveillance of aircraft when operating with SSR only is effective such that the tracking and separation between co-operative transponding aircraft can be maintained.
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.	No change to current ATC procedures.
e	Within the constraints of safety and efficiency, the airspace classification should permit access to as many classes of user as practicable.	No change to the airspace classification. The selection of a Transponder Mandatory Zone airspace solution to enhance situational awareness is considered to be the least restrictive measure available, providing flexibility and permitting access to as many classes of airspace user as is practicable.
f	There must be assurance, as far as practicable, against unauthorised incursions. This is usually done through the classification and promulgation.	It has been shown that normal operations can continue safely in the airspace during short-term PSR and SSR outages. In VMC or IMC when used in accordance with the regulations even without any surveillance radar being available the airspace itself is not considered to be inherently dangerous. Given this planned PSR outage is for a considerably longer period however, it was considered prudent to try and provide a proportionate level of mitigation across the regularly used transit routes and selected operating areas where enhanced situational awareness and the ability to track co-operative transponding aircraft using SSR only would be most effective.
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.	The existing contingency procedures and notification of status methods would continue to be applied.
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.	Details of this change will be notified well in advance of the proposed Implementation dates as per the AIRAC cycle target dates and reserve dates for both activation Phases shown in Figure 4 The Schedule for the Temporary Airspace Change Any dynamic activations of the TMZ airspace for TMZ B will be promulgated by NOTAM.

	General Requirements	Evidence of compliance / proposed mitigation
i	There must be sufficient R/T coverage to support the Air Traffic Management system within the totality of proposed controlled airspace.	The existing communications infrastructure and coverage for the proposed TMZ areas will remain adequate. Main, Stand-by and Emergency radios will continue to remain available as normal throughout the period of the PSR outages.
j	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered	Plymouth (Mil) already benefits from a sound working arrangement with the Controlling Authority of the CAS the lies in close proximity to the proposed TMZ airspace. Arrangements are regularly made on behalf of FOST / Plymouth (Mil) to facilitate the use of certain levels within Airway N862 to accommodate specific aviation training profiles that sometimes need to be flown against the ships. Should more formal agreements be felt necessary then this will of course be considered.
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.	Following the recent extensive targeted stakeholder engagement period there has been no indication of this being necessary. However, in conjunction with Plymouth (Mil) and other key stakeholders, as the Sponsor Aquila will monitor this during the implementation periods and act to resolve any problems if a need should arise.

Table 8 ATS Route requirements

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

Table 9 Terminal Airspace requirements

	Terminal Airspace requirements	Evidence of compliance/ proposed mitigation
a	The airspace structure shall be of sufficient dimensions to contain appropriate procedures, holding patterns and their associated protected areas.	N/A – It is not terminal airspace and there are currently no procedures active within the proposed areas.
b	There shall be effective integration of departure and arrival routes associated with the airspace structure and linking to designated runways and published instrument approach procedures (IAPs)	N/A – It is not terminal airspace and there are currently no departure and arrival routes or instrument approach procedures (IAPs) to consider within the proposed areas.
c	Where possible, there shall be suitable linking routes between the proposed terminal airspace and existing en-route airspace structure	N/A – It is not terminal airspace and there are currently no plans to introduce any linking routes.
d	The airspace structure shall be designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace	Airspace users will be able to apply appropriate terrain clearances within the proposed airspace. Military airspace users currently apply a Minimum Safety Altitude (MSA) based on 3400ft AMSL within these areas when in IMC, and use 3500ft QNH as their lowest IMC sanctuary altitude with aircraft separated at 1000ft intervals above this. This drives the requirement for the vertical upper limit of the TMZs.
e	Suitable arrangements for the control of all classes of aircraft (including transits) operating within or adjacent to the airspace in question, in all meteorological conditions and under all flight rules, shall be in place or will be put into effect by the change sponsor upon implementation of the change in question (if these do not already exist)	The procedures for providing the appropriate ATS are already applied by Plymouth (Mil) controllers to all aircraft categories; this will remain the case during the change period.
f	The change sponsor shall ensure that sufficient visual reference points are established within or adjacent to the subject airspace to facilitate the effective integration of VFR arrivals, departures and transits of the airspace with IFR traffic.	Visual Reference / Reporting Points (VRPs) relating to geographic coastal features are available for transit traffic to report their location in the vicinity of the coastline and inland. As much of the airspace for the TMZs is to be established over the sea it is a little bit more difficult to establish meaningful VRPs in these areas.
g	There shall be suitable availability of radar control facilities	Although some PSR surveillance will be unavailable there will still be extensive SSR coverage available to provide a 'limited' radar service with separation against transponding traffic only using SSR.

	Terminal Airspace requirements	Evidence of compliance/ proposed mitigation
h	The change sponsor shall, upon implementation of any airspace change, devise the means of gathering (if these do not already exist) and of maintaining statistics on the number of aircraft transiting the airspace in question. Similarly, the change sponsor shall maintain records on the numbers of aircraft refused permission to transit the airspace in question, and the reasons why. The change sponsor should note that such records would enable ATS managers to plan staffing requirements necessary to effectively manage the airspace under their control	This will be discussed with Plymouth (Mil) staff prior to Implementation to ensure that suitable measures are put in place to allow accurate data to be collected and made available for analysis post implementation.
i	All new procedures should, wherever possible, incorporate Continuous Descent Approach (CDA) profiles after aircraft leave the holding facility associated with that procedure	N/A – It is not terminal airspace and there are no procedures of this sort taking place within the airspace concerned

Table 10 Off-route airspace requirements

	Off-route airspace requirements	Evidence of compliance/ proposed mitigation
a	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered	Plymouth (Mil) already benefits from a sound working arrangement with the Controlling Authority of the CAS that lies in close proximity to the proposed TMZ airspace. Arrangements are regularly made on behalf of FOST / Plymouth (Mil) to facilitate the use of certain levels within Airway N862 to accommodate specific aviation training profiles that sometimes need to be flown against the ships. Should more formal agreements be felt necessary then this will of course be considered.
b	Should there be any other aviation activity (military 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	It is intended that aerial activities within the DAs and the surrounding airspace will continue as near normal as possible throughout the period of PSR unavailability. In the event of a conflict of interest being brought to the attention of the change sponsor the change sponsor will engage with the stakeholder parties concerned in an attempt to resolve the matter.

13 ENVIRONMENTAL ASSESSMENT

Table 11 Environmental Assessment

	Theme	Content	Evidence of compliance/ proposed mitigation
a	WebTAG analysis	Output and conclusions of the analysis (if not already provided elsewhere in the proposal)	N/A - Assessed not required due to minimal impact and areas not over land. (Please see Environmental Assessment enclosed at Annex 4).
b	Assessment of noise impacts (Level 1/M1 proposals only)	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	Please see Environmental Assessment (enclosed at Annex 4) Sections 4.2.1 and Section 6 refer.
c	Assessment of CO2 emissions	Consideration of the impacts on CO2 emissions, and where appropriate the related qualitative and/or quantitative analysis If the change sponsor expects that there will be no impact on CO2 emissions impacts, the rationale must be explained	Please see Environmental Assessment (enclosed at Annex 4) Sections 4.2.2 and Section 6 refer.
d	Assessment of local air quality (Level 1/M1 proposals only)	Consideration of the impacts on local air quality, and where appropriate the related 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	Please see Environmental Assessment (enclosed at Annex 4) Sections 4.2.3 and Section 6 refer.
e	Assessment of impacts upon tranquillity (Level 1/M1 proposals only)	Consideration of any impact upon tranquillity, notably on Areas of Outstanding Natural Beauty or National Parks, and where appropriate the related qualitative and/or quantitative analysis If the change sponsor expects that there will be no tranquillity impacts, the rationale must be explained	The activities conducted within the airspace will remain exactly the same as before the implementation of the TMZs No additional impacts are therefore anticipated. Please see Environmental Assessment (enclosed at Annex 4) Sections 4.2.4 and Section 6 refer.
f	Operational diagrams	Any operational diagrams that have been used in the consultation to illustrate and aid understanding of environmental impacts must be provided	Please see response and stakeholder presentation diagrams in Appendices B3, B4 and B5.

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	Theme	Content	Evidence of compliance/ proposed mitigation
g	Traffic forecasts	10-year traffic forecasts, from the anticipated date of implementation, must be provided (if not already provided elsewhere in the proposal)	N/A – No empirical data for legacy operations was available to Aquila, therefore it was not possible to make any meaningful estimates or future traffic forecasts. Anecdotally, the experienced ATC operators at Plymouth (Mil) classified the traffic volumes encountered in the vicinity of the proposed TMZs as low.
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	Please see Environmental Assessment (enclosed at Annex 4 Sections 4 and 6 refer).

APPENDIX A- MISCELLANEOUS DOCUMENTS

A.1 LETTER OF AGREEMENT BETWEEN EXETER ATC AND FOST

LETTER OF AGREEMENT

Between

EXETER ATC

and

FLAG OFFICER SEA
TRAINING

Effective: 18 Feb 19
Revised:

**CONCERNING PROCEDURES FOR THE TRANSIT OF EG D012 BY GAT & OAT UNDER THE
CONTROL OF EXETER ATC & THE TRANSFER OF AIR SYSTEMS UNDER A LARS**

PURPOSE

1. The purpose of this Letter of Agreement (LoA) is to define procedures between Exeter ATC and Flag Officer Sea Training (FOST) in respect to operations within EG D012 that will promote the Flexible Use of Airspace.

DEFINITIONS

General Air Traffic (GAT)

2. Flights conducted in accordance with the rules and provisions of ICAO.

Operational Air Traffic (OAT)

3. Flights which do not comply with the provisions stated for GAT and for which rules and procedures have been specified by appropriate authorities.

Eastern Weekly Practice Program (EWPP)

4. All activity that is planned to take place within the Portsmouth and Portland Danger Areas is published by FOST in the EWPP. This document is published every Thursday and details the planned activity for the forthcoming week. The EWPP is sent out to all parties concerned for assimilation into their process. Any amendments made are sent to the same addressees.

Danger Area Crossing Service (DACS)

5. The appropriate and nominated Air Traffic Service Unit (ATSU) will, whenever the Danger Area activity permits, provide a clearance to air systems to cross the Danger Area.

Danger Area Activity Information Service (DAAIS)

6. London Information will pass relevant details of known activity in the Danger Areas when requested.

Lower Airspace Radar Service (LARS)

7. Lower Airspace Radar Service provides radar services to transiting civilian and military air systems, which are operating outside the boundaries of controlled airspace up to and including FL190.

INTRODUCTION

8. Exeter ATC frequently requires penetration of EG D012 airspace to expedite the routine control of departing, recovering and transiting traffic. Procedures within this LoA have been agreed such that, when activity within EG D012 allows, Plymouth Military Radar (on behalf of FOST) may grant long-term clearance for GAT/GAT under the control of Exeter ATC to penetrate EG D012.

CURRENT OPS

9. Danger Area EG D012 is a FOST controlled Danger Area, primarily for the purpose of sea-based firing, located in the Portland Danger Area complex and is promulgated as "Active" from:

0800 – 2359 Mon to Thu, 0800 – 1600 Fri

OT by NOTAM

All times are local

EG D012 is active up to 18,000 ft AMSL and 25,000 ft AMSL by NOTAM.

10. A DACS is available for all air users during the promulgated activity periods of all FOST Danger Areas. This service allows GAT and OAT up-to-date information on the status of these Danger Areas and permits air systems to enter the areas when permissible. The DACS is held by Plymouth Military Radar during the published opening hours and by RAF(U) Swanwick at all other times.

11. London Information provides a DAAIS for all FOST Danger Areas to military and civil air systems.

12. When Plymouth Military Radar is closed, RNAS Yeovilton ATC will provide an ATC service to Yeovilton-based air systems from SFC - 3000 ft AMSL within the Portland and Portsmouth exercise areas that have been allocated in accordance with the EWPP. The service will be provided utilising the Plymouth Military Radar Frequency 370.850 MHz which is made available to Yeovilton ATC on the closure of Plymouth Military Radar. It is SOP for Yeovilton-based air systems to monitor this frequency prior to operating in the Danger Areas.

LONG-TERM CROSSING CLEARANCE

13. Exeter ATC frequently requires penetration of EG D012. When activity within EG D012 allows, Plymouth Military Radar may grant long-term clearance for OAT/GAT under the control of Exeter ATC to penetrate EG D012, subject to the following conditions:

a. Plymouth Military Radar will advise Exeter ATC with details of the transit approval of EG D012 during the opening procedure.

b. Exeter ATC must strictly adhere to any time and/or level limitations imposed by Plymouth Military Radar.

c. Exeter ATC traffic must be on an Exeter, Western Radar or ORCAM squawk for the entire transit of EG D012. Additionally, the air system may be on a RAF(U) Swanwick squawk if the air system is being handed to them for airways joining, or any special purpose conspicuity codes provided that the air systems are identified to Plymouth Military Radar.

d. Subject to activity in EG D012, Plymouth Military Radar will pass on the long-term clearance to RAF(U) Swanwick at DACS handover.

e. Plymouth Military Radar will, where airspace activity allows, accept ad hoc requests for penetration of EG D012 outside of previously agreed level limitations. This may be for individual air systems or for a finite period if several air systems are expected and subject to the limitations in para c e.g. RNAV approaches to RW26 requiring entry into EG D012 at 2800 ft Exeter QNH.

f. Plymouth Military Radar has the right to rescind the agreement at any time.

14. Local procedures are to be employed within the workplaces of the agreed parties such that a clearly visible means of recording when long-term clearance of EG D012 is in force. This visible display will act as an aide memoir and must provide sufficient information such that no misunderstanding can arise between subsequent controllers at a control position.

AGREEMENT

15. Although EG D012 may not necessarily be scheduled for FOST use, it is agreed that FOST has the absolute right to the Danger Area airspace and can restrict or suspend the availability of EG D012 to external operators if necessary.

16. At all times FOST remains the controlling authority for EG D012.

LARS PROVISION

17. Normal ATC procedures will apply between Exeter ATC and Plymouth Military Radar with regard to the transfer of control for transiting air systems on a LARS.
18. Plymouth Military Radar will notify Exeter ATC upon their closure and to whom the DACS has been passed.
19. Plymouth Military Radar will provide a LARS to air systems requiring transit through their Area of Responsibility (AoR), when they are the best placed unit to do so.
20. Exeter and Plymouth Military Radar should pre-note flights either on a Traffic Service (TS) or a Deconfliction Service (DS) departing, arriving or transiting through their respective AoRs. Basic Service (BS) transit flights need only be notified to the receiving unit if there is a pertinent requirement to do so.
21. Transfer of control of flights, between units, is to be effected as follows:
- BS – Transfer of control without prior co-ordination or notification is to take place before entry into the relevant AoR, as defined above. Air systems are to be instructed to "freecall" the appropriate frequency.
 - TS – Air systems are to be passed Traffic Information on all conflicting traffic and instructed by Plymouth Military to "continue with", or alternatively by Exeter to "contact" the frequency as given in the prenote.
 - DS – So long as the air system is clear of any conflicting traffic they are to be instructed by Plymouth Military to "continue with", or alternatively by Exeter to "contact" the frequency as given in the prenote.
22. In the following circumstances a radar handover is to be completed. A prenote is still to be passed in order to aid the receiving controllers planning process.
- TS:
 - When a flight is subject to co-ordination, either internally or with another ATSU, the agreed action is to be handed over to the receiving controller, during the transfer of control.
 - When an air system is non-squawking, or transponding Mode 3A code 0000.
 - DS:
 - When a flight is subject to co-ordination, either internally or with another ATSU, the agreed action is to be handed over to the receiving controller, during the transfer of control.
 - When an air system is non-squawking, or transponding Mode 3A code 0000.
 - Air systems subject to avoiding action.

PARTIES OF THE AGREEMENT

23. For the avoidance of doubt it is hereby declared that the parties to the said agreement are Exeter ATC and Flag Officer Sea Training.

CANCELLATION

24. Cancellation of this LoA by any approving authority is possible at any time, provided that the cancelling party declares its intention to cancel with a minimum pre-notification time of 1 month before the date the cancellation is to take effect.

INTERPRETATION AND SETTLEMENT OF DISPUTES

25. Should any doubt or diverging views arise regarding the interpretation of any provision of this LoA, or in case of dispute regarding its application, all parties shall endeavour to quickly reach an acceptable solution.

AMENDMENT TO PROCEDURES

26. These procedures have been agreed by the undersigned. They are not to be amended without the written agreement of the signatories, their authorised representatives or successors.

VALIDITY

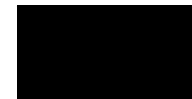
27. This LoA is valid from the date shown on Page 1 and is to be reviewed on a 3 yearly basis.

SIGNED

SIGNED



DATE



DATE

TELEPHONE COMMUNICATIONS

Exeter ATC	
FOST Plymouth Military Radar	

A.2 MINUTES OF CAA INITIAL ASSESSMENT MEETING - 1 APRIL 2019

**MINUTES OF SOUTH WEST DANGER AREAS – WEMBURY AND PORTLAND ASSESSMENT
MEETING HELD AT CAA AVIATION HOUSE ON APRIL 1ST 2019]**

April 3rd 2019

Figure 1 consists of three horizontal bar charts, each representing a different category: Present, Appointment, and Representing. Each chart shows the percentage of respondents for five age groups: 18-24, 25-34, 35-44, 45-54, and 55-64. The y-axis for all charts ranges from 0 to 100 percent.

- Present:** The 18-24 age group has the highest percentage (approx. 85%), followed by 25-34 (approx. 75%), 35-44 (approx. 65%), 45-54 (approx. 55%), and 55-64 (approx. 45%).
- Appointment:** The 18-24 age group has the highest percentage (approx. 85%), followed by 25-34 (approx. 75%), 35-44 (approx. 65%), 45-54 (approx. 55%), and 55-64 (approx. 45%).
- Representing:** The 18-24 age group has the highest percentage (approx. 85%), followed by 25-34 (approx. 75%), 35-44 (approx. 65%), 45-54 (approx. 55%), and 55-64 (approx. 45%).

CAA Assessment Meeting Opening Statement

CAA noted that the following "DAP 1916 - Statement of Need: *Intended Change to Notified Airspace and meeting agenda and powerpoint presentation*" were received in advance of the Assessment Meeting. The CAA acknowledged there had been technical issues however reminded the sponsor that it is their responsibility to upload the SoN and the Presentation. CAA explained the purpose of the meeting and confirmed that the meeting was an Assessment Meeting and not a Gateway. The CAA reinforced that the sponsor was required to provide a broad description of their proposed approach to meeting the CAA's CAP 1616 requirements but the CAA was not deciding whether the proposed approach met the detailed requirements of the CAA's process at this stage. The purpose of the Assessment Meeting (set out in detail in CAP 1616) was broadly:

- for the Sponsor to present and discuss their Statement of Need,
- to enable the CAA to consider whether the proposal concerned falls within the scope of the formal airspace change process,
- to enable the CAA to consider the appropriate provisional Level to assign to the change proposal.

Additionally, the sponsor was required to provide information on how it intended to proceed to fulfill the requirements of the airspace change process and to provide information on timescales. Lastly, the sponsor was required to provide information on how it intended to meet the engagement requirements of the various stage of the airspace change process.

	ACTION
<p>Item 1 – Introduction</p> <p>A presentation was used by the sponsor to support the meeting (2019-04-01 - Marshall South West potential airspace change CAA assessment meeting v4.pptx)..</p> <p>The CAA read the Meeting Opening Statement and the Sponsors presented the objectives of the meeting (see Slide 5)</p>	

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<p>CAA noted that on slide five point 5 it stated: 'For all to discuss and identify potential options to address the challenge'. CAA clarified it was not for the CAA to identify potential options. The purpose of the assessment meeting is for the sponsor to present the issue. The sponsor will subsequently develop their own solutions in line with developed design principles.</p>	
<p>Item 2 – Statement of Need (discussion and review)</p> <p>The Sponsor provided an overview of the Marshall programme and the ATM surveillance equipment which are going to be replaced at [REDACTED] [REDACTED] [REDACTED] and [REDACTED].</p> <p>The Sponsor presented the challenges in the South West being due to a loss of PSR service at Wembury and Portland during commissioning of the new PSR sensor.</p>	
<p>Item 3 – Issues or opportunities arising from proposed change</p> <p>Issues and opportunities were presented in Slide 15:</p> <ul style="list-style-type: none"> - Timing: The chosen solution needs to be implemented quickly to support installation of the radar at Wembury and Portland. The CAA noted that the Airspace Change Process was an established process with defined timescales. Depending upon the level there were opportunities to scale certain parts of the process. The Sponsor would however have to identify these scaling options and fully justify them in accordance with CAP1616. - Duration: The chosen solution will be in place during the transition period which corresponds to the period allocated to the installation and commissioning of the Wembury PSR (respectively Portland PSR) (respectively last [REDACTED]). However the solution could only be in place during SW exercise working hours (Tuesday/Thursday). - Safety: The Navy primary objective is to ensure safe operations in the South West airspace for MOD user and General Aviation community. 	
<p>Item 4 – Options to exploit opportunities or address issues identified</p> <p>Having identified the main design principles being SAFETY and EASY IMPLEMENTATION in the SW exercise areas, potential options (for information only) identified by the Sponsor are as per below:</p> <ul style="list-style-type: none"> - DO NOTHING: Not recognized safe enough by the Navy - UPDATE NOTAM during Navy operating hours during the transition period - TMZ to cover the Danger areas 24/7 - Other candidates might be identified during identification of Design principles and engagement with stakeholders <p>CAA notes that the design principles have not yet been established. In accordance with the process it is necessary for the Sponsor to develop their design principles considering any relevant stakeholder engagement. Furthermore, when considering the initial issue presented, which defined 3 specific areas, the CAA noted that different design principles may be appropriate for each area. This may lead to different solutions for each area, this is again for the Sponsor to determine</p>	

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<p>Item 5 – Provisional indication of the scale level and process requirements The CAA provided an overview of the CAP1616 process and generic associated timelines.</p> <p>The CAA noted that the intended duration of this ACP of 6-9 months meant this was outside of the scope of a typical Temporary Airspace Change which has a maximum duration of 90 days. The nature of the change being confined to over the sea would indicate at this stage this would be an indicative level M2 change. This would however be subject to the decision at the Define Gateway.</p> <p>The CAA noted that with Military changes environmental impacts of the Military aircraft may not be required to be considered. The subsequent environmental impact on Civil aircraft as a result of the change would need to be considered. This is outlined within CAP1616.</p> <p>The CAA provided an overview of the CAP1616 online portal and agreed to provide a link to an example of an ongoing Military ACP. In addition, the CAA agreed to provide contact details of members of the NATMAC group to assist with the Engagement process.</p>	
<p>Item 6 – Provisional process timescales Timescale has been provided by the Sponsor for information only, these date will be agreed at a later stage with the CAA.</p> <p>The CAA requested that post the Assessment meeting the Sponsor reviews and resubmits their proposed Timeline as soon as possible for consideration. It was noted that any change to a subsequently approved timeline would require renegotiation.</p> <p>The CAA requested that in addition to the timings outlined below that the Sponsor provides the dates they intend to submit the documentation at the various stages. These dates should take into account the timings outlined in CAP1616 for document checks etc.</p> <p>*After meeting Note – The time lines would need to be agreed prior to the Define Gateway, this would include submission date and targeted AIRAC date.</p>	
<p>Item 7 – Next steps The following actions have been agreed during the meeting:</p> <ul style="list-style-type: none"> - Sponsor to upload documents on Online Portal - Sponsor to issue minutes - Sponsor to update presentation - CAA to send a list of stakeholders (e.g. NATMAC) - CAA to send a link to an ACP example ([REDACTED]) - Sponsor to identify and formalise design principles. - Sponsor to identify and formalise main stakeholders. - Sponsor to propose dates for various gates of CAP 1616 process. <p>The CAA reiterated the requirement for the agreed redacted minutes to have been uploaded to the online ACP portal within 2 weeks of the Assessment meeting.</p>	<p>Sponsor Sponsor Sponsor CAA CAA Sponsor Sponsor Sponsor</p>

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<p>Item 8 – Any other business Nil</p>	
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ACTIONS ARISING FROM ACP 1916 ASSESSMENT MEETING

Subject	Name	Action	Deadline
ADMIN	E	Sponsor to upload documents on Online Portal	3-Apr-2019
ADMIN		Sponsor to issue minutes	3-Apr-2019
ADMIN		Sponsor to update presentation	3-Apr-2019
STAKEHOLDERS	E	CAA to send a list of stakeholders (e.g. NATMAC)	3-Apr-2019
GENERIC		CAA to send a link to an ACP example (MOD Combat air training)	3-Apr-2019
DESIGN PRINCIPLES		Sponsor to identify and formalise design principles	TBD
STAKEHOLDERS		Sponsor to identify and formalise main stakeholders	TBD
SCHEDULE	E	Sponsor to propose dates for various gates of CAP 1616 process	TBD

AQUILA ATMS Limited
ACP 1916 Sponsor

A.3 SCREENSHOTS OF CAA AERONAUTICAL DATA TABLES

Updated: 22 May 2020									
<div>Jump to Tab</div> <div>CAA Aeronautical Data Template</div> <div>Approval of ICARD reservations, WGS84 lateral data & the onward inclusion into AIP templates.</div> <div>Approval of project metadata.</div> <div>Civil Aviation Authority</div>									
Enter ACP Ref:		Enter Name of Airspace Change Project:			Submitted Vers.	Regulated Vers.	Overall Approval	AIP Templates	
ACP-2019-016		SOUTH WEST DANGER AREAS - WEMBURY AND PORTLAND			1.0		Not Approved		
Worksheet Name		Worksheet Content			Included?	Date Approved	CAA Regulator	Sheet Approval	
Core Data	ICARD		SLNC requested and reserved via the ICAO portal			No			
	Latitude & Longitude		Geographical points (independent and/or part of an area or route)			Yes			X
	Track & Distance		Calculation of the relationship between points (on routes)			No			
	ENR 2.1		All Lats/Longs and other details to form draft UK AIP entry			Yes			X
	ENR 3.1/3.2/3.5		All Lats/Longs, tracks, dist. and other details to form draft UK AIP entry			No			
	ENR 3.3		All Lats/Longs, tracks, dist. and other details to form draft UK AIP entry			No			
	ENR 5.1		All Lats/Longs and other details to form draft UK AIP entry			No			
AIP Templates	AD 2.17		All Lats/Longs and other details to form draft UK AIP entry			No			
	Other Airspace		All Lats/Longs and other details to form draft UK AIP entry			No			
	Metadata		Generic ADQ Metadata as described in CAP 1054.			Yes			X

Latitude & Longitude Data									
<div>Jump to Tab</div> <div>Latitude & Longitude Data</div> <div>✓ Paste ✓ x Paste x ✓ Paste ✓ x Paste x</div> <div>A sum total of 0 Regulatory issues indicated in this sheet</div>									
Name of Point	Primary Airspace	DAL	UK Accurac	Origination Type	Point Origination Description	Latitude	Longitude	Latitude	Longitude
TM2 A P1	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501904.00N	0040633.00W	501904.00N	0040633.00W
TM2 A P2	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501001.00N	0034740.00W	501001.00N	0034740.00W
TM2 A P3	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	500339.00N	0033430.00W	500339.00N	0033430.00W
TM2 A P4	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	500103.00N	0032910.00W	500103.00N	0032910.00W
TM2 A P5	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	494653.00N	0031655.00W	494653.00N	0031655.00W
TM2 A P6	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	494105.00N	0034912.00W	494105.00N	0034912.00W
TM2 A P7	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	493719.00N	0040938.00W	493719.00N	0040938.00W
TM2 A P8	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	492745.00N	0050000.00W	492745.00N	0050000.00W
TM2 A P9	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	495124.00N	0050000.00W	495124.00N	0050000.00W
TM2 A P10	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	495124.00N	0051200.00W	495124.00N	0051200.00W
TM2 A P11	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	495906.6162 N	0050505.395 4W	495906.6162 N	0050505.395 4W
TM2 A P12	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	500500.00N	0045948.00W	500500.00N	0045948.00W
TM2 A P13	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	500924.00N	0045430.00W	500924.00N	0045430.00W
TM2 A P14	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501244.00N	0044659.00W	501244.00N	0044659.00W
TM2 A P15	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501414.00N	0044441.00W	501414.00N	0044441.00W
TM2 A P16	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501647.00N	0044447.00W	501647.00N	0044447.00W
TM2 A P17	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501733.00N	0044334.00W	501733.00N	0044334.00W
TM2 A P18	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501801.00N	0043643.00W	501801.00N	0043643.00W
TM2 A P19	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501820.00N	0043152.00W	501820.00N	0043152.00W
TM2 A P20	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501857.00N	0042738.00W	501857.00N	0042738.00W
TM2 A P21	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501850.00N	0042458.00W	501850.00N	0042458.00W
TM2 A P22	Danger, Prohibited	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	501342.00N	0042309.00W	501342.00N	0042309.00W
TM2 B P1	FIR/UIR	3 - Routine	2km	Calculated	FOST SEA AREA CO-ORDINATE extended along northern boundary (501104N 00349.64W (DDMM.mm) & TM2 B P2) until it intersects EG D009A. Note: Current FOST SEA AREA was found not to be	501103.2056 N	0034949.1088 W	501103.2056 N	0034949.1088 W
TM2 B P2	FIR/UIR	3 - Routine	2km	Published by AIDU	FOST SEA AREA CO-ORDINATE	501000.00N	0033600.00W	501000.00N	0033600.00W
TM2 B P3	FIR/UIR	3 - Routine	2km	Calculated	A point at the intersection of the western boundary of EG D013 and an extended line following the northern boundary of Sea	501830.3620 N	0031230.8118 W	501830.3620 N	0031230.8118 W
TM2 B P4	FIR/UIR	3 - Routine	2km	Published AIP	DANGER AREA CO-ORDINATE	500800.00N	0030430.00W	500800.00N	0030430.00W

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B31				TMZ B P5																							
B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R											
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Name of Point	Primary Airspace	DAL	UK Accurac	Origination Type	Point Origination Description	Latitude	Long	Latitude Double	Long Double	Longitude	Long	Longitude Double	Long Double	CAA regulatory issues to	Additional CAA Comments												
TMZ B P5	FIUIR	3 - Routine	2km	Published AIP	DANGER AREA CO-ORDINATE	500200.00N	✓	500200.00N	✓	0025800.00W	✓	0025800.00W	✓														
TMZ B P6	FIUIR	3 - Routine	2km	Calculated	A point at the intersection of N50 parallel and the eastern boundary of EG D003.	500000.00N	✓	500000.00N	✓	0032815.2371W	✓	0032815.2371W	✓														
TMZ B P7	FIUIR	3 - Routine	2km	Published AIP	DANGER AREA CO-ORDINATE	500102.00N	✓	500102.00N	✓	0023910.00W	✓	0023910.00W	✓														
TMZ B P8	FIUIR	3 - Routine	2km	Published AIP	FOST-SEA-AREA CO-ORDINATE	500102.40N	✓	500102.40N	✓	0024928.40W	✓	0024928.40W	✓														
TMZ C P1	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	504220.00N	✓	504220.00N	✓	0024500.00W	✓	0024500.00W	✓														
TMZ C P2	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503400.00N	✓	503400.00N	✓	0024500.00W	✓	0024500.00W	✓														
TMZ C P3	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503400.00N	✓	503400.00N	✓	0024200.00W	✓	0024200.00W	✓														
TMZ C P4	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503700.00N	✓	503700.00N	✓	0024130.00W	✓	0024130.00W	✓														
TMZ C P5	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503818.00N	✓	503818.00N	✓	0023424.00W	✓	0023424.00W	✓														
TMZ C P6	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503736.00N	✓	503736.00N	✓	0023230.00W	✓	0023230.00W	✓														
TMZ C P7	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503530.00N	✓	503530.00N	✓	0022948.00W	✓	0022948.00W	✓														
TMZ C P8	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503400.00N	✓	503400.00N	✓	0023124.00W	✓	0023124.00W	✓														
TMZ C P9	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503400.00N	✓	503400.00N	✓	0023000.00W	✓	0023000.00W	✓														
TMZ C P10	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503000.00N	✓	503000.00N	✓	0023000.00W	✓	0023000.00W	✓														
TMZ C P11	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503000.00N	✓	503000.00N	✓	0022000.00W	✓	0022000.00W	✓														
TMZ C P12	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503500.00N	✓	503500.00N	✓	0022000.00W	✓	0022000.00W	✓														
TMZ C P13	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503500.00N	✓	503500.00N	✓	0021614.00W	✓	0021614.00W	✓														
TMZ C P14	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503154.00N	✓	503154.00N	✓	0021624.00W	✓	0021624.00W	✓														
TMZ C P15	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	503000.00N	✓	503000.00N	✓	0021700.00W	✓	0021700.00W	✓														
TMZ C P16	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	502918.00N	✓	502918.00N	✓	0021718.00W	✓	0021718.00W	✓														
TMZ C P17	Danger, Prohibited,	2 - Essential	30m	Published AIP	DANGER AREA CO-ORDINATE	502500.00N	✓	502500.00N	✓	0021500.00W	✓	0021500.00W	✓														
TMZ C P18	Danger, Prohibited,	2 - Essential	30m	Published AIP	D																						

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Issue: 1.0

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3		1. Name of Airspace:		2. Partial or complete description of TMZ B:			3. N/A							
4		TMZ B		Complete										
5		ENR 2.1 FIR, UIR, TMA, CTA												
6		Only one Area per worksheet - duplicate the ENR 2.1 worksheet for multiple entries.												
7		Jump to Tab		Name		Optional 1:	Optional 2:	Unit Providing Service	Call sign Language	Frequency MHz/ Channel Purpose/ SATVOICE number	Remarks	A sum total of 0		Regulatory issues indicated in this sheet
		Please select the points in publication order.		Lateral Limits	Vertical Limits	Class of Airspace	Textual description to describe join type. Great circle line assumed if blank	Radius of arc					CAA regulatory issues to resolve?	Additional CAA Comments
8		DO NOT USE - Cell D8 is displaying old values and not pulling data through from Lat & Long tabs		No Lat/Long Match	0349.64W				PLYMOUTH (MIL) and SWANWICK (MIL)	PLYMOUTH (MIL) and LONDON INFORMATION. ENGLISH. AS PROMULGATED FOR DANGER AREAS.	121.250 / 124.750	TMZ B IS PROPOSED TO BE ESTABLISHED WITHIN CLASS G AIRSPACE BETWEEN THE PLYMOUTH AND PORTLAND DANGER AREAS AIRSPACE BLOCKS		
9		TMZ B P1	501103.2056N	0034949.1088W										
10		TMZ B P2	501000.00N	0033600.00W										
11		TMZ B P3	501830.3620N	0031230.8118W										
12		TMZ B P4	500800.00N	0030430.00W										
13		TMZ B P5	500200.00N	0025800.00W										
14		TMZ B P6	500000.00N	0032815.2371W										
15		TMZ A P4	500103.00N	0032910.00W										
16		TMZ B P1	501103.2056N	0034949.1088W										
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A B C D E F G H I J K L M											
1. Name of Airspace: TMZ C											
2. Partial or complete description of TMZ C: Complete											
3. N/A											
ENR 2.1 FIR, UIR, TMA, CTA											
Only one Area per work sheet - duplicate the ENR 2.1 work sheet for multiple entries											
A sum total of 0 Regulatory issues indicated in this sheet											
Please select the points in publication order.											
Name Lateral Limits Vertical Limits Class of Airspace											
Optional 1: Textual description to describe joint type. Great circle line assumed if blank											
Optional 2: Radius of arc											
Unit Providing Service											
Callsign Language Hours of Service Conditions of Use											
Frequency MHz/ Channel Purpose/ SATVOICE number											
Remarks											
CAA regulatory issues to resolve?											
Additional CAA Comments											
TMZ C											
TMZ C P1 504220.00N 0024500.00W											
TMZ C P2 503400.00N 0024500.00W											
TMZ C P3 503400.00N 0024200.00W											
TMZ C P4 503700.00N 0024130.00W											
TMZ C P5 503818.00N 0023424.00W											
TMZ C P6 503736.00N 0023230.00W											
TMZ C P7 503530.00N 0022948.00W											
TMZ C P8 503400.00N 0023124.00W											
TMZ C P9 503400.00N 0023000.00W											
TMZ C P10 503000.00N 0023000.00W											
TMZ C P11 503000.00N 0022000.00W											
TMZ C P12 503500.00N 0022000.00W											
TMZ C P13 503500.00N 0021614.00W											
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TMZ C P20 500200.00N 0024500.00W											
TMZ B P5 500200.00N 0025800.00W											
TMZ B P4 500800.00N 0030430.00W											
TMZ C P21 502500.00N 0031730.00W											

Content & Approval Latitude & Longitude ENR 2.1 ENR 2.1 (2) ENR 2.1 (3) Metadata

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A29

1. Name or Airspace:		2. Partial or complete description of TMZ C:		3. N/A	
TMZ C		Complete			
ENR 2.1 FIR, UIR, TMA, CTA <small>Only one Area per worksheet - duplicate the ENR 2.1 worksheet for multiple entries.</small>					
Jump to Tab Please select the points in publication order.	TMZ C Name Vertical Limits Class of Airspace	<small>Optional 1</small> Textual description to describe join type. Great circle line assumed if blank.	<small>Optional 2</small> Radius of arc.	Unit Providing Service	Call sign Language Hours of Service Conditions of Use
					Frequencies MHz/ Channel Purpose/ SATVOICE number
					Remarks
					A sum total of 0 Regulatory issues indicated in this sheet
					CAA regulatory issues to resolve?
					Additional CAA Comments
31	TMZ C P22	503000.00N 0031730.00W			
32	TMZ C P23	503650.00N 0031500.00W			
33	TMZ C P24	504106.00N 0030544.00W	(then) Along Coast to		
34	TMZ C P1	504220.00N 0024500.00W			
35					
36					
37					
38					
39					
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41					
42					
43					
44					
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47					
48					
49					
50					
51					
52					
53					
54					
55					
56	Upper Limit: FL100 Lower Limit: SFC Class: G				
57					
58					
59					
60					

Content & Approval Latitude & Longitude ENR 2.1 ENR 2.1 (2) ENR 2.1 (3) Metadata

Metadata relating to SOUTH WEST DANGER AREAS - WEMBURY AND PORTLAND										A sum total of 0 Regulatory issues indicated in this sheet	
Required for all new/amended CAP 1616 data bound for the AIP (See CAP 1054 Annex A). Please Complete all cells marked with *											
* Select which of the 3 options in the drop down list below best describes this data submission: <div>Below is a generic summary of the data submission:</div> <div>Below is the metadata requirement:</div>											
Airspace Design.		Containing newly designed airspace/calculated geodetic WGS84 Latitudes & Longitudes						Complete all 3 metadata sections			
Additional input required within Project to meet the requirements of ADQ-IR											
Project Details		*DAP 1916 reference ACP-2019-16	*REF#	*Requested Effective Date 30/11/2021	*CAA case officer	CAA regulatory issues to resolve?		Additional CAA Comments			
Aero Data Version Details		*This submitted version No. 1.0	*Version date 22/10/2020	*Summary of changes to this version of the data template Baseline Version							
Authorised Source of Change		*Name of organisation Aquila (NATS / Thales)	*Quality standard type ISO9001	*Quality standard date 02/02/2018	*Nominated quality manager						
Minimum content achieved for Data Standards - amend default entries if required											
Lateral Data		*Ellipsoid WGS84	*Reference frame ETRF89	*Distance unit NM (Unless otherwise indicated)	*Route unit Degrees True						
Coordinate format		*Longitudinal units DegMinSec.Sec DDDMMSS.2	*Hemispherical Suffix N	*Longitudinal units DegMinSec.Sec DDDMMSS.2	*Meridian suffix E or W as specified						
Vertical Data		*Based on AMSL (Unless indicated)	*Reference frame for sea level OSGM02 (Newlyn Datum)	*Data unit Feet (Unless indicated)	*Limit type At, Lower/Upper as indicated						
Temporal, UTC Temporal Data		*Temporal type Temporary	*End date	*Data Storage Location As Per GMS	*Data retention period periods of Portland and Wembury						
Additional input required within Design Specifics to meet requirements of ADQ-IR											
Formal Arrangement		*Formal arrangement with sponsor? No		*Formal arrangement signatory n/a		*Formal arrangement date n/a					
Organization Responsible for Design Content		*Name NATS Ltd		*Quality standard type ISO9001		*Quality standard date 02/02/2018		*Nominated quality manager			
Design Content		*Design Originator		*Origination date 21/10/2020		*Name of compliance checker		*Compliance check date 22/10/2020			
Geodetic Calculations		*Name of originator		*Name of compliance checker 21/10/2020		*Calculation tools used Aurora Airspace Modeller		*ADQ compliant source data AIP Data - ADQ Compliant AIDU Data - Unknown			
Design Standards (1-4)		*Design Standard 1 CAP 1616 Airspace Design		*Design Standard 2 CAP1054 08/07/2015		*Design Standard 3		*Design Standard 4			
Data Source		*Data Source 1 Aurora Database		*Data Source 2 FLOO		*Data Source 3		*Data Source 4			
*Data Source Originator		Baseline AIP Data		No 1 AIDU							
*Valid From Date		22/10/2020									
Validation & Verification by (met)		N/A		Data Plotted							
Validated & Verified by (name)				Data could only be verified where co-incident with published AIP data. Remaining data not checked.							
*Convert/Transform (method)		None		Conversion from decimal minutes to decimal seconds							
*Convert/Transform (name)		None									
*Limitations on data use		None		See above							
*Summary of Design Rationale, Assumptions & Constraints		For details please See the Full ACP package as submitted to Airspace Regulation.									

APPENDIX B – COMMUNICATION WITH STAKEHOLDERS

B.1 DIARY OF EMAIL COMMUNICATIONS WITH STAKEHOLDERS

Table B-1 E mail Communications Table

Date received	Stakeholders	Message	Replied
15 July 2020	██████ – Devon & Somerset Gliding Club	Devon and Somerset Gliding Club would like to receive information about the ACP please	Good Morning, Further information regarding the proposed Temporary Airspace Change in the South West has been uploaded to the Aquila Website . You can view the presentation by clicking here . Should you have any further questions or queries regarding the engagement process, please reply to this email and we will be happy to answer your questions. Many thanks
15 July 2020	██████ – Cornwall Flying Club	Could you please provide details of your proposed Plymouth-Portland temporary airspace change as it will affect pilots flying from Bodmin and I'd like to promulgate the facts throughout our monthly newsletter.	As above
15 July 2020	██████ - Airfield Operators Group representative	I have received your email as I represent A.O.G. on NATMAC. I would be happy to provide feedback if only I could see what it is that is proposed! Please let me know where to look.	As above

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Date received	Stakeholders	Message	Replied
15 July 2020	██████████ – gov.gg	As Manager Air Traffic Control and Airport Services at Guernsey and Alderney Airports I would like to be kept informed of information and changes throughout this project.	As above
15 July 2020	██████████ - HeliOperations	HeliOperations operates UK military registered Sea King helicopters from our training base on Portland, Dorset. We operate routinely in the Portland Sea Areas between Swanage and Exmouth and out to the FIR Boundary. Ordinarily we operate VFR with a Basic Service (and DACS) with Plymouth Military and when they are close, a Basic Service (and DAAIS) with London Info. Could you provide further detail on the planned changes and how they might affect our operations?	As above
15 July 2020	██████████ – Bath Wilts and North Dorset Gliding Club	The Bath Wilts and North Dorset Gliding Club may find itself affected by Aquila's ACP for the SW of England. Please ensure that I am fully consulted and have all of the relevant information under the terms of CAP1616.	As above
16 July 2020	██████████ – Wessex hang gliding and paragliding club	As the chairman of the Wessex hang gliding and paragliding club I would like the details of this proposed change to airspace.	As above
16 July 2020	██████████ – Devon Strut	Thank you for providing notification ACP. Would you be so kind as to include me in any further information or opportunities to take part in any consultation.	As above

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Date received	Stakeholders	Message	Replied
17 July 2020	██████████	<p>Thank you for the information re: Temporary Airspace Change in the South West.</p> <p>██████████ fully supports your application and will take appropriate steps to make available all information concerning the change to our airspace users.</p>	As above
19 July 2020	██████████	I have seen the 3 documents publicising the proposed airspace change, but nowhere can I find what the change is proposed to be. All the documents really say is how great you are, what benefits you foresee but nothing about how it may affect GA users of the airspace.	As above
20 July 2020	██████████ - GAA	<p>Please include the General Aviation Alliance as a consultee on all ACPs.</p> <p>Please confirm this inclusion</p>	As above
20 July 2020	██████████ - GAA	<p>The Airspace Change Poster says, "A 13-week consultation period will commence on 16 July 2020 where we invite questions from the public and those affected by the proposed changes."</p> <p>What are the proposed changes? Without full details including appropriately marked up copies of the CAA VFR chart we are not in a position to comment.</p>	

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Date received	Stakeholders	Message	Replied
21 July 2020	██████ - GAA	<p>Thank you for your prompt response.</p> <p>You can view the presentation by clicking here, which we hope will provide you with the information you need.</p> <p>Thank you but unfortunately not as the depiction is less than sufficiently detailed and anomalous.</p> <p>Whilst it looks as though TMZ A and C align with existing DAs it is far from clear that this is the case, hence our request for the proposals to be shown on appropriately marked up copies of the CAA VFR chart.</p> <p>The TMZ B is for airspace where there is no existing structure DA or otherwise. It appears to link the two DA complexes and yet the TMZs on either end are apparently never to activated simultaneously so why is it needed?</p> <p>Our initial impression is that the TMZs are too broad-brush as the activity to be protected could be entirely out at sea yet overland and coastal portions would be activated unnecessarily.</p> <p>We are still of the opinion that there is insufficient information upon which to reach a meaningful opinion. Until this is resolved we have no option but to register our objection to the proposals.</p>	<p>Thank you for your email</p> <p>(Response continued on next page).</p>

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Date received	Stakeholders	Message	Replied
			<p>Of course you make a valid point however, and where more detailed information or clarifications of a technical nature is required by a group or individual stakeholder we are always happy to provide this additional clarity.</p> <p>As requested, we will provide you with the following clarity and explanations:</p> <p>Additional clarity on details of the airspace overlaid on a CAA VFR chart to show precisely which of the Plymouth and Portland DAs will be incorporated within TMZ A and TMZ C.</p> <p>An explanation of the rationale as to why the TMZs are not all activated simultaneously.</p> <p>The rationale behind the design of TMZ B and why it was felt necessary to establish it during the extended period of Primary Surveillance Radar unavailability.</p> <p>An explanation of how the TMZs have been designed (with airspace user flexibility in mind), in order to minimise restrictions to airspace users.</p>

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Date received	Stakeholders	Message	Replied
Weds 5 Aug 2020	[REDACTED]	Email sent seeking agreement on the potential areas to be excluded. Agreed EG D005A, EG D005B and EG D009B from Plymouth and EG D026 and EG D031 from Portland. Confirmation of flexibility of activation / operating times for ALL TMZs also requested.	<p>Email of agreement received Mon 10/08/2020 10:27.</p> <p>Hello [REDACTED], I confirm that, on behalf of myself and [REDACTED], following discussions with Aquila in respect of ACP-2019-16:</p> <ul style="list-style-type: none"> It is acceptable to exclude D05A/D005B in the vicinity of Predannack Airfield, and D009B in the vicinity of Plymouth from TMZ A. We require D006, D006A, D006B, D006C, D007, D007A and D007B to remain within the proposed boundary of TMZ A. It is acceptable to exclude D026 Lulworth and the adjoining D031 in the vicinity of Durlston Head, Swanage, from TMZ C. We would aim to operate the proposed airspace constructs flexibly on an 'only when needed' basis wherever possible as below: TMZ A (Plymouth DAs) and TMZ C (Portland DAs) are proposed to be established within the boundaries of published Danger Areas and therefore it is felt that these areas should be activated in line with the DAs published operating hours. In the case of TMZ B (overlaid on the CLASS G airspace between the Plymouth and Portland DAs), 48 hours advance notice could normally be given for the activation of this area as it is an area of CLASS G airspace that is mainly used to transit between the Plymouth and Portland DA. The majority of the military training activity occurs on a Tuesday and Thursday (when FOST hold many of the larger Air Defence Exercise (ADEX) training serials. This activation period could however be reduced to 24hrs notice if (say for weather reasons) FOST have to move their larger ADEX serials to an alternative day. Note: In extreme circumstances the period of advance notice for the activation of any area may be required to be reduced to 3 hours in order to meet essential emergent tasking requirements. Plymouth (Mil) / FOST Operations have the combined resource and capacity to undertake the operational management of the proposed flexible activation of the TMZs concerned. <p>Kindest regards, [REDACTED]</p> <p>[REDACTED]</p>
<p>Use, duplication or disclosure of data contained on this sheet is subject to the res</p> <p>Status: ISSUED Page 93 of 226</p>			

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Date received	Stakeholders	Message	Replied
25 August 2020	[REDACTED]	Please send me all supporting documents/literature for the South West Airspace Change consultation.	<p>Good Evening [REDACTED]</p> <p>Thank you for your interest in the South West temporary airspace public consultation.</p> <p>All supporting information and literature to-date is available and can be downloaded from the Aquila website, by clicking here.</p> <p>We will be adding a FAQ document in the coming weeks, and we will circulate an email to advise when that is live.</p> <p>In the meantime, should you have any questions regarding the temporary airspace change, please respond to this email with your question and we will be happy to look into your query for you.</p> <p>Many thanks</p> <p>Aquila Airspace Team</p>
17 September 2020	[REDACTED] - BGA	We do not believe this ACP will impact gliding operations and therefore have no comments.	<p>Hi [REDACTED]</p> <p>Many thanks for confirming you have no comments.</p> <p>Aquila Airspace Change Team</p>
5 October 2020	[REDACTED]	Please include me on your mailing list for further updates on airspace changes. I operate 7 GA aircraft out of Solent Airport, Daedalus (EGHF) and like to keep our pilots and instructors updated on any proposed changes to air space management particularly along the south coasts of England	<p>Hi [REDACTED]</p> <p>All the information to date including the proposed changes and frequently asked questions can be found on the Aquila website.</p> <p>Please be advised that the public consultation period will end next week and there will be no further information issued as we progress to the next stage of our application to the CAA.</p> <p>If you have any queries please respond to this email asap so we can get a response to you before we reach the end of the process.</p> <p>Many thanks</p> <p>The Aquila Airspace Change Team</p>

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Date received	Stakeholders	Message	Replied
15 Oct 2020	<p>To: Mr [REDACTED] [REDACTED] – Programme Manager (GAA)</p> <p>From: Aquila Airspace Change Team</p>	<p>Hi [REDACTED]</p> <p>Sincerely hope all is well, and that you have had time to study the details of the design changes made to our original construct proposal following the receipt of your earlier feedback.</p> <p>I would, of course, like to establish what the GAA's current position is with regard to the revised proposal so that I can include this in our analysis of the engagement section of the proposal document.</p> <p>With our engagement window due to close tomorrow, I just wanted to check-in with you to see if there is likely to be any further correspondence forthcoming from the GAA or if, indeed, there is anything else you need from us in terms of information on the above ACP proposal.</p> <p>More than happy to take a call (up until about 9pm) to discuss if that is quicker and easier for you. Mob: (Personal)+</p> <p>Kind Regards, [REDACTED]</p> <p>Project MARSHALL</p>	

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Date received	Stakeholders	Message	Replied
16 Oct 2020	From Aquila Airspace Change Team to all Stakeholders	<p><u>End of ACP engagement period notification.</u></p> <p>Good Afternoon,</p> <p>The public engagement period for our application (ACP-2019-16) for a Temporary Airspace Change in the South West is now closed.</p> <p>We would like to take this opportunity to thank you for your participation and support with our application.</p> <p>We are now making the final adjustments to our proposal following your feedback before our submission to the CAA, next month.</p> <p>The next stage of the process is for the CAA to review our application and we are expecting feedback from our first submission in December.</p> <p>We are committed to keeping you informed regarding the outcome of the application and would like to thank you once again for your support and participation in the consultation process.</p> <p>Many thanks</p> <p>Aquila Airspace Change Team</p>	

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Date received	Stakeholders	Message	Replied
16 Oct 2020		<p>Hi [REDACTED] Many thanks for your email and offer of the discussion. Please take this email as the GAA's response to the consultation. I trust that by sending this to you this email will be getting to the right person by the deadline. Whilst we understand the need for the ACP and are grateful for the changes made so far we still wish to see some other changes, namely that the areas A and C are sub-divided to minimise the potential effects upon VFR aircraft wishing to follow the coast. We understand that the boundaries of Areas A and C are contiguous with the existing Danger Areas. We do not have the facilities to confirm this but it would make sense that the Danger Areas were designed so that portions of the total can be used as needed thus minimising the impact upon other aviation e.g. EGD013 and/or EGD017 and/or EGD023 could be in use yet EGD012 not and thereby the DACS would be automatically able to grant a transit along that bit of the coast, keeping right if heading east. With the proposed TMZ only transponder equipped aircraft would be able to seek such a transit. However were Areas A and C to be subdivided into "A offshore", a series of "A coastal", "C offshore" and a series of "C coastal", using the existing DA boundaries, so that those DAs with any portion within say 1nm of the coast would be in one of the "coastal" TMZs and the rest in one of the three "offshore" TMZs, A, B and C. I trust that this is understandable and the rationale makes sense. Obviously please do shout if more is required. Regards, [REDACTED]</p>	<p>16 Oct 2020</p> <p>Hi [REDACTED]</p> <p>Many thanks for the response on behalf of the GAA – we only just closed down the engagement window earlier today and I will be working through the weekend trying to conduct some of the analysis of the feedback, so not a problem and really pleased we received your update.</p> <p>I fully understand the rationale behind the suggestion made in your email.</p> <p>I will of course raise your suggestion at our next ACP working group meeting where we will be addressing the analysis of the feedback received during the engagement process.</p> <p>I would hope to be able to respond within a week or so but given half term is looming it may take a little longer to get everyone's input together at this end.</p> <p>Kind Regards, [REDACTED] Project MARSHALL</p>

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Date received	Stakeholders	Message	Replied
20 Oct 2020	██████ – Programme Manager (GAA)	Aquila response to GAA email dated 16 Oct 2020.	<p>Dear ██████ Thank you for your email dated 16 Oct 2020. Following the GAA's further correspondence regarding ACP-2019-16, on behalf of the Aquila ACP Working Group I am pleased to advise that the proposed Transponder Mandatory Zones (referred to hereafter as TMZs A, B and C) <u>will not exclude non-transponder equipped aircraft.</u></p> <p>Non-transponder equipped aircraft will be able to make transit flights along the coast as they do now (subject to other activity). It is worth remembering that Para 3.2 of the RMZ/ TMZ Policy Document states that <i>"Provisions should be made for non-compliant aircraft to gain access to an RMZ or TMZ where legitimate requirement exists. Article 41(3) of reference E states that the CAA may permit an aircraft or class of aircraft to commence a flight in specified circumstances even though mandated equipment for the intended flight is not carried or is not in a fit condition for use."</i></p> <p>In accordance with the above Policy Statement, it is intended to make use of the existing tried and tested process operated by Plymouth Military which provides a simple, straightforward and flexible method for pilots of any GA traffic to gain access to the Danger Areas (subject to other activity). By using this same process arrangements will be able to be made for any non-transponder equipped traffic to conduct co-ordinated transits or flights within all three of the proposed TMZ airspace constructs.</p>

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Date received	Stakeholders	Message	Replied
			<p>Both a Danger Areas Crossing Service (DACS) and a Danger Areas Activity Information Service (DAAIS) will continue to be available to all traffic throughout the period of the establishment of the proposed TMZs. Aircrew who wish to make such a transit should contact the Controlling Authority of the DAs concerned before entering the airspace either by making a telephone call to the Duty Ops Officer at Plymouth (Mil): 01752 557550, or by calling on the following frequencies when airborne: VHF 121.250 West of Berry Head (BHD), VHF 124.150 East of Berry Head (BHD). The re-design and sub-division of the existing South Coast Danger Areas themselves is not a matter that Aquila is seeking to address as part of this ACP. With regard to the proposed introduction of further sub-divisions into the design of the TMZs (in order to establish a "TMZ A Coastal and TMZ A Offshore / TMZ C Coastal and TMZ C Offshore"), the Aquila ACP Working Group reviewed this and consensus was that as well as carrying with it a potential increased management burden, from a safety perspective it would also introduce unnecessary complication and interfaces where none currently exist. This creates a scenario where there is greater scope for error, both on the part of the service provider and the GA community / military user. This is not conducive with an ALARP safety argument. In addition, there were also concerns that the sub-division nomenclature suggested might potentially introduce additional root causes for confusion involving differing interpretations of 'coastal' versus 'offshore' and perhaps errors in judgement of the permissible distance to be applied from either the headlands, bays and other coastal features.</p>

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Date received	Stakeholders	Message	Replied
			<p>The outcome that the proposed further sub-divisions of the TMZs is trying to deliver, that of allowing all GA traffic (including non-transponder equipped GA traffic), to make transit flights along the coast subject to other activity, can already be achieved by the continued utilisation of the existing methodology that all parties are familiar with;</p> <p>That is by making contact with the Controlling Authority in the tried and tested manner described above, before entering the airspace. After due consideration by the ACP Working Group it was therefore decided not to pursue the incorporation of further sub-divisions of the TMZs (namely a “TMZ A Coastal and TMZ A Offshore / TMZ C Coastal and TMZ C Offshore”), in our proposed TMZ design at this time.</p> <p>Aquila and the ACP Working Group would however like to express their thanks and appreciation to the GAA and its membership for positively engaging with us on this matter and for the earlier feedback contributions provided which we have managed to incorporate into the design of our proposal.</p> <p>Kind Regards, <div style="background-color: black; width: 100px; height: 1.2em; margin: 2px 0;"></div> Project MARSHALL </p>

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B.2 DIARY OF OTHER ENGAGEMENT WITH STAKEHOLDERS

Table B-2 Diary of Engagement with Stakeholders

Date	Method	Stakeholder	Topics Discussed
(1445) Tuesday 8 Sept 2020	Telecon	██████████ – GAA	██████████ called ██████████ who kindly acknowledged receipt of our response to his Qs in his letter of 17 July. As he had not yet fully read and assimilated the response he was unable to provide feedback just yet. ██████████ advised him that negotiations on the revised upper limits of TMZs were still ongoing but that the achievement of some concessions looked promising. Also advised him that the window for responses will close on 16 Oct as scheduled.
Tuesday 8 Sept 2020	Telecon	████████████████████ ██████████	Agreed FL100 for TMZs A and C and FL85 for TMZ B upper limits.
Tuesday 8 Sept 2020	Telecon	████████████████████ ██████████	Agreed FL100 for TMZs A and C and FL85 for TMZ B upper limits.
Friday 4 Sept 2020	Telecon	████████████████████ ██████████ ██████████	ROD available (See Appendix D.12). Agreed FL100 for TMZs A and C and FL85 for TMZ B upper limits.
Thursday 3 Sept 2020	Telecon	████████████████████	██████████ was interested in finding out more about the ACP and directed to monitor updates via Aquila website and CAA portal.
Thursday 3 Sept 2020	Telecon	████████████████████	Outlined topic of discussion ahead of Friday 4 Sept telecon and checked he had resource available to support the meeting.
Thursday 3 Sept 2020	Telecon	██████████ GAA	Called and left a message for him to contact ██████████ ref the ACP response.
Friday 7 Aug 2020	Telecon	██████████ - GAA	██████████ called ██████████ to provide an update on progress with our response to his enquiry. ██████████ thanked him for his patience and explained that due to key MOD personnel changing roles and the summer leave period the response was taking longer than expected to get through the external reviews. ██████████ appreciated the call and ██████████ went on to explain that some areas were in the process of being adjusted following discussion with key stakeholders and consideration of the points raised in his communication on behalf of the GAA (dated 17 July 2020). ██████████ would report back on any further developments ASAP.
Thurs 6 Aug 2020	Telecon	████████████████████	Discussion on areas to be excluded. Agreed EG D005A, EG D005B and EG D009B from Plymouth and EG D026 and EG D031 from Portland. Email from ██████████ Mon 10/08/2020 10:27 confirms.
11 June 2020	Telecon –	████████████████████	ROD available (See Appendix D.11).

Date	Method	Stakeholder	Topics Discussed
28 May 2020	Telecon	[REDACTED]	ROD available (See Appendix D.10).
20 May 2020	Telecon	[REDACTED]	ROD available (See Appendix D.9).
28 April 2020	Telecon	[REDACTED]	ROD available (See Appendix D.8).
23 April 2020	Telecon	[REDACTED]	ROD available (See Appendix D.7).
21 April 2020	Telecon	Internal Aquila Meeting.	(ROD retained for internal use only).
27 March 2020	Telecon / Skype	[REDACTED]	ROD available (See Appendix D.6).
27 Feb 2020	Telecon	[REDACTED]	ROD available (See Appendix D.5).
20 Feb 2020	Telecon	[REDACTED]	ROD available (See Appendix D.4).
13 Feb 2020	F2F Group Meeting	[REDACTED]	ROD available (See Appendix D.3).
6 Feb 2020	F2F Group Meeting	[REDACTED]	ROD available (See Appendix D.2).

Date	Method	Stakeholder	Topics Discussed
30 Jan 2020	F2F Group Meeting	[REDACTED]	ROD available (See Appendix D.1).

B.3 AQUILA'S RESPONSE TO THE GAA (DATED 3 SEPT 2020)

Dear [REDACTED]

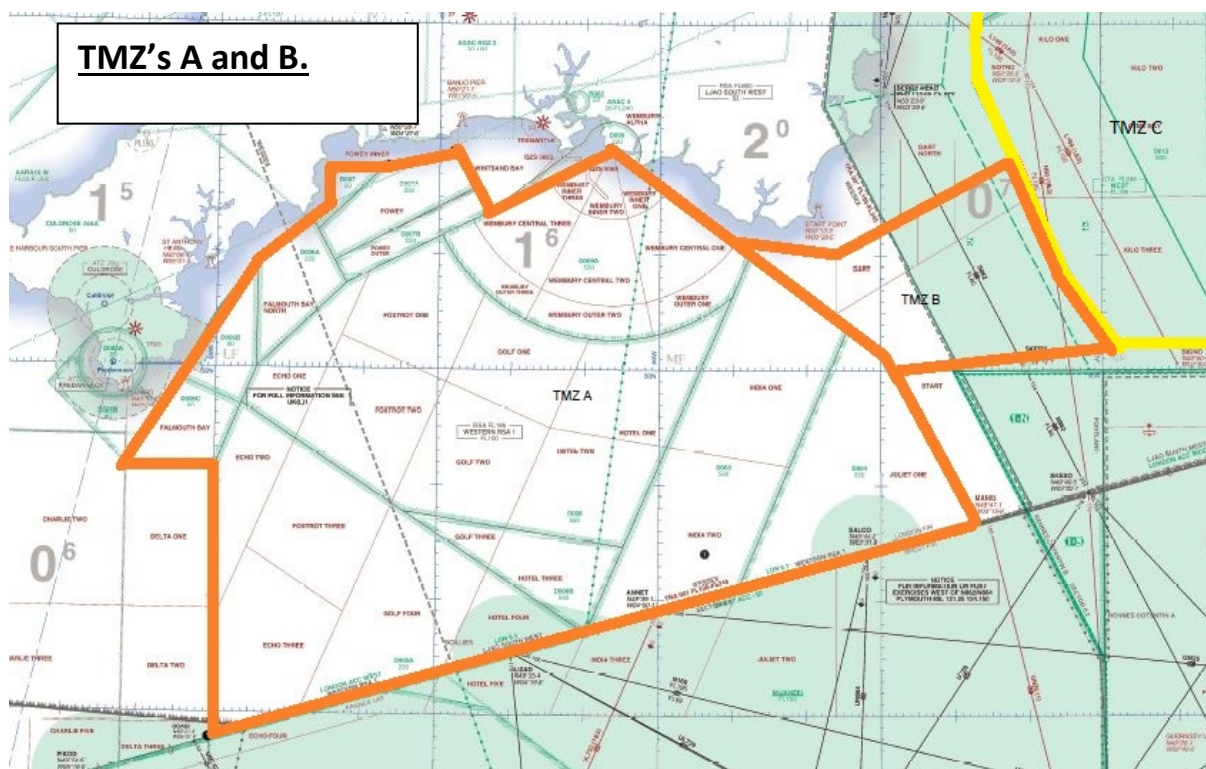
Thank you for your recent enquiry (dated 21 July 2020).

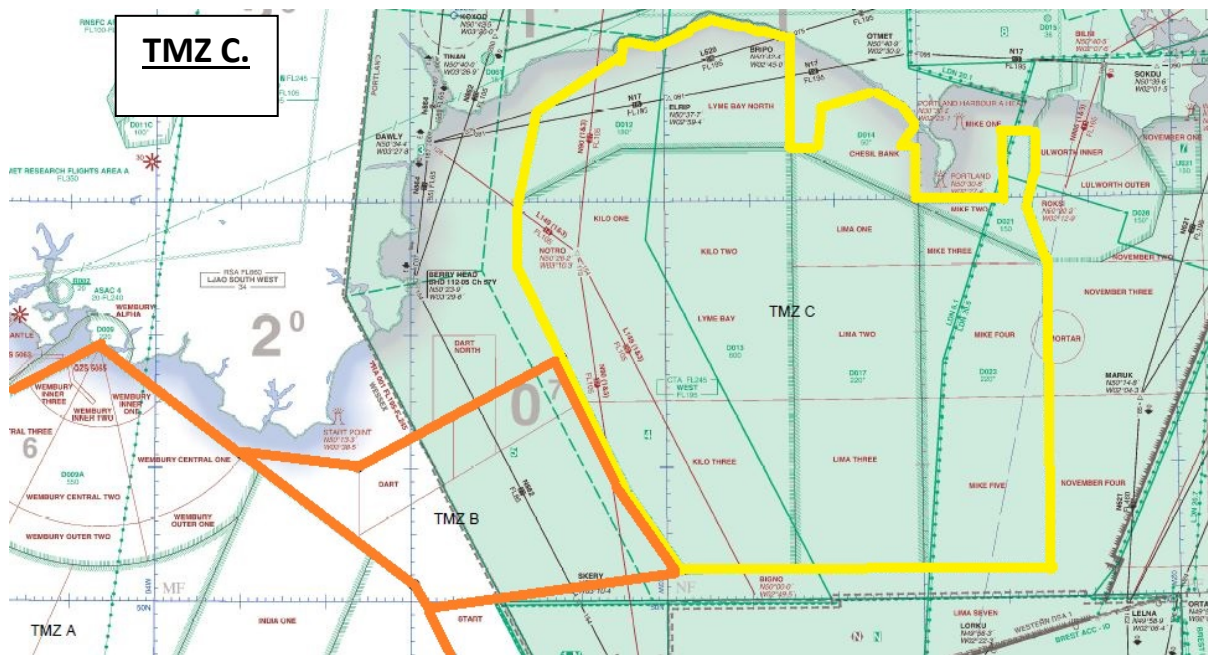
As stated in our previous response, as this ACP involves Ministry of Defence (MOD) sites, procedures and related material, the formal reply has taken a little longer to deliver than is usual as it has involved further discussion and consideration within the MOD stakeholder community prior to release into the public domain by Aquila.

The areas where we agreed to provide either a clarification or further explanation were broadly as follows:

- ***Can Aquila please provide additional clarity on details of the airspace overlaid on a CAA VFR chart to show precisely which of the Plymouth and Portland DAs will be incorporated within TMZ A and TMZ C?***

Please find enclosed chart extracts which hopefully more clearly show the detail of the external boundaries of the individual Danger Areas (DAs) which will comprise the proposed TMZs. The areas activated during Phase 1 are depicted within an orange border and the Areas activated during Phase 2 are shown within a yellow border. You will notice that the external boundary depicted in the original presentation on the Aquila website differs slightly to the one shown on this latest version below – This is as a result of a recent change agreed with Plymouth and Portland Danger Areas Delegated Authority Holder which will be fully explained in our response at bullet 4 below.





- **Can Aquila please provide an explanation of the rationale as to why the TMZs are not all activated simultaneously?**

Simultaneous activation of all TMZs is not required for the de-confliction of civil / military traffic as the use of either the Wembury or Portland PSRs will be retained during each phase.

During Phase 1 when the Wembury PSR is unavailable, much of the lower level coverage of the Plymouth DAs and the CLASS G airspace to the south east of Start Point (in the vicinity of the proposed TMZ B) will fall well outside the assured primary radar coverage envelope of both the legacy Culdrose and Portland PSRs, leaving the ATC controllers at Plymouth (Military) effectively unable to detect any non-transponding traffic entering these areas.

Whilst the modelled post-upgrade coverage gives no guarantee of the installed future performance of the system, analysis has indicated that once the Wembury PSR upgrade work is completed and the PSR system is fully restored to operational use there is the potential for some significant improvements on the legacy PSR performance in terms of the assured coverage envelope. This may help to further mitigate the loss of the Portland PSR coverage which will be experienced during Phase 2 of the works and further reduce the imperative to have TMZ B activated for this additional 9 month period.

By establishing TMZs A and B together for the first 9 months of Phase 1 and thereafter solely activating TMZ C for Phase 2 it is hoped that this will provide a less restrictive and therefore more palatable solution which will deliver enhanced situational awareness across the CLASS G airspace to all airspace users at a time when it is anticipated it will be needed most – that is whilst all users are operating without the Wembury Point PSR and wholly reliant on using ‘SSR only’ within the TMZ A and B areas during the first 9 month period.

These equipment upgrades are required to deliver the improved reliability, availability and performance of ageing and non-regulatory compliant equipment in the South West of the UK. The benefits to both Civil and Military ATC service users which result from achieving the earliest possible introduction of the surveillance equipment upgrades is considered to be extremely important.

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- ***Can Aquila please explain the rationale behind the design of TMZ B and why it was felt necessary to establish it during the extended period when Primary Surveillance Radar is unavailable?***

The area bounded by TMZ B overlays a number of east to west and west to east crossing tracks which are regularly used at various altitudes / levels by military and civil fast jet traffic to transit between the Portland and Plymouth Danger Area blocks when conducting essential maritime operational training serials on behalf of the UK MOD.

It is fully accepted that flight in CLASS G (either with or without surveillance coverage being available) is not inherently dangerous. Flights in VMC can obviously be safely conducted under VFR on a 'see and be seen' basis and in IMC in accordance with the IFR at an appropriate semi-circular level or at a level allocated by the controller when in receipt of an ATC service.

When operating in compliance with the Rules Of the Air (ROA) and the Air Navigation Order (ANO), the crossing of the CLASS G airspace in this area by military aircraft does not in itself constitute a dangerous activity and hence there is no pre-existing requirement in this location for the establishment of either Danger Area status, a permanent corridor of some description or any other airspace construct under normal circumstances.

It is, however, abundantly clear that all airspace users (both civil and military) can and do benefit from the additional situational awareness provided by the PSR surveillance of this particular area when it is available to them.

To help understand the design of TMZ B the following explanation may be helpful. The design of TMZ B (as depicted in our response at Statement 1 above) was arrived at following lengthy discussion with the MOD on the various profiles that are flown in support of the essential operational maritime training serials. The fast jet aircraft involved in these serials fly a number of distinctly different profiles depending on precisely what threat is being simulated and the actual disposition of the ships being exercised at the time of the serial. The majority of these simulations involve 'straight-line' flights which attempt to represent a missile en-route to a target following release but in VMC the tracks may make variations in their altitude / level which are representative of real world threats.

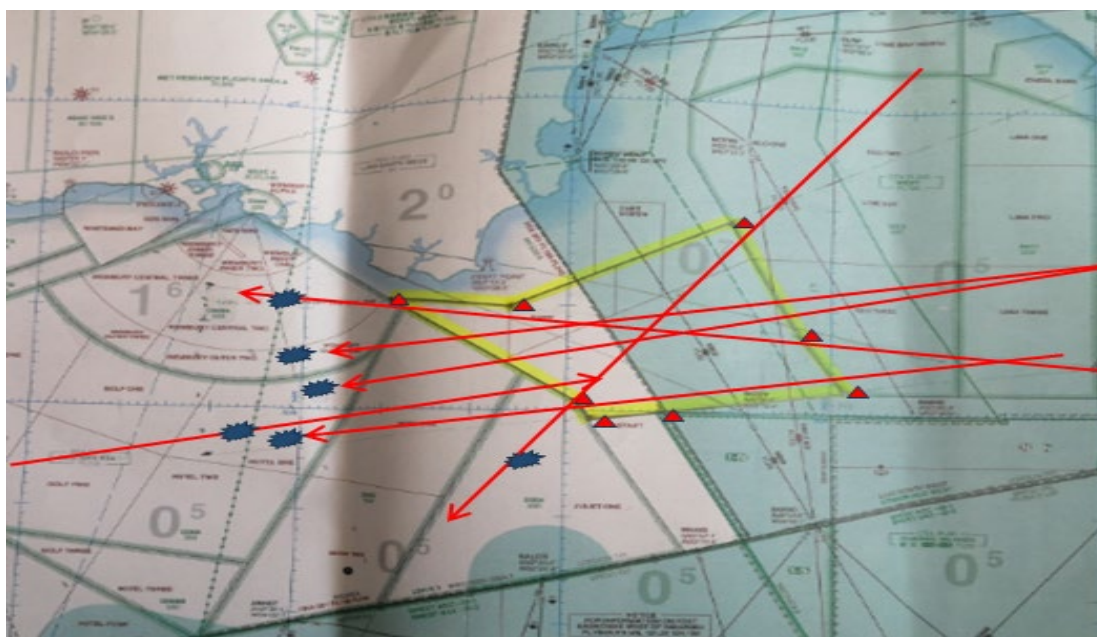
In certain serials some of the participating ships being targeted may be well out to sea, whilst others may be just leaving harbour when they are subject to these simulated attacks. Those aircraft targeting units which are in the north or central part of the Plymouth DAs complex will usually start vectoring towards them on a westerly heading from a designated point some 25 miles to the south of Portland Bill in the southern half of the Portland DA block. This is the rationale behind the proposed design of an angled extension 'fillet' in the north west corner of the TMZ B corridor as it facilitates the straight line to target requirement of these simulations. The width of the TMZ also enables a wide selection of diverse vectors to the targets to be utilised.



Image by kind permission of [redacted] Ltd

Simultaneously, those ships which are operating well to the south of the Plymouth breakwaters may also be targeted and as an example this may require their threat simulation aircraft to commence their inbound run along a totally different axis with some perhaps starting from a designated starting point in the north west of the Portland DAs in the vicinity of Lyme Bay North DA (perhaps D012 as shown in the graphic below). During more advanced simulations fast jet traffic may also be required to simulate co-ordinated profiles starting from a position to the west of the Plymouth DAs in the vicinity of a point some 30nm south west of the Lizard Point headland. All these events require precisely co-ordinated departures from specified waypoints to ensure that the aircraft arrive at their target at precisely the right time to safely de-conflict and deliver the maximum training benefit from each sortie.

Following each run the aircraft will be required to re-position and perhaps loiter in the vicinity of their pre-briefed start datum before commencing the next co-ordinated serial at the specified time.



- ***Can Aquila please provide an explanation of how the TMZs have been designed (with airspace user flexibility in mind), in order to minimise restrictions to airspace users?***

An important part of the design evolution process followed by Aquila involved the development and consideration of a number of design options.

The establishment of Design Principles provided a yard-stick for the Sponsor to grade these options against, thus demonstrating to ourselves, the CAA and any other interested parties that we have grasped the local context and have given due consideration to these contextual factors when developing our proposed airspace design.

It was felt vitally important to identify any constraints and we developed our Design Principles at an early stage with the assistance of the teams who plan, control and execute the day to day management of the air, surface and sub-surface training interactions within the Plymouth and Portland Danger Area complexes.

This ensured that as many of the geographic, safety, operational and technical considerations were identified and fully understood before any decisions were made on the potential design of any airspace construct which might be felt necessary.

The initial Design Principles established were as follows:

1. To maintain safe separation of all aircraft operating in and around the South Coast Exercise Areas, minimising impact to the local population and civilian airspace users whilst ensuring the operational capability of Military traffic during an extended period of Primary Surveillance Radar unavailability. (Efficiency + Airspace Sharing, Low impact / least restrictive, Safety).
2. *To ensure that during the period of the upgrade and installation works the MOD can continue to provide a safe training environment for fast jet aircraft, helicopters and ships enabling a wide range of hi-fidelity threat simulation and maritime aviation support training to both the Royal Navy and to the Naval Forces of other International partners and NATO allies. (Important to the defence and security of the UK and other nations).*
3. *To apply current airspace design policy such that when using 'SSR only' within the selected airspace construct it can be shown to be as tolerably safe as if operating with the current Primary and Secondary Surveillance coverage when in the open FIR / Class G Airspace. (Safety).*
4. *To support effective management of airspace utilising Flexible Use of Airspace (FUA) principles including the establishment of procedures for non-compliant users. (Efficiency + Airspace Sharing).*
5. To operate the proposed airspace constructs flexibly on an 'only when needed' basis wherever possible. (Efficiency + Flexibility + Airspace Sharing).
TMZ A and TMZ C are proposed to be established within the boundaries of the published Danger Areas (DAs) and therefore it is felt that these areas should be activated in line with the DAs published operating hours.
In the case of TMZ B, 48 hours advance notice could normally be given for the activation of this area as it is an area of CLASS G airspace that is mainly used to transit between the Plymouth and Portland DA on a Tuesday and Thursday (when FOST hold the majority of their Air Defence Exercise (ADEX) training serials. This activation period could however be reduced to 24hrs notice if (for weather reasons) FOST have to move their larger ADEX serials to other days.
Note: In extreme circumstances the period of advance notice may be required to be reduced to 3 hours in order to meet essential emergent tasking requirements.
6. To utilise existing airspace structures / constructs wherever possible (Conformity, Efficiency, Simplicity + Safety).

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7. To minimise the impact upon the surrounding airspace network users and airport operations wherever possible (Efficiency + Airspace Sharing).
8. To return the airspace to its original status as soon as possible after the equipment installation, set to work and commissioning work is complete and Primary Surveillance Radar coverage of the area is restored (Efficiency).
9. To minimise additional costs (Economic).
10. To reduce the duration of Primary Surveillance causing disruption and the associated reduction in Air Traffic Surveillance services to all airspace users (Operational).
11. To achieve MODE-S equipment regulatory compliance in the shortest possible timescale. (Regulatory).
12. To have minimal environmental impact.

As can be seen from these extracts (shown in blue text) from the CAA's RMZ / TMZ Policy Document, the use of TMZs is appropriate for use when and where *"additional measures to enhance flight safety are required, but the establishment of a more restrictive classification of airspace is not warranted, proportionate measures are necessary. Such measures include the establishment of either an RMZ or a TMZ. The creation of an RMZ/TMZ allows the airspace to retain its original classification, yet also allows for enhanced situational awareness for all users and for ATC. This therefore increases safety for all aircraft flying in that block of airspace while imposing minimal additional restrictions."*

To recap, the principal issue that this airspace change is trying to overcome is how to provide optimised situational awareness for the benefit of all airspace users and ATC controllers during the PSR outages at the Wembury Point and Portland sites.

The CAA Policy document goes on to recommend that *"all airspace users should have reasonable and safe access to airspace. RMZs and TMZs are utilised to enhance the conspicuity of aircraft operating within or in the vicinity of complex or busy airspace for the safety of all members of the flying communities. They are to be established for overriding safety reasons in accordance with the Airspace Change Process. This is to include consultation with relevant aviation stakeholders, the needs of which must be established and taken into account. The resultant RMZ or TMZ should be of minimum practical dimensions to meet the safety requirements."*

It is fully understood that some would see the establishment of the TMZs over the pre-existing Danger Areas to be "too 'broad-brush' as the activity to be protected could be entirely out at sea yet overland and coastal portions would be activated unnecessarily." However, given the dynamic and diverse nature of the MOD's training activities, they are sometimes spread out across wide areas of the air and sea-space and the activities run concurrently in both the Plymouth and Portland Danger Area complexes.

It is unfortunately impractical to provide any greater degree of airspace activation 'agility' with regard to the TMZs, especially with traffic actively operating in multiple sectors travelling at around 7 miles per minute it does not take long for them to cover surprisingly large distances. The airspace management task is complex and at times it can and does get busy during the conduct of certain serials. In view of this it was agreed with our MOD Stakeholder that the activation of TMZs A and C should mirror the activity status of the Danger Areas they cover, however it was also felt that greater flexibility could be provided in the case of the activation of TMZ B in the CLASS G airspace, by trying to limit its activation to align with the scheduled busier periods of aerial activity wherever possible.

Following the receipt of your initial comments, as the ACP Sponsor Aquila has held further discussions with the Plymouth and Portland Danger Areas Delegated Authority Holder in an attempt to examine whether those Plymouth and Portland DAs which have an extension overland could be excluded from the TMZ coverage.

The chart extracts (shown above in our response at Statement 1) have now been updated to reflect the outcome of those discussions as it has been agreed that certain Danger Areas which may be considered to form part of the Plymouth and Portland DAs complex but which are established entirely over land or which are immediately adjacent to the coast and have an extension over land can be excluded from the TMZs.

This effectively removes D005A and D005B (in the vicinity of Predannack Airfield and Lizard Point), and D009B (in the vicinity of Plymouth) from TMZ A. In the case of TMZ C it removes D026 (in the vicinity of Lulworth Cove) and D031 (adjacent to Durlston Head, Swanage).

Please note: That whilst excluded from the TMZs in ACP-2019-16, these areas will retain their DA status and will remain activated in accordance with their published NOTAM hours throughout the period of the works and beyond.

In accordance with our Design Principle 5 above, it has also been agreed with the MOD Stakeholder that the activation of TMZ B can be made more flexible and it is proposed that it will only be activated when necessary. In the case of the CLASS G airspace area covered by TMZ B it is designed such that it only laterally spans the area containing the regularly used transit tracks and encompasses their current commonly used vertical airspace parameters.

Para 3.2 of the RMZ/ TMZ Policy Document states that *“Provisions should be made for non-compliant aircraft to gain access to an RMZ or TMZ where legitimate requirement exists. Article 41(3) of reference E states that the CAA may permit an aircraft or class of aircraft to commence a flight in specified circumstances even though mandated equipment for the intended flight is not carried or is not in a fit condition for use.*

3.3 The Controlling Authority of a notified RMZ or TMZ should have sufficient resource in place to guarantee full compliance in respect to airspace management arrangements, for example, suitable Air Traffic Service provision for the duration of RMZ or TMZ activation.”

As evidenced by the controllers at Plymouth (Mil), the volume of GA traffic which actively operates in the areas concerned appears to be extremely low. It is therefore anticipated that very few (if any), civil airspace users will suffer any additional inconvenience from the establishment of TMZs A, B or C.

Any civilian aircraft flying out over the sea areas en-route to either the continent or the Channel Islands are highly likely to be radio and transponder equipped nowadays and any operators of non-compliant air vehicles will still be able to enter and cross the Danger Areas and transit the proposed TMZs in a co-ordinated manner under the current Danger Areas Crossing Service (DACS) arrangements.

The operations centre at Plymouth (Mil) is a well-resourced unit which already operates an effective pre-flight and in-flight process for civilian and military aircrew to obtain up-to-date information on activities and DA status. The DACS and Danger Area Activity Information Service (DAAIS) will continue to be provided throughout the period of the works and beyond.

Under the Temporary Airspace Change process (CAP 1616 Part 1a refers), Aquila is not required to develop Design Principles or to complete a full Stage 2 Options Development and Assessment Stage with stakeholders in support of this proposal.

Aquila's approach however, has been to develop the design of the proposed airspace constructs by following many of the key steps in the design process specified in Part 1 of CAP 1616 for the Permanent Airspace Change process. By doing this Aquila has attempted to mirror a much more demanding process, using it as a 'hand-rail' to ensure we comply with established 'best-practice'.

In summary, it is felt that the proposed solution can offer a proportionate and extremely flexible design option which aligns with the regulatory policy requirements for it to be the 'least restrictive' way of delivering the desired "enhanced situational awareness to all users".

It is sincerely hoped that the above responses provide you with the requested clarity. In the event that this is not the case, please do not hesitate to get back to us so that we can provide you with any further information that is needed.




Aquila Head of Solutions

Date: 03/09/2020

B.4 AQUILA WEBSITE PRESENTATION (DATED 15 JULY 2020)

Version 1.0 (15 July 2020)

Background

- Project Marshall was initiated by the UK Ministry of Defence (MOD) to identify and evaluate options for the future delivery of their Military Terminal Air Traffic Management (ATM) capability, which ensures that all flights are safely and efficiently managed and sequenced.
- On 29 October 2014, MOD announced the signature of a contract with Aquila Air Traffic Management Services Ltd to deliver Marshall.
- The Marshall contract provides ATM equipment and support services at all MOD-operated airfields and flying ranges in the UK and overseas for a period of 22 years. It will also provide an out-of-area ATM capability in support of expeditionary air operations.

Why is Project Marshall needed?

- The current military ATM infrastructure has provided exceptional service over many years, but some of the equipment is now approaching obsolescence and will soon be non-compliant with mandatory international regulations. It is also increasingly costly to support and furthermore, much of the equipment does not meet MOD's availability requirements nor does it benefit from commonly accepted ATM efficiency and safety tools.
- Marshall will transform the current capability into a modern, efficient and world class ATM service.
- The new equipment and associated infrastructure changes will be rolled out across a number of different categories known as Technical Service (TS) areas.

Control of the Airspace in the South Coast Exercise Areas (SCXAs)

- The SCXAs and the Class G airspace around them is used to conduct maritime and aviation operational training series under the Command and Control of the Flag Officer Sea Training (FOST). FOST Operations is located within the HMS Drake / Devonport Dockyard complex and it is from there that all maritime and aviation activities within the SCXAs is co-ordinated. ATC services for both civil and military airspace users is provided by an ATC Cell co-located with FOST Operations. They provide a variety of ATC services to traffic within their extensive Area Of Interest (AOI).
- The ATC cell operates (all local times) 0800-1700 Monday to Thursday and 0800-1400 on Fridays. Outside this the unit may also be manned to provide an ATIS to the Fleet Helicopter Support Unit (FHSU) and fixed wing aircraft involved in the training of ships undergoing Operational Sea Training series. Additionally, the unit may also be required to support services outside these hours to aircraft conducting fleet testing, such as target towing.

Aircraft engaged in Maritime and Aviation Operational Training series

Why is an Airspace Change required?

- This Airspace Change Proposal is being sponsored by Aquila in order to support the enduring need for the UK Ministry of Defence (MOD) to continue to safely deliver Maritime and Aviation Operational Training throughout the Plymouth and Portland Exercise Areas whilst an extended period of surveillance system upgrades and new equipment installations is conducted across the South West of the UK.
- Without Primary Surveillance Radar (PSR) sensors available any non-transponder traffic will not be detected as the controllers at Plymouth (MI) will only have the use of Secondary Surveillance Radar (SSR) for situational awareness during the PSR outages.
- Aquila is mindful of the needs of all airspace users and paramount in this is the need to maintain safety of operations with minimal restriction or disruption for an extended period whilst the legacy surveillance systems are being upgraded.

What is being proposed?

- The proposed change is to establish a number of Transponder Mandatory Zones (TMZ's). Their function will be to manage the flow of traffic in accordance with the Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR) work programme.
- In Phase 1, the TMZ's will be established across Areas A and B together (see Slices 8.9 and 10 below for details) to cover the Ventnor Point PSR equipment upgrade period (circa 9 months).
- In Phase 2, the TMZ's will be established across Area C only (once the Ventnor Point coverage is restored) to cover the Portland PSR outage (circa 2 months) (see Slices 6, 11 and 12 for details).
- If approved, those users who are unable to comply with the TMZ requirement to operate a transponder will still be able to transit the airspace by contacting Plymouth (MI) either by phone or on their published frequencies to make the necessary arrangements for a co-ordinated crossing service.

The proposed Transponder Mandatory Zones (TMZ's) (Phase 1 = Areas A+B, Phase 2 = C only)

Phase 1: Early Sept 2021 – End May 2022

Phase 1 - Sectional view of the Airspace

Phase 2: Early June 2022 – End Feb 2023

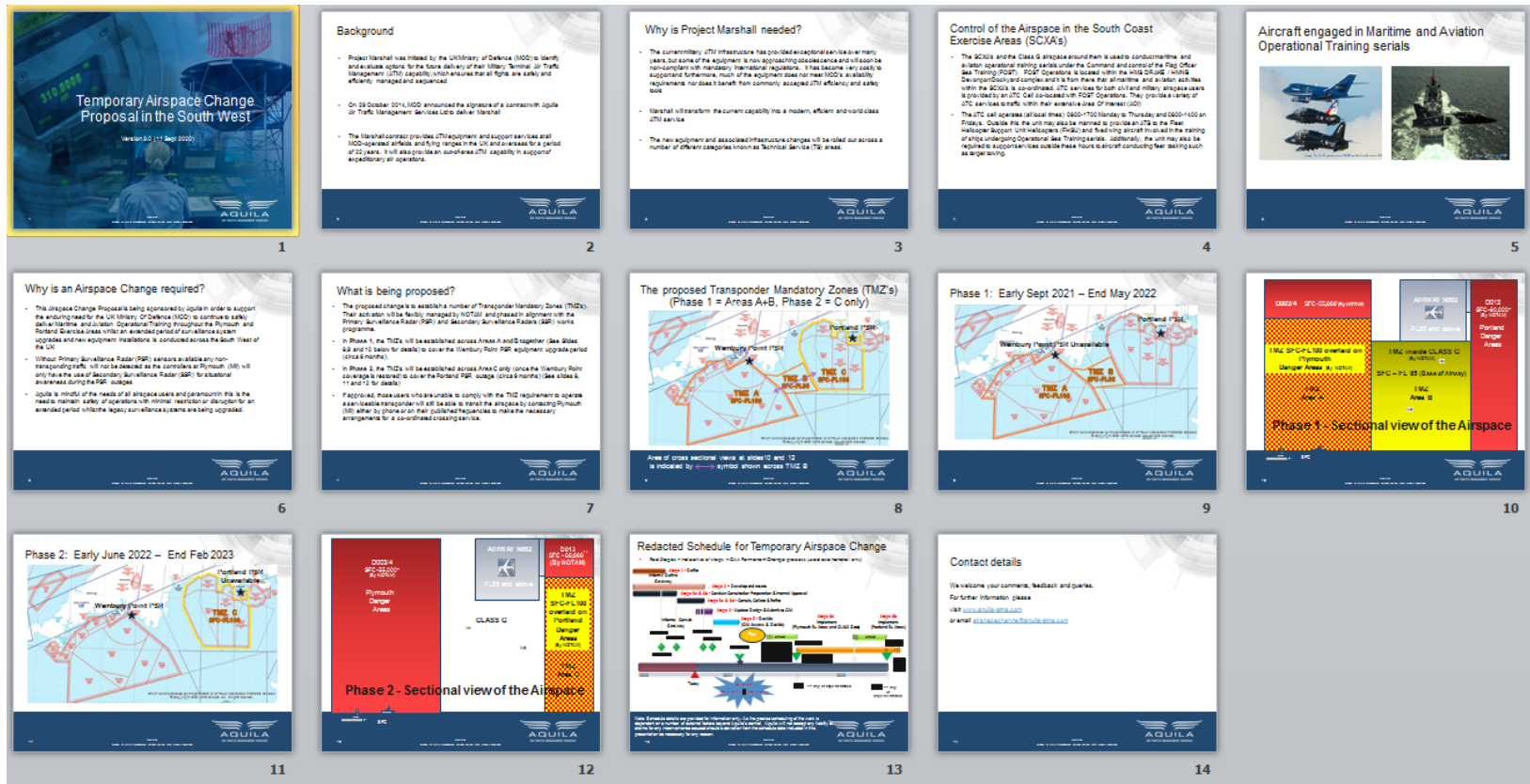
Phase 2 - Sectional view of the Airspace

Redacted Schedule for Temporary Airspace Change

Contact details

We welcome your comments, feedback and queries. For further information please visit www.aquila-atsm.com or email spacechange@aquila-atsm.com

B.5 UPDATE TO AQUILA WEBSITE PRESENTATION (DATED 11 SEPT 2020)



1. Temporary Airspace Change Proposal in the South West
Version 3.0 (11 Sept 2020)

2. Background

- Project Marshall has been initiated by the UK Ministry of Defence (MOD) to identify and evaluate options for the safe delivery of their military 'Terminal' air Traffic Management (ATM) capability, which ensures that all flights are safely and efficiently managed and sequenced.
- On 26 October 2014, MOD announced the signature of a contract with Aquila for Traffic Management services with delivery to March 2017.
- The Marshall contract provides ATM equipment and support services until 2020, covering all flights and flying ranges in the UK and overseas for a period of 22 years. It will also provide an enhanced ATM capability to support exceptional air operations.

3. Why is Project Marshall needed?

- The current military ATM infrastructure has provided exceptional service over many years, but some of the equipment is now approaching obsolescence and will need to be replaced with modern, interoperable equipment. This is a very costly requirement for the MOD, and the equipment does not meet MOD's availability requirements for use in the future.
- Marshall will transform the current capability into a modern, efficient and robust ATM service.
- The new equipment and associated infrastructure changes will be rolled out across a number of different categories known as 'Technical Service' (TS) areas.

4. Control of the Airspace in the South Coast
Exercise Areas (SCAAs)

- The SCAAs are the Class G airspace around them is used to conduct maritime and aviation operational training serials under the Command and control of the Flag Officer Sea Training (FOST). FOST Operations is located within the HMA SCOW, which is a large, complex and complex area to manage that all maritime and aviation activities within the SCAAs is controlled. JTC services for both civil and military airspace users are provided by the JTC. Call to the JTC is provided by the JTC. The JTC provides a range of JTC services to traffic within their exercise areas of interest (OZ).
- The JTC will operate all JTC serials (OZ) from Thursday and Friday 0600-1200 on Friday. Outside this the unit may also be manned to provide JTC to the Fleet Maritime Support Unit (FMSU) and the Fleet Maritime Support Unit (FMSU) in the event of ships undergoing Operational Sea Training serials. Additionally, the unit may also be required to provide JTC to the Fleet Maritime Support Unit (FMSU) in the event of ships undergoing Operational Sea Training serials.

5. Aircraft engaged in Maritime and Aviation Operational Training serials

6. Why is an Airspace Change required?

- This Airspace Change Proposal is being considered by Aquila in order to support the ongoing need for the UK Ministry of Defence (MOD) to continue to safely deliver maritime and aviation Operational Training throughout the Plymouth and Portland Service Areas whilst an extended period of surveillance system upgrades and new equipment installations is conducted across the South West of the UK.
- Without Primary Surveillance Radar (PSR) coverage available in non-transponder paths, it will not be possible to maintain the current level of surveillance coverage during the PSR upgrade.
- Aquila is mindful of the needs of all airspace users and paramount this is the need to maintain safety of operations with minimal restriction or disruption for an extended period whilst the Agency surveillance systems are being upgraded.

7. What is being proposed?

- The proposed change is to establish a number of Transponder Mandatory Zones (TMZs). Their activation will be fully managed by NOTAM and aligned with the Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR) upgrade programme.
- In Phase 1, the TMZs will be established across Areas A and B together with Areas C and D to allow for the delivery of the Plymouth PSR equipment upgrade period (12 months).
- In Phase 2, the TMZs will be established across Area C only (once the Plymouth PSR coverage is restored to cover the Portland PSR outage (12 months)). See Areas A, B and C for details.
- If approved, these users who are unable to comply with the TMZ requirement to operate a transponder will still be able to transit the airspace by contacting Plymouth 1300 when to plan or on their published frequencies to receive the necessary arrangements for a co-ordinated crossing service.

8. The proposed Transponder Mandatory Zones (TMZ's) (Phase 1 = Areas A+B, Phase 2 = C only)

9. Phase 1: Early Sept 2021 - End May 2022

10. Phase 1 - Sectional view of the Airspace

11. Phase 2: Early June 2022 - End Feb 2023

12. Phase 2 - Sectional view of the Airspace

13. Redacted Schedule for Temporary Airspace Change



14. Contact details

We welcome your comments, feedback and queries.
For further information please visit www.aquila.gov.uk
or email enquiries@aquila.gov.uk

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B.6 PLYMOUTH MILITARY RADAR CONTACT INFORMATION TRI-FOLD

ATC FREQUENCIES	CONTACT INFORMATION	FLAG OFFICER SEA TRAINING (FOST) 
West of Berry Head (BHD) VHF 121.250	Duty Ops Officer: 01752 557550	PLYMOUTH MILITARY RADAR
East of Berry Head (BHD) VHF 124.150		
		
PLYMOUTH MILITARY RADAR		PLYMOUTH MILITARY RADAR

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Plymouth Military Radar (Plymouth Mill) is an autonomous ATC Radar Unit located within the headquarters of Flag Officer Sea Training (FOST) at HM Drake, Plymouth. It is manned by a Senior Air Traffic Control Officer and a number of Air Traffic Control Officers. Providing assistance to the controllers are 4 Air Operations Assistants who are located within the FOST Operations Room.

The Unit operates 0800-1700 local Mon-Thur and 0800-1400 local Fri, or as by NOTAM.

Covering nearly 20,000 sq. miles, its area of responsibility extends laterally from the Isles of Scilly in the west to the eastern edge of the Portsmouth Danger Areas. Vertically, the responsibility extends from the surface to the upper level of the Danger Areas. Within the Unit, the task is divided geographically, east and west of Berry Head (BHD).

The Unit is also able to provide Basic, Traffic or Deconfliction Services in within the Danger Areas and surrounding Class G airspace. A Radar Control service is available to cross through certain portions of Class A airspace on request.

Danger Area activity times and levels are published in the UK AIP and are temporarily amended via NOTAM.

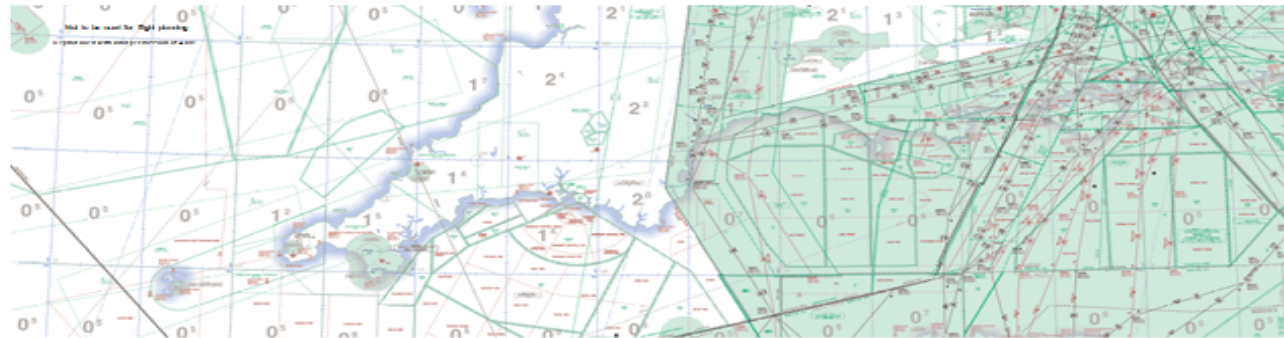
Activities within the Danger Areas frequently include:

- Live firing from ships and aircraft
- Para dropping
- Target towing
- UAS flying both within and outside of visual line of sight
- Torpedo dropping
- Fixed wing aircraft conducting high energy and air combat manoeuvres
- Pilotless target aircraft

Even when the Danger Areas are active, it is possible that no hazardous activity is taking place and a Danger Area Crossing Service (DACS) can be provided. An early radio call to Plymouth Mill will allow the most expeditious routing through the areas to be provided.

Outside the Unit's published opening hours, the Danger Areas remain active per the UK AIP where Swanwick Military Radar provides the DACS. Crossing clearances can be sought via London Information.

In summary, the Unit is able to provide Air Traffic Services to both military and civil airspace users during normal hours of operation. Having up-to-the-minute information on Danger Area activity allows Plymouth Mill the flexibility to release certain portions of the airspace back to civil users; therefore conforming to the Flexible Use of Airspace concept and allowing planned routes to be utilised at every opportunity.



PLYMOUTH MILITARY RADAR

B.7 AQUILA STAKEHOLDER INFORMATION LEAFLET

Aquila Air Traffic Management Services Ltd is a Joint Venture by NATS and Thales.
More at: www.aquila-atms.com

NATS manage air traffic control services at 15 UK airports and in Gibraltar and provide En-Route and Terminal air traffic services for civil and military aircraft flying through UK airspace.
More at: www.nats.co.uk

Thales UK is one of the world's largest suppliers of ATM systems and services and is an established UK prime systems integrator with a proven track record of delivering large and complex programmes.
More at: www.thalesgroup.com

NATS THALES



AQUILA
AIR TRAFFIC MANAGEMENT SERVICES



Temporary Airspace Change in the South West

Public Engagement



Aquila has made an application to the CAA for a Temporary Airspace Change in the vicinity of the Plymouth and Portland Exercise / Danger Areas whilst Air Traffic Control equipment is upgraded



AQUILA
DELIVERING PROJECT MARSHALL

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Who is Aquila?

Let us introduce ourselves, we are Aquila Air Traffic Management Services (ATMS) and we are working on the Project Marshall contract for the Ministry of Defence (MOD) to upgrade Air Traffic Management equipment across all UK MOD sites.

Aquila formed in 2014 as a joint venture between National Air Traffic Services (NATS), air navigation services specialist and Thales, the primary supplier of equipment and services for UK Air Traffic Management (ATM).

Aquila was awarded the Project Marshall contract by the MOD in 2014. The programme provides military terminal Air Traffic Management (ATM) capability ensuring that all flights are safely and efficiently managed and sequenced for take-off and landing.

What is Project Marshall?

The Marshall contract provides ATM at all MOD-operated airfields and flying ranges in the UK and overseas for a period of 22 years. It will also provide an out-of-area ATM capability in support of expeditionary air operations.

Why is Marshall needed?

The current military ATM infrastructure has provided exceptional service over many years, but, in many cases, is approaching obsolescence and will soon be non-compliant with mandatory international regulations. It has now become very costly to support. Furthermore, much of the equipment does not meet MOD's availability requirements and does not benefit from commonly accepted ATM efficiency and safety tools.

Marshall will transform the current capability into a modern, efficient and world class ATM service.

The new equipment and associated infrastructure changes will be rolled out across a number of different categories known as Technical Service (TS) areas.

Understandably, the programme underpinning the introduction of the new TS is both extensive and complex. As a minimum it might involve obtaining site clearances and any planning permission required, completion of any new infrastructure and groundworks, completing the install, test and accept into service of the new systems and the removal and decommissioning of legacy equipment.



This airspace change proposal is being undertaken in order to assist with the introduction of new equipment assets as part of the Electronic Surveillance Service known as Technical Service (TS 07).

Why is a temporary airspace change required?

Aquila has made an application to the CAA for a Temporary Airspace Change in the vicinity of the Plymouth and Portland Exercise / Danger Areas to ensure operational maritime and aviation training conducted in the Exercise Areas can continue safely whilst the legacy ATC equipment is transformed under Project Marshall.

Safety is paramount

Control of the airspace concerned is currently achieved using the Primary and Secondary Surveillance Radars located at the RNAS Culdrose, Wembury Point and Portland sites is fed to an ATC centre located within the HM Naval Base complex at Devonport, Plymouth, where controllers provide a variety of Air Traffic Services and safety of flight monitoring, a Danger Areas Crossing Service (DACS) and Danger Areas Activity Information Services (DAAIS) for both civil and military airspace users.

There is an enduring MOD requirement to continue Operational Maritime and Aviation Training throughout the Plymouth and Portland Exercise Areas / Danger Areas for the extended period whilst the transition from the 'old to the new' equipment takes place. Therefore, in the absence of the Wembury and Portland surveillance sensors, it is necessary to change the way the safety of the airspace is managed for the benefit of all airspace users.

Who will be impacted by this temporary airspace change?

Civil and military airspace users that occupy the South West airspace.

Public engagement

As the Sponsor of the proposed change, Aquila is required to comply with the Airspace Design Document (CAP 1618), which offers guidance on the regulatory process for managing the changing airspace and the observance of stakeholder community engagement requirements.

This process requires Aquila to conduct a comprehensive 13-week engagement process to develop an understanding of how the proposed change might impact on the existing stakeholder communities.

Aquila commits to providing an open and honest engagement period and encourages your comments, questions or concerns.

Where can I get further information?

Comments, questions or concerns can be submitted to airspacechange@aquila.com or visit www.aquila-atms.com where you can also sign up for further updates and information.

B.8

AQUILA POSTER FOR CLUB / OFFICE NOTICEBOARDS


Temporary Airspace Change in the South West



Aquila has made an application to the CAA for a Temporary Airspace Change in the vicinity of the Plymouth and Portland Exercise/Danger Areas whilst Air Traffic Control equipment is upgraded.

A 13-week consultation period will begin in late July 2020 where we invite questions from the public and those affected by the proposed changes.

To find out more contact us at
airspacechange@aquila-atms.com
or visit us at www.aquila-atms.com



AQUILA
AIR TRAFFIC MANAGEMENT SERVICES

APPENDIX C - LIST OF NATMAC AND OTHER STAKEHOLDERS CONTACTED WITH INFORMATION.

C.1 NATMAC STAKEHOLDERS LIST

	A	B	C	D	E	F	G
1		IMPACT OF CHANGE ASSESSMENT					
		DIRECTLY	INDIRECTLY	POTENTIALLY	NEEDED TO MAKE IT WORK	KNOW ABOUT THE SUBJECT	HAVE INTEREST IN THE SUBJECT
2	Contact Group Name: NATMAC						
3	Organisation						
4	Airlines UK						
5	Airspace4All						
6	Airport Operators Association (AOA)						
7	Airport Operators Association (AOA)						
8	Airfield Operators Group (AOG)						
9	Aircraft Owners and Pilots Association (AOPA)						
10	Airspace Change Organising Group (ACOG)						
11	Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)						
12	Aviation Environment Federation (AEF)						
13	British Airways (BA)						
14	BAe Systems						
15	British Airline Pilots Association (BALPA)						
16	British Airline Pilots Association (BALPA)						
17	British Balloon and Airship Club						
18	British Business and General Aviation Association (BBGA)						
19	British Gliding Association (BGA)						
20	British Helicopter Association (BHA)						
21	British Hang Gliding and Paragliding Association (BHPA)						
22	British Microlight Aircraft Association (BMAA) / General Aviation Safety Council (GASCo)						
23	British Model Flying Association (BMFA)						
24	British Skydiving						
25	Drone Major						
26	General Aviation Alliance (GAA)						
27	Guild of Air Traffic Control Officers (GATCO)						
28	Honourable Company of Air Pilots (HCAP)						
29	Helicopter Club of Great Britain (HCGB)						
30	Heavy Airlines						
31	Iprosurv						
32	Isle of Man CAA						
33	Light Aircraft Association (LAA)						
34	Low Fare Airlines						
35	Military Aviation Authority (MAA)						
36	Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)						
37	NATS						
38	NATS						
39	Navy Command HQ						
40	PPL/IR (Europe)						
41	PPL/IR (Europe)						
42	UK Airprox Board (UKAB)						
43	UK Flight Safety Committee (UKFSC)						
44	United States Air Force Europe (3rd Air Force-Directorate of Flying (USAFE (3rd AF-DOF))						

C.2 OTHER STAKEHOLDERS LIST

	A	B	C	D	E	F	G	H
1			IMPACT OF CHANGE ASSESSMENT					
		WORKING GROUP	DIRECTLY	INDIRECTLY	POTENTIAL	NEEDED TO MAKE IT WORK	KNOW ABOUT THE SUBJECT	HAVE INTEREST IN THE
2	Contact Group Name:							
3	■ NAS Hawk crews							
4	■ Falcon crews							
5	Plymouth Mill / FOST Ops							
6	MOD Duty Holders							
7	Navy Command HQ Staff							
8	Exeter International Airport,							
9	Cornwall Airport Newquay							
10	RNAS Culdrose / RNAS Predannack,							
11	Bournemouth International Airport,							
12	Jersey Airport							
13	St Mary's Airport, I.O.S.							
14	Dorset and Somerset Air Ambulance,							
15	Devon Air Ambulance.							
16	Cornwall Air Ambulance Trust.							
17	National Police Air Service HQ, Wakefield, Yorkshire							
18	HMCG Aviation Services,							
19	The Light Aircraft Association HQ, Brackley, Northants. (To include Local 'Struts' and National body),							
20	The General Aviation Alliance HQ, Leicester.							
21	Trinity House Aviation Services, Trinity House Lights and Bouyage HQ, London.							
22	Aircraft Owners and Pilots Association (AOPA) HQ, London - (Flying Schools and Clubs).							
23	MOD Aviation (DAATM, MAA, etc.),							
24	Branscombe Airfield, Devon							
25	North Hill Airfield, Nr Honiton, Devon,							
26	Portland Heliport, Portland Dorset							
27	Farway Common Airfield, Sidmouth, Devon,							
28	The National Flying Club (Ivybridge),							
29	Bolt Head Airfield, Kingsbridge, Devon							
30	Halwell Airfield, Totnes, Devon.							
31	Land's End Airfield,							
32	Perranporth Airfield,							
33	UK Aeronautical Rescue Coordination Centre, Hampshire.							
34	Dunkeswell Airfield, Nr Honiton, Devon.							
35	Cardiff International Airport,							
36	Bristol International Airport,							
37	Southampton International Airport,							
38	RNAS Yeovilton / RNAS Merryfield,							
39	MOD Boscombe Down, Wiltshire.							
40	Thales UK Flight Inspection. Durham Tees Valley Airport.							
41	Wales Air Ambulance Charity, Caernarfon Airport.							
42	Great Western Air Ambulance,							
43	Thruxton Airport, Andover Hampshire,							
44	Hampshire and Isle of Wight Air Ambulance, Southampton Airport.							
45	Deanland Airfield, Lewes, Sussex.							
46	Lee on Solent Airfield, Hampshire							
47	Shoreham Airfield,							
48	Goodwood Airfield,							
49	Gloucestershire Airport / Staverton Airfield,							
50	Popham Airfield,							
51	Compton Abbas Airfield,							
52	Old Sarum Airfield, Salisbury, Wiltshire.							
53	Yeovil Tye Airfield (Westlands/ Leonardo Helicopters),							
54	Henstridge Airfield.							
55	Guernsey Airport							

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	A	B	C	D	E	F	G	H
56	Bournemouth Commercial Flight Training, Bournemouth International Airport.							
57	Perranporth Flying Club, Perranporth Airfield.							
58	Yeovilton Flying Club, RNAS Yeovilton, Somerset.							
59	Navy Wings Heritage Centre, RNAS Yeovilton, Somerset							
60	Compton Abbas Airfield							
61	Compton Abbas Flying Training, Compton Abbas Airfield, Somerset.							
62	Bodmin Airfield, Cornwall.							
63	Cobham Aviation Services Ltd, Bournemouth International Airport.							
64	Horizon Flight Training, MOD St.Athan, South Wales.							
65	Phoenix Aviation, Solent Airport, Hampshire.							
66	Flying Pilot Training, Cornwall Airport Newquay.							
67	Alderney Flying Club, Alderney Airport.							
68	Devon and Somerset Flight Training Ltd, Dunkswell Aerodrome, East Devon.							
69	Sussex Flying Club, Shoreham Airfield.							
70	Lee Flying Association, Solent Airport, Hampshire.							
71	Hampshire Aeroplane Club, Solent Airport, Hampshire.							
72	South Hams Flying Club, Halwell Airfield, Devon.							
73	Cornwall Flying Club, Bodmin Airfield, Cornwall.							
74	Airbourne Aviation - Flight Training School, Popham Airfield, Hampshire.							
75	Bristol Flying Club, Bristol International Airport.							
76	Aeros Flight Training, Cardiff International Airport.							
77	Bristol Flying School, Bristol International Airport.							
78	ACE Flight Training, Dunkswell Airfield, Devon.							
79	Guernsey Flying Training Ltd, Guernsey Airport.							
80	Jersey Aero Club, Jersey Airport.							
81	Plymouth Flying School Ltd T/A Flyng Pilot Training, Cornwall Airport Newquay.							
82	Staverton Flying School, Gloucestershire Airport, Staverton,							
83	Ultimate High Academy, Goodwood Aerodrome, West Sussex.							
84	Flight Performance Training, Brighton City Airport, Shoreham.							
85	Draycott Aerodrome, Wiltshire.							
86	Goodwood Flying School, Goodwood Aerodrome, West Sussex.							
87	Lyneham Flying Club C/O The Control Tower, Cotswold Airport.							
88	The Cornwall Strut of the Light Aircraft Association, Bodmin Airfield Club House.							
89	The Wessex Strut of the Light Aircraft Association, Henstridge Airfield Clubhouse.							
90	The Bristol Strut of the Light Aircraft Association							
91	Euroflight Training Ltd, Solent Airport.							
92	ETPS, QinetiQ, MOD Boscombe Down, Wiltshire.							
93	Penzance Helicopters, Penzance Heliport, Cornwall.							
94	Weston Aviation, Gloucestershire Airport.							
95	The Little Jet Company, Gloucestershire Airport							
96	Skytime Jets Ltd.							
97	Heliflight UK, Gloucestershire Airport							
98	Westward Airways Ltd, Land's End Airport, Cornwall.							
99	Phoenix Aviation, Solent Airport, Hampshire.							
100	Aurigny Air Services Ltd, Guernsey Airport.							
101	MCA Aviation Team, Southampton, HMCG National Maritime Operations Centre, Hampshire.							
102	British Airways HQ, Uxbridge, London.							
103	EasyJet HQ, London Luton Airport,							
104	Flybe HQ, Southampton International Airport,							
105	Blue Island, Guernsey Airport.							

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APPENDIX D - ACP WORKING GROUP MEETINGS – RECORDS OF DISCUSSION

D.1 ACP WORKING GROUP MEETING ROD – 30 JAN 2020

ACP WORKING GROUP MEETING - 30 JAN 2020 – CTC WHITELEY.

(SLIDE SET REFERS: Navy Command Airspace Construct presentation 30 Jan 2020.pptx)

ATTENDEES:

[REDACTED]

RECORD OF DISCUSSION:

1. [REDACTED] Outlined the Meeting Aim was to reach an 'Agreement in Principle' at the working level so that [REDACTED] ([REDACTED] Rep) can up-brief to the MOD Command / Duty Holder chain before delivering a clear confirmation of what we will take forward in our ACP application. [REDACTED] also conducted a reprise of the Airspace Construct discussions held to date and the previously agreed Design Principles. Mitigation Options were also reviewed so that attendees fully understood which options have been discounted and which are considered appropriate for deployment. ACTION – [REDACTED] agreed to take forward the construct agreed today to his stakeholders and provide feedback on design acceptability at next Thursday's meeting.

2. CAA Safety and Airspace Regulation Group (SARG) Policy Statements for the establishment of DAs, RMZ/TMZ Airspace Constructs were distributed and the relevant paragraphs on the suitability / unsuitability of each airspace type were considered and set against the user needs of the airspace. The use of a TDA was considered overly restrictive and disproportionate given that it did not enhance controller or aircrew situational awareness, nor did it fully guarantee the exclusion of itinerant traffic from the airspace concerned. Establishing TMZs however, did significantly improve SA and as most GA aircraft are already transponder equipped there was very little cost impact or inconvenience caused to users. A transit service could also be made available to any GA traffic that wished to access the TMZ but were not transponder equipped.

3. The Lateral / Vertical limits / CONOPS and Type of the preferred construct were discussed at length.

- Establishing a TDA was considered to perhaps be over restrictive and concerns were raised that it might lead to the rejection of the proposal. Also, it does not in itself prohibit other traffic from entering, therefore it cannot effectively provide any guarantee of exclusion of other airspace users nor does it enhance controller or aircrew situational awareness of other traffic in the airspace in the absence of PSR data in the same way that a TMZ does.

- Establishing TMZs on the other hand was considered a much more proportionate mitigation.

The CAA's SARG Policy Statement for the establishment of RMZ/TMZ Airspace Constructs states in Para 1.3 that:

Where additional measures to enhance flight safety are required, but the establishment of a more restrictive classification of airspace is not warranted, proportionate measures are necessary. Such measures include the establishment of either an RMZ or a TMZ. The creation of an RMZ/TMZ allows the airspace to retain its original classification, yet also allows for enhanced situational awareness for all users and for ATC. This therefore increases safety for all aircraft flying in that block of airspace while imposing minimal additional restrictions.

Furthermore, TMZs align with this particular need case as the CAA Policy Statement - Purpose of RMZ/TMZ at Para 3.1 states:

All airspace users should have reasonable and safe access to airspace. RMZs and TMZs are utilised to enhance the conspicuity of aircraft operating within or in the vicinity of complex or busy airspace for the safety of all members of the flying communities.

The establishment of a TMZ which only covers half of the Class G airspace at any time during the work was also discussed, but felt to be impractical. Due to the distance from the sensors the base of coverage limitations (and therefore the 'assured PSR radar coverage') in the area between the SCXAs blocks is already known to limit Air Traffic Service (ATS) delivery. Additionally, the current Wembury radar has a sector of obscuration as a result of radar 'shadow' caused by the Start Point headland which also extends over the area concerned. Despite the likelihood of improved PSR performance post-upgrade, the true extent of coverage at the lower levels will not be established until after the PSR systems have been upgraded, optimised and Flight Checked / Calibrated. We cannot predict the PSR performance outcomes at the time of drafting our application so should not assume an improved level of assured coverage will exist.

A two phase approach was agreed (Phase 1 to cover the Wembury Point PSR outage and Phase 2 for the Portland PSR outage).

- PHASE 1 – Establish a TMZ over the Plymouth DAs and a TMZ across the Class G airspace bounded by the construct (Shown on Slide 10 of the presentation) which bridges the gap between the Plymouth and Portland DAs.
 - PHASE 2 – Establish a TMZ over the Portland DAs and a TMZ across the Class G airspace bounded by the construct (Shown on Slide 10 of the presentation) which bridges the gap between the Portland and Plymouth DAs.
4. ■ advised that a new version of CAP 1616 has apparently just been released – ■ at CAA advised him that it now also contains a reference to longer timescales for Temporary Changes beyond the 90 day limit set in the previous version. ACTION – ■ will investigate and report back.
5. ■ agreed to update the Design Principles Slide 6, bullet 5, to reflect the discussion ref "including some mention of short notice activations in extremis (circa 3 hours' notice) to meet emergent tasking." This will be considered at our meeting next week (mindful that we will need to establish the precise needs and timescales for notification methodology that will be employed by

FOST). Clearly there may also be safety arguments we have to make to ensure that awareness of the status is assured and timely for all airspace users. . ACTION – [REDACTED] agreed to re-word Design Principles Bullet 5 for peer review at next meeting.

6. Assistance with obtaining statistical information on traffic levels for DACS / DAAIS / Transits of the SCXAs was requested in support of delivering objective statements in both the proposal and the Safety Assessment. ACTION – [REDACTED] agreed to assist.

AOB:

[REDACTED] suggested that the establishment of a permanent TMZ to cover any shortfalls in the low level PSR coverage might be worthy of consideration at a later date.

The availability of 'Media Trained' RN personnel to assist with the Direct Engagement activities was discussed – ACTION – [REDACTED] agreed to investigate and report back.

DONM:

Thursday 6 Feb 2020 (Venue and Time TBC)

D.2 ACP WORKING GROUP MEETING ROD – 6 FEB 2020

ACP WG MEETING 6 FEB 2020 – CTC WHITELEY (1500-1600)

SLIDE SET REFERS: Navy Command Airspace Construct Decision and SON presentation 6 Feb 2020.pptx

ATTENDEES:

As time is not on our side [REDACTED] and [REDACTED] were the only attendees and went ahead with a short meeting anyway.

APOLOGIES:

Appreciate the fact that everyone was busy on this occasion, so apologies received and accepted from [REDACTED]

AGENDA:

1. Assimilate post up-briefing feedback received from DH's ref proposed airspace construct.
2. Update on the provision of requested safety case material.
3. Assess impact of revised CAP 1616 document.
4. Prepare for submission of a revised Statement Of Need (SON) to the CAA once impact of PSR Optimisation on ACP timeline is better understood. Align with CAP 1616, App A.
5. Discuss preps for Directed Engagement material.

RECORD OF DISCUSSION:

1. [REDACTED] reported that whilst there had been some productive discussion with members of the DAATM it had not been possible to up-brief CO-NFW / [REDACTED] Sqn. Further ongoing engagement with DAATM was felt to be important as this could positively influence the CAA's decision making and they had useful experience of ACPs which we could benefit from hearing. Following the discussions last week [REDACTED] reaffirmed his belief that we are following the best construct option route, and as he hopes the discussion with CO-[REDACTED] can take place early next week he should be in a position to provide feedback soon thereafter. **ACTION – [REDACTED] to provide feedback**
2. Some Safety related material (RN Hawk Safety Operating Case) has been delivered to [REDACTED] but it references out to other documentation which still needs to be supplied to him therefore as of today he does not yet have the full portfolio of information available. [REDACTED] will send the RN Hawk Safety Operating Case item to [REDACTED] on 7 Feb so that it can be forwarded to the Aquila Safety Team. The remainder of the documents are being expeditiously sought and will be made available in due course. **ACTION – [REDACTED] to forward copy once obtained**
3. [REDACTED] and [REDACTED] went through the new edition of CAP 1616 to ascertain the potential impact of the changes on our ACP process. Sadly the 90 day limit on Temporary Changes has not been extended in the revision. It was suggested that in order to develop the strongest arguments in support of our extension request to permit a circa 18 months duration, we should convene a workshop to draw together all the reasons why these two sites would perhaps take longer to turn-around than a standard 'green field' radar installation. **ACTION – [REDACTED] to incorporate suggestions into draft and distribute for review**
4. [REDACTED] and [REDACTED] went through a freshly drafted (many thanks for the work on this [REDACTED] re-write of our SON to check compliance / alignment with Appendix A (SON Drafting Guidance Template) of the new CAP 1616. A couple of very minor additions were proposed to align

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with the requirements and these will be copied in and distributed for comment ASAP. **ACTION – [REDACTED] to incorporate and distribute for peer review**

5. [REDACTED] outlined the proposed style of the Direct Engagement / Consultation events and the GA Community stakeholder information campaign that had been discussed during meetings with the Aquila Comms Team in Q4 last year. A repeat of the Plymouth (Mil) information gatefold was identified as an effective method of ensuring the GA community made full (and correct) use of the safety services available from the unit. **ACTION – [REDACTED] agreed to further investigate the production of this with the Aquila Comms Team**

AOB:

None forthcoming.

DONM:

TBC - Subject to documentation being received and feedback being made available – Place keeper only ATM for next Thursday 13 Feb 2020 (1330-1500) @ CTC. (Will confirm NLT Tues PM).

D.3 ACP WORKING GROUP MEETING ROD – 13 FEB 2020

SW ACP WORKING GROUP - RECORD OF DISCUSSION – CTC WHITELEY (1330-1500) 13 Feb 2020:

SLIDE SET REF: Airspace Change Process Working Group Meeting presentation – 13 Feb 2020.pptx

ATTENDEES:

[REDACTED]

APOLOGIES:

Received and accepted from [REDACTED]

AGENDA:

1. Actions update from last meeting.
2. Update on the provision of requested safety case material.
3. Submission of a revised Statement of Need (SON) – Review Draft of new SON aligned with CAP 1616, App A.
4. Update on impact of PSR Optimisation on ACP timeline.
5. Capture of key reasons why the installation works at these particular sites is more complicated and therefore may take considerably longer than normal airfield sites.
6. Discuss preps for Directed Engagement material.
Meeting with CAA Consultation Rep,

PowerPoint briefing on loop, POP-UPS and Posters.

Hand-outs on Plymouth (Mil) services (small gatefold).

DISCUSSION:

1. Up-Briefing feedback

[REDACTED] provided some useful feedback, reporting that [REDACTED] [REDACTED] [REDACTED] has now been fully briefed on the proposed constructs and seemed content with the proposal in principle. He was provided with a modified version of some of the slides we used in our presentation at the WG meeting discussions held on 6 Feb to enable him to accurately up-brief the [REDACTED]. [REDACTED] also agreed to raise it at the next ORMG meeting and raise an entry in the FAA Safety Risk Register (FAASRR).

Post Meeting Note: Approval now Complete for RN ([REDACTED] still outstanding) Email received from [REDACTED] on 20 Feb 2020 confirming that “[REDACTED] (DDH) is content with the ACP TMZ Proposal.”

2. Safety Case and other related Documentation trawls

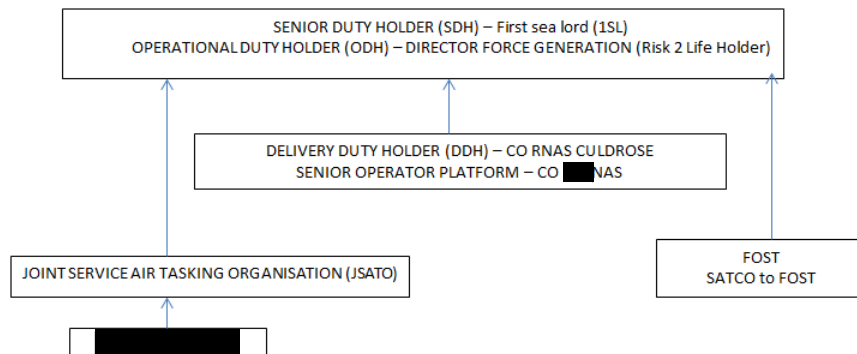
Some [REDACTED] NAS Safety Case related material has been gathered and forwarded to the Aquila Safety Team along with some examples of the raid plans (PLOGS) that are used.

- 20190723 - DDH Air System Safety Case Report (ASSCR) - RN Hawk T Mk1/1A - V9.0 - Date of Issue: 30 Sep 19
- [REDACTED].xls (2 x Draft PLOGS)
- BRd 9904 Chapter01.doc (Extract)

It was thought that some further operational safety related material must reside somewhere within the FOST data repository so the search is being continued. **ACTION: Remains ongoing.**

A discussion then followed in order to try and clarify the MOD Safety and Duty Holder organisation for the Safety Team (and everyone else's benefit!). The organisation was described roughly as shown on the next page but please note the positions shown in the diagram are only an indicative representation and their relationship to each other. There was some further dialogue on the role of the AWC in respect to ACP submissions but this was inconclusive and we failed to establish an accurate picture of their position (if any?) in the process. Although [REDACTED] are a civilian organisation operating under an MOD contract it was felt important that they were included, both in our consideration of the safety assessment production and the potential impact of any airspace change on their own internal Safety Case / CONOPS. [REDACTED] and [REDACTED] agreed to continue the engagement with members of the [REDACTED] management team ([REDACTED] and [REDACTED]) and an action was taken to arrange a brief for them on the proposal which we will be taking forward. **ACTION: [REDACTED] and [REDACTED] to arrange briefing session with [REDACTED] Reps.**

To raise visibility of the ACP safety assessment production task [REDACTED] volunteered to raise the matter at the next Fleet Air Arm Safety Risk Register (FAASRR) meeting.



3. **Submission of an updated SON**

[REDACTED] and [REDACTED] have completed a review of the SON wording to align it with the latest edition of the CAP 1616 (Effective Date 1 Feb 2020) and this was reviewed. This may not be the last iteration before submission however as this will depend on the outcome of the as yet unanswered question "do we need to deliver a single '2 x stage' proposal covering work at both sites or 2 x independent applications (one for each site)?" **ACTION: Ongoing - Partially complete but may need further adjustment before submission to the CAA Portal following the decision on a single or double application requirement by the CAA.**

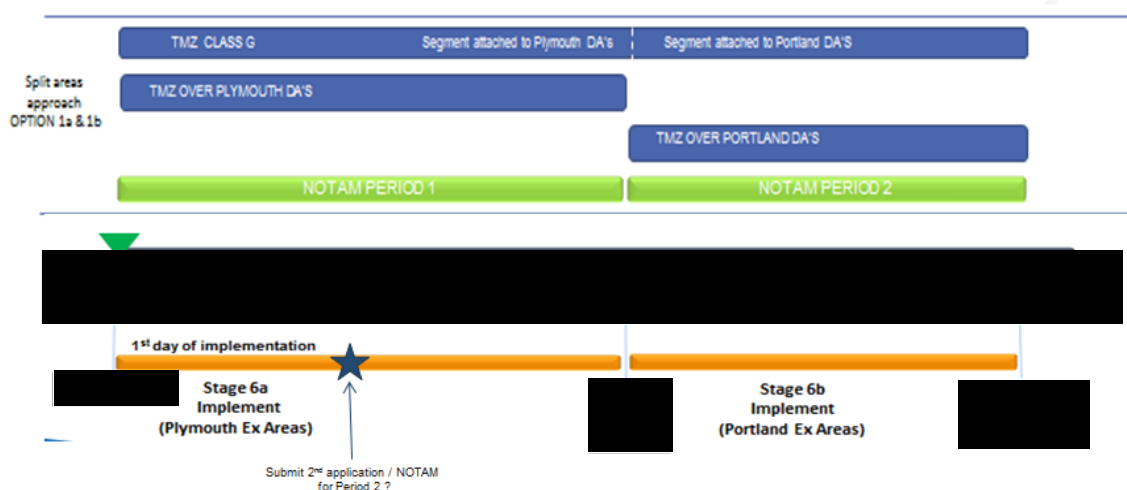
4. **Update on impact of PSR Optimisation on ACP timeline**

[REDACTED] briefed that the schedule was expected to change as a result of the PSR Optimisation but that at this stage no new information on revised dates had been received.

As a result the schedule remained as is until further notice. For the benefit of some new joiners to the working group the current timeline was shown and the importance of adherence to the key dates was explained.

As soon as any new information becomes available the Level 1 and Level 2 plans for the ACP will be revised and distributed, until then the timeline shown below remains in force.

Current Timeline (Does not include a PSR Optimisation factor)



5. Reasons for circa 18 Months

re-capped the reasons for a longer than usual period being necessary to complete the works and then canvassed those present to add to the existing list so that these additional reasons could be used to boost the argument for the approval of an extension beyond the 90 day period usually permitted.

A couple of additional reasons were forthcoming at the meeting and these were captured for use in argument preparations later on in the ACP process. These include the likelihood of finding Asbestos which might not have been disclosed in the Asbestos Register, out of date services plans causing site issues once you start excavating, etc.

6. Comms Material, Outputs for Engagement

continuing to develop with (Aquila Comms Team)

and have discussed the production of a Gate-Fold outlining the services offered by Plymouth (Mil) and there are no obvious barriers to that being included as part of the info package which will be delivered to the GA community once the wider stakeholder engagement commences. **ACTION: Ongoing.**

AOB:

None forthcoming.

DONM:

TBC @ CTC. (Will confirm NLT Tues 18 Feb PM).

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D.4 ACP WORKING GROUP MEETING ROD – 20 FEB 2020

SW ACP WG MEETING 20 FEB 2020 (1500-1630) - RECORD OF DISCUSSION:

SLIDE SET REFERS: ACP – Directed Engagement Meeting Presentation – Thurs 20 Feb 2020.pptx

ATTENDEES:

[REDACTED]

APOLOGIES: Received and accepted from [REDACTED]

RECORD OF DISCUSSION:

AGENDA:

1. Introduce [REDACTED] ([REDACTED]) – [REDACTED]
2. Outline of CAA's Engagement requirements – [REDACTED]
3. Update on the User Engagement conducted to date – [REDACTED] / [REDACTED]
4. Communications Strategy Document, Stakeholder Identification and our 4 x Phase approach – [REDACTED] / [REDACTED]
5. ACP timeline and impact of PSR Optimisation – [REDACTED] / [REDACTED]
6. Discuss preps for Directed Engagement material – [REDACTED] / [REDACTED]
7. AOB / DONM

Discussion Items:

1. [REDACTED] opened the meeting and a round of introductions was conducted – external ACP key players (who were perhaps not involved in this particular Consultation and Engagement focussed meeting) were also highlighted for [REDACTED] benefit.
2. [REDACTED] gave a comprehensive overview of the CAA's Consultation and Engagement process requirements. He agreed investigate with our Case Officer the provision of written confirmation that our proposal would follow the Temporary Change Process outlined in CAP 1616. **Action:** [REDACTED] to discuss with Case Officer with a view to providing written confirmation. Post Meeting Note: [REDACTED] – Suspects this will follow on from our re-submission of a revised SON. He then went on to say that there is a benefit to this, because unlike when following the full procedure for a Permanent Change, when conducting a Temporary Change the assessment of the consultation / Engagement is done retrospectively – there is no 'approval gate' required prior to the commencement of that stage of the process.
3. [REDACTED] and [REDACTED] gave an update on the User Engagement conducted to date with the military key stakeholders. Discussions on the various operational mitigations which could potentially be applied and benefits / dis-benefits of the various types of airspace constructs available had been extremely positive. The impact on their Safety Cases was also being assessed by their internal Command Safety Organisation as this would need to feed into the ACP Safety Assessment production.
4. [REDACTED] and [REDACTED] gave an overview of the Draft Communications Strategy document, the Stakeholder Identification mapping and the 4 X Phase Consultation / Engagement process which was envisaged.
 - Who is directly impacted by this decision?
 - Who is indirectly impacted?
 - Who is potentially impacted?

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- Whose help is needed to make the decision work?
- Who knows about the subject?
- Who will have an interest in the subject?

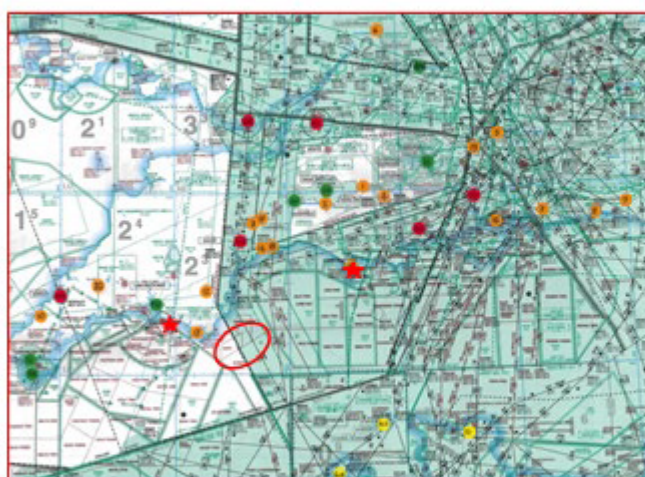
█ recommended using the 6 x tests above for identifying stakeholders. Whilst it was felt prudent to review our initial stakeholder identification activity in order to potentially reduce the number of individual agencies (currently Circa 150) that we would have to interact with to deliver proportionate engagement via a more manageable figure, he suggested that applying the six tests methodology should help us to identify all the relevant stakeholders that we need to target; it's then a case of 'mapping' them so that we can understand their level of interest/influence, which in turn will help us to develop our approach to the consultation. He further stated that it is the CAA's expectation that the change sponsor will directly target all of the stakeholders that they have identified, whatever methodology they have used to identify them.

Action: █ and █ agreed to review the Comms Strategy Document and update the Stakeholder Mapping to ensure alignment with the test process and direction given by █

Action: █ agreed to forward details of the NATMAC list and the STAGE 3 – Consult strategy Template. **Complete – email received 20/2/2020.**

Action: █ took an action to re-issue slide 6 which had corrupted during transmission – **Complete (see slide extract below).** Now shows correct location of fast jet Class G airspace transit area and Wembury / Portland PSR sites.

4. Communications Strategy, Stakeholder Identification - █



Approximately:

6 x Major Airports

7 x Mil Airfields

20 x Minor
Aerodromes

5 x Non UK
mainland sites

90 x Other
Agencies / Bodies
with a potential
interest / impact



Post Meeting Note: - █ also provided a series of links to previously submitted ACP details so that we could consider the various styles and contents when shaping aspects of our own submission.

■ confirmed the norm is for a 12 week submission period but subject to sound arguments being provided consideration can be given to reduce this.

It was agreed that to ensure transparency and provide familiarity /ease of use by the GA community, Aquila would be highly likely to use the CAA portal as a management tool and repository for our consultation material when the time comes.

5. ■ and ■ updated those present on the **latest estimate** for the work start dates. Wembury WUG would require CAA+ AIRAC cycle met approval NLT ■ (to meet our Gate 2) in preparation for a NOTAM start date ready to commence work post ■ with the Portland WUG then following on and requiring a CAA + AIRAC cycle met approval NLT ■ (to meet our Gate 2) in preparation for a NOTAM start date ready to commence work post ■. Some discussion then followed on how best to conduct the submission to incorporate the two phases. A single Consultation / Engagement with a single submission was felt to be the most sensible approach given that the area that is likely to cause the greatest need for consultation/engagement will be a portion of airspace that is common to both ACPs and will be consecutive in terms of activation. ■ agreed to clarify this with the CAA Case Officer and other CAA colleagues. **Action:** ■ would discuss further and report back.

6. ■ and ■ stated that preparations for our Consultation were well underway, and that 2 or 3 'Town Hall Briefs' (depending on the level of interest received from the GA community following their receipt of the info packs), would be held.

7. **AOB:**

There was no AOB forthcoming and the meeting closed slightly ahead of schedule at 1325.

DONM:

TBC– Place keeper only at the moment for our regular drumbeat meeting to discuss normal Aquila Working Group Business next Thursday 26 Feb 2020 (1330-1500) @ CTC. (Will confirm arrangements NLT Tues PM).

D.5 ACP WORKING GROUP MEETING ROD – 27 FEB 2020

SW ACP WG MEETING TELECON – 27 FEB 2020 (1400 -1530) – CTC WHITELEY –

ATTENDEES:

[REDACTED]

APOLOGIES RECEIVED AND ACCEPTED FROM: [REDACTED] [REDACTED].

Non Attendee: [REDACTED]

AGENDA:

1. Update with the construct endorsement by MOD Duty Holders - [REDACTED]
2. News received from the CAA since last week's meeting – [REDACTED]
3. Preparation of a Safety Argument / Assessment – [REDACTED]
4. So what is the proposed construct for the Class G (if not an 18month TMZ?)?
5. Compliance with CAA's Engagement requirements – [REDACTED]
6. ACP timeline and impact of PSR Optimisation – [REDACTED] / [REDACTED]
7. AOB / DONM

RECORD OF DISCUSSION:

8. **Update with the construct endorsement by MOD Duty Holders** - [REDACTED] opened the meeting and [REDACTED] reported that following last week's meeting he had completed the internal actions requested by the ODH [REDACTED] requested a Risk Register entry be made and info on the condition change to be included in aircrew briefings) and he had also briefed [REDACTED] at [REDACTED] who were also content with the proposed TMZ. [REDACTED] is now waiting for an email from [REDACTED] as written confirmation of the telecom discussion.

9. **News received from the CAA since last week's meeting** - [REDACTED] went on to give an overview of the call he had received on Tuesday morning (25 Feb 2020) from [REDACTED] ([REDACTED] at the CAA. **One or two applications?** Not sure where or how this Q arose, but [REDACTED] confirmed that a Single application proposal and Engagement process was all that was required.

The Temporary Change question?

Now the disappointing bit!

Whilst a Temporary Change process was confirmed last week [REDACTED] has since reviewed things with his boss and advised the following:

[REDACTED] stated that following the discussions with [REDACTED] a Circa 18 mths TMZ on the Class G centre section **was not likely to be granted under either a Temporary or Permanent change process.**

Apparently even the split TMZ option that was previously proposed as a possible duration reduction driven compromise by [REDACTED] might also be unlikely to receive a favourable hearing now without the support of a VERY strong Safety Argument.

[REDACTED] stated that we would probably still like to propose a TMZ, as in our opinion our proposal was in line with their policy statements and in the absence of PSR data it offered a 'proportionate' method of enhancing the situational awareness of all users without being overly restrictive.

[REDACTED] also stated that if it was to be rejected then at least we would have done all we could to try and mitigate the PSR outage and deliver a safer operating environment for all airspace users. Heaven forbid that an AIRPROX or worse might occur we could at least sleep at night!

[REDACTED] said he fully understands the arguments for our sites being more 'difficult' than standard radar installations therefore needing longer, but they would find it hard to support 'restricting' Class G for that duration.

Ironically, [REDACTED] went on to explain that over the pre-existing DAs themselves it would be easier to get the TMZ established and that the approval of an extended period is not so much of a problem for them - I responded that we would probably identify those areas as less of a risk than in the Class G portion.

[REDACTED] then went on to explain the CAA's counter argument, which included the following considerations: It is a low density, low complexity traffic environment within the Class G portion of our proposal. Military and civil traffic could still be provided with an SSR only service and are supposed to be operating in conformity with the ANO / ROA and should not be conducting any HE manoeuvres. All traffic is in radio contact, most traffic is "squawking" anyway, etc., etc.

Whilst accepting of this position, for an SSR service to be effective it is much better if all traffic in the airspace is Squawking and a TMZ helps to assure this. Also of concern to us is the likelihood of already present poor surveillance coverage at the lower levels of the area under consideration (this being due to the distance from the Portland and Wembury sensors as well as terrain masking caused in the radar shadow of the Start Point headland).

[REDACTED] added that we may wish to consider approaching [REDACTED] so that the matter might be raised by him with his CAA opposite number, but he suggested that before going down that route and potentially wasting everyone's time, that we should submit a short, robust Safety Argument / Assessment of our concept airspace design. [REDACTED] explained that it would probably take some time to obtain the necessary data and statistical information as we have only just starting to engage in drafting the proposal safety submission. He went on to say that it would be OK for this level of Safety Argument to contain qualitative information to underpin and explain the safety grounds which would support why a TMZ is warranted on safety grounds ... (the following is in his words!) ... "given that there are considerable reasons for rejecting it!" - [REDACTED] fully gets reasons behind the extended time needed piece so the duration argument does not need further explanation.

3. **Preparation of a Safety Argument / Assessment** - [REDACTED] responded to the question "when might we be able to deliver a strong Safety Argument paper as requested by [REDACTED] and rightly explained that he would rather make the submission based on sound, objective data, rather than delivering a 'qualitative, lightweight' version of the Safety Argument as [REDACTED] suggested. **ACTION:** [REDACTED] agreed to provide a 'shopping list' of documents or statistics needed to [REDACTED] so that any of

the missing data could be sourced as a matter of some urgency. **Post Meeting Note** – This action has been completed by [REDACTED] – [REDACTED] is investigating.

Use of the Radar Coverage diagrams was mentioned to help illustrate the base of radar coverage limitations. **ACTION:** [REDACTED] to check the release of these with [REDACTED] [REDACTED] also agreed to check the Flight Checking dates for Plymouth and report back.

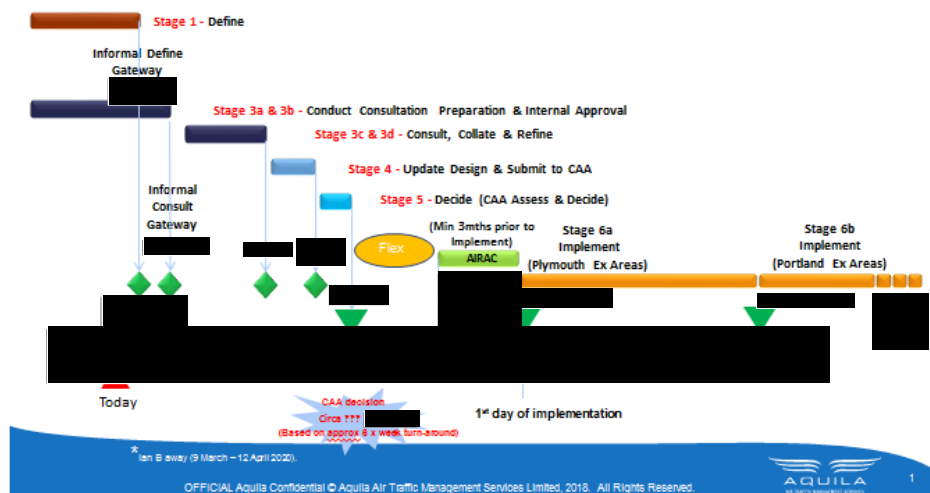
4. **So what is the proposed construct for the Class G (if not an 18month TMZ?)?** – The alternatives to a full TMZ across the full width of the Class G were again briefly discussed, but those present felt that even the CAA's proposal of using a divided, 2-lane option would give no benefit in terms of additional situational awareness or safety and if anything it might actually reduce safety as it could be prone to causing more confusion as to which side was the active lane and which was the open one. It was felt that in the event of the ACP proposal being rejected by the CAA then the MOD stakeholders may have to reconsider their operational use (CONOPS) in the training areas as this would be the only mitigation for the lack of PSR coverage left on the table.

5. **Compliance with CAA's Engagement** – Item 5 was not covered as [REDACTED] not present

6. **ACP timeline and impact of PSR Optimisation** – [REDACTED] has reviewed the L1 timeline and explained the implications of the circa 5 month shift right on the ACP to those present. A copy of the slide used is enclosed below:

25 FEB 2020 - Draft Timeline for Temporary Airspace Change –
Illustrative dates only!

- Red Stages = Indicative of steps in CAA Permanent Change process (used as a handrail only)
- Timeline risks:
 - STAR NG Optimisation activity or other external factors may move implementation date further 'right' after we have made our submission for a given ACP period.
 - Exact process we will follow remains subject to CAA consideration.



Please note that this will be subject to change if the process we follow is changed by the CAA or if there is further movement in the PSR (O) schedule.

7. **AOB / DONM** – There was no AOB raised and [REDACTED] advised that there would not be an ACP working group meeting next Thursday, but he would instead be meeting with [REDACTED] at RNAS Yeovilton to discuss an action plan for the period of time [REDACTED] is away.

D.6 ACP WORKING GROUP MEETING ROD –27 MAR 2020

RECORD OF DISCUSSION – TELECON MEETING WITH THE CAA TO DISCUSS THE SW ACP. (1200) FRIDAY 27 MARCH 2020

From: [REDACTED]

Sent: 09 April 2020 14:36

To: [REDACTED]

Cc: [REDACTED]

Subject: 20200409-DAATM/CAA Initial Response to NCHQ/Aquila ACP - Record of Discussion.

Dear All

This email follows feedback from the draft minutes sent out for review on 30 Mar 20 and now provides a formal record of the initial response from DAATM and the CAA to Aquila, NCHQ and Thales regarding the Airspace Change Proposal for the South-West as a consequence of the Project MARSHALL upgrade to the Primary Surveillance Radars at Wembury and Portland.

The following personnel were engaged in the Telecon/Skype at 1200 on Friday 27 March 2020:

[REDACTED]

[REDACTED] was unable to attend due to him being out of the country, he is cc'd as he is the lead for the ACP.

Purpose

The purpose of the meeting was to receive feedback from DAATM and the CAA following Aquila's submission to DAATM of the Draft initial Airspace Change Proposal on behalf of NCHQ. The initial submission is in line with the process for a Temporary Change. The telecon feedback from DAATM was requested by [REDACTED] to include the Programme Manager ([REDACTED]) and NCHQ.

Discussion

- [REDACTED] stated Aquila's position in terms of the safety assessment: Aquila provide Technical Services as part of Project MARSHALL; the planned replacement of the Primary Surveillance Radar (PSR), at Wembury and Portland, will reduce the Air Traffic Controller's visibility of aircraft operating both within and between the 2 Danger Areas (DA) of Wembury and Portland. The assessment carried out by Aquila Safety SQEP is that to maintain an operating environment which enables the Duty Holders' Risk to Life to be ALARP it should mitigate this loss of PSR by the implementation of a Transponder Mandatory Zone (TMZ). The safety assessment concludes a TMZ should be put in place in each DA while the PSRs are being replaced consecutively (9 months per site) and that a TMZ be put in place to cover the corridor of airspace between the 2 DAs (18 months in total).

- [REDACTED] informed the attendees that Aquila's draft ACP had been discussed with her superior, [REDACTED], and the CAA; whilst a proposal for the application of an ACP for a TMZ over each DA consecutively for a period of 9 months each would be considered, subject to a robust safety argument, DAATM would not support an ACP as a temporary change for a TMZ to cover the corridor for a period of 18 months. [REDACTED] from the CAA supported DAATM's position that an 18 month TMZ for the corridor was classed as a 'Red Line' and that if it were required then a full ACP application would have to be staffed.
- [REDACTED] stated 9 months was already significantly beyond what would normally be considered as a temporary change; any approval temporary or otherwise would be subject to scrutiny and regulatory approval of the submission presented. [REDACTED] agreed that the following proposals presented by Aquila, subject to a robust safety argument where consistent with this position:
 1. Two temporary Airspace Change Proposals of 9 months, splitting the airspace corridor;
 2. Two temporary Airspace Change Proposals and a Permanent Airspace Change Proposal for the airspace corridor.
- [REDACTED] confirmed this was also DAATM's view.
- [REDACTED] accepted that the concerns of the CAA regarding the freedom of airspace to the user community meant that Aquila's safety assessment, as reflected in the draft ACP, may be more stringent than the CAA would find acceptable. However, [REDACTED] restated that Aquila's SQEP conclusion was that the TMZ in the corridor was ALARP as any pilot operating in that corridor could be reasonably expected to carry a transponder, therefore impact on the user community would be minimal. [REDACTED] stated that the current proposal has been decided after a thorough Hazard Analysis and that splitting the corridor would present a risk that could not be classed ALARP.
- [REDACTED] cautioned Aquila on implying that the use of Class G airspace was inherently dangerous as this could be considered detrimental to the safety argument. [REDACTED] added that discussions were initiated with the Project MARSHALL team over 12 months ago; a permanent ACP was initially proposed by Aquila. Post that meeting with the Project MARSHALL team the CAA discussed that the request as presented could be considered a temporary change if each change was limited to the 9 months as presented at the assessment meeting and asked the sponsor to confirm if they would wish to proceed with the temporary or permanent application. The sponsor confirmed they wanted to proceed with the temporary process, it was highlighted that a temporary process would not be suitable for a change to a portion of airspace beyond 9 months. [REDACTED] stated that a permanent ACP could have been completed in that 12 month period.
- [REDACTED] and [REDACTED] accepted the feedback from the DAATM and the CAA, they agreed to discuss further an acceptable way forward.

Regards

[REDACTED]

D.7 ACP WORKING GROUP MEETING ROD – 23 APR 2020

ACP WG TELECON – 23 APRIL 2020

PARTICIPANTS:

Participants: [REDACTED]

APOLOGIES: Nil

AGENDA:

1. Discussion of the options following the meeting with the CAA / DAATM on 27 March 2020 – [REDACTED] - All.
2. Determine what is the proposed construct for the Class G (if not an 18month TMZ)? Is there a consensus of opinion - All.
3. Next steps – [REDACTED]
4. AOB / DONM

RECORD OF DISCUSSION:

THE OPTIONS:

The 5 x remaining options available for consideration were presented in the calling notice as below:

OPTION 1:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs, with a split airspace corridor TMZ (presumably a small TMZ attached to either side of the CLASS G gap also for 9 months each in turn).

OPTION 2:

Apply for two temporary Airspace Change Proposals of 9 months each running (running in series) for the DAs and a Permanent Airspace Change Proposal for the airspace corridor (This would essentially mean an 18 month TMZ for the corridor which would fully span the CLASS G airspace portion conducted under a full ACP application process).

OPTION 3:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs only, and leave the CLASS G transit area 'as-is'.

OPTION 4:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs and a third TMZ (duration 9 months only during the WEM PSR off period) for the previously designed corridor which fully spans the CLASS G between the DAs.

OPTION 5:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs and a split airspace corridor TMZ (presumably a small TMZ attached to the Plymouth DAs on the Wembury side of the CLASS G gap for the first 9 months of the works only).

Discussion Items:

A request for the provision of Watchman upgrade radar coverage diagrams was met mid-meeting by ■. It was hoped that this would assist the NCHQ team with their Options selection and in turn be of use to help their Duty Holders and other key stakeholders gain an appreciation of the likely coverage available once the Wembury PSR work is completed.

■ began the discussion by explaining that this meeting became necessary following the CAA / DAATM's response to a robust Safety Argument paper which Aquila had submitted to them following a request we received during late Feb / early Mar 2020. They had responded to our SA paper during a feedback meeting held with Aquila and NCHQ stakeholders on 27 March 2020. It was felt that they could not support our request for consideration of an 18 month TMZ corridor across the CLASS G airspace on the grounds that our proposal would greatly exceed the acceptable duration normally available for Airspace Change Proposals made under their Temporary Change process in CAP1616. There was now, therefore, a need to consider our options and move forwards with a fresh proposal that would be more agreeable to them.

■ had distributed a list of the 5 x Options for consideration ahead of the meeting, and explained to the NCHQ attendees that Aquila / MAPs attendees had already held a short discussion to fully consider the safety impacts, alongside corporate commercial risks, legal liability issues and cost / schedule implications of each of the options. He stressed that it was important not to overly influence the thinking of the other parties involved in this decision making process and encouraged everyone's views to be heard and positions respected. In broad handfults the discussions developed as follows:

OPTION 1:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs, with a split airspace corridor TMZ (presumably a small TMZ attached to either side of the CLASS G gap also for 9 months each in turn).

■ explained that he felt consideration of the split TMZ Option in the CLASS G airspace was possibly viable but this was dependant on the coverage available. The danger of 'credible confusion' as to which side of the TMZ lane was active and which was not might also occur and this uncertainty might also increase the clarification workload requirement for Plymouth (Mil). In sum, everyone felt this option delivered little benefit and could potentially degrade safety.

DISCOUNTED.

OPTION 2:

Apply for two temporary Airspace Change Proposals of 9 months each running (running in series) for the DAs and a Permanent Airspace Change Proposal for the airspace corridor (This would essentially mean an 18 month TMZ for the corridor which would fully span the CLASS G airspace portion conducted under a full ACP application process).

■ commented that by delaying the introduction of the new and upgraded ATM equipment in order to complete an elongated application process we are perhaps likely to suffer an increased risk to safety as a result of extending the period of time the airspace users are reliant on 'prone to failure' (and in some cases regulatory 'non-compliant') legacy equipment. ■ also commented that even if we now got onto an abbreviated Permanent Change Process, the achievement of a successful

application for an extended TMZ of 18 months duration is not a given. Any rejection and re-submission of the application would mean Aquila might incur still further delays to schedule. The point was also raised that early on in Aquila's opening discussions with the MOD, there was firm opposition to making this TMZ application under the CAA's Permanent Change process, for fear that it might be used by wind farm developers when making planning applications to deliver a cost-effective mitigation for any PSR shortcomings that might arise.

DISCOUNTED.

OPTION 3:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs only, and leave the CLASS G transit area 'as-is'.

■ commented that this involves no mitigation for the loss of surveillance and he would need to get DH and other key stakeholder buy-in to take forward this option. He also said he understood the caution issued by a member of the DAATM during the last meeting on 27 Mar was an attempt to guard against using phraseology that might be interpreted as implying that use of CLASS G airspace is "inherently dangerous."

The Aquila team had also discussed this at length and it was agreed that the CAA's stated position on this point was technically correct, in that if all the airspace users were to fly in conformity with the ROA and the ANO their operations in CLASS G in both VMC and IMC could remain tolerably safe even when no radar surveillance is available, as is already the case in areas of CLASS G airspace across many other parts of the UK.

WORTHY OF FURTHER CONSIDERATION.

OPTION 4:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs and a third TMZ (duration 9 months only during the WEM PSR off period) for the previously designed corridor which fully spans the CLASS G between the DAs

■ commented that this option was favoured as under RA 3000 Policy something should be done to mitigate the loss of surveillance during the unavailability of the systems.

■ made reference to RA 3130 which seeks to ensure that from an equipment perspective systems are ALARP and from a Technical Service perspective we aim to be fully compliant with risk ALARP. He added that we have a duty to advise users that the operating environment has changed. RA1210 ? was also mentioned regarding Duty Holder's (DH) Risk Management and their own accountability. We cannot provide technical mitigations to replace a PSR with a temporary substitute PSR in this case.

■ further commented that from an Operations POV and from a Regulatory POV the selection of Option 4 could at least provide some mitigation for loss of PSR / SSR across the CLASS G airspace section albeit only for 9 months of the total duration.

■ felt that Option 4 was a bit of a 'half measure' akin to only tightening 2 of the 4 wheel nuts on a car.

■ stated that there was an expectation within the MOD's senior management that no dilution of training fidelity was anticipated during the period of the upgrade work, to which ■ responded by stating that the CLASS G airspace is what it is. It was inferred that if the 18 month duration TMZ that we had originally been asking for has been deemed unacceptable by the CAA then we might only get 9 months or nothing at all in the CLASS G. MOD senior management has to be made aware of the limitations we are working under here and what lies within and what lies outside our gift to give.

■ questioned the balance of the Option 4 solution as it only offered a 9 month TMZ solution to an 18 month problem. The TMZ in the CLASS G would only cover the installation and set to work of the Wembury PSR and that due to terrain masking there was no guarantee that the anticipated improvements to the coverage of the Wembury Watchman post upgrade would significantly improve the assured coverage in the area of the CLASS G crossing point.

■ added that Aquila provides ATC equipment and is a CNS and not an ANS provider. Under RA 3130 Aquila hold the responsibility to advise any changes in the system risk to the end user and the DHs hold the responsibility for their subsequent operations.

■ asked if there was a common agreement being used for the replacement of equipment at other sites, and ■ confirmed that DH's / end users were being advised "this is what we are doing and this is the impact".

■ and ■ agreed to study the AOI coverage material provided by ■ and report back.

WORTHY OF FURTHER CONSIDERATION.

OPTION 5:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs and a split airspace corridor TMZ (presumably a small TMZ attached to the Plymouth DAs on the Wembury side of the CLASS G gap for the first 9 months of the works only).

Agreed to be a non-starter for the same reasons highlighted in OPTION 1 above.

DISCOUNTED.

AOB / DONM:

It was agreed to re-convene for further discussions on the final option choice between Option 3 and Option 4 on Tuesday 28 April.

D.8 ACP WORKING GROUP MEETING ROD – 28 APR 2020

SW ACP WG MEETING TELECON – TUESDAY 28 APRIL 2020 - (1300-1400) - RECORD OF DISCUSSION:

ATTENDEES:

[REDACTED]

AGENDA:

1. Further discussion of options 3 and 4 following our meeting on 23 April - [REDACTED] - All.
2. How do we overcome the difficulties of virtual working and allow the group to visualise coverage given the mix of Apps / Software within the group? – [REDACTED] – All.
3. AOB / DONM

RECORD OF DISCUSSION:

THE OPTIONS:

The 2 x remaining options available for consideration were presented in the calling notice as below:

OPTION 3:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series) for the DAs only, and leave the CLASS G transit area 'as-is'.

OPTION 4:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series WEMB then PORT) for the DAs and a third TMZ (duration 9 months only during the WEMB PSR off period) for the previously designed corridor which fully spans the CLASS G between the DAs.

Discussion Items:

[REDACTED] opened the meeting by thanking [REDACTED] and [REDACTED] for drawing everyone's attention to the Regulatory Articles (RAs) last week. Since the last meeting [REDACTED] had come across several other RAs which were pertinent to the conduct of operations in the areas concerned. Being able to display cognisance of these means that we can show we have been thorough in our approach to the staffing of the proposal.

[REDACTED] wondered if it would be prudent to approach the MAA to make them aware of our intentions at an early stage in proceedings ahead of them only receiving visibility of the formal submission later on and he agreed to investigate this. **ACTION:** [REDACTED] to investigate with his MAA point of contact and report back.

Post Meeting Note: [REDACTED] exchanged emails with [REDACTED] and he was assured that we need do nothing more at this stage as we were going along the right path and that very he much appreciated being kept informed.

■ - Many thanks for sorting that out ■

The discussion on the attributes of Options 3 and 4 then followed.

■ felt that with either option, the target of ALARP was reasonably achievable as both the CAA and DAATM were in agreement that CLASS G airspace without radar surveillance was to be considered inherently safe provided all users maintained their operations within the regulations. As far as he was aware the levels of GA traffic transiting the gap between the DAs was extremely low and therefore there was little or no empirical evidence available to suggest any hazardous situations had occurred within the airspace concerned. Despite the low volume of traffic however, he felt it would be worthwhile having a TMZ for at least the 9 months of the Wembury PSR outage. The rationale behind this is that the assured coverage of the CLASS G at the lower levels that can be provided by the Portland PSR is extremely range limited. Reliant on SSR only during the Wembury PSR outage, he felt that the establishment of a TMZ across the CLASS G gap between the DAs would significantly enhance the situational awareness available to the controllers at Plymouth (Mil).

■ asked if only requesting the TMZ across the CLASS G for the first 9 months would leave us open to criticism in the event of an accident or incident occurring during the second phase after the TMZ had been withdrawn.

■ and ■ both believed that this didn't undermine our position, as long as it was "reasonably practicable" then a 9 month TMZ and then no TMZ for the last 9 months did not necessarily mean it was unacceptably safe.

■ stated that if it is in our gift to make a change and have it accepted that equates to ALARP. Where it is a CAA imposed limitation on us it becomes ALARP as we cannot provide more.

■ further supported this view, stating that "a mitigation is only a mitigation if it is available to us."

■ commented that due to the ban on face to face meetings it was unfortunate that we were not all able to access the same communications technology and therefore he was unable to easily share the coverage data held on Google Earth Pro with everyone. He felt it was important that all involved should be able to visualise this data in order to be able to differentiate between the areas where only 'some limited coverage' may exist and those areas where the 'assured coverage' necessary to meet the probability of detection to provide an air traffic service within the contracted AOI would almost certainly exist.

■ also felt that there was still a question to be answered as to whether to permanently sector blank the Wembury PSR or accept that an arc of nil / reduced coverage existed sector obscured by the close proximity of the new SSR tower and the rising headland terrain to the south east of the PSR head.

■ stated that this would be useful as it would allow the safety team to shape their arguments to align with the shape of the coverage.

■ agreed to investigate with ■ a way to use a combination of technologies to achieve a visualisation session in the near future. **ACTION:** ■ and ■ to investigate feasibility and report back.

It was agreed that Option 4 would be the option taken forwards.

OPTION 4:

Apply for two temporary Airspace Change Proposals of 9 months each (running in series WEMB then PORT) for the DAs and a third TMZ (duration 9 months only during the WEMB PSR off period) for the previously designed corridor which fully spans the CLASS G between the DAs.

AOB / DONM:

There was no AOB and the DONM is TBC.

D.9 ACP WORKING GROUP MEETING ROD – 20 MAY 2020

SW ACP WG MEETING 20 MAY 2020 (1500-1630) - RECORD OF DISCUSSION:

SLIDE SETS REFER: PART 1 of 3 ACP WG MEETING 20 MAY 2020.pptx

PART 2 of 3 ACP WG MEETING 20 MAY 2020.pptx

PART 3 of 3 ACP WG MEETING 20 MAY 2020.pptx

ATTENDEES:

Apologies received and accepted from [REDACTED]

AGENDA:

1. Update on Safety Case documentation trawl.
2. Review areas of projected radar coverage using powerpoint slides referenced above containing extracts from Google Earth Pro.
3. Include review of latest timeline overlay.
4. AOB / DONM

Discussion:

[REDACTED] opened the meeting and highlighted the importance of everyone viewing the material understanding the health warnings contained in the slide deck. It was stressed that modelling is not in itself a 100% guarantee of the achieved future performance of any installed system, and that any future assured coverage can only be accurately assessed after installation through Flight Checking in the operational environment. The white highlighted AOI rings show the expected 'assured coverage' envelope as specified for each altitude in the contract. Outside of this AOI ring there may of course be coverage available, but this should not be considered 'assured' (as the Probability of Detection (PD) criteria may not be fully met). Attention was also drawn to the fact that at the time of producing the slide-set there were no legacy coverage diagrams available for inclusion in the presentation. The Portland PSR coverage shown in the PHASE 1 slides (when Wembury PSR coverage will be unavailable) is therefore showing modelled coverage of the Portland PSR post-Watchman Upgrade and this may not necessarily be representative of the legacy PSR coverage which will be used during PHASE 1.

For the benefit of those without a background in ATC a short explanation of why the base of cover is so important to controllers was given along with an explanation of the 'rule of thumb' calculation commonly used by controllers to estimate the theoretical Base of Radar Cover when providing a control service. This roughly equates to a surface to 1000ft loss of coverage at the base of the coverage over the first 10nm range from the sensor, followed by further 1500ft loss for each additional 10nm from the sensor after that. Obviously this cannot be considered a hard and fast measurement, as terrain, weather, system efficiency and

other factors can play a significant part in the actual coverage achieved, but it gives some indication that whilst a track at say 40nm from the sensor might be in solid cover at 6500 feet the service may need to be “limited” as any conflicting traffic at or below 5500 feet is not guaranteed to be detected. The track being provided the service may also disappear off the controller’s screen if it continues to track away from the radar head

6. **Update on Safety Case documentation trawl:** Those present thanked [REDACTED] for providing some comprehensive responses to the earlier request for information in support of the generation of the Safety Arguments. [REDACTED] and [REDACTED] felt there were still some gaps which needed to be filled and they were setting up a tracker to capture a view as to what degree we now meet the evidence capture requirements. They stated that they hoped to hold a short meeting in the next few days to further discuss what is required and they would provide a response in due course. **ACTION: Safety Team to discuss and report back.**

7. **Review areas of projected radar coverage using powerpoint slides referenced above containing extracts from Google Earth Pro:** The review of the slides commenced with PART 1 providing a reminder as to how we have arrived at the preferred construct and the operational use of the airspace by the users. [REDACTED] then showed the current operating environment overlaid with typical examples of both the lateral and vertical disposition of aircraft involved VMC and IMC sortie conditions in support of the FOST Ops training serials. The data underpinning these slides was extracted from copies of PLOGs (Pilot Logs) supplied by [REDACTED] NAS.

It then moved on to look at the airspace with the proposed TMZ constructs over the Plymouth DAs and the CLASS G corridor overlaid during PHASE 1 (During this Phase the Wembury legacy PSR is unavailable, Wembury replacement SSR is available, Portland legacy PSR is available and Portland replacement SSR is also available). This was followed by a similar overview of PHASE 2, where a new TMZ is established over the Portland DAs and the TMZ over Plymouth DAs is withdrawn as well the CLASS G between the Plymouth and Portland DAs being returned to normal status as it is today.

During PHASE 2 Phase (the Portland legacy PSR is unavailable, the upgraded Wembury PSR and the replacement Wembury SSR is available and the Portland replacement SSR is also available).

[REDACTED] asked for confirmation that the profiles being flown during the period of the works would remain unchanged from those being used currently. [REDACTED] responded that no changes to current operating procedures were anticipated.

[REDACTED] asked [REDACTED] to check that the IMC sanctuary levels stated in the PLOGs (which were currently being used to cross the CLASS G airspace) to ensure these were being selected in conformity with the IFR. **ACTION: [REDACTED] agreed to check situation with [REDACTED] NAS and report back.**

[REDACTED] commented that he still felt a “little niggle” of concern about applying what appeared to be an enhanced level of safety during PHASE 1 with the establishment of a 9 month TMZ in the CLASS G airspace, and then having to continue with a lesser degree of TMZ coverage during PHASE 2 simply because an additional 9 months of TMZ exceeded the permissible timescale under the Temporary process.

He admitted that this had previously been discussed at length during the OPTIONS selection process that we followed.

■ reminded those present that whilst there might appear to be some degradation, it was previously agreed that on balance, the safety benefits from upgrading /replacing the legacy systems in a timely manner with more reliable and regulatory compliant equipment was felt to far outweigh the drawbacks of having to continue delivering control services where unreliability and sub-optimal system performance had to be endured for a potentially much longer period.

It was agreed that the CAA had not 'technically' ruled out approving a longer than 9 months TMZ in the CLASS G airspace provided that Aquila transferred the application onto the Permanent Change process. Switching to the lengthy (110 weeks) full CAP 1616 process would almost certainly delay the start of the upgrade work by a further 2 years at least and as well as the safety risk resulting from limping along with 'prone to failure' equipment, the much longer process carried with it significant cost and schedule considerations for the SW region with little or no guarantee of achieving a successful TMZ outcome in the CLASS G at the end of it all.

Given that the MOD's operations in this portion of CLASS G airspace are currently considered to be safe to continue as normal (even when the legacy PSR coverage is unavailable), it was felt that a compelling argument could be made for completing the work ASAP as this would deliver enhanced reliability and improve the surveillance performance in the SW region in an expeditious manner without the establishment of an additional TMZ in the CLASS G during PHASE 2 of the works.

■ added it is balancing the risk of the operator's needs Vs the Regulator's needs.

■ ■ and ■ requested further time to examine how best to shape the safety arguments around this area and agreed to report back with their findings. **ACTION: ■ ■ and ■ to discuss and report back idc.**

During PART 3 of the presentation those present were shown overlays of the modelled combined coverage of the Wembury and Portland PSRs,

8. **Review of latest timeline overlay:** ■ gave an overview of the recently updated month by month ACP process timeline which had been updated to reflect the new September 2021 start date for the Wembury site.
9. **AOB:** None forthcoming.
DONM: TBC– Place keeper only ATM for next Thursday 28 May 2020 (1500-1600). Will confirm details NLT Tues PM.

D.10 ACP WORKING GROUP MEETING ROD – 28 MAY 2020

SW ACP WG MEETING TELECON - 28 MAY 2020 (1500-1600) - RECORD OF DISCUSSION:

ATTENDEES:

APOLOGIES RECEIVED AND ACCEPTED FROM: [REDACTED] and [REDACTED]

AGENDA:

1. Actions Update
 - a) [REDACTED] – Ref: [REDACTED] NAS IMC Sanctuary Altitudes.
 - b) [REDACTED] – Ref: Safety Team discussions and RN document provision requirements.
2. [REDACTED] - Timelines review.
3. SON update & re-issue
4. AOB and DONM

RECORD OF DISCUSSION:

[REDACTED] opened the meeting and moved straight into Agenda item 1, the **Actions Update**.

1a) **Ref: [REDACTED] NAS IMC Sanctuary Altitudes:** [REDACTED] thanked [REDACTED] for providing the response below via email earlier in the week:

[REDACTED] spoke to [REDACTED] – [REDACTED] and [REDACTED] last week about the IMC heights. 3400' is the land safety altitude, so 3500' is the next available altitude. In IMC, they will be flying in conformity with instruction from ATC (Ply Mil) and therefore not conforming with Rules of the Air.

Post Meeting Note: On receipt of [REDACTED] email, [REDACTED] and [REDACTED] had discussed scenarios along the lines of “what (if anything), the aircrew might do differently if they were offered a service where only ‘Limited traffic information’ was available (due to known poor coverage in a particular area, at or below base of cover, etc.), or ‘an SSR only service’ (due to PSR unavailability). It was clear that there was not a ‘one size fits all’ answer to this question. Whilst the ultimate sanction might clearly be to abort / cancel the sorties there may also be occasions where a sortie could continue with perhaps a simple level change into better coverage, or where enhanced awareness of the situation and increased vigilance may be all the mitigation that is felt necessary.

[REDACTED] went on to state that the Duty Holders hold the operational risk and the Aircrew are ultimately responsible for the safe conduct of their flight with the aircraft operations being adapted as required using the wide range of options available to them.

[REDACTED] added that all Aquila can do is propose to the CAA our suggestions for the technical elements of the environment to achieve the best assessment of our ACP proposal. We then

have to abide by any decision that the CAA may make and this could be either “Yes or No” on a TMZ (or any other change that is proposed). Whatever the outcome, he stressed the importance of ensuring a good liaison was maintained between NCHQ and the Duty Holders going forwards, as there may be constraints imposed on their operations as a consequence of any limitations or conditions being placed on us by the CAA.

■ agreed with ■ that the TMZ constructs which may be proposed in our final submission could still be refused – all we can do is try to provide the best that we can and brief the DHs on the outcome accordingly. Operating procedures can then be adapted if required.

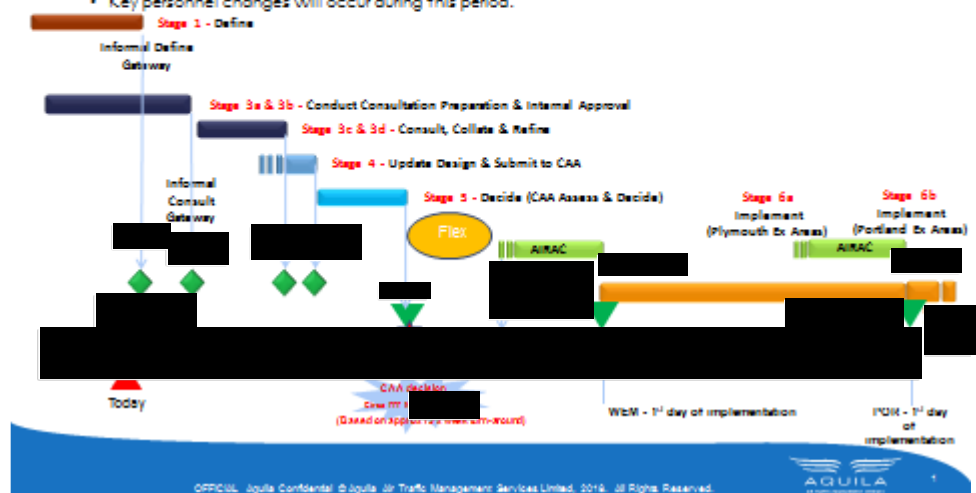
1b) **Ref: Safety Team discussions and RN document provision requirements:**

■ led on this one with a statement that an evidence tracker had been set up to index safety arguments and efforts were now being made to identify and bound the body of evidence needed to support the shaping of each argument strand. ■ would continue with this work on her return from leave and once complete, a list of all the information gaps will be provided to enable NCHQ staff to better target the specific documents required to provide the additional data.

2) **Timelines review:** So that everyone is aware of the next quarter’s key activities, ■ gave a short overview of the latest Level 1 (Month by Month) timeline and injected some key dates from the Level 2 (day by day) schedule that underpins this.

29 MAY 2020 - Draft Timeline for Temporary Airspace Change – Illustrative dates only!

- Red Stages = Indicative of steps in CAA Permanent Change process (used as a handrail only)
- Timeline risks:
 - STAR NG Optimisation activity and COVID 19 factor may move implementation date further ‘right’ after we have made our submission for a given ACP period. Some FLEX built in but must also allow for any additional contingency considered necessary in our plan, e.g. longer response times from engagement, etc.
 - Exact process we will follow remains subject to CAA consideration.
 - Key personnel changes will occur during this period.



Most notably, it was intended to re-issue and upload the latest version of the SON by NLT 12 June 2020. Having been on pause for some time now this effectively triggers our application re-start as far as the CAA is concerned, and we would thereafter be expecting to enter into our Consultation / Engagement window approx. 4 weeks after that (circa 16 July). There is

an awful lot of preparation work to do in the next few weeks if we are to be ready for the start of engagement. ■ advised that ■ had now handed over her ACP Comms related activities to ■ (■ would be working closely with ■ to ensure that she is quickly read-in and that we are able to complete the preparations for engagement on time. An internal review of our preps is scheduled for 6 July. A 13 x weeks period engagement commences on 16 July, followed by a 4 x week period to update the design and prepare and submit the proposal. Advance preparation of much of the boiler-plate elements of the proposal can hopefully be conducted as a parallel activity during the engagement phase but there will be a significant LOE required to manage and assimilate all the responses from the GA community. It is felt that a weekly review cycle would be beneficial so that trends can be identified and some of the final design shaping decisions made as we go along. We will need 'all hands on deck' during this period to ensure that the necessary internal reviews are achieved in an expeditious manner. **Our target date for the proposal submission is 16 Nov 2020.**

The CAA will then have approx 13 weeks to review everything before a decision is communicated.

Thanks to the PSR-O slippage I have been able to re-instate a flex window (albeit of limited duration), but the aim will be to use that as a 'contingency' for any re-work that may be required post CAA decision. We must avoid phase over-run at all costs. If we have a successful proposal we can then 'bank it' until it is time to trigger the NOTAM submission into the appropriate AIRAC publication cycle.

3) **SON update & re-issue:** ■ and ■ were going to discuss this and conduct a 'hot-update' during the meeting but it was decided to take the activity off-line. **Post Meeting Note:** This activity was completed by email and initially reviewed by ■ ■ and ■ before distribution for comment by the other attendees on 2 June 2020. A copy of the finished draft text is included below:

DRAFT - SON WORDING AS OF 1 JUN 2020 (Includes outline of DA's and CLASS G temporary change) as discussed during ■ meeting with ■ (NCHQ Rep) on 29 May 2020 and subsequent to that in emails between ■, ■ and ■

Plymouth Military Radar (Royal Navy) provide Air Traffic Services (ATS) to civil and military traffic in The South Coast Exercise Areas (SCXAs) and the surrounding airspace utilising radar feeds from Wembury and Portland, amongst others. To achieve future Regulatory Compliance and improve system performance and availability, the Wembury and Portland surveillance equipment is due to undergo planned replacement and upgrade work. During this work there will be necessary periods of Primary Surveillance Radar (PSR) unavailability.

The impact of PSR unavailability on the air-picture currently provided is that any non-transponding traffic entering the Danger Areas or operating within the CLASS G airspace between them will no longer be visible to controllers when using Secondary Surveillance Radar (SSR) data only. Due to the nature of the airspace and the activity in the areas concerned it is essential that the safety of the military and General Aviation (GA) community is preserved by enhancing the situational awareness available to the controllers at Plymouth Military during the PSR outages. This requirement can be addressed through the

introduction of Temporary Airspace Changes which will allow all airspace users to benefit from enhanced situational awareness to supplement SSR surveillance when operating within the existing Plymouth and Portland Danger Area blocks or transiting through the Class G airspace which lies between them (to the south east of Start Point).

Any measures incorporated in the design of the Temporary Changes will be proportionate to meet the above needs and applied flexibly so as to minimise any potential inconvenience to airspace users.

The proposed airspace change will not conflict with the Airspace Modernisation Strategy.

4) **AOB:** None forthcoming.

DONM: TBC– Place keeper only ATM for next Thursday 4 June 2020 (1500-1600). Will confirm details NLT Weds PM.

D.11 ACP WORKING GROUP MEETING ROD – 11 JUN 2020

SW ACP WG MEETING TELECON - 11 JUNE 2020 (1500-1600) - RECORD OF DISCUSSION:

ATTENDEES:

[REDACTED]

APOLOGIES:

Received and accepted from [REDACTED] [REDACTED]
[REDACTED] [REDACTED]

AGENDA:

1. [REDACTED] - Introduction of new Comms Lead – [REDACTED] ([REDACTED])
2. [REDACTED] and [REDACTED] – Comms update
3. [REDACTED] and [REDACTED] – Safety update
4. [REDACTED] – Revised SON submission
5. AOB – Round the table....?
 1. Does anyone have contact details for [REDACTED] ([REDACTED]) in Aquila?
 2. Plymouth (Mil) interface with Sector 23? Chief / controllers and Exeter ref N862 CAS leavers and joiners.
6. DONM – Provisionally Thurs 18 June 2020 (1500-1600)

DISCUSSION:

1. [REDACTED] opened the meeting by welcoming and introducing [REDACTED] (the new Comms Lead), to the Working Group.

2. **Comms Update:** [REDACTED] proceeded to deliver a comprehensive brief on how aspects of the Aquila Comms Campaign may be shaped. She explained the variations to the approach to engagement that may need to be considered in order to minimise the impact of the COVID 19 lockdown.

The first activities to commence would be to review the draft Comms Strategy paper to include new schedule and further refine the stakeholder list and stakeholder management plan. It was envisaged that the first contact with the stakeholders would be made via a letter and info leaflet drop with a contact address (actual address still to be confirmed) but perhaps along the lines of airspacechange@aquila.com.

She would also investigate using a part of the Aquila website to hold any supporting literature.

[REDACTED] agreed to manage the engagement with the stakeholders and act as the conduit, farming out any questions, comments and feedback received from the public to the specialist area leads within the SW ACP Working Group for response actions.

Key dates – 6 July 2020 Internal Comms review date. 16 July 2020 'Go Live' on 13 week Engagement period.

3. **Safety Update:** [REDACTED] reported that the Evidence Requirements List and Tasks spreadsheet had now been updated.
The next steps would be to continue with the evidence gathering to complete all the actions as swiftly as possible. **Post Meeting Note:** [REDACTED] sent a copy of the actions list to all attendees – **(The Actions List Table is enclosed below for info).**
- [REDACTED] and [REDACTED] stated that it is planned to hold a Hazard and Operability Analysis (HAZOP) telecon on Wednesday 24 June in support of the Safety task. It is important that all personnel who attend are suitably SQEP and empowered to represent the views of their organisations or specialisations when making contributions, as these statements may well be used as supporting evidence in the Airspace Change Proposal. [REDACTED] agreed to broker the meeting.
4. **Revised SON submission:** [REDACTED] Confirmed that everyone was happy with the revised wording and stated that it was intended to lodge the revised SON on the CAA portal in the near future. **Post Meeting Note:** [REDACTED] had experienced difficulties in accessing the portal and loading the data. He had sought advice from [REDACTED] ([REDACTED] (the [REDACTED])) on redaction of personal details, etc. but as [REDACTED] had not had experience of using the portal he felt it was not something he could advise on. He did however suggest that [REDACTED] might be able to assist having had recent experience of the process when submitting another ACP to the CAA. [REDACTED] kindly provided a set of CAA Portal Training Course notes and [REDACTED] will make a further attempt to complete the ongoing action next week.
5. **AOB:** Nothing forthcoming from around the table.
1. Does anyone have contact details for [REDACTED] in Aquila?
Information kindly provided by [REDACTED] ahead of the meeting.
 2. Plymouth (Mil) interface with Sector 23? Chief / controllers and Exeter ref N862 CAS leavers and joiners.
Post Meeting Note: [REDACTED] Contacted Plymouth (Mil) and [REDACTED] at Plymouth (Mil) contacted [REDACTED] to discuss on Mon 15/6. He confirmed that all Exeter inbound from the south normally remained in CAS (above FL85) until at least the Berry Head (BHD) reporting point. All Exeter southbound CAS joiners were usually established inside CAS by BHD. He therefore confirmed that the proposed TMZ construct should not be a concern to their traffic patterns or increase the co-ordination workload.
6. **DONM:** TBC– Place keeper only ATM for next Thursday 18 June 2020 (1500-1600). Will confirm details NLT Weds PM.

The Actions List Table is enclosed below:

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N	CAA ACP Safety requirements	Navy response	Questions/ Notes	Assigned to	evidence
1	Concept of operations (CONOPS) / Operations Safety Case Report	<p>Aquila has received the following documents:</p> <p>1. RN Hawk SCR - https://aquilaatms.sharepoint.com/:w:/r/sites/sas/_layouts/15/Doc.aspx?source=78B85D5123-DED9-43A3-81B8-139152C67EA9%7D&file=20190723-%20RN%20Hawk%20live%20A55SCR%202019-%20Version%208-Ofinal.docx&action=default&mobiledirect=true</p> <p>2. Chapter 1 - https://aquilaatms.sharepoint.com/:w:/r/sites/sas/_layouts/15/Doc.aspx?source=78B378BC307-C79D-4C4C-ADBF-217FB08EC86A%7D&file=Chapter01.doc&action=default&mobiledirect=true</p> <p>3. AQUILA-Thales Marshall South West Conops - https://aquilaatms.sharepoint.com/:w:/r/sites/sas/_layouts/15/Doc.aspx?source=78B8C5FB358-C0E0-46C4-81DB-</p>	<p>Will the PSR failure emergency procedures be in place for the duration of 9 months? (see the email trial from [REDACTED] with the radar procedures).</p> <p>- not sure which one of the doc received is the CONOPS?</p>	NCHQ	
3	Hazard log assessment	<p>Unit does not hold Aerodrome Hazard Log, as it is an Autonomous Radar Unit. Informed by Unit that Hazard Logs for Wembury and Portland radars are held by Aquila.</p> <p>RA 3222 - "Surveillance Requirements. The unit should demonstrate that they are equipped with primary surveillance radar (PSR) and secondary surveillance radar (SSR)8 equipment which meets the surveillance coverage and redundancy requirements set out within CAP 670 and/or DefStan 00-972 (as appropriate to the submission) and is commensurate with the defined ARU task. Where such requirements are not met, these should be detailed within the unit's hazard analysis with appropriate contingency mitigations, including measures necessary to address the risk of sensor failure."</p>	<p>Please see CAP 795 page 10. Aquila maintains only the equipment level physical and functional hazard logs. Overall ATM hazard log?</p> <p>HAZOP to be organised.</p> <ol style="list-style-type: none"> 1. Meeting Lead 2. Safety Engineer 3. ATCO and SATCO 4. Pilots 5. PSR System expert 6. others 	NCHQ, Aquila, Pilot, ATCO, Engineers	
4	<p>Evidence that NCHQ will continue sharing the airspace (FUA)</p> <p>a. Record of how many flights have been refused to enter the airspace in the past 2 years + reasoning</p> <p>b. Traffic records (how many aircrafts are crossing daily, how many GAT-OAT transitions are expected, international traffic, UAV traffic, gliders, controlled airspace interactions, balloons, etc)</p>	<p>a. None</p> <p>b. WAITING – chasing up. Do you want this for the Danger Areas or the Class G corridor?</p> <p>dominant users are rotary and fixed wing aircraft, foreign military aircraft when on exercise with FOST, [REDACTED] civil aircraft contracted for Military operations.</p>	<p>A. does this mean there are no records for refused flights or does it mean that no flights are refused?</p> <p>B. It will be great to have this info for both the DA and the corridor.</p>	NCHQ	
5	Who are the airspace users? Who are the airspace dominant users?		<p>Maybe is worth mentioning the civil users as well. (GA, gliders, balloons, UAV)</p> <p>What is the balance between the airspace users (Military vs Civilian)?</p>	NCHQ	
6	Which airspace users are primary-only radar contacts?	<p>Nil recorded in past 6 months.</p> <p>PSR contact used as principal locator for identifying aircraft due to accuracy and update rate. Reduced Lateral Separation applied in RA 3228 using PSR due to update rate of radar (greater than 5 seconds).</p>	<p>As per CAP 1610, we have to provide data or at least 3 years, to state the most impacted airspace users. There are some Airproxes with a balloon or student pilots that have not been seen on the radar.</p>	NCHQ, [REDACTED]	
7	Is the PSR used to maintain the minimum separation between aircraft?		<p>As a mitigation for the PSR limitation, Reduced Lateral Separation shall not be used during the TMZ restriction, therefore may be the case of updating the minimum separation procedure?</p>	NCHQ and Aquila	
8	Incidents/accidents in the airspace area of Wembury and Portland (5 years)	<p>Nil recorded.</p>	<p>Incidents reports to be requested from:</p> <ol style="list-style-type: none"> 1. CAA MORs 2. Aquila WO 3. AirProx reports 4. Controller Observation Reports 5. ASIMS <p>Note: CAA requests enhanced reporting, monitoring and trend analysis procedures in place during the TMZ change, if the unit does not have any recorded incidents in the past 5 years, but there are a couple of Airprox out there, CAA may be questioning if these procedures exists. [REDACTED]</p>	NCHQ, [REDACTED] Aquila	

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9	Incidents/ accident in the surrounding area of Wembury and Portland (5 years)	Nil recorded to our knowledge. AS published in the AIP Mon-Thu 0800-2359 Fri 0800-1600 All times local. Activated by NOTAM outside these hours.	Incidents reports to be requested from: 1. CAA MORs 2. Aquila WO 3. AirProx reports 4. Controller Observation Reports 5. ASIMS	NCHQ, [redacted] Aquila	
10	Airspace planning evidence. Hours of operation and other seasonal variation evidence			AIP	
11	Airspace information a. Usage b. Separation minima c. Safety Buffer d. Scheduling e. FUA	No planned change to Wembury or Portland Danger Area operations/ usage.	Lateral buffer requirements: - 5nm from the edge of an airway, TMA, CTA or CTR - 10nm from the entreligne of Advisory or Upper ATS routes Vertical Buffer requirements: - min separation of 2000ft above and below structures will be maintained. Will the safety buffer change? What is the current safety	NCHQ	
12	Is there assurance, as far as practicable, against unauthorised incursions?	Danger Areas listed in readily available documents for both Mil and GA traffic, including warnings about nature of activity conducted within. Radar Coverage provided by Ply Mil and advice provided when requested to assist aircraft to void areas. NOT segregated airspace, so no legal requirement to avoid.	I believe this is more about procedures in place for airspace infringements (GA aircraft/balloon/UAV) What will the ATCO do if a small a/c enters the DA during live exercises? Are there any mitigations procedures?	NCHQ	
13	Within the constraints of safety and efficiency, does the airspace classification permit access to as many classes of user as practicable?	Yes, whilst the Danger Areas are primarily for Military use, a Danger Area Crossing Service is provided to enable Mil and GA traffic to access safely, deconflicting from any hazardous activity.		NCHQ	
14	Are there any interactions with adjacent domestic and international airspace structures? If there are could you please provide the procedures followed?	Ply Mil utilises LARA in conjunction with NATS to enable FUA when DAs are not in use. Ply Mil provides an Airways Crossing Service for N262 and N864. DA D012 capped at 5000', deconflict from Exeter Airport. LOA for SOPs.	Are these services documented somewhere?	NCHQ	
15	Is there any evidence that the current Airspace Design is compliant with ICAO SARPS, Airspace Design and FUA regulations and Eurocontrol Guidance?	All MOD DAs subject to annual review. MOD signed up to FUA. All Ply Mil LOAs in conjunction with FUA.	Do you have any airspace design documented requirements available?	NCHQ, [redacted]	
16	Is there a commitment to allow access to all airspace users seeking a transit through controlled airspace as per the classification, or in the event of such a request being denied, a service around the affected area?	Yes, Danger Area Crossing Service available for anyone wishing to transit. Route around provided if DACS unavailable.	Is this documented in the CONOPS? Or in a AIP?	NCHQ, [redacted]	
17	Are any airspace user groups against the TMZ change? Are there reasoning safety concerns?	Yes – CAA and DAATMI	To be completed after the consultations.	Ian	
18	Is the airspace structure or sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to contain horizontal and vertical flight activity (including holding patterns) and associated protected areas in both radar and non-radar environments?	Yes	Can we have the airspace design or airspace maps?	NCHQ	
19	Is the airspace structure designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace?	Yes	Can we have the airspace design or airspace maps?	NCHQ	
20	Do ATC procedures ensure the maintenance of prescribed separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures?	Yes.	Radar OPERATIONS email. (See [redacted] email chain). I have received the email with the procedures, although I am not sure if I use it as evidence. Do you know if these procedures are documented somewhere? Not sure this can be considered N/A.	NCHQ	
21	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, have appropriate operating arrangements been agreed?	N/A	There should be some procedures in place to help transition a non-transponder a/c that flies over a close non-restricted airspace to a TMZ restricted airspace. Maybe the Route around procedures will go as evidence in this case. Are these procedures documented somewhere?	NCHQ	
22	Will the other provided services be affected by the absence of PSR? (Communication, Navigation, Surveillance) Do you hold any airspace charts that can be used to describe the proposed airspace change?	Ply Mil is a LARS unit, so reduced traffic service for airspace transits. Wembury radar feed is a contingency for Culdrose, Portland is a contingency for Yeovilton in the event of local Radar Failure.	Do we have this information documented somewhere? Is it possible that communication services will be affected as Radio services will be used more for non transponder a/c?	NCHQ, [redacted]	
23		Yes, in office in NCHQ	Is it possible to have them scanned?	NCHQ	

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	What are the mitigations in place to support the absence of the PSR? (If the SSR is the only way of surveillance, then will be a single point of failure)	SOPs for SSR alone Ops law RA 3241. When PSR unavailable, SSR will be single point of failure.	Is it possible to have the Standard Operating Procedures? We need strong evidence that the PSR absence will not degrade safety as mitigations procedures are in place.	NCHQ	
24	Civilian Consultation Report				
25	Military Consultation Report				
26	Evidence that ATCOs, Pilots, Engineers are SQEP for the role.				
27	Aviation Safety Training? Enhanced reporting, monitoring and trend analysis processes are in place during the airspace change. These processes may already exist, if not need to be created to assure CAA that during the change all measures are taken to maintain an acceptable level of			NCHQ	
28	The sponsor should collate, monitor and reports on the level and content of complains once the change has been implemented.			Aquila Comms,	
29	Aquila Comms to define a process that states engagement on impact assessment. To create a complaints email to be used during the airspace change			Aquila Comms,	
30	for anyone that has something to complain see CAP 1616				

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D.12 ACP WORKING GROUP MEETING ROD – 4 SEP 2020

SW ACP WG MEETING TELECON – 4 Sept 2020 (1000-1100) - RECORD OF DISCUSSION:

A copy of UK(L)SP1 Air Chart was enclosed in the calling notice for use at this meeting

Appreciate the holiday season has meant that many of the usual team are away at the moment. I will therefore make contact with those key players who are absent from the meeting today and add a post meeting note of their views to this ROD for completeness.

ATTENDEES:

[REDACTED]

APOLOGIES:

Received and accepted from: [REDACTED]

[REDACTED]

AGENDA:

1. [REDACTED] - Discussion of upper limits for the proposed TMZs
2. AOB – Round the table....?
3. DONM – TBC

DISCUSSION:

1. [REDACTED] opened the meeting by explaining that this session was principally aimed at capturing the views of the [REDACTED] NAS aircrew, [REDACTED] aircrew, Navy Command / Plymouth (Mil) controllers and Aquila Safety Team on some proposed changes to the vertical limits of the proposed TMZs.

For the benefit of any new joiners to the group he then went on to provide some background information as to how the original decision to set the upper limit for the TMZs had come about.

It was originally proposed that the TMZs should extend from the surface (SFC) to an upper vertical limit of FL 110 across the board (notwithstanding the section below N862 where the Base level of the airway is FL 85). Clearly there the TMZ upper limit would have to remain below the base of the CAS.

FL 110 was selected primarily to accommodate the occasions when the larger ADEX packages (perhaps with organic fleet air defence asset involvement) were participating in an IMC 'war' scenario. It also covered the operating envelope for any aircraft conducting [REDACTED] serial profiles.

[REDACTED] then asked that given transponder carriage and operation of Modes A/C (and Mode S elementary surveillance) is mandatory above FL 100 in the UK by all aircraft (*see Note 1 below) might the upper limit for TMZ A and TMZ C also be reduced to FL 100, in the knowledge that transponder carriage / operation is already mandated above that level anyway?

All present felt they could sensibly support this change

Post Meeting Note: ■ held individual telephone discussions with ■ and ■ on Tuesday 8 Sept and both supported this proposed change.

ACTION: ■ to amend proposed TMZ

A and TMZ C upper limits to reflect the change from FL110 to FL100 in all ACP documentation sets.

■ further explained that this outcome clearly demonstrates that the proposed solution is not yet set in stone and that we are continuing to 'mature' the design.

It also shows observance of the "Gunning Principle" during the engagement process and that what we are requesting is the absolute minimum required which helps to validate that we are trying to be 'proportionate' in the setting of our construct requirements.

Having agreed that FL 100 would be an acceptable upper limit for TMZ A and TMZ C the discussion then turned to focus on the vertical limits of TMZ B.

■ explained that it was not possible to continue with a top level of FL 100 right across the whole width of TMZ B due to the presence of the CAS (Airway N862). On the Plymouth DAs side there would be a 'step' change in the upper limit of TMZ B which would occur at the western edge of Airway N862 as the TMZ upper limit of FL 100 must be lowered to fit below the FL 85 base level of the CAS. Once clear of the CAS to the east there were two choices available. Firstly, it could either then continue to run across to the western edge of the Portland DAs from SFC – FL 85 or secondly it could be 'stepped' back up to FL 100 to cover the small gap between the eastern edge of N862 and the western edge of the Portland DAs

These options would effectively introduce 'steps' in the construct either side of the CAS resulting in either two or perhaps even three sub-divisions of TMZ B.

Another much simpler option might be to make the whole of TMZ B SFC to FL 85.

■ confirmed that the process in their LOA for pre-booking a block of the N862 CAS would still be available to facilitate achieving transits above FL 85 for any ARM profiles, etc.

Some discussion followed regarding the narrow 'channel' (about 2.6nm wide) of Class G which runs down between the eastern edge of N862 and the western boundary of the Portland Danger Areas (D012 and D013).

Whilst there was an outside chance of encountering non-transponding traffic in this area it was generally felt to be low risk as realistically "what would any traffic be doing out there between approx. 12nm and 30nm off the south coast?"

■ commented that whilst in the vicinity of TMZ B their cockpit workload is usually high and therefore changes of frequency to contact other agencies such as Exeter to obtain traffic information was not practical during the transit.

Between 30nm and 40nm from the Portland PSR the possibility of some primary coverage being available at the higher altitudes might also help to mitigate any risk.

To avoid confusion leading to incidents both [REDACTED] and [REDACTED] were keen to keep the solution as simple as possible and strongly supported making the whole of TMZ B from SFC to FL 85.

All present felt they could sensibly support this change.

Post Meeting Note: [REDACTED] held individual telephone discussions with [REDACTED] and [REDACTED] on Tuesday 8 Sept and both supported this proposed change.

ACTION: [REDACTED] to amend proposed TMZ B upper limits to reflect the decision to change from SFC to FL110 (and FL 85 BELOW Airway N862) to SFC to FL 85 across the whole of the CLASS G airspace between the Plymouth and Portland DA blocks in all ACP documentation sets.

*Note 1 Except for gliders in certain areas and a few others who have an exemption clause.
(See UK AIP PART 1 GEN Para 5.3.1(e) for full details)

2. **AOB:** Nothing forthcoming from around the table - the meeting was closed at 1035.
3. **DONM:** TBC

D.13 CONFIRMATORY STATEMENT OF RESOURCE AVAILABILITY

Hello [REDACTED]

I confirm that, on behalf of myself and [REDACTED] Plymouth Military, following discussions with Aquila in respect of ACP-2019-16:

- It is acceptable to exclude D05A/D005B in the vicinity of Predannack Airfield, and D009B in the vicinity of Plymouth from TMZ A.
- We require D006, D006A, D006B, D006C, D007, D007A and D007B to remain within the proposed boundary of TMZ A.
- It is acceptable to exclude D026 Lulworth and the adjoining D031 in the vicinity of Durlston Head, Swanage, from TMZ C.
- We would aim to operate the proposed airspace constructs flexibly on an 'only when needed' basis wherever possible as below:
 - TMZ A (Plymouth DAs) and TMZ C (Portland DAs) are proposed to be established within the boundaries of published Danger Areas and therefore it is felt that these areas should be activated in line with the DAs published operating hours.
 - In the case of TMZ B (overlaid on the CLASS G airspace between the Plymouth and Portland DAs), 48 hours advance notice could normally be given for the activation of this area as it is an area of CLASS G airspace that is mainly used to transit between the Plymouth and Portland DA. The majority of the military training activity occurs on a Tuesday and Thursday (when FOST hold many of the larger Air Defence Exercise [REDACTED] serials. This activation period could however be reduced to 24hrs notice if (say for weather reasons) FOST have to move their larger ADEX serials to an alternative day.
 - Note: In extreme circumstances the period of advance notice for the activation of any area may be required to be reduced to 3 hours in order to meet essential emergent tasking requirements.
- Plymouth (Mil) / FOST Operations have the combined resource and capacity to undertake the operational management of the proposed flexible activation of the TMZs concerned.

Kindest regards,

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] MoD Mobile: [REDACTED]

Annex 1 – CAA Policy for Permanently Established Danger Areas and Temporary Danger Areas.

20200721 – CAA Policy for the Establishment of Permanent and Temporary Danger Areas

Safety and Airspace Regulation Group



21 July 2020

Policy Statement

Policy for Permanently Established Danger Areas and Temporary Danger Areas

1. Introduction

- 1.1 A Danger Area (DA) whether established on a permanent or temporary (TDA) basis (See paragraph 4.1), is defined as "airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times"¹

2. Purpose and Dimensions

- 2.1 Only those activities for which the DA/TDA has been specifically approved by the Civil Aviation Authority (CAA) are to be conducted within the DA/TDA. The specific use of the DA/TDA is subject to the safety management processes implemented by the DA/TDA Authority to ensure the containment of hazardous activity within the defined area.
- 2.2 Certain activities, whilst not inherently dangerous, may require a degree of segregation from other airspace users; a DA/TDA may be utilised to facilitate this requirement. For the purpose of this policy, all activities requiring the establishment of a DA/TDA will be referred to as hazardous activities.
- 2.3 The vertical and lateral dimensions and the operating hours of a notified DA/TDA shall be the minimum practicable necessary to enable the tasks to be undertaken within it, subject to the need to avoid over-complication of airspace structures and any environmental considerations.

3. Scope

- 3.1 This policy is applicable to all UK airspace that is notified as a permanently established DA in the UK Aeronautical Information Publication (AIP) Enroute (ENR) 5.1, and to TDA.

4. Governance

- 4.1 Chapter III of the Transport Act 2000 and the CAA (Air Navigation) Directions 2017 (as amended), govern the air navigation functions of the CAA. They require the CAA to act in a manner consistent with safety and the efficient use of airspace, while considering the requirements of all airspace users and having regard for national security, international obligations, environmental matters and the competing demands for finite airspace.
- 4.2 The CAA's Safety and Airspace Regulation Group (SARG) is the UK airspace approval and regulatory authority. CAP 1616 contains the authorities, responsibilities and principles under which the CAA conducts the planning of airspace and related arrangements in the UK. CAP 1616 is directly applicable to the establishment of DAs however, whilst the CAP 1616 process is generally applicable to TDAs, because of

¹ REG(EU)No923/2012 SERA Article 2(65)

20200721 – CAA Policy for the Establishment of Permanent and Temporary Danger Areas

their temporary and short-lived nature, TDA's can be established by different means. e.g. In requirement of the national interest, a TDA can be created by the Manager Airspace Regulation at the CAA or; as delegated by the Manager Airspace Regulation.

- 4.3 A Danger Area Authority (DAA) (Usually the DA Sponsor) shall be notified for each DA/TDA. The DAA is to be able to demonstrate that appropriate processes and procedures exist to ensure the safe and efficient utilisation and management of the DA it has been allocated responsibility for. Where relevant, this should include consideration of CAP 740 'UK Airspace Management Policy' Appendix C requirements.

- 4.4 In accordance with paragraph 4.2, SARG retains the overall regulatory responsibility for these structures. Accordingly, SARG conducts regular periodic audits of the DAA; for permanently established structures and in accordance with CAA SMS requirements, these are normally conducted biennially. The purpose of the audit is part of the CAA's obligation to ensure efficient use of the airspace through compliance with this policy.

5. DA Categories

- 5.1 There are two categories of DAs:

- Permanently established DAs, as notified in UK AIP ENR 5.1, or;
- Temporarily established DAs, as notified in accordance with a temporary notification method e.g. NOTAM, Aeronautical Information Circular (AIC), etc.

6. DA Hazards

- 6.1 **DA:** A consolidated list of the types of hazardous activities that are encompassed within DA can be found in ENR 1.1 Section 5.1.3.2.1, alongside their associated definitions. The hazardous activities encompassed within notified permanent DAs are listed in AIP ENR 5.1.

- 6.2 **TDA:** Typically, activities conducted within TDAs are approved by the CAA on a case by case basis through the Airspace Change Process (ACP) as detailed in CAP 1616.

6.3 Airspace Management Policy

- CAP 740 explains how the Flexible Use of Airspace (FUA) concept is applied within the UK. It sets out the role of the Airspace Management Cell (AMC) and how it practically applies the concept of FUA.
- In applying the principles of FUA, the AMC is delegated the responsibility for the management and notification of the activation of some DAs, where their activation is based upon Collaborative Decision Making. DAs are classified according to their AMC managed status as follows:
 - AMC Manageable Areas (AMA) –
 - Non-AMC manageable Areas (NAM) –

Regardless of AMC managed status, the DAA remains responsible for the safe and efficient utilisation of the airspace as outlined in paragraphs 2.1 and 2.2.

- The AMC managed status of permanent DA is included within the respective remarks section in AIP ENR 5.1.

7. Establishment and Changes to Permanent Danger Areas

- 7.1 Any proposal to:

- Introduce a new permanent DA, or
- Amend boundaries, notified activation times or hazard types to an existing permanently established DA.

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Will be subject to the requirements of the airspace change process as detailed in CAP 1616.

- 7.2 In accordance with paragraph 2.3, the notified dimensions of a permanent DA are to be the minimum practicably necessary to meet the task for which the DA has been established. These dimensions are to be reviewed annually by the DAA. Any changes are to be actioned in accordance CAP 1616.

8. Establishment of Temporary Danger Areas

- 8.1 Any proposal to introduce a new TDA will be subject to the requirements of the airspace change process detailed in CAP 1616 or as detailed in 4.2 above.

- 8.2 In accordance with paragraph 2.3, the notified dimensions of a TDA are to be the minimum practicably necessary to meet the task for which the TDA has been established.

9. Notification and Activation

- 9.1 **Notification.** The notified hours of operation for a permanent DA and TDA are to be the minimum practicably necessary to carry out the task for which the DA has been established. Hours shall be reviewed annually by the DAA and as required for TDAs.

- 9.2 **Activation:** Both permanent DA and TDAs are active in accordance with the notified times. Where a DA or portion of a DA is activated via NOTAM, unless otherwise approved by the CAA, a minimum of 24-hours notification before activity start time should be provided. In accordance with ICAO requirements, where the activation of a DA is to occur within the UK FIR but over the 'high seas', this notification period should be not less than 7-days unless otherwise approved by the CAA.

10.0. DA Crossing Service and DA Information Service

- 10.1 A Danger Area Crossing Service (DACS) or a Danger Area Activity Information Service (DAAIS) may be available for certain DAs/TDAs. If a service is provided, the service is to be in accordance with the relevant civil or military regulations. Any surveillance equipment used to monitor activity, provide DACS or detect incursions, must be designed, installed, operated and maintained in accordance with civil and/or military regulations. DACS activity data is to be recorded and accurate statistics maintained.

- 10.2 Procedures are to be in place to cease or manage danger area operations should a potential or an actual infringement of a DA/TDA threaten the maintenance of safety. In the event of any infringement of a DA/TDA, the sponsor is to submit a Mandatory Occurrence Report (MOR) or a Defence Air Safety Occurrence Report (DASOR) annotating the relevant report as an Airspace Infringement. Additionally, a CA939 report on alleged infringement of Air Navigation legislation report is to be submitted for any DA/TDA infringements.

11. Data

- 11.1 In line with the responsibility outlined in paragraph 4.3, the DAA is to maintain records of DA activity². For TDA some or all of the data recording requirements may be reduced by the CAA; any reduction in requirements would be identified to the DAA during the ACP.

12. Identification Convention

- 12.1 Permanent DA utilise the following identification convention:

² Data requirements for DA that are managed by the Airspace Management Cell is outlined within CAP 740.

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Up to 9 (nine) characters composed by:

- 2 (two) letters: nationality letters - EG
- 1 (one) letter: letter D
- 1 (one) - 3 (three) digit(s): a digit(s) from 1 to 999. Where practicable the existing convention of matching the lead digit with the geographical latitude of the DA should be utilised
- 1 (one) letter: letter indicating area sub-part(s) of a complex, this should be in alphabetical order, the letter "Z" shall not be used. If the DA does not form part of a complex of areas this letter may be omitted
- Where an DA has an associated Flight Plan Buffer Zone, the 8th character will be a 'Z' and the 9th character will be a digit from 1-9 where more than 1 FBZ is associated with a DA

Example EG D 101 B

The 8th and 9th character have been omitted as this example does not have an associated FBZ and therefore these characters remain blank.

- 12.2 TDA will, where possible, utilise the convention outlined in section 12.1. Due to the nature of some TDA activations, some identifiers have been pre-allocated and may not conform to this convention.

13. Enquiries

- 13.1 Enquiries concerning DA or TDA policy should be addressed to the CAA at:

Airspace ATM Policy
Future Safety
Aviation House
Beehive Ring Road
Crawley
West Sussex
RH6 0YR

Telephone: 0330 022 1917

e-mail: atsenquiries@caa.co.uk

- 13.2 Enquiries concerning the establishment and design of DA/TDA should be directed to:

Airspace Regulation
Aviation House
Beehive Ring Road
Crawley
West Sussex
RH6 0YR

e-mail: AROps@caa.co.uk

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Annex A

Guidance on Application to establish Temporary Danger Areas through the Temporary Airspace Change Process

A1 Introduction

A1.1 This Annex provides amplifying guidance to the requirements to establish a temporary danger area (TDA) through the CAP 1616 Temporary Airspace Change Process (ACP). While TDA will generally be established through the CAP 1616 Temporary and/or Trial Process, there are other processes by which a TDA can be established (See DA/TDA Policy paragraph 4.2). The requirement for the TDA in the first instance will dictate which process to follow; more information on this can be found within CAP 1616.

A2 Scope

A2.1 Guidance within this Annex is limited to the establishment of a TDA using the CAP 1616 Temporary Changes to the Notified Airspace Design process.³ This guidance is limited to creation of a TDA which does not have the potential to alter traffic patterns below 7,000 ft over inhabited areas.

A3 Process

A3.1 The following process should be read alongside the temporary process outlined within CAP 1616.

1. **Statement of need.** Sponsor submits a [DAP 1916 Statement of Need \(SoN\)](#).
2. **Targeted engagement with aviation stakeholders.** Where it can be demonstrated the TDA will not interact with other established airspace structures⁴, the engagement may be scaled to a maximum of 6 weeks. Subject to CAA approval, engagement requirement may be scaled further depending upon potential impact and previous engagement activity. The engagement requirement will be discussed during the assessment meeting. It is for the sponsor to outline how they can achieve effective engagement within the proposed timeframe and agree the scaling with the CAA prior to conducting the engagement. Where appropriate, the CAA may reject the scaling proposal and insist on adherence to the standard 12-week engagement.
3. The sponsor will be expected to use the airspace change portal to upload the SoN, agreed assessment meeting minutes and agreed engagement timeframe. This should be uploaded by the sponsor within 2 weeks of the assessment meeting.
4. During the assessment meeting the sponsor will agree with the CAA a submission date for their proposal. Any amendments to this date by the sponsor will require approval from the CAA.
5. Post engagement, the sponsor should submit the following for consideration:
 - a. Finalised proposed design, demonstrating consideration of the engagement conducted.
 - b. Report summarising engagement to include: list of stakeholders, a summary of engagement approach and timeline (rationale to be provided if less than 6 weeks), original engagement documentation, original responses and analysis of the responses.

³ Paragraphs 295 to 306 of CAP 1616 refer

⁴ These include but are not limited to airways, upper air routes, Terminal Control Areas, Control Areas, Control Zones, Restricted Areas, Military Training Areas and other Danger Areas

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- c. Outline of the TDA management process. This should, where proportionate, consider the requirements stipulated within the main body of this Policy.
 - d. Safety Assessment demonstrating how the hazard will be contained within the TDA.
 - e. Draft Aeronautical Information Circular (AIC), if required.
 - f. In addition, the sponsor should upload onto the airspace portal redacted copies of documents listed in points a-d above.
6. The CAA will, where possible, provide a decision within 28-days of receipt of the final proposed design and associated documentation.
7. The CAA will publish their decision on the airspace portal and confirm to the sponsor via email.
- A3.2 Airspace Regulation will provide support relating to the process and its requirements, outlining in the assessment meeting the process expectations. The sponsor however maintains responsibility for the ACP and the subsequent management of the TDA.

Annex 2 – CAA Policy for Radio Mandatory Zones and Transponder Mandatory Zones

Safety and Airspace Regulation Group



14 August 2015

Policy Statement

POLICY FOR RADIO MANDATORY ZONES AND TRANSPONDER MANDATORY ZONES

References:

- A. [Transport Act 2000](#).
- B. Commission Implementing [Regulation \(EU\) No. 923/2012](#) of 26 September 2012, (Standardised European Rules of the Air (SERA)).
- C. [CAP 724](#) 'Airspace Charter'.
- D. [CAP 725](#) 'CAA Guidance on the Application of the Airspace Change Process'.
- E. The [Air Navigation Order 2009](#).

1 Introduction

- 1.1 This document details the policy and guidance for the establishment and operations within Radio and Transponder Mandatory Zones (RMZs/TMZs).
- 1.2 The CAA's statutory obligations within reference A include the need to 'satisfy the requirements of all airspace users', and to 'secure the most efficient use of airspace consistent with the safe operation of aircraft and expeditious flow of air traffic'¹. This has enabled the principle that the least restrictive categorisation of airspace should be the norm in UK airspace design, with more restrictive classifications only being established where necessary when the safety need is clearly demonstrated.
- 1.3 Where additional measures to enhance flight safety are required, but the establishment of a more restrictive classification of airspace is not warranted, proportionate measures are necessary. Such measures include the establishment of either an RMZ or a TMZ. The creation of an RMZ/TMZ allows the airspace to retain its original classification, yet also allows for enhanced situational awareness for all users and for ATC. This therefore increases safety for all aircraft flying in that block of airspace while imposing minimal additional restrictions.

¹ Transport Act 2000 Section 70(1)

Policy for Radio Mandatory Zones and Transponder Mandatory Zones

2 Definitions

2.1 Reference B² defines RMZs and TMZs as follows:

- a) An RMZ is airspace of defined dimensions wherein the carriage and operation of suitable/appropriate radio equipment is mandatory.
- b) A TMZ is airspace of defined dimensions wherein the carriage and operation of pressure-altitude reporting transponders is mandatory.

3 Purpose of RMZ/TMZ

- 3.1 All airspace users should have reasonable and safe access to airspace. RMZs and TMZs are utilised to enhance the conspicuity of aircraft operating within or in the vicinity of complex or busy airspace for the safety of all members of the flying communities. They are to be established for overriding safety reasons in accordance with the Airspace Change Process detailed in references C and D. This is to include consultation with relevant aviation stakeholders, the needs of which must be established and taken into account. The resultant RMZ or TMZ should be of minimum practical dimensions to meet the safety requirements.
- 3.2 Provisions should be made for non-compliant aircraft to gain access to an RMZ or TMZ where legitimate requirement exists. Article 41(3) of reference E states that the CAA may permit an aircraft or class of aircraft to commence a flight in specified circumstances even though mandated equipment for the intended flight is not carried or is not in a fit condition for use.
- 3.3 The Controlling Authority of a notified RMZ or TMZ should have sufficient resource in place to guarantee full compliance in respect to airspace management arrangements, for example, suitable Air Traffic Service provision for the duration of RMZ or TMZ activation.

4 Notification of RMZs and TMZs

- 4.1 Establishment of RMZs and TMZs will be supported by an associated NOTAM and Aeronautical Information Circular (AIC).
- 4.2 For the purpose of the table in Schedule 5 of reference E, RMZ/TMZ shall be notified in the UK Aeronautical Information Publication (AIP) as follows:
 - a) GEN 1.4
 - b) GEN 1.5 (and referenced to either a specific aerodrome/Controlling Authority)
 - c) ENR 2.2. - For less specific 'en-route' RMZ/TMZ (e.g. offshore wind farms)
 - d) ENR 6 (as appropriate)
 - e) AD 2.17 (Aerodromes)
 - f) AD 2.22 (Procedures)
- 4.3 RMZs and TMZs shall also be depicted on VFR Charts.

²SERA Article 2

Policy for Radio Mandatory Zones and Transponder Mandatory Zones

5 RMZs

- 5.1 Schedule 5 of reference E requires the carriage of radio communication equipment in notified airspace³. This equipment must be capable of maintaining direct two-way communication with ATC on the notified frequency.
- 5.2 The requirements for communications within an RMZ are detailed in reference B⁴ as follows:
- a) Visual Flight Rules (VFR) flights operating in parts of Classes E, F or G airspace and Instrument Flight Rules (IFR) flights operating in parts of Classes F or G airspace designated as an RMZ by the competent authority shall establish two-way communication before entering the dimensions of the RMZ. Before entering an RMZ, an initial call containing the designation of the station being called, call sign, type of aircraft, position, level, the intentions of the flight and other information as prescribed by the competent authority shall be made by pilots on the appropriate communication channel. And;
 - b) The pilot shall maintain continuous air-ground voice communication watch, on the appropriate communication channel, unless in compliance with alternative provisions prescribed for that particular airspace by the Controlling Authority.
 - c) A pilot wishing to operate in an RMZ without the necessary radio communication equipment may be able to do so in accordance with conditions promulgated for the specific RMZ, or in accordance with agreed tactical arrangements with the RMZ Controlling Authority.
- 5.3 Guidance for pilots operating in RMZs, including examples of associated radiotelephony and alternative provisions, is contained in [Annex A](#).

6 TMZs

- 6.1 Schedule 5 of reference E requires the carriage of radio navigation equipment in notified airspace³. This pressure-altitude reporting transponder must be capable of operating in Modes A and C, and have the capability and functionality prescribed for Mode S.6.2. The requirements for transponders within a TMZ are detailed in reference B as follows⁵:
- a) All flights operating in airspace designated by the competent authority as a TMZ shall carry and operate Secondary Surveillance Radar (SSR) transponders capable of operating on Modes A and C or on Mode S, unless in compliance with alternative provisions prescribed for that particular airspace by the Air Navigation Service Provider (ANSP). And;
 - b) A pilot wishing to operate in a TMZ without serviceable transponder equipment may be granted access subject to specific arrangements agreed with the TMZ Controlling Authority.

³ Paragraph 2(b) of the Table in Schedule 5.

⁴ SERA.6005 (a) (1) & (2).

⁵ SERA.6005 (b) (1).

Policy for Radio Mandatory Zones and Transponder Mandatory Zones

- 6.3 Guidance for pilots operating in TMZs, including examples of radiotelephony and alternate provisions, is contained in [Annex B](#).

7 Enquiries

- 7.1 Enquiries concerning RMZ/TMZ policy issues may be addressed to the CAA at ats.enquiries@caa.co.uk.

Policy for Radio Mandatory Zones and Transponder Mandatory Zones

Annex A Guidance for Operations in Radio Mandatory Zones (RMZs)

1 Introduction

- 1.1 An RMZ is established to enhance situational awareness and therefore flight safety within a given airspace, whilst having minimal impact upon aircraft operations. Entry into an RMZ should be straightforward and non-restrictive to the overwhelming majority of pilots. RMZ status does not automatically confer or suggest airspace classification change.

2 Requirements for Entry into an RMZ

- 2.1 Aircraft seeking entry into an RMZ are to call, in a timely manner and with minimum delay, the RMZ Controlling Authority, alerting them to their presence and intentions, prior to entry.
- 2.2 The requirements for entry into an RMZ are detailed in SERA.6005 (a) as follows:
Before entering a radio mandatory zone, an initial call containing:
- a) the designation of the station being called;
 - b) callsign;
 - c) type of aircraft;
 - d) position;
 - e) level;
 - f) the intentions of the flight; And;
 - g) Other information as prescribed by the competent authority shall be made by pilots on the appropriate communication channel.
- 2.3 Once this information has been passed to and acknowledged by ATC, a pilot may enter the RMZ. However, if a pilot is requested to 'stand by' before the required information is passed; they must remain outside of the RMZ. RMZ Controlling Authorities are required to resume communications with pilots as soon as possible after having instructed them to 'stand by'.
- 2.4 Whilst operating within an RMZ pilots are required to continuously monitor the published frequency. This is to raise situational awareness for all, and offers a means of communication between pilot and ATC if required.
- 2.5 The RMZ Controlling Authority may additionally instruct an aircraft with a functioning transponder to squawk an appropriate code.

3 Non-Radio Aircraft

- 3.1 The pilot of an aircraft that wishes to operate in an RMZ without the necessary radio equipment is to do so in accordance with any alternative provisions promulgated for that RMZ or agreed with the Controlling Authority. This may typically require the pilot to contact the RMZ Controlling Authority prior to departing, stating the route information detailed above and estimated RMZ exit and entry times.




Policy for Radio Mandatory Zones and Transponder Mandatory Zones

- 3.2 Prevailing traffic conditions may preclude RMZ Controlling Authority approval to non-radio aircraft (or an aircraft with a non-functioning radio) to operate within an RMZ.
- 4 Flights Originating in an RMZ**
- 4.1 It will be necessary for pilots of radio-equipped aircraft originating in an RMZ where radio communications are not possible prior to take-off (and non-radio aircraft in all circumstances) to agree appropriate procedures with the RMZ Controlling Authority to enable flight within the RMZ. Compliance with the agreed procedures (published as a Letter of Agreement or Memorandum of Understanding) will be required and two-way communications established where appropriate at the earliest opportunity after take-off.
- 4.2 Ad hoc flights originating in an RMZ where radio communications are not possible shall make prior arrangements with the Controlling Authority and adhere to the agreed procedures.


Policy for Radio Mandatory Zones and Transponder Mandatory Zones

Appendix 1 to Annex A RMZ Entry Radiotelephony Examples

Example 1: Establishing Contact with ATC

	Newtown Radar, GABCD, request Basic Service		GABCD, Newtown Radar
			GCD, C152 from Castle Hill to Woodend, at Mountpleasant, altitude 2,400 ft Newtown QNH, VFR tracking to Green Fields


(GABCD may enter the RMZ)

	GCD, Roger
---	------------

Example 2: Establishing Contact with ATC

	Newtown Radar, GABCD, request Basic Service		GABCD, Newtown Radar
			GCD, C152 from Castle Hill to Woodend, at Mountpleasant, altitude 2,400 ft Newtown QNH, VFR tracking to Green Fields



(GABCD may enter the RMZ)

	GCD, roger, squawk 1234, Basic Service, report passing west abeam Burnside
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Safety and Airspace Regulation Group




Example 3: Establishing late contact with ATC and asked to 'Standby'

	Newtown Radar, GABCD, request Basic Service		GABCD, Newtown Radar, Standby
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(GABCD must remain outside of the RMZ)

	GCD, Newtown Radar, pass your message
	GCD, C152 from Castle Hill to Woodend, at Mountpleasant, altitude 2,400 ft Newtown QNH, VFR tracking to Green Fields

(GABCD may enter the RMZ)

	GCD, roger, Squawk 1234, Basic Service, report passing west abeam Burnside
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Annex B Guidance for Operations in Transponder Mandatory Zones (TMZs)

1 Introduction

- 1.1 A TMZ is established for safety reasons where the airspace classification would not normally require the carriage of a transponder, but where a change to a more restrictive classification of airspace is not warranted. A TMZ creates an environment within which ATC are more able to provide enhanced levels of safety through improving traffic information to aircraft.

2 Requirements for Entry into a TMZ

- 2.1 Aircraft operating serviceable transponders may operate with a TMZ.

3 Non-Transponder Aircraft

- 3.1 An aircraft flying within a TMZ without a serviceable transponder is to be flown in accordance with any alternative provisions promulgated for that TMZ or agreed with the Controlling Authority. Prior to entry a pilot must communicate their requirement to the Controlling Authority, alerting them to their presence and intentions, and obtain specific agreement to operate within the TMZ.
- 3.2 Pilots of aircraft which are neither non-transponder nor non-radio equipped must contact the Controlling Authority by the most appropriate means in order to seek Controlling Authority agreement to operate within the TMZ.
- 3.3 Prevailing traffic conditions may preclude TMZ Controlling Authority agreement to non-transponder aircraft (or an aircraft with a non-functioning transponder) to operate within a TMZ.




4 Flights Originating in the TMZ

- 4.1 3.1, 3.2 and 3.3 above equally apply to all flights without a serviceable transponder which originate within the confines of the TMZ.


Policy for Radio Mandatory Zones and Transponder Mandatory Zones

Appendix 1 to Annex B TMZ Entry Radiotelephony Example

Example 1: Non-transponder aircraft requesting to enter the TMZ

	Newtown Radar, GABCD, request Basic Service		GABCD, Newtown Radar
			GCD, C152 from Castle Hill to Woodend, at Mountpleasant, altitude 2,400 ft Newtown QNH, VFR tracking to Green Fields, request enter the TMZ, I am not SSR equipped

*(GABCD must remain outside of the TMZ
until ATS has agreed entry)*

	GCD, Basic Service, TMZ entry approved, report passing west abeam Burnside
---	--

(GABCD may enter the TMZ)

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Annex 3 - Aquila Safety Assessment

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TEMPORARY AIRSPACE CHANGE PROPOSAL SAFETY ASSESSMENT (CAP 760)

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REFERENCE DOCUMENTS

Ref	Document Reference	Issue	Issued By	Document Title
[Ref. 1]	1/2010	Issue 1	CAA	CAP 760 Guidance on the conduct of Hazard Identification, Risk Assessment, and the Production of Safety Cases
[Ref. 2]	1/2019	Issue 3	CAA	CAP 670 ATS safety requirements
[Ref. 3]	14/08/2015	Issue 1	CAA	Policy Statement for Radio Mandatory Zones and Transponder Mandatory Zones
[Ref. 4]	Aquila 10926	Issue 1	Aquila	Temporary Transponder Mandatory Zone Airspace Change Proposal Operational Risk Assessment
[Ref. 5]	IDOC-0002010839	Issue 1	Aquila	South West Danger Areas – Plymouth and Portland Temporary Airspace Change Proposal (ACP-2019-16)
[Ref. 6]	INFO-0000007695	Issue 1	Aquila	BAE Watchman Upgrade Technical Requirements Specification (TRS)
[Ref. 7]	01/2020	Issue 3	CAA	CAP 1616 Airspace Change
[Ref. 8]	n/a	n/a	MOD	Email confirmation that all operations and operators are compliant with all statutory and legislative requirements and SQEP
[Ref. 9]	Aquila 3179	Issue 1	Aquila	Safety Acceptance Plan
[Ref. 10]	Aquila 3648	Issue 1	Aquila	Operational Risk Assessment Methodology
[Ref. 11]	Aquila 1358	Issue 1	Aquila	Project Marshall Part 3 Safety Case Report
[Ref. 12]	Def-Stan 00-972	Issue 4	MAA	Military Air Traffic Services Equipment Safety and Performance Standards (Aerodrome, Terminal, Naval Air Traffic Services) Part 1: Generic and Software
[Ref. 13]	12/2018	Issue 1	CAA	CAP 1711 Airspace Modernisation Strategy
[Ref. 14]	n/a	n/a	NATS	DA and Class G Airspace Map (solution highlighted)
[Ref. 15]	DAP/SSH/091	Issue 2.2	ECTL	<u>Eurocontrol</u> Safety Case Development Manual
[Ref. 16]	n/a	n/a	CAA	Mandatory Occurrence Report data (5 year)
[Ref. 17]	Airprox 2017078	n/a	n/a	Airprox report between FA20 and DA40 (non-transponder equipped)– Risk of collision
[Ref. 18]	5114421-02-rep-01	Issue 3	ATKINS	Watchman Primary Surveillance Radar SCR (April 2013)
[Ref. 19]	n/a	n/a	ASIMS	DASOR raised at Plymouth for the past 5 years

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[Ref. 20]	n/a	N/A	Aquila	Work Orders raised at Plymouth for the past 3 years
[Ref. 21]	n/a	Issue 2	Aquila	Statement of Need
[Ref. 22]	n/a	n/a	n/a	Airspace stakeholders' WE meetings evidence (minutes)
[Ref. 23]	n/a	n/a	n/a	Email confirmation of SSR only operations procedures and CONOPS
[Ref. 24]	n/a	n/a	n/a	Email confirmation of revised Airspace TMZ Design and NOTAM issue responsibility confirmation for Safety Statemen
[Ref. 25]	Annex 15	16 th edition	ICAO	Aeronautical Information Services
[Ref. 26]	02/2015	Issue 2	MAA	RA 3241 Secondary Surveillance Radar alone operations
[Ref. 27]	Aquila 4083	Draft	Aquila	ASP 413 In-Service Equipment safety performance monitoring
[Ref. 28]	11/2014	Issue 8	MAA	RA 1410 Occurrence reporting and Management
[Ref. 29]	11/2019	Issue 7	CAA	CAP 740 Airspace Management Policy, Appendix C
[Ref. 30]	Aquila 10575	Issue 1	Aquila	Initial Briefing on consultation and ACP for Plymouth DA and Portland DA
[Ref. 31]	11/2014	Issue 8	MAA	RA 2307 Rules of the Air
[Ref. 32]	Aquila 3480	Issue 1	Aquila	Service Desk Operator Incident and Service Request Management Procedure
[Ref. 33]	n/a	Issue 1	Aquila	Temporary Airspace Change Frequently Asked Questions
[Ref. 34]	08/2014	Issue 1	CAA	Safety Buffer Policy for Airspace Design purposes

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GLOSSARY

Acronym.	Definition
AAOS	ATM Approved Organisation Scheme
ACP	Airspace Change Proposal
ACS	Airway Crossing Service
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation And Control
ALARP	As Low As Reasonably Practicable
AMSL	Above Mean Sea Level
ARM	Advanced Risk Manoeuvre
ASD	Aquila Service Desk
ASIMS	Air Safety Information Management System
ASP	Aquila Safety Policy
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATCS	Air Traffic Control Service
ATM	Air Traffic Management
ATMS	Air Traffic Management Services
ATS	Air Traffic Service
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAS	Controlled Airspace
CNS	Communication, Navigation and Surveillance
CONOPS	Concept of Operations
DA	Danger Area
DACS	Danger Area Crossing Service
DASOR	Defence Air Safety Occurrence Report
Def Stan	Defence Standard
EM	Electro Magnetic
FAQ	Frequently Asked Questions
FAS	Future Airspace Strategy

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FL	Flight Level
FOST	Flag Officer Sea Training
FUA	Flexible Use of Airspace
GA	General Aviation
GSN	Goal Structured Notation
HMS	Her Majesty's Ship
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
LARS	Lower Airspace Radar Service
MAA	Military Aviation Authority
Mil	Military
MOD	Ministry of Defence
MOR	Mandatory Occurrence Report
NCHQ	Navy Command Headquarters
NOTAM	Notice to Airmen
ORA	Operational Risk Assessment
PSR	Primary Surveillance Radar
RA	Regulatory Article
RNAS	Royal Naval Air Station
RL	Risk to Life
SA	Safety Assessment
SAP	Safety Assurance Plan
SATCO	Senior Air Traffic Control Officer
SC	Safety Case
SCR	Safety Case Report
SCXA	South Coast Exercise Areas
SDS	Service Delivery Site
SERA	Standardised European Rules of Air
SOP	Standard Operating Procedures
SQEP	Suitably Qualified and Experienced Personnel
SSR	Secondary Surveillance Radar
TAS	True Air Speed

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TCAS	Traffic Collision Avoidance System
TMZ	Transponder Mandatory Zone
TS	Technical Service
UAV	Unmanned Air Vehicles
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
WO	Work Order

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Executive Summary

- (1) The Temporary Airspace Change Proposal (ACP), sponsored by Aquila Air Traffic Management Services (Aquila ATMS) on behalf of the Ministry of Defence (MOD) Navy Command Headquarters (NCHQ) relates to the Danger Areas (DA) associated with the South Coast Exercise Areas (SCXA) and the surrounding airspace utilising surveillance radar feeds from Plymouth and Portland.
- (2) The temporary loss of the of the non - cooperative radar during upgrade reduces the visibility of non - ~~transponding~~ aircraft to the controller. This Safety Assessment (SA) argues that a Transponder Mandatory Zone (TMZ) is required to reduce the risk to the airspace users, for which Plymouth Control is responsible for Air Traffic Service (ATS), which is both As Low as Reasonably Practicable (ALARP) and acceptably safe. The safety assurance argument presented within this report uses Goal Structuring Notation (GSN) to provide a graphical depiction of the individual elements of that argument.
- (3) The risk assessment for the airspace change proposal is based on a qualitative assessment of the current risk compared to the risk associated with the implementation of the TMZ, it focussed on the following factors:
 - a. Safety is being appropriately addressed within the project design.
 - b. The Primary Surveillance Radar (PSR) absence does not degrade safety to an unacceptable level as risk mitigations have been implemented and the long-term benefits are greater than the change risk.
 - c. Plymouth ATC Unit is committed to Flexible Use of Airspace (FUA).
 - d. A fair and transparent engagement has been held with the airspace users [Ref. 5].
 - e. The residual safety effects on increased controller workload and loss of PSR coverage remain foremost within the project stakeholder priorities.

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1 INTRODUCTION

1.1 BACKGROUND

- (1) Project Marshall is an MOD programme to replace or upgrade ATC equipment at UK sites and overseas; the new equipment and associated capabilities are referred to as Technical Services (TS).
- (2) The BAE Watchman PSR at Plymouth and Portland will be upgraded to enhance ATC capabilities using new technology to enhance the coverage, commensurate with airspace modernisation, this is captured in the BAE Watchman Upgrade Technical Requirements Specification [Ref. 6].

1.2 PURPOSE

- (1) The purpose of this SA report is to present the argument that the risk to airspace users within operating environment of the DA is reduced to ALARP and remains acceptably safe throughout the equipment upgrade programme. This temporary airspace change will provide an enhanced level of safety to airspace users operating in or in the surrounding area of the airspace.

1.3 SCOPE

- (1) This SA report details the safety assurance activities undertaken to date to derive the high level safety requirements for the temporary ACP [Ref. 5] to ensure that it contributes to the achievement of a continued acceptable level of safety. Whilst the ACP impacts the airspace users, the operations and the airspace design remains largely unchanged; this SA only address requirements related to the temporary PSR absence.

1.4 SAFETY REGULATORY CONTEXT

- (1) Civil Aviation Policy (CAP) 1616 [Ref. 7] requires risk assessment and mitigations to be conducted to an appropriate level to ensure that due consideration is given to all aspects of the provision of ATM and that complete arguments are established to demonstrate that the issue under consideration, the temporary planned loss of PSR, as well as the overall ATM functional system, will remain acceptably safe by meeting mandated safety objectives.
- (2) MOD is committed to the safe modernisation of the UK's ATM system, specifically that:
 - a. All changes are justified on the grounds that they will directly reduce the risk, and/or contribute to the development of a fundamentally safer system or at least maintain current levels of safety whilst delivering benefits in other areas such as enhanced surveillance capabilities and better ATS provision.

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- b. The correct level of resource is in place to ensure that the PSR upgrade will be completed in a timely manner and the operations without a PSR can be executed safely [Ref. 8].
- c. The appropriate regulatory mechanisms are in place to enable implementation of the PSR upgrade and to assure the safety of the enhanced new surveillance system [Ref. 9].

1.5 GENERAL APPROACH

- (1) The approach adopted in creating this Safety Assessment was based on the guidelines contained within CAP 760 [Ref. 1].

1.6 STRUCTURE

- (1) The Temporary TMZ ACP SA is divided into a number of sections as follows:
 - a. **Section 1** Introduction – presents an overview of the SA, its background, purpose and scope.
 - b. **Section 2** System Description – describes the scope of the airspace change as a result of upgrading the PSR at Plymouth and Portland, the nature of the risk identification and mitigation activity undertaken and details the safety requirements that have been identified.
 - c. **Section 3** Overview of Hazard Identification and Risk Assessment Process
 - d. **Section 4** Overall Safety Argument – provides top level arguments that the impact of the TMZ changes over the Plymouth Danger Areas (DA's), Portland DA's and the airspace corridor in the Class G airspace between them are acceptably safe.
 - e. **Section 5** The revised TMZ airspaces design is Acceptably Safe.
 - f. **Section 6** Civil and Military Transition and Implementation of the temporary TMZ change are acceptably safe – will present the evidence satisfying the goal that the transition, implementation and steady state operation of the change are acceptably safe.
 - g. **Section 7** All Operations during the TMZ airspace change are acceptably safe.
 - h. **Section 8** Conclusion.
- (2) The SA also contains the following annex:
 - a. Annex 1 – Operational Risk Assessment (ORA) worksheet

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2 OPERATIONAL DESCRIPTION

- (1) The SCXAs and the Class G airspace around them are used to conduct maritime and aviation operational training serials under the Command and Control of the Flag Officer Sea Training (FOST) at HMS Drake, within the Devonport Dockyard.
- (2) The fast jet aircraft involved in the training serials fly a number of distinctly different profiles depending on precisely what threat is being simulated and the actual disposition of the ships being exercised at the time of the serial. The majority of these simulations involve 'straight-line' flights which attempt to represent a missile en-route to a target following release but in Visual Meteorological Conditions (VMC) the tracks may make variations in their altitude / level which are representative of real world threats.
- (3) In certain serials some of the participating ships targeted may be out to sea, whilst others may be just leaving harbour when they are subjected to these simulated attacks. Those aircraft targeting units which are in the North or central part of the Plymouth DA's will usually start vectoring towards them on a Westerly heading from a designated point, some 25 miles to the South of Portland Bill in the Southern half of the Portland DA block.
- (4) Simultaneously, those ships which are operating to the South of the Plymouth breakwaters may also be targeted. This may require their threat simulation aircraft to commence their inbound run along a totally different axis with some perhaps starting from a designated starting point in the North West of the Portland DA's in the vicinity of Lyme Bay North DA (D012). During more advanced simulations fast jet traffic may also be required to simulate co-ordinated profiles starting from a position to the West of the Plymouth DA's in the vicinity of a point some 30nm South West of the Lizard Point headland. All these events require co-ordinated departures from specified waypoints to ensure that the aircraft arrive at their target at precisely the right time to safely de-conflict and deliver the maximum training benefit from each sortie.
- (5) Following each run the aircraft will be required to re-position and perhaps loiter in the vicinity of their pre-briefed start datum before commencing the next co-ordinated serial at the specified time.
- (6) The military flight profiles are subject to change to reflect the FOST training needs; currently, there are no planned changes to military training operations due to the temporary loss of PSR.
- (7) The Air Traffic Control Services (ATC) for both military and civil airspace users are provided from Plymouth Mil ATC that operates 0800-1700 Monday to Thursday and 0800-1400 on Fridays.

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3 OVERVIEW OF HAZARD IDENTIFICATION AND RISK ASSESSMENT PROCESS

- (1) International regulations and standards require that any change being introduced that may have an impact on the safety of ATS is subject to a hazard identification and risk assessment / risk mitigation process to support its safe introduction in operation as stated within CAP 760 [Ref. 1].
- (2) The hazard identification and risk assessment process adopted here, follows a systematic Operational Risk Assessment (ORA) [Ref. 10] that uses a panel of Suitably Qualified Experienced Personnel (SQEP) to conduct a structured analysis of a system using a series of guide words to explore potential hazards and covers the Seven Steps for Risk assessment stated in CAP 760 [Ref. 1].
- (3) Aquila ATMS is considered by the Military Aviation Authority (MAA) to be a Competent Organisation under the auspices of their ATM Approved Organisation Scheme (AAOS), therefore the Marshall Safety Case Report (SCR) Part 3 [Ref. 11], and Aquila Safety Acceptance Plan (SAP) [Ref. 9] have been used as guidance for the ORA.
- (4) The scope of the ORA was to assess the impact to the ATM operations as a result of the temporary loss of the PSR at Plymouth and Portland. The assessment focused on the planned loss of the PSR and does not cover the entire ATM system.
- (5) The objective of the ORA was to ensure that:
 - a. The potential impacts of engineering activities on the ATM service are considered.
 - b. The operational safety risk associated with these potential service impacts are assessed.
 - c. The risks are mitigated to "Broadly Acceptable" or "Tolerable" as detailed in the risk scheme documented in Def Stan 00-972 Part 1 [Ref. 12].
 - d. The residual risks are notified to the appropriate management authority for approval prior to the engineering activities being undertaken.
- (6) The ORA was undertaken via Microsoft Teams virtual conference with a panel of SQEP on 25 June 2020. The ORA workshop reviewed the planned Watchman PSR equipment upgrade to identify all the operational hazards associated with the activity; a total of 2 hazards were identified, one associated with each of the site activities. Both these hazards were assigned a post-mitigation Risk Class C as shown in A.1.
- (7) The detailed output of the ORA workshop is documented in full in A.1. This should be used as evidence to support this SA and the overall safety case for ATM operations during the period of reduced PSR coverage due to the planned Watchman Upgrade at Plymouth and Portland.

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- (8) The ATM operating risk remains ALARP and should be considered acceptably safe by the ANSP.

4 THE SAFETY ARGUMENT

4.1 OBJECTIVE

- (1) The objectives of this section are to:
- Outline the top-level safety argument for the temporary TMZ airspace change.
 - Present and explain the supporting argument structure and related context and justification.
 - Explain the decomposition of the safety argument.
- (2) In interpreting the colour coding of the GSN in Figure 1, it is important to note that the GSN relates to the work required to implement the temporary TMZ airspace change whilst assuring the risk remains acceptably safe. Whilst the creation of the GSN has been led by Aquila, a collaborative review and refinement process has been adopted by the joint Marshall Project partners in order to ensure that appropriate safety assurance exists to support the TMZ change and its implementation.

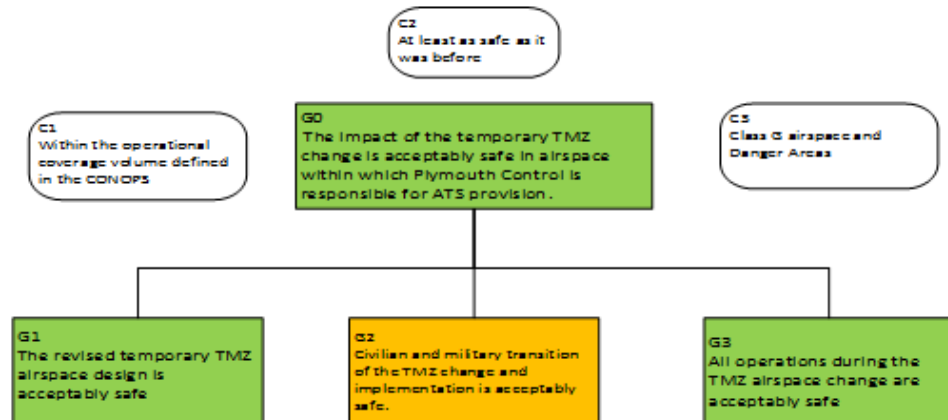


Figure 1 - Temporary TMZ airspace change Overall Safety Argument

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4.2 THE SAFETY ARGUMENT STRUCTURE

- (1) Aquila ATMS has been contracted to provide ATM services to all MOD operated airfields and weapons ranges. Due to their lifespan and high level of degradation, both the SSR and PSR need replacement/upgrade.
- (2) The justification for the temporary TMZ airspace change is the planned loss of PSR at Plymouth and Portland and the associated degradation in ATS provision. The in-service PSR has been proven to be unreliable due to persistent failures that impact radar services availability. Upgrading the PSR will mitigate the current frequent disruption of radar services and will enhance Plymouth Mil ATC operations.
- (3) The aim of the SA is to provide assurance to support (G0) that "the impact of the temporary TMZ airspace change is acceptably safe, in airspace within which Plymouth Mil ATC is responsible for ATS provision". This claim is subject to any stated identified issues, assumptions and limitations and is made within the context that:
 - a. Airspace within which Plymouth Mil ATC is responsible for ATS provision means:
 - i. The DAs used for military training as follows:
 - Plymouth - D006A, D006B, D006C, D007A, D007B, D007C, D008A, D008B, D008C, D009A, D009B, D003, D004 up to FL 100 (see Figure 2 highlighted in orange).
 - Portland – D012, D013, D014, D017, D021, D023 up to FL 100 (See Figure 2 highlighted in yellow).
 - ii. The Class G airspace corridor that military aircraft uses to transit between DAs up to FL 85 (See Figure 2 highlighted in orange and located between the DAs).
 - b. The temporary TMZ airspace change is justified on the grounds that the new surveillance system will directly reduce the risk and contribute to the development of a fundamentally safer ATM system as described within the CAA CAP 1711 Airspace Modernisation Strategy [Ref. 13].
- (4) The acceptable level of safety in G0 is defined by the safety criteria that "Acceptably Safe" is considered to mean that risks are acceptable and mitigated to ALARP, and there are no unacceptable risks [Ref. 1]. However, the concept of "acceptably safe" must be considered against the Future Airspace Strategy (FAS) requirement outlined in the paragraph above. The goal G0 will be expressed wholly in terms of "relative" and "reductive" safety criteria.

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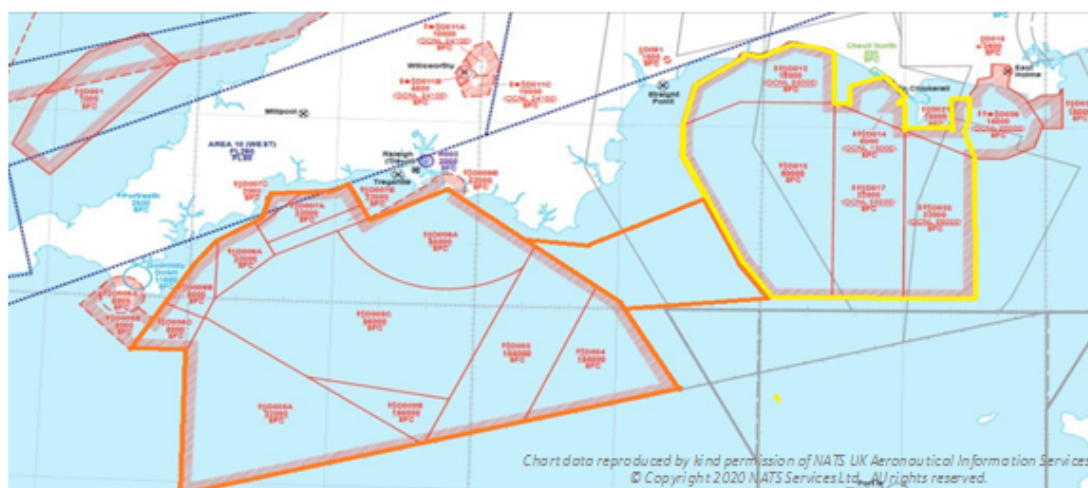


Figure 2 - Temporary TMZ Airspace solution design

4.3 STRATEGY FOR DECOMPOSING THE SAFETY ARGUMENT

- (1) The overall goal G0 is decomposed into 3 principle safety arguments as indicated in Figure 1. The decomposition of G0 is based on the Generic Argument presented in Eurocontrol's Safety Assessment Made Easier [Ref. 15]. The strategy for satisfying G0 is thus to demonstrate that:
 - a. The revised temporary TMZ airspace design is acceptably safe (G1).
 - b. Civilian and military transition of the TMZ change and implementation is acceptably safe. (G2).
 - c. All operations during the TMZ airspace change are acceptably safe (G3).

5 GOAL 1 THE REVISED TMZ AIRSPACE DESIGN IS ACCEPTABLY SAFE

5.1 OBJECTIVE

- (1) The objective of this section is to support the goal that the revised TMZ airspace design is acceptably safe. The argument is made in the context that the revised TMZ airspace design is summarised by the Airspace Change Proposal and supporting annexes that includes Statement of Need, Operational assessment, Environmental assessment and Airspace Design Principles [Ref. 5].

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5.2 STRATEGY

- (1) In order to satisfy goal G1, it was necessary to decompose it further into a series of sub-goals. This was achieved by following the strategy S1.1 "Argue that safety has been appropriately managed in the safety temporary TMZ design stage".
- (2) The overall safety argument that the revised temporary TMZ airspace design is acceptably safe is presented in Figure 3. The individual arguments that are presented in Figure 3 are addressed in the following sections and the evidence used to support them is discussed.
- (3) The elements of the safety argument relating to the choice of DAs to be changed, the TMZ design, statutory requirements, ATCOs, flight crew and ATC procedures follow a pattern whereby a goal is considered to be achieved when it can be demonstrated to have become 'known', having 'evolved' and been 'baselined' (decision has been made and accepted by parties involved) and then subsequently 'validated' (engagement with airspace users). However, it is important to consider that the use of the term 'validation' in this context means that the evidence is drawn from engagement with airspace stakeholders to validate the revised temporary TMZ design.

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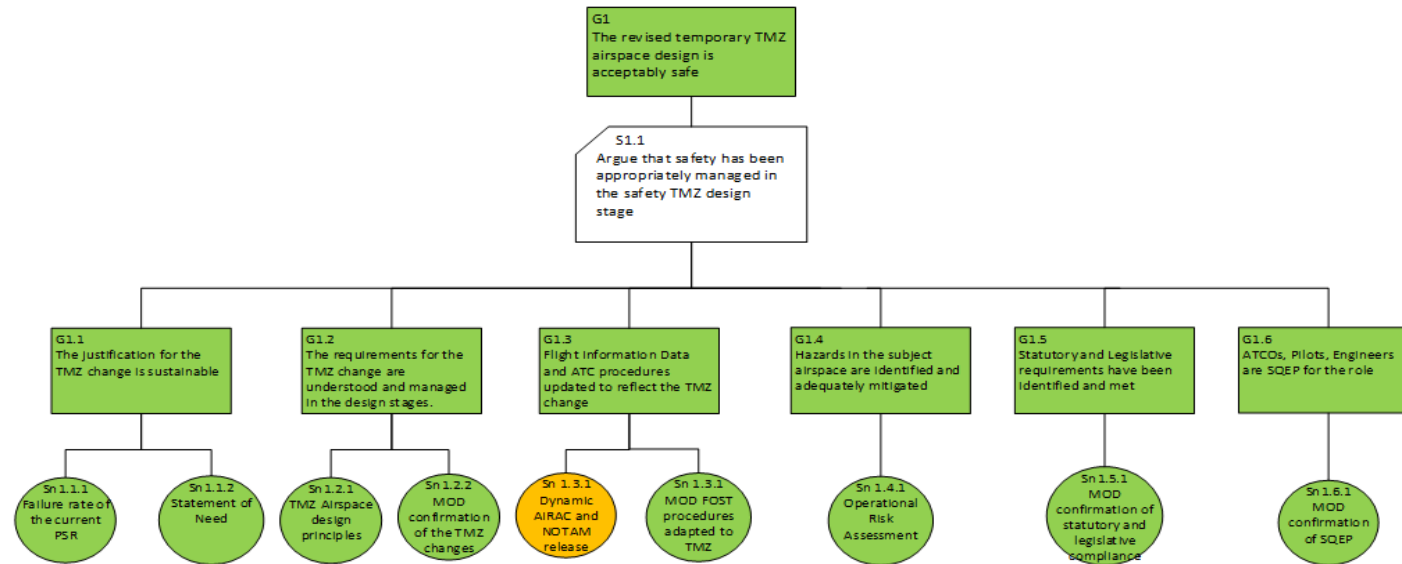


Figure 3 – Goal 1 The revised temporary TMZ airspace design is acceptably safe

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5.3 GOAL 1.1 THE REQUIREMENTS FOR THE TMZ AIRSPACE CHANGE ARE KNOWN

- (1) Aquila ATMS has been contracted to provide ATM services to a number of MOD operated airfields and weapons ranges. Due to their lifespan and high level of degradation, a lot of the current ATM equipment needs to be upgraded or replaced, so that the ATS provision will not be impacted and an acceptable level of safety is maintained.
- (2) As stated in the CAP 1711 Airspace Modernisation Strategy [Ref. 13], one of the areas of greatest concerns in uncontrolled airspace is the risk of mid-air collision where military, General Aviation (GA) and some commercial traffic are operating in a "see and avoid" environment with limited air traffic services and surveillance coverage. The widespread adoption of electronic conspicuity solutions that make all aircraft more visible is needed to maintain high safety standards in uncontrolled airspace.
- (3) An additional mid-air collision risk arises from airspace infringements – where an aircraft flying in uncontrolled airspace inadvertently enters the DA and comes into conflict with a military flight. Such infringements highlight the limitations and potential safety implications of the current surveillance system. Although, areas are prescribed for different users, a simple navigational error or loss of situational awareness, combined with a lack of uniform electronic visibility, creates a safety concern.
- (4) The Mandatory Occurrence Reports (MORs) provided by the CAA and Airprox 2017078 [Ref. 17], proves that airspace infringements are a safety concern and a better electronic surveillance system is needed in order to unlock safety benefits, save lives and enable future airspace design to accommodate better sharing and access among different airspace users, including commercial aviation, general aviation, military and other users such as drones.
- (5) The failure rate of the PSR is reflected in the legacy Watchman PSR Safety Case Report [Ref. 18] and it suggests that the system failure rate is estimated to be 4 times higher than the derived safety requirement.
- (6) Furthermore, there are an increased number of Defence Air Safety Occurrence Reports (DASORs) [Ref. 19] and Work Orders (WO) [Ref. 20] raised by Plymouth ATC that claim the loss of the PSR from different reasons. A DASORs should be raised for any functional safety occurrence, near-miss or suspected hazard involving the Watchman PSR. A Work Order is an incident raised upon a Marshall ATM equipment failure and recorded by Aquila Service Desk (ASD).
- (7) A Statement of Need has been developed in compliance with CAP 1616 to demonstrate the rationale of the airspace change proposal and its timeframes [Ref. 21].

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- (8) Considering the above, it is considered that G1.1 The justification for the TMZ change is sustainable is met.
- 5.4 GOAL 1.2 THE REQUIREMENTS FOR THE TMZ CHANGE ARE UNDERSTOOD AND MANAGED IN THE DESIGN STAGES**
- (1) As stated within UK AIP PART 1 GEN Para 5.3.1(e), with certain exceptions it is mandatory for all aircraft operating within United Kingdom airspace at and above FL 100 to be SSR Transponder equipment. Therefore, in the scope of this temporary TMZ solution it has been agreed the following upper limits [Ref. 22]:
- TMZ proposal over the Plymouth DA's – FL 100 Above Mean Sea Level (AMSL) (it is already mandated to carry an SSR transponder above FL 100).
 - TMZ proposal over the Portland DA's – FL 100 AMSL (as above).
 - TMZ proposal within the Class G airspace corridor between the above DA blocks - FL 85 AMSL under airway N862 across the whole class G corridor.
- (2) As described in the Policy for Radio Mandatory Zones and Transponder Mandatory Zones [Ref. 3], a TMZ is established for safety reasons where the airspace classification would not normally require the carriage of a transponder, but where a change to a more restrictive classification of airspace is not warranted. The TMZ creates an environment within which ATCO are more able to provide enhanced levels of safety through improving traffic information to aircraft.
- (3) All flights operating in airspace designated by the competent authority as a TMZ shall carry and operate an SSR transponder capable of operating on Mode A and C or Mode S, unless in compliance with alternative provision prescribed for that particular airspace by the ATS provider.
- (4) A pilot wishing to operate in a TMZ without serviceable transponder equipment may be granted access subject to specific arrangements agreed prior with the TMZ controlling authority. There are procedures in place to facilitate the transit of a non-transponder aircraft if required as stated by Plymouth Mil ATC [Ref. 23].
- (5) The proposed TMZ airspace is fully described and graphically represented within the ACP [Ref. 5]. Following engagement with a variety of airspace users, it has been agreed that the best solution for everyone will be to activate the TMZ over the Class G corridor dynamically via NOTAM. For Plymouth and Portland DAs, the TMZ will be activated during published active hours of the DA's, so that the resultant TMZ would be of minimum practical dimensions to meet the safety requirements.
- (6) There will be no meaningful impact to the GA community or other airspace users due to the TMZ restriction. Plymouth Mil ATC / FOST Operations have the combined resource and capacity to undertake the operational management of the proposed flexible activate of the TMZ concerned as stated in an official email [Ref. 24].

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- (7) All training serials will be conducted within the designed TMZ solution [Ref. 5], however FOST operations reserves the right to pre-book a block of the N862 Controlled Airspace (CAS) to facilitate achieving transits above FL85 for any ARM profiles. Also, if needed FOST operations may activate other DAs than proposed to meet their operational training requirements.
- (8) The safety buffer [Ref. 34] has been considered at the beginning of the temporary airspace change solution development, however the buffer zone has been assessed as unnecessary. The FOST operators are aware of possible airspace infringements, therefore in order to mitigate the risk of incursions, all training serials will occur under enhanced awareness along the edges of the TMZ proposed solutions. This decision has been taken to support and promote the Flexible Use of Airspace (FUA) and best meet military requirements while being cognisant of civil airspace users.
- (9) Considering the above, it is assessed that G1.2 The requirements for the TMZ change are understood and managed in the design stages is met.

5.5 GOAL 1.3 THE FLIGHT INFORMATION DATA AND ATC PROCEDURES ARE UPDATED TO REFLECT THE TMZ CHANGE

- (1) As described in the ACP [Ref. 5] and following engagement with the GA community it was agreed that only the airspace corridor will have a NOTAM issued dynamically to state the TMZ activation. The TMZ NOTAM for Plymouth and Portland DAs will mirror the established published DA's activation times. The AIRAC will be updated with one cycle prior the change.
- (2) The TMZ change will be activated dynamically via NOTAM for the required military training area in accordance with ICAO Annex 15 Aeronautical Information Services, Chapter 5 and Appendices 2,3 and 6 [Ref. 25].
- (3) Plymouth Mil ATC takes full responsibility for the TMZ NOTAM release and confirms that FOST Operations have the combined resource and capacity to undertake the operational management of the proposed flexible activation of the area concerned [Ref. 24].
- (4) After a collaborative review and refinement process, it was assessed that military training operations will not change during the TMZ, however the Standard Operating Procedures (SOPs) will be updated to reflect operations without a PSR in accordance with FOST Aviation Order 0317-SSR Alone Operations [Ref. 23] and RA 3241 [Ref. 26].
- (5) The military operations will plan for a potential SSR failure and coordinate their actions to ensure safe separation is maintained throughout as confirmed in the ORA [Ref. 4].
- (6) Considering the above, it is assessed that G1.3 The flight information data and ATC procedures are updated to reflect the TMZ change is met.

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5.6 GOAL 1.4 HAZARDS IN THE SUBJECT AIRSPACE ARE IDENTIFIED AND ADEQUATELY MITIGATED

- (1) As mentioned in Section 3, the hazard identification and risk assessment process adopted here, follows a systematic ORA process that uses a SQEP panel to conduct a structured analysis of a system using a series of guide words to explore potential hazards and covers the Seven Steps for Risk assessment stated in CAP 760 [Ref. 1].
- (2) A total of 2 hazards have been identified, one associated with each of the site activities. Both these hazards were assigned a post-mitigation Risk Class C as shown in A.1. The detailed output of the ORA workshop is documented in full in A.1.
- (3) The ATM operating risk remains ALARP and should be considered Tolerable by the Duty Holder facing organisation.
- (4) The hazard assessment from the ORA should be also used to support the safety case for ATM operations during the period of reduced PSR coverage due to the planned Watchman Upgrade at Plymouth and Portland.
- (5) Considering the above, it is assessed that Goal 1.4 Hazards in the subject airspace are identified and adequately mitigated is met.

5.7 GOAL 1.5 STATUTORY AND LEGISLATIVE REQUIREMENTS HAVE BEEN IDENTIFIED AND MET

- (1) As confirmed by the Plymouth ATC [Ref. 8], all operations within the Class G airspace for which the unit is responsible for ATS provision is, so far as reasonably practicable, conducted in accordance with the UK statutory and legislative requirements. Any non-compliance witnessed by Plymouth ATC staff is reported via the appropriate method.
- (2) Considering the above, it is assessed that Goal 1.5 Statutory and legislative requirements have been identified and met is met.

5.8 GOAL 1.6 ATCOS, PILOTS, ENGINEERS ARE SQEP FOR THE ROLE

- (1) All Plymouth ATC personnel, air crew and ground engineers are considered to be SQEP for the functions they perform, as confirmed by the unit [Ref. 8].
- (2) Prior the TMZ change, the Plymouth ATC staff will be trained/briefed on the TMZ requirements and ATC operations without PSR. Moreover, if the ACP is accepted, the operator has a requirement to ensure that ATC personnel will be trained in NOTAM and Aeronautical Information Services as stated in ICAO, Annex 15 [Ref. 24]. The military pilots will plan operations for a potential SSR failure, or potential airspace infringements, coordinating their actions to ensure safe separations is maintained throughout.

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- (3) Evidence that Plymouth ATC staff and FOST personnel are SQEP to fulfil their roles are recorded by the MOD and can be provided via audit. Moreover, where it has been identified that specific knowledge or expertise is required that is ~~outwith~~ the skill set of the current staff; training will be provided.
- (4) Considering the above, it is assessed that Goal 1.6 ATCOs, Pilots, Engineers are SQEP for the Role is met.

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6 GOAL 2 CIVILIAN AND MILITARY TRANSITION OF THE TMZ CHANGE AND IMPLEMENTATION IS ACCEPTABLY SAFE

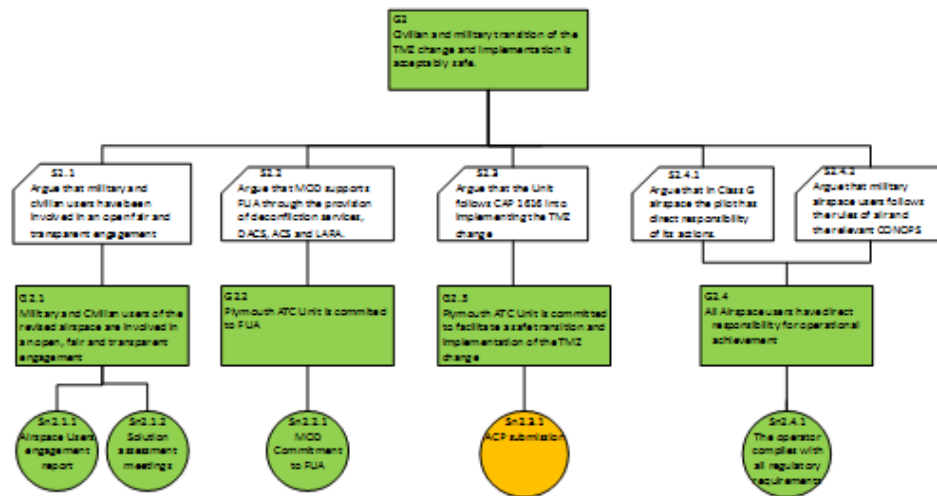


Figure 4 - Goal 2 Civilian and Military transition of the TMZ change and implementation is acceptably safe

6.1 OBJECTIVE

- (1) The objective of Goal 2 is to demonstrate that the civilian and military transition of the TMZ change and its implementation are acceptably safe. This claim is supported by a Engagement Report [Ref. 5] that encloses the engagements with the airspace stakeholders. CAA will use this report to assess what the sponsor has heard and how this feedback from the community has informed the ACP.

6.2 STRATEGY

- (1) For Goal 2, there have been identified 5 strategies to be followed during the Goal 2 assessment:

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- a. Argue that military and civilian users of the revised airspace are involved in an open, fair and transparent engagement.
- b. Argue that MOD supports FUA through the provision of deconfliction services, Danger Area Crossing Service (DACS), Airways Crossing Service (ACS) and Lower Airspace Radar Service (LARS) during the TMZ change.
- c. Argue that Plymouth ATC follows CAP 1616 into implementing the TMZ change.
- d. Argue that in Class G airspace the pilot has direct responsibility of its actions.
- e. Argue that military airspace users follow the rules of the air and their relevant Concept of Operations (CONOPS).

6.3 GOAL 2.1 MILITARY AND CIVILIAN USERS OF THE TMZ AIRSPACE ARE INVOLVED IN AN OPEN, FAIR AND TRANSPARENT ENGAGEMENT

- (1) As stated in CAP 1616 [Ref. 7], Aquila (the sponsor) has called the airspace stakeholders for engagement in line with the Gunning principles and government guidance to determine the best solution for the temporary low PSR coverage over the class G airspace where Plymouth ATC is responsible for ATC provision.
- (2) In the case of a temporary change, there is no need for Formal Appraisal (Stage 2, CAP 1616 [Ref. 7]), however the sponsor assessed the stakeholders likely to be affected by the TMZ change and the extent of those effects and invited them all to open and transparent engagement. The engagement extended over a period of 13 weeks, during which stakeholders have had the chance to express their concerns and engage in a transparent engagement.
- (3) The initial proposed [Ref. 30] solution has been refined following the engagement with the GA community, in order to support both military and civil operations requirements and ensure the most efficient use of the airspace.
- (4) All questions and concerns received during the Engagement period have been recorded in the Engagement Report [Ref. 5] and assessed by a SQEP panel to ensure the safest, flexible and most effective solution is implemented.
- (5) No safety issues have been identified during engagement with the airspace stakeholders for the implementation of a TMZ restriction over the Plymouth DA's plus class G corridor and Portland DA's during the loss of PSR coverage.
- (6) Considering the above, it is argued that Goal 2.1 Military and Civilian users of the TMZ airspace are involved in an open, fair and transparent engagement is met.

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6.4 GOAL 2.2 PLYMOUTH MIL ATC IS COMMITTED TO FUA

- (1) As evidenced by the controllers at Plymouth ATC, the volume of traffic which actively operates in the areas concerned appears to be extremely low. It is therefore anticipated that very few (if any), civil airspace users will suffer any additional inconvenience from the establishment of TMZ restriction over the airspace where the unit is responsible for ATC provision. However, there is no evidence available to prove the level of traffic over the area, as in Class G airspace, a flight plan is not required to be filled, and the aircraft is not mandated to communicate with the ATC unit.
- (2) The operations centre at Plymouth (Mil) is a well-resourced unit which already operates an effective pre-flight and in-flight process for civilian and military aircrew to obtain up-to-date information on activities and DA status. The Danger Area Activity Information Service (DAAIS) will continue to be provided throughout the period of the PSR works and beyond.
- (3) MOD is committed to continue to support the most efficient use of airspace through the provision of deconflictions services, DACS and LARS during the TMZ restriction.
- (4) Plymouth ATC has confirmed that all activities undertaken within the DAs are carried out safely in accordance with relevant civil legislation and military regulation [Ref. 8]. The DA airspace management is aligned with CAP 740, Appendix C, Military Airspace Management Policy [Ref. 29] as confirmed by Plymouth ATC [Ref. 8].
- (5) There are no safety issues recorded due to the flexible use of the class G DA areas within which Plymouth ATC is responsible for ATC provision.
- (6) Considering the above, it is assessed that Goal 2.2 Plymouth Mil ATC is committed to FUA is met.

6.5 GOAL 2.3 PLYMOUTH ATC UNIT IS COMMITTED TO FACILITATE A SAFE TRANSITION AND IMPLEMENTATION OF THE TMZ CHANGE

- (1) The Aviation Operating Duty Holder is accountable for the Risk to Life (RTL) to their aircrew, which also includes the risk of operating in Class G airspace with reduced surveillance capability. If no mitigating actions were taken for the impact of the absence of the PSR over the Plymouth and Portland areas, all the airspace users would be affected. Therefore, it was agreed that the best approach to the loss of PSR will be to temporarily change the impacted airspace.
- (2) All stakeholders involved in the airspace change (Aquila ATMS/NCHQ/Thales) met to discuss the Plymouth and Portland radar coverage. They assessed the impact of the reduced PSR coverage and, following the CAA guidance documents on restricted airspace use, unanimously agreed that implementing a Temporary TMZ was the

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appropriate and proportionate mechanism to mitigate the increased risk, whilst at the same time minimising the disruption to airspace users.

- (3) The workshop between airspace stakeholders resulted in the following:
- a. Implementation Timeline: a project implementation timeline has been created to highlight the ACP milestones to be achieved as per CAP 1616.
 - b. Actions List: a series of actions and their associated inter-dependencies were identified that would be required to successfully implement the temporary TMZ within the airspace within which Plymouth ATC is responsible for ATC provision.
- (4) CAP 1616 has been followed to ensure that the best solution is implemented to mitigate the temporary PSR absence. As stated within the ACP, CAP 1616 has been used as guideline in every step of the change proposal as follows:
- a. Proposal for a temporary airspace change – an initial meeting has been held via Skype between stakeholders (CAA/DAATM/Navy/Thales/Aquila) to discuss the proposed ACP solution [Ref. 22].
 - b. Statement of Need [Ref. 21].
 - c. 13 weeks of Engagement [Ref. 5].
 - d. TMZ proposed solution update after engagement with the GA community.
 - e. ACP development [Ref. 5].
 - f. CAA submission.
- (5) Plymouth ATC unit has committed to facilitate the TMZ transition and implementation by mitigating the reduced PSR coverage with a NOTAM TMZ restriction during the military training serials. Also, the Plymouth ATC staff will be refreshed on ATC operations without a PSR and the pilots will enhance See and Avoid procedures during training serials and Class G corridor crossing.
- (6) Considering the above, it is assessed that Goal 2.3 Plymouth ATC unit is committed to facilitate a safe transition and implementation of the TMZ change is met.
- 6.6 GOAL 2.4 ALL AIRSPACE USERS HAVE DIRECT RESPONSIBILITY FOR OPERATIONAL ACHIEVEMENT**
- (1) Direct responsibility for operational achievement rests with aviation stakeholders; however, Plymouth ATC is required to facilitate a safe transition and implementation of the TMZ's.

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- (2) Plymouth ATC is committed to FUA and offers a range of deconfliction services so that the safe separation is maintained through the airspace where the unit is responsible for ATC provision.
- (3) To ensure safe, efficient and expeditious air traffic, all military pilots follow the Standardised European Rules of the Air (SERA) as stated in RA 2307 [Ref. 31].
- (4) In class G airspace, aircraft may fly when and where they like, subject to a set of simple rules. Although there is no legal requirement to do so, many pilots are advised to notify Air Traffic Control of their presence and intentions.
- (5) Plymouth ATC is not responsible for pilots not following the Rules of the Air; however, the unit is committed to ensure that a safe separation is maintained and will contact the pilot if the minimum separation is infringed.
- (6) There are a couple of recorded airspace infringements in the past 5 years [Ref. 16], however no safety incidents have occurred.
- (7) Considering the above, it is assessed that Goal 2.4 All airspace users have direct responsibility for operational achievement is met.

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7 GOAL 3 ALL OPERATIONS DURING THE TMZ AIRSPACE CHANGE ARE ACCEPTABLY SAFE

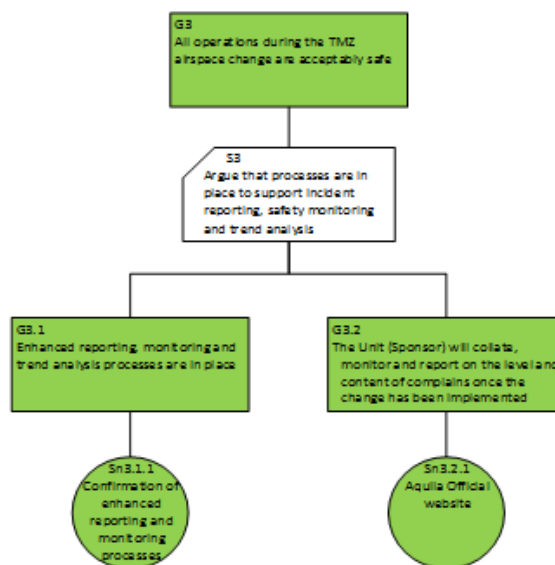


Figure 5 - Goal 3 All Operations during the TMZ airspace change are acceptably safe

- (1) Aquila are accountable for the technical services they provide; therefore, processes are in place to continuously monitor Marshall equipment performance and all other incidents reported as per Aquila Safety Procedure (ASP) 413 [Ref. 27].
- (2) NCHQ is accountable for the RtL to their aircrew, therefore there are procedures in place for incident reporting and safety monitoring as per RA 1410 [Ref. 28] and confirmed by Plymouth ATC [Ref. 8].

7.1 OBJECTIVE

- (1) The objective of Goal 3 is to demonstrate that both civilian and military operations during the TMZ change are acceptably safe. This claim is supported by the reporting, monitoring and trend analysis processes [Ref. 27] that are already in place and by the airspace change official email, especially created for airspace users' complaints or suggestions during the TMZ change. All complaints will be reported to the CAA as per their priority described within CAP 1616, Parts 1a and 1b Monitoring Complaints [Ref. 7].

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7.2 STRATEGY

- (1) The strategy of demonstrating Goal 3 is to argue that incident reporting, monitoring and trend analysis processes are in place to support a safe implementation of the temporary TMZ change. An airspace change contact email has been created and published on Aquila's Official website to facilitate airspace user's complaints and concerns during the temporary TMZ change.

7.3 GOAL 3.1 ENHANCED REPORTING, MONITORING AND TREND ANALYSIS PROCESSES ARE IN PLACE

- (1) There are procedures in place to support incident reporting, safety monitoring and trend analysis, therefore no other procedures are required to support this claim. Also, as confirmed by Plymouth ATC, the traffic levels are very low, therefore it is not sustainable to create other procedures for reporting, monitoring or trend analysis to satisfy this claim.
- (2) Plymouth ATC staff will report all occurrences via Air Safety Information Management System (ASIMS), that is a web-based application to support the reporting, management and analysis of Air Defence Occurrences, Investigations and Recommendations. These Air Defence Occurrences will be sent in the form of a DASOR to relevant safety stakeholders to be investigated. A trend analysis report will be created monthly for each site and equipment [Ref. 27].
- (3) Furthermore, Plymouth ATC staff will report all Marshall safety equipment related incidents, routine maintenance or other incidents that may affect ATM equipment availability through ASD as per Aquila 3480 procedure. The ASD operator will record the incident and immediately assigned it to the relevant Aquila department to be investigated and solutioned. The assigned ASD operator will monitor the work orders through completion.
- (4) Plymouth ATC and FOST personnel are fully trained to report all safety and other incidents via ASIMS and ASD as per Aquila 3480 procedure [Ref. 32].
- (5) Considering the above, it is assessed that Goal 3.1 Enhanced Reporting, Monitoring and trend analysis processes are in place is met.

7.4 GOAL 3.2 THE UNIT (SPONSOR) WILL COLLATE, MONITOR AND REPORT ON THE LEVEL AND CONTENT OF COMPLAINTS ONCE THE CHANGE HAS BEEN IMPLEMENTED

- (1) As stated in CAP 1616, the sponsor (Aquila) created a contact email airspacechange@aquila-atms.com for any concerns, suggestions and complaints during the temporary airspace change. Moreover, a set of FAQs [Ref. 33] and airspace change details have been published on the official Aquila website <https://www.aquila->

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atms.com/ to support the transition and the implementation of the temporary TMZ airspace change.

- (2) Aquila takes the responsibility to collate and monitor any complaints received during the temporary airspace change and report them to the CAA as per the Complaints Criteria described in CAP 1616 [Ref. 7].
- (3) Aquila shall address complaints that are not already covered within the FAQs and airspace change supporting published documents and will start an urgent investigation if the complaints meet the criteria described in CAP 1616, Monitoring Complaints [Ref. 7]:
 - a. Contains new information on environmental impacts that differs significantly from what was proposed or expected.
 - b. Contains evidence of significant health effects that are not being mitigated
 - c. Contains information relating to operational issues, including safety issues, that have not been previously been identified.
- (4) Considering the above, it is considered that Goal 3.2 The sponsor will collate, monitor and report on the level and content of complaints once the change has been implemented is met.

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8 CONCLUSION

- (1) The coverage provided by the Portland and Plymouth surveillance systems include DAs, Controlled Airspace, Class G and uncontrolled airspace where aircraft are not subject to mandatory compliance with ATC instructions and are only required to adhere to compulsory flight rules such as VFR, IFR and the Air Navigation Order. Aircraft can therefore enter, leave and transit the local airspace without a requirement to gain permission from Plymouth Mil ATC.
- (2) The in-service PSR has been proven to be unreliable due to persistent failures that impact radar services availability. Upgrading the PSR will mitigate the current frequent disruption of radar services and will enhance Plymouth Mil ATC operations. The SSR will be replaced before the PSR upgrade to assure improved SSR coverage and enhanced radar services to all transponder equipped traffic.
- (3) Safety is being appropriately addressed within the project with SQEP. Appropriate and proportionate safety processes are in place and the deliverables from these are implemented within the airspace change project and used to inform and direct the activities to mitigate identified safety risks.
- (4) The PSR absence does not degrade safety to an unacceptable level as risk mitigations have been implemented and the long-term benefits are greater than the change risk.
- (5) Plymouth ATC Unit is committed to FUA and takes the responsibility to accommodate a fair share of the airspace by activating the TMZ restriction over the Plymouth DA's and Portland DA's whenever the DAs are notified as active. The airspace corridor will be TMZ activated only if required.
- (6) A fair and transparent engagement has been held with the civilian and military users and all concerns and suggestions have been recorded in a Public Engagement report [Ref. 5].
- (7) The residual safety effects on increased controller workload and loss of PSR coverage remain foremost within the project stakeholder priorities. Analysis indicated that, for MOD operations, the risks can be managed; however, there is potential for a detrimental effect through reduced deconfliction and traffic service provided in Class G airspace due to PSR loss.

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A.1 ORA WORKSHEET

ID	Activity	Causes (Credible)	Hazard Description	Operational Impact Worst Credible (Pre-Mitigation)	Severity	Likelihood	Risk Class	Mitigation Activities (Control Measures)	Operational Impact Worst Credible (Post-Mitigation)	Severity	Likelihood	Risk Class
Activity 1 - Plymouth PSR removal												
					PRE-MITIGATION ASSESSMENT							
1-01	Primary Surveillance Radar Upgrade	Planned Maintenance - Loss of PSR	ATC separation service degraded - No PSR coverage available.	Loss of Separation or Mid-Air Collision against non-Transponder equipped Air Systems.	2	Probable	A	1. The PSR upgrade activities will be conducted in close liaison with Plymouth Mill ATC. 2. Enhanced SSR available to support transponder only operations. 3. Temporary Transponder Mandatory Zone (TMZ) airspace restriction proposed to the CAA. 4. Culdrose PSR will provide limited coverage for the western half of the Plymouth/Plymouth DAs, the class G corridor will not be covered at all. 5. Ground - Air, Air-Air and Ground-Ground Comms available. 6. NOTAM release/ AIRAC update to reflect the temporary loss of PSR and the TMZ restriction. 7. Standard Operating Procedures (SOPs) to be updated to reflect operations without a PSR in accordance with FOST Aviation Order 0317-SSR Alone Operations and RA 3241 - i.e no reduced lateral separation to use during the PSR removal. 8. VMC only, See and Avoid procedures available. 9. Military Operations will plan for a potential SSR failure and coordinate their actions to ensure safe separation is maintained throughout. 10. TCAS/TAS available on Cobham Falcons and other civilian aircrafts, however the RN Hawks are not equipped with a TCAS/TAS.	Loss of Separation or Mid Air Collision against non-Transponder equipped Air Systems	2	Remote	C

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Activity 2 - Portland PSR removal											
2-01	Primary Surveillance Radar Upgrade	Planned Maintenance - Loss of PSR	ATC separation service degraded - No PSR coverage available.	Loss of Separation or Mid Air Collision against non-Transponder equipped Air Systems	2	Probable	A	1. The PSR upgrade activities will be conducted in close liaison with Plymouth Mill ATC. 2. Enhanced SSR available at Portland to support transponder only operations. 3. Temporary Transponder Mandatory Zone (TMZ) airspace restriction proposed to the CAA. 4. Limited Plymouth and Yeovilton PSR/SSR Surveillance contingency to Portland Surveillance. 5. Ground - Air, Air-Air and Ground-Ground Comms available. 6. NOTAM release/ AIRAC update to reflect the temporary loss of PSR and the TMZ restriction. 7. Standard Operating Procedures (SOPs) to be updated to reflect operations without a PSR in accordance with FOST Aviation Order 0317-SSR Alone Operations and RA 3241 - i.e no reduced lateral separation to use during the PSR removal. 8. VMC only, See and Avoid procedures available. 9. Military Operations will plan for a potential SSR failure and coordinate their actions to ensure safe separation is maintained throughout. 10. TCAS/TAS available on Cobham Falcons and other civilian aircrafts, however the RN Hawks are not equipped with a TCAS/TAS. 11. Experience from the PSR removal at Plymouth Wembury Point.	Loss of Separation or Mid-Air Collision against non-Transponder equipped Air Systems	2	Remote

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Annex 4 - Aquila Environmental Assessment

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TEMPORARY AIRSPACE CHANGE PROPOSAL ENVIRONMENTAL IMPACT ASSESSMENT

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Role	Name	Date	Evidence/Signature
Author		30.11.2020	
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REFERENCE DOCUMENTS

Ref	Document Reference	Issue	Issued By	Document Title
[Ref. 1]	IDOC-0002010839	Issue 1	Aquila	South West Danger Areas - Wembury Point And Portland - Temporary Airspace Change Proposal (ACP-2019-16).
[Ref. 2]	INFO-0000007695	Issue 1	Aquila	BAE Watchman Upgrade Technical Requirements Specification (TRS)
[Ref. 3]	AQUILA 0244	6.0	Aquila	Health Safety and Environmental Manual
[Ref. 4]	AQUILA 0245	5	Aquila	Project Marshall Environmental Management Plan
[Ref. 5]	CAP 1616	January 2020	Civil Aviation Authority	Guidance on the regulatory process for changing the notified airspace design and planned and permanent redistribution of air traffic, and on providing airspace information

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GLOSSARY



Acronym.	Definition
ACP	Airspace Change Proposal
ATC	Air Traffic Control
ATCS	Air Traffic Control Service
ATM	Air Traffic Management
ATMS	Air Traffic Management Services
ATS	Air Traffic Service
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
EIA	Environmental Impact Assessment
EM	Electro Magnetic
FOST	Flag Operation Sea Training
FUA	Flexible Use of Airspace
GA	General Aviation
ICAO	International Civil Aviation Organisation
Mil	Military
MOD	Ministry of Defence
NCHQ	Navy Command Headquarters
PSR	Primary Surveillance Radar
SCXA	South Coast Exercise Areas
SQEP	Suitably Qualified and Experienced Personnel
SSR	Secondary Surveillance Radar
TMZ	Transponder Mandatory Zone
TS	Technical Service
UAV	Unmanned Air Vehicles
UK	United Kingdom
VMC	Visual Meteorological Conditions

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EXECUTIVE SUMMARY

- (1) The Temporary Airspace Change Proposal (ACP) [Ref. 1] sponsored by Aquila Air Traffic Management Services (Aquila ATMS) on behalf of the Ministry of Defence (MOD) Navy Command Headquarters (NCHQ) relates to the Danger Areas (DA) associated with the South Coast Exercise Areas (SCXAs) and the surrounding airspace utilising surveillance radar feeds from Plymouth and Portland.
- (2) The purpose of this Environmental Impact Assessment (EIA) is to provide a documented argument that the temporary Transponder Mandatory Zone (TMZ) change will not create unacceptable environmental impacts.
- (3) This EIA identifies, describes and evaluates the potential environmental impacts that may result from implementing the temporary TMZ change over Plymouth and Portland DAs and the airspace corridor between.
- (4) The environmental impact of the temporary TMZ's change is assessed to be neutral or at worst insignificant within the five environmental categories of noise, emissions, local air quality, tranquillity, and biodiversity.
- (5) The proposed temporary TMZ change is deemed to affect the traffic below 7000 ft, however because the impacted airspace is mostly located over the sea there are no consequences to National Trust Areas or to populated areas.

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1 INTRODUCTION

- (1) Civil Aviation Authority (CAA) Civil Aviation Policy (CAP) 1616 [Ref. 5] requires that environmental risk assessment and mitigations are conducted to an appropriate level to ensure that due consideration is given to all aspects of the provision of ATM and that complete arguments are established to demonstrate that the issue under consideration, the temporary planned loss of PSR, as well as the overall ATM functional system, will remain environmentally acceptable.
- (2) In accordance with CAP 1616, Aquila has conducted an environmental evaluation of the temporary TMZ change
- (3) The BAE Watchman PSR upgrade at Plymouth and Portland will enhance efficiency using new technology that assures better coverage as stated in the BAE Watchman Upgrade Technical Requirements Specification [Ref. 2].
- (4) Aquila manages its aspects and environmental impacts in accordance with AQUILA 0244 Health Safety and Environmental Manual [Ref. 3] and AQUILA 0245 Marshall Environmental Management Plan [Ref. 4].

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2 JUSTIFICATION FOR THE CHANGE

- (1) This Environmental Impact Assessment (EIA) report is to achieve regulatory compliance and maintain system performance with minimal additional adverse environmental impacts and availability whilst the Wembury Point and Portland surveillance equipment undergo planned PSR upgrade. The intent of the upgrade is to provide enhanced levels of safety to all airspace users operating in airspace within which Plymouth Mil is responsible for ATC provision.
- (2) The CAA requires Aquila ATMS to produce an environmental assessment based upon the anticipated Level of the airspace change proposal that will be required to resolve the change sponsor's airspace issue.
- (3) The requirements of this assessment are based upon the characteristics of the proposed solution and how it compares against the definitions for Level 1 as defined in CAP 1616 [Ref. 5].
- (4) The MOD is committed to the modernisation of the UK's ATM system, specifically that:
 - (a) All changes are justified on the grounds that they will directly reduce the risk, and/or contribute to the development of a fundamentally safer system or at the very least maintain current levels of safety whilst considering environmental impacts. In doing so the changes will be delivering benefits in other areas such as enhanced surveillance capabilities and better ATS provision.
 - (b) The correct level of resource is in place to ensure that the PSR upgrade will be completed in a timely manner and the operations without a PSR can be executed with minimal environmental impacts.
 - (c) The appropriate regulatory mechanisms are in place to implement of the PSR upgrade and minimise the environmental impacts of the enhanced new surveillance system.

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3 OPERATIONAL CONTEXT

- (1) This EIA report summarises the environmental activities undertaken to date to derive high level environmental management requirements for the temporary ACP, to ensure that it contributes to the achievement of an acceptable and manageable level of environmental impact and will continue to do so. Whilst the airspace change impacts the airspace users, the operations and the airspace design, this EIA only addresses requirements related to the temporary PSR absence.
- (2) The requirements for environmental assessment include a number of specific metrics that must be used in order to derive a quantitative output as set out in the CAP 1616 [Ref. 5] guidance. However, Aquila believes that a quantitative assessment using the metrics identified will result in no difference in the outputs for a metric (i.e. neither the pre- and post-implementation scenario, nor the forecast scenarios are affected by the change proposal for that metric), then a qualitative assessment of that impact may be used instead.
- (3) The SCXA's and the Class G airspace around them are used to conduct maritime and aviation operational training serials under the Command and Control of the Flag Officer Sea Training (FOST) located within the HMS Drake, Devonport Dockyard complex.
- (4) The fast jets aircraft involved in the training serials fly distinctly different profiles depending on precisely what threat is being simulated and the actual disposition of the ships being exercised at the time of the serial. The majority of these simulations involve 'straight-line' flights which attempt to represent a missile en-route to a target following release, but in Visual Meteorological Conditions (VMC) the tracks may make variations in their altitude / level which are representative of real world threats.
- (5) In certain serials some of the participating ships targeted may be out to sea, whilst others may be just leaving harbour when they are subject to these simulated attacks. Those aircraft targeting units which are in the North or central part of the Plymouth DA's will usually start vectoring towards them on a Westerly heading from a designated point, some 25 miles to the South of Portland Bill in the Southern half of the Portland DA block.
- (6) Simultaneously, those ships which are operating to the South of the Plymouth breakwaters may also be targeted and as an example this may require their threat simulation aircraft to commence their inbound run along a totally different axis with some perhaps starting from a designated starting point in the North West of the Portland DA's in the vicinity of Lyme Bay North DA (D012). During more advanced simulations fast jet traffic may also be required to simulate co-ordinated profiles starting from a position to the West of the Plymouth DA's in the vicinity of a point some 30nm South West of the Lizard Point headland. All these events require precisely co-ordinated departures from specified waypoints to ensure that the aircraft arrive at their target at precisely the right time to safely de-conflict and deliver the maximum training benefit from each sortie.
- (7) Following each run the aircraft will be required to re-position and perhaps loiter in the vicinity of their pre-briefed start datum before commencing the next co-ordinated serial at the specified time.

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- (8) The military flight profiles are subject to change to reflect the FOST training needs; therefore, no indefinite information is available. There will be no changes to military training operations due to the temporary loss of PSR.
- (9) The Air Traffic Control Services (ATCS) for both military and civil airspace users are provided from Plymouth Mil ATC that operates 0800-1700 Monday to Thursday and 0800-1400 on Fridays.

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4 THE ENVIRONMENTAL IMPACT ASSESSMENT

4.1 OVERVIEW

- (1) International regulations and standards require that any change being introduced that may have an impact on the ATS is subject to an Environmental Impact Assessment identification and risk assessment / risk mitigation process to support its safe introduction in operation.
- (2) The environmental aspects and impacts identification assessment process adopted here, follows the approach defined in CAP1616 [Ref. 5] Appendix B.
- (3) It has been identified that air traffic will be both above and below 7000ft and that, although the key requirement is for the military, there may be consequential effects on other General Airspace users.
- (4) Therefore, in accordance with CAP 1616 [Ref. 5] Appendix B, this environmental assessment is to class M requirements, but as it must take into account airspace users above and below 7000ft, categories M1 and M2 have been assessed. Categories M1 and M2 require assessment in accordance with CAP 1616 [Ref. 5], level 1 (M1) for air traffic below 7000ft, and Level 2 (M2) for air traffic above 7000ft.
- (5) Accepting that M1 is more stringent than M2, this assessment considers CAP1616 Appendix B, M1 criteria.
- (6) Assessments are carried out as follows:
 - (a) Noise,
 - (b) CO₂ emissions,
 - (c) Local Air quality for changes below 1000ft,
 - (d) Tranquillity,
 - (e) Biodiversity
- (7) In considering the impact criteria above, it is intended that traffic should be allowed to continue to operate in the areas concerned as normally as possible.
- (8) In accordance with Para 3.2 of the Radio Mandatory Zone (RMZ)/ TMZ Policy Document (which states that "Provisions should be made for non-compliant aircraft to gain access to an RMZ or TMZ where legitimate requirement exists"), a process will exist to allow any non-transpondering traffic to be accommodated within the proposed TMZ's (subject to other activity).
- (9) To support the assessments, there is little or no 'quantitative' data available to support the establishment of accurate estimates for the GA traffic volumes using the airspace concerned.
- (10) There is no historical or regulatory requirement for any legacy data records that exist to include evidence of either the number of tracks which have been subject to refused entry, re-route or delay. Nor are details of the circumstances of any refusal or the diversion routes taken likely to be recorded.

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- (11) Without access to the necessary statistics it is not possible to 'reverse engineer' the additional track mileages and generate a retrospective estimation which might inform a forward looking estimate of any 'consequential' fuel burns, CO₂ emissions or other environmental impacts.
- (12) In this case it has been necessary for 'qualitative' statements made by experienced aircrew and controllers at Plymouth (Mil) who have been heavily involved in the SW ACP Working Group discussions throughout the proposal's development to be considered as evidence. In broad terms, this anecdotal evidence points to the GA traffic volumes involved being "extremely low." The following Assessments reflect that position.

4.2 ASSESSMENTS

4.2.1 Noise

- (1) Based on the CAP 1616 proposed methodology, the lack of historical data, and that GA traffic volumes are unquantifiable but predicted to be low, qualitatively, additional noise due to the TMZ's is assumed to be extremely low.

4.2.2 CO₂ Emissions

- (1) Based on the CAP 1616 proposed methodology, the lack of historical data, and that GA traffic volumes are unquantifiable but predicted to be low, qualitatively, additional CO₂ emissions due to the TMZ's is assumed to be extremely low.

4.2.3 Local air quality

- (1) Based on the CAP 1616 proposed methodology, the lack of historical data, and that GA traffic volumes are unquantifiable but predicted to be low, qualitatively, any adverse effects on local air quality as a result of the TMZ's is assumed to be extremely low.

4.2.4 Tranquillity

- (1) Based on the CAP 1616 proposed methodology, the lack of historical data, and that GA traffic volumes are unquantifiable but predicted to be low, qualitatively, any adverse effects on tranquillity a result of the TMZ's is assumed to be extremely low.

4.2.5 Biodiversity

- (1) Based on the CAP 1616 proposed methodology, the lack of historical data, and that GA traffic volumes are unquantifiable but predicted to be low, qualitatively, any adverse effects on local biodiversity a result of the TMZ's is assumed to be extremely low.

5 SPECIAL OPERATING PROCEDURES AND MITIGATIONS

- (1) No special operating procedures or mitigations would be required to mitigate environmental impacts to airspace, noise, safety, biodiversity, or health and safety.

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6 CONCLUSION

- (1) Environmental management is being appropriately addressed within the project with SQEP. Appropriate and proportionate processes are in place and the deliverables from these are implemented within the airspace change project and used to inform and direct the activities to mitigate identified environmental risk.
- (2) The environmental impact of the temporary TMZ's change is assessed to be neutral or at worst insignificant within the five environmental categories of noise, emissions, local air quality, tranquillity, and biodiversity.
- (3) The proposed temporary TMZ change is deemed to affect the traffic below 7000 ft, however because the impacted airspace is mostly located over the sea there are no consequences to National Trust Areas or to populated areas.

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