

QINETIQ



ACP-2021-37

SPACEPORT 1 AIRSPACE
CHANGE PROPOSAL
TEMPORARY DANGER AREA
AIRSPACE PROPOSAL
REPORT

18 November 2021

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Administration Page

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Executive Summary

This report has undergone several iterations due to three changes to the date when the Temporary Danger Area (TDA) for the Spaceport 1 (SP-1) vertical launch rocket site at Scolpaig is required namely: September 2021; November 2021; and now June 2022. Furthermore, the TDA eastern boundary was expanded in August 2021, (following extensive safety evaluation) and a second round of formal engagement was conducted. Therefore, some stakeholders have responded more than once due to new timings being affected by other airspace considerations.

The TDA at Scolpaig is required to enable sub-orbital sounding rocket launches from Scolpaig into the existing EG D701 Danger Areas. This temporary airspace change, a relatively small volume of airspace over the Spaceport-1 (SP-1) site, provides the necessary segregation of hazardous activities around the launch site. Linking the TDA to the D701 Danger Areas enables a variety of sounding rockets to be launched into a safe environment of pre-defined dimensions with existing proven airspace management, surveillance and clear range procedures in place. Furthermore, use of D701 reduces the need to design a completely new modular structure for relatively few launches. Moreover, any such new structure would not have the benefit of being integrated into the existing airspace management and flight planning systems.

Despite the small size of the airspace and location, in an area of low populous with very little aviation activity below 7000ft, the Sponsor has undertaken engagement activities with a wide number of aviation stakeholders. When considering stakeholder engagement, the Sponsor recognised that the small fillet of airspace required for the TDA was only part of the story and the subsequent activation of the necessary D701 Danger Areas in support of SP-1 operations had a much wider effect and impact on some stakeholders; in particular Air Navigation Service Providers (ANSPs), North Atlantic (NAT) Airline Operators (AOs); and, the Ministry of Defence (MOD).

Due to COVID restrictions, the change Sponsor conducted all engagement by email, telephone and three WebEx events. The airspace change Sponsor is fully conversant with the issues associated with activation of the D701 complex and was able to predict and mitigate some of the feedback in advance. Due to this and early engagement with key stakeholders, it was considered appropriate to scale the engagement timeline accordingly.

The engagement process revealed that the size of the TDA fillet of airspace was not of concern to any of the stakeholders even after this was modified and extended slightly in August 2021; the most important factor was the subsequent use of the D701 areas. The main ANSP challenged D701 use, concluding that this was not the most efficient use of airspace and proffered that a standalone bespoke airspace design solution would be more effective, requiring less airspace. The use of the D701 areas and existing letters of agreement was also disputed based on the fact the airspace change for D701 and subsequent agreements approved in 2014, was for MOD activity only, not commercial use. MOD raised concern regarding deconfliction and prioritisation of SP-1 activities against MOD use of D701, as well as the commercial processes that would enable SP-1 to operate in D701 without any MOD liability. A series of WebEx meetings were held to fully understand the concerns raised by these key stakeholders and to establish a way forward. Although general agreement was reached on how to address the MOD issues, not all the ANSP areas could be addressed, in particular those that involved regulatory or government policy decisions. The Sponsor carefully evaluated the suggestion of a bespoke airspace TDA design solution rather than using the existing D701 areas but concluded that the benefits of the latter far outweighed any potential reduction in airspace volume required for sounding rockets. The Sponsor acknowledges that existing LoAs would need to be refined to reflect



appropriate signatories and SP-1 activities in D701, but proposes that the mapping across of current Airspace Management (ASM) procedures is the safest and most efficient modus operandi that should be adopted.

Another concern raised was the short lead in time from engagement to TDA implementation; both the September and November timelines were a challenge to ANSPs and airspace managers alike and these concerns were reflected in several of the stakeholder's comments. It is considered that the revised timeline for the TDA for June 2022, alleviates many of these concerns and will allow the necessary processes and procedures to be implemented in time.

The remainder of the stakeholders generally focussed on the assurance that access to the TDA and adjacent D701 areas would be enabled in the same fashion as the current access to D701. The Sponsor recognised that the detailed operational considerations associated with SP-1 activities (and limitations imposed) were crucial in tackling the various stakeholder's worries. These considerations are captured in the report accordingly along with the details of stakeholder engagement, feedback and resolution of concerns highlighted.



1 Introduction

The report is compiled as part of the Airspace Change Proposal (ACP) process prescribed in Civil Aviation Publication (CAP) 1616 [A] for temporary airspace changes and the Civil Aviation Authority (CAA) policy letter for Danger Areas (DAs) and Temporary Danger Areas (TDAs) [B]. ACP-2021-37 has been commenced in order to establish segregated airspace in the form of a TDA around the Spaceport 1 (SP-1) launch site on the Outer Hebrides. QinetiQ is the Sponsor for the airspace change process.

The Spaceport 1 (SP-1) consortium led by the local council, Comhairle nan Eilean Siar, comprising Highlands & Islands Enterprises (HIE), private investors and QinetiQ, are developing, subject to planning consent, a vertical launch spaceport located at Scolpaig, North Uist. This site is being developed as an opportunity in support of the UK government's spaceflight programme, 'LaunchUK', which aspires to grow the UK's global market share of the space sector to 10% by 2030 and be at the forefront of small satellite launch capability.

A permanent airspace change for SP-1 is in progress (ACP-2021-12 refers) however, this is unlikely to be implemented before mid-2023 and there is a commercial demand to launch a limited number of sub-orbital sounding rockets in 2022. The first launch was planned for September 2021 but it was evident this timeline was probably too ambitious for a number of reasons including the concerns of stakeholders. The first launch was subsequently postponed to November 2021 however, this was further delayed due to a number of factors not all related to the ACP process. The first launch is currently planned for 13th June 2022, with a further four launches thereafter all within the 90 day period. It is expected that demand for launches will continue beyond the 90 day TDA cycle and this requirement will be the subject of discussions with the CAA Manager Airspace Regulation (Mgr AR).

The intention is to launch a variety of different sounding rockets from the SP-1 site into the existing Hebrides Range Danger Areas, EG¹ D701. Utilising the existing D701 areas enables many different sounding rocket types, with varying capabilities, to be launched and contained safely within existing segregated airspace. Activation of the TDA and subsequent D701 areas will be by Notice To Airman (NOTAM) using the extant processes and procedures pertaining to D701; (the TDA will effectively become an extension to D701 using exactly the same notification, control and Range clearance procedures, subject to ongoing discussions with the MOD and NATS).

The SP-1 site at Scolpaig currently lies beneath Class G unregulated airspace but is only a few miles from the D701 complex. As sounding rocket launches will pose a risk to other airspace users, there is a requirement to safely segregate such activity to minimise risk. Segregation can be achieved by establishing a small fillet of airspace between the existing D701 and D704 Danger Areas as shown in Figure 1. Note; this design was updated on 19 August 2021 from that initially proposed in May 2021, following additional safety analysis.

¹ EG is the Intentional Civil Aviation Organisation (ICAO) prefix for UK reserved/segregated airspace with the 'D' designating a Danger Area

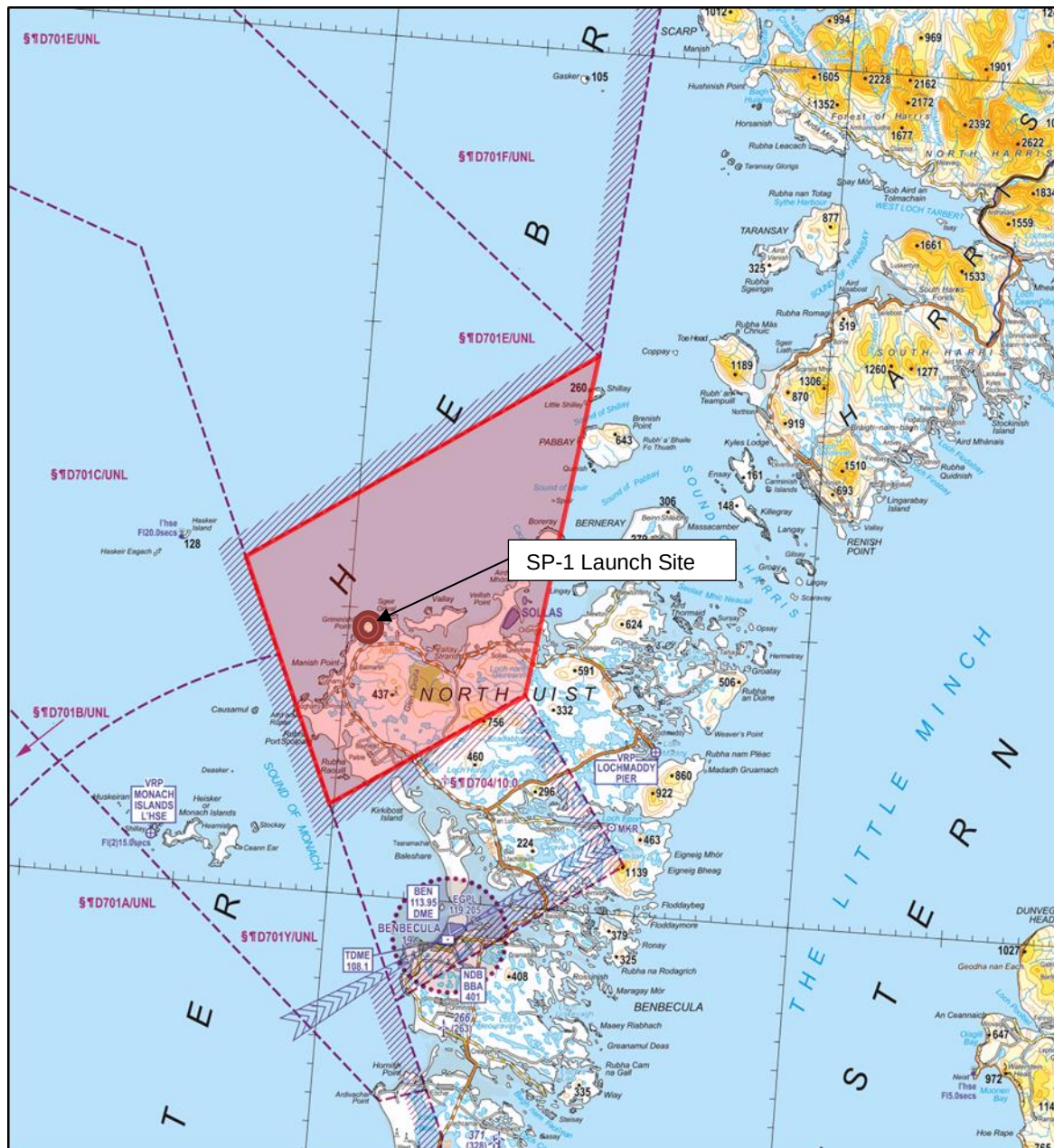


Figure 1: Revised Proposed TDA over SP-1 Launch Site Necessary for Sounding Rocket Launch into the Hebrides Range D701

1.1 Purpose

The purpose of this report is to demonstrate that the Sponsor has followed due process as defined in CAP 1616 [A] and CAA policy letter for DAs and TDAs [B], for a temporary airspace change; demonstrating that the appropriate level of stakeholder engagement and safety analysis has been undertaken.



1.2 Report Structure

The report is split into the following sections

- Section 1 – Introduction:
 - Purpose
 - Structure
- Section 2 – TDA Design
 - Safety Analysis
 - TDA Design Options
- Section 3 – Stakeholder Engagement:
 - Stakeholder Identification
 - Engagement Methods
 - Engagement Chronology
 - Summary of Stakeholder Feedback
 - SP-1 Operational Considerations & Design Following Feedback
 - Final TDA Design Post Stakeholder Feedback
- Section 4 – Next Steps
- Section 5 – Glossary
- Section 6 - References
- Appendices
 - A – List of Stakeholders
 - B – Stakeholder Feedback Evidence

2 Safety Analysis Affecting TDA Design

2.1 Safety Analysis – Factors Affecting Determination of TDA Parameters

There are two generic risks to other airspace users from launch activities:

- Collision with a sounding rocket during a nominal flight profile – this is where the sounding rocket flight is following the intended path; and,
- Collision with all or parts of a sounding rocket that has failed – this is where a sounding rocket fails to follow the intended flight path and/or fails explosively on the launch pad or in flight.

Clearly, in both cases, it is vital that risk is managed such other airspace users are not exposed to additional hazards associated with the activities, and the most effective way to achieve this is to segregate the sounding rockets from other airspace users through the establishment of a TDA.

When designing the dimensions of the TDA both generic risks are considered. The shape of the TDA is determined by these risks but also by the proximity of the existing Danger Areas, D701 and D704. The aim of the TDA is to provide segregated airspace connectivity to the D701 complex to the north and west. Any hazards existing beyond the western or northern boundary of the TDA can be safely segregated by activating the appropriate D701 areas. It is not intended to use D704 to the south however, the boundary of D704 provides a convenient demarcation line for the southern boundary of the TDA; this boundary line is more than adequate to contain all credible hazards as depicted in Figure 3. Therefore, the line of most significant interest is the eastern boundary of the TDA. Initial analysis indicated that this line could be drawn between the point where D701E joins with D701F to the point where D704 joins D701Y; the initial TDA design. However, following significant safety analysis of



several sounding rocket types and considering the worst case (an 11m rocket), it became apparent that the original TDA design might be too small to contain all credible hazards. It was therefore decided to expand the TDA airspace to the east as depicted in Figure 1. Although this airspace is probably larger than is needed, it is considered the safest option and the simplest in terms of airspace management (using pre-existing Aeronautical Data Quality (ADQ) points).

The following safety analysis is based upon the experience of QinetiQ in supporting numerous large area weapons firings on the MOD Hebrides Range, including the 12 suborbital rocket launches conducted there since 2015. This allows an assessment of what safety areas are achievable in practice. For the purpose of this assessment, QinetiQ are considering the maximum TDA area that might reasonably be required for a launch. It should be noted that the ground safety footprint also becomes a limiting factor in rocket size/capability and the TDA will contain all credible hazards within the maximum ground safety footprint available.

2.1.1 Collision with a sounding rocket during a nominal flight profile

Nominal flight profiles include all of the numerous possible minor variations to the intended flight profile, all of which would be considered to meet the mission parameters.

Unguided Sounding Rockets - Unguided sounding rockets adopt an initial flight path determined by the launch tower arrangement. In all cases the launch tower will have an elevation (from horizontal) of 88° or less. Depending on the sounding rocket boost phase characteristics, it may remain essentially on the initial elevation angle for a short period of time but will be progressively and increasingly affected by gravity, having the effect of continuously reducing the elevation angle during the flight. Therefore, as all launch azimuths are west or northwest, no point on a nominal flight path can be further east than the position of the launch pad.

Guided Sounding Rockets – For a guided sounding rocket, the launch may be canted to the west as for the unguided rockets; however, it is expected that in the majority of cases, the sounding rocket will be launched vertically (e.g. an elevation from horizontal of 90°).

In either case, the guided sounding rocket will assess their current flight parameters, compare these to the planned flight parameters and apply corrections in order to achieve the planned flight profile.

Wind drift effects for nominal launch flight profiles:

During flight of non-exo-atmospheric projectiles, both powered and unpowered, it is possible for the trajectory to be affected by the presence of wind. A controlled projectile will be designed to compensate for deviations in planned trajectories caused by external influences, but it is possible for wind effects to cause an uncontrolled projectile to exit from the TDA.

The effect of wind on projectile trajectories is likely to be most significant when its forward speed is at its lowest, such as at ballistic apogee with a broadside wind or, during a near vertical launch. The amount of deviation caused will be dependent on, amongst other things:

- The projectile's incident airflow direction and speed (a combination of projectile airspeed and direction and wind speed and direction);
- Air pressure; and,
- A coefficient, or aerodynamic derivative, known as the Longitudinal Moment (also known as Yaw Moment), which depends on the projectile's physical configuration.



Furthermore, if the speed of final descent is controlled by parachute, then once again the trajectory of that descent will be significantly affected by wind speed and direction.

The effects of wind on all phases of flight will be considered during the mission safety analysis for each launch. The analysis may show that under certain wind conditions, there will be an unacceptable probability of the projectile exiting the TDA. Wind conditions would be assessed on the day of launch and the launch delayed or aborted if the calculated safety limits were exceeded. Therefore, for any launch, the probability of wind related excursion from the TDA will be reduced to be as low as reasonably possible to ensure that airspace users outside the TDA will not be exposed to any unacceptable risk.

Conclusion for nominal launches:

The main risk to other airspace users is therefore determined to be downrange, which is a sector from the southwest to the northwest of the launch pad location. The TDA, by connecting to the D701 Danger Areas, ensures adequate segregated airspace to contain all credible hazards. As the trajectory of the rockets will always be in this westerly sector, the airspace to the east of the launch pad does not need to be as big and only needs to be of sufficient volume to contain a rocket vehicle failure as described in 2.1.2.

2.1.2 Collision with all or parts of a sounding rocket that has failed

A failed or “off-nominal” sounding rocket is any one where the rocket fails to complete a complete nominal flight profile.

There are several possible failure scenarios, each of which could cause a hazard to an airspace user. Considering these in turn we have:

- A sounding rocket exploding on the launch pad;
- A sounding rocket exploding during an otherwise nominal flight;
- A sounding rocket deviating from the nominal flightpath and exploding; and,
- A sounding rocket deviating from the nominal flightpath and remaining in one piece.

Explosions may be due to a failure or due to flight termination; however, the cause isn't critical to this assessment.

Scenario 1: Sounding Rocket Exploding on the Launch Pad

To examine the risk associated with a sounding rocket exploding on the launch pad, the largest sounding rocket anticipated to be launched from SP-1 may be considered as the worst case. This rocket is an 11 metre guided vehicle with a propellant mass of circa 1.5 tons. Utilising the United States (US) Federal Aviation Authority (FAA) and US Department of Defence (DoD) methodologies for calculating Hazardous Fragment Distances (HFD), this sounding rocket attracts a safety zone of approximately 426m radius from the pad as depicted in Figure 2.

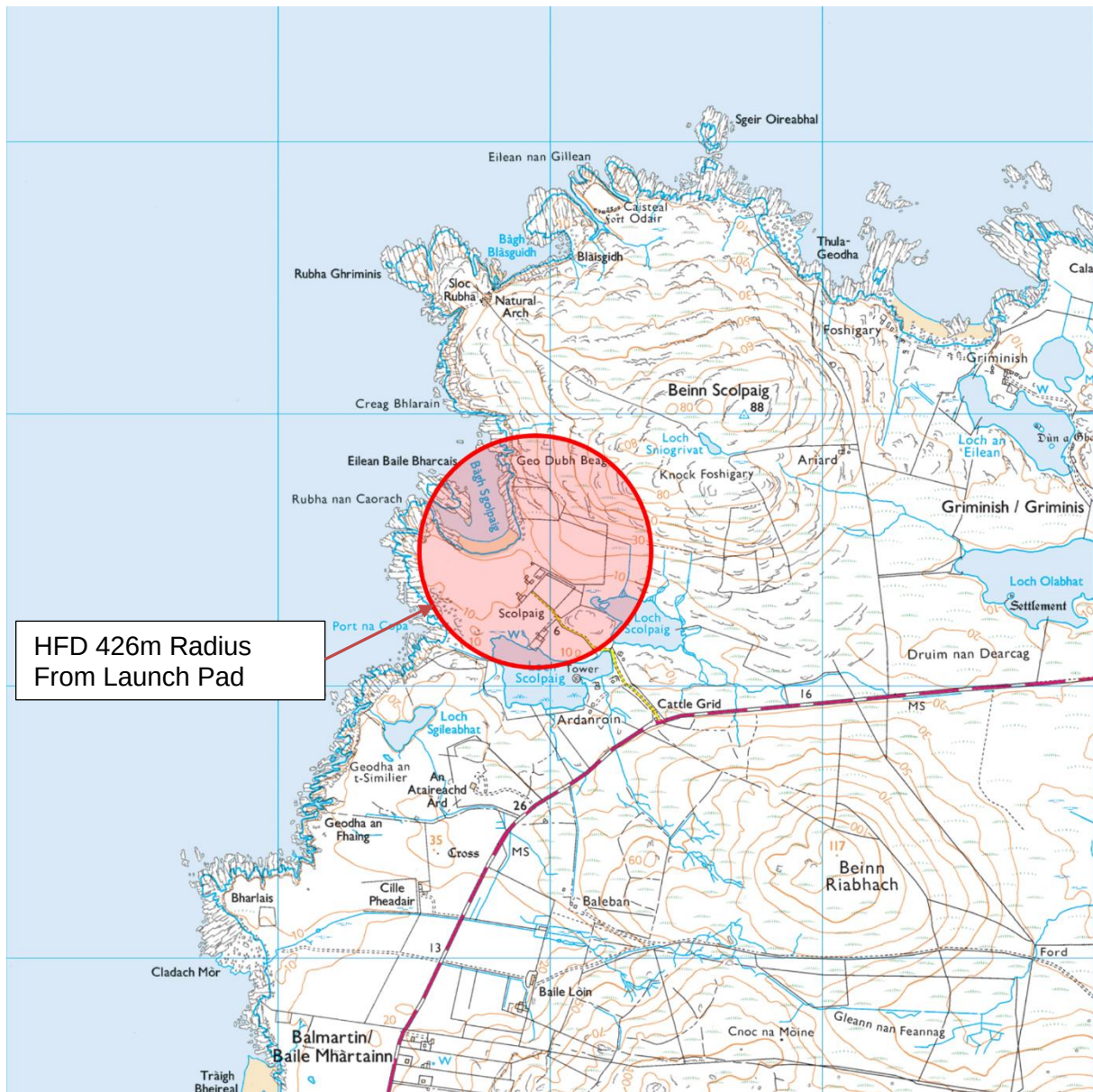


Figure 2: Diagram Depicting Indicative HFD Following Catastrophic Sounding Rocket Failure on the Launch Pad

Scenario 2: Sounding Rocket Exploding During the Ascent Phase

When considering a sounding rocket exploding during the ascent phase the normal safety approach is to model the dispersion of fragments for a rocket exploding at a series of points during the boost phase, for a variety of wind/atmospheric conditions. The analysis used for this scenario is the worst case rocket, on the planned flightpath, which has been modelled for explosive failure at 10, 20 and 30 seconds, after launch during the 'worst case wind conditions' (considered to be the maximum wind velocity that any rocket can be launched in).

This debris field analysis was then cross referenced with the sounding rocket safety data provided for use on the MOD Hebrides Range; both were similar. The comparison of data provided confidence that the maximum dispersion of debris following catastrophic failure after launch was no more than 6.1km

from the launch pad in any direction during the worst case wind conditions as shown in *Figure 3*. It should be noted that the ground safety footprint might preclude rockets being launched in certain wind conditions where this causes debris to fall over the land areas. Therefore, the hazard to both the east and south of the launch pad could be significantly reduced.

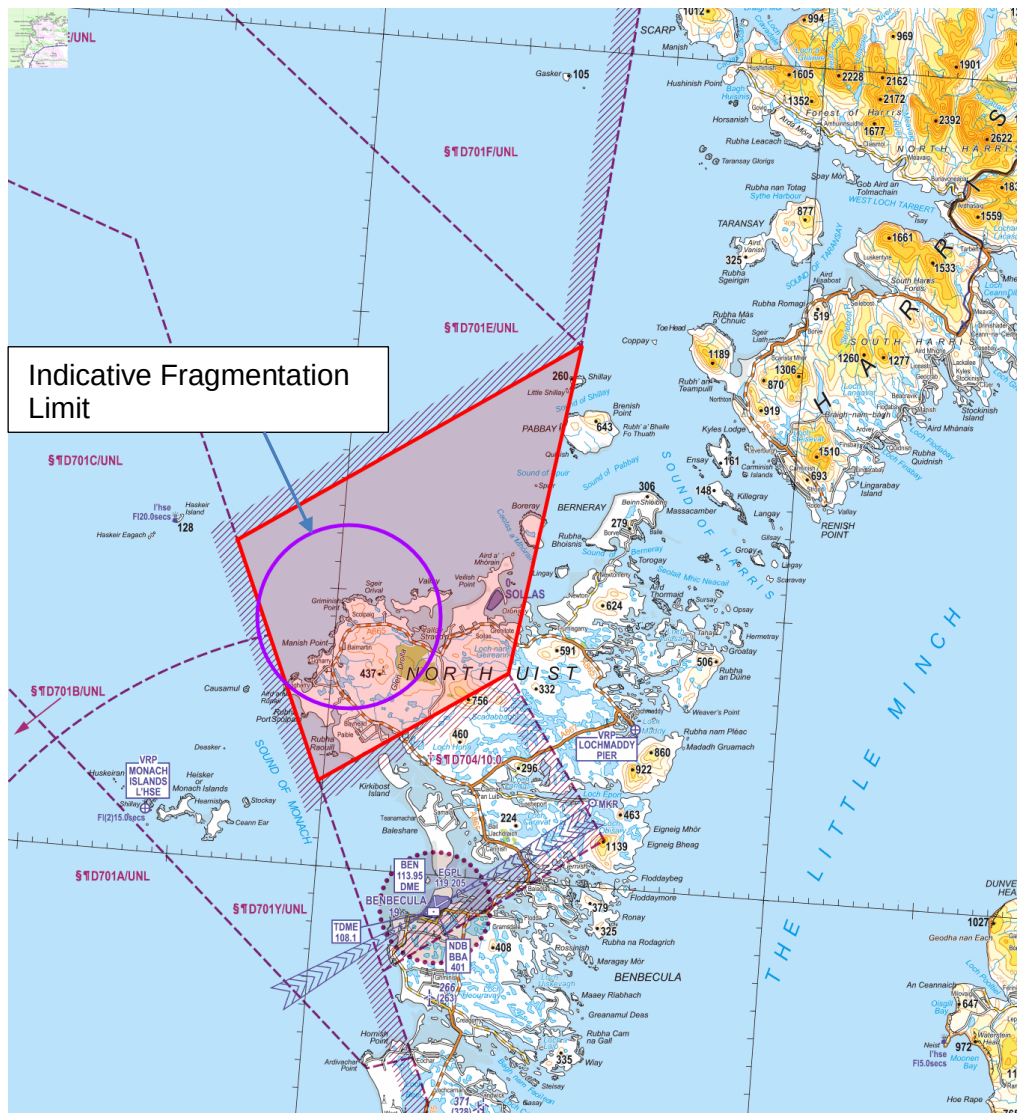


Figure 3 : Indicative Fragmentation Limit Worst Case Wind Conditions From Any Direction

Scenario 3: Sounding Rocket Deviating from the Planned Flightpath due to a Failure, and Exploding either due to a Failure or due to Flight Termination

This situation combines two types of failure namely the sounding rocket deviating from its nominal flightpath and either breaking up (due to a sudden dynamic deviation causing structural failure), or is flight terminated (explosively) having deviated from the planned flight path by a predetermined distance and/or for a predetermined time.



These distances and times will be launcher specific and all the relevant data will be evaluated for each launch on a case-by-case basis. However, discussions with operators and the experience gathered on the MOD Hebrides Range supports using a time of 5 seconds between deviation beginning and the initiation of flight termination.

Due to the nature of sub-orbital launches, the rockets used are either unguided or, for guided systems, are capable of course correction, they should not however be considered manoeuvrable. The effect is that while the deviation flightpath may over time result in a significant positional change from that planned, in 5 seconds the deviation from the nominal flightpath will be relatively small.

Sounding rockets, even guided versions, are designed to withstand thrust along the axis of the rocket. Note that despite the name, guided sounding rockets are only capable of gentle course correction (low g manoeuvres). While there is some inherent capability to withstand off-axis thrust, the drive to minimise vehicle weight and their pencil-like shape makes manoeuvrability very limited. Sudden changes of direction will therefore cause structural failure of the vehicle and it will break up rather than achieving a significant deviation.

Low g deviations at very low speed, close to launch, may result in a more significant change of direction in a short time; however, the distance travelled will be small due to the low speed. As the speed rises, low g manoeuvres will inherently move the rocket less and less distance off its flightpath within the flight termination time allowed. This is one reason why unguided sounding rockets use launch rails – lateral deviation is constrained until speed has risen significantly.

The result is that this scenario does not significantly change the proposed TDA as the debris would still be contained within the 6.1km area from the launch pad or, will be sufficient distance down range from the launch pad that the debris will be contained in the D701 Danger Areas.

Scenario 4: Sounding Rocket Deviating from the Planned Flightpath, due to a Failure, and remaining Unitary

Unguided sounding rockets all launch from rails pointing downrange. Barring catastrophic failure early in flight, covered in scenarios 1 and 2, all of their hazards are inherently constrained to a downrange footprint. Even in failure cases such as the loss of a fin, the rocket will break up downrange. There is therefore, no credible risk from an unguided sounding rocket to airspace users outside the TDA.

It is expected that guided rockets will always be fitted with flight termination systems to mitigate the hazard created by their inherent capability to achieve a slow and steady deviation from their nominal trajectory (given that they enter an appropriate failure mode). Therefore, the flight termination system becomes an integral part of the overall safety analysis process associated with guided rockets. Each guided rocket system will also be extensively tested before use and will need to meet specific legislative requirements associated with the rocket operator's licence so the risk of failure is reduced. Similarly, the flight termination system will undergo extensive testing and pre-flight checks; based on experience of utilising such systems at QinetiQ managed Ranges, failure of these systems is considered a low probability event. The flight termination system may be initiated by the guidance system and/or by ground control. While there might be a trigger from the flight control computer to the flight termination system, these are required to be separate systems and therefore the failure of both will require independent simultaneous failures to prevent operation. The chance of these failures occurring at the same time reduces the probability of an unterminated deviating rocket leaving segregated airspace, to incredibly low.



2.2 Initial TDA Options

During the detailed safety analysis and comparison of data between sounding rockets and rockets already fired on the Hebrides Range, it was evident that the design at Figure 1 provided more than adequate segregated airspace to ensure all credible hazards associated with sounding rocket launch were contained. It has been assessed that the eastern boundary could run parallel to the western boundary; however, it was proposed that it would be more useful to link the TDA to the already used co-ordinates at the junction of D701E and D701F. This ensures all the TDA co-ordinates are using existing ADQ points.

It is notable that no respondent registered concern about with the size of the proposed TDA for either the original design or the expanded final solution as depicted at Figure 1. It was acknowledged that a single straight line between two known ADQ points was the simplest to understand and promulgate. Furthermore, given the associated D701 areas that would always need to be activated regardless of sounding rocket range (D701C and Y or, D701 C and E); it is considered that there would be no benefit in having a smaller TDA available given the 'blocking' effect of the adjacent D701 areas.

3 Stakeholder Engagement

3.1 Stakeholder Identification

Due to the location of the SP-1 site and relatively small volume of temporary airspace being created under the ACP, it was considered that a reduced targeted key stakeholder engagement would be necessary. In the interests of transparency, the Sponsor did include several National Air Traffic Management Advisory Committee (NATMAC) members although as expected, the responses were very limited.

Although the TDA airspace is of small volume, the Sponsor identified that the activation of this airspace enabled uninterrupted segregated airspace connectivity to all the D701 Danger Areas and it was the activation of these areas, (outside normal MOD use), that would cause the greatest impact on other airspace stakeholders. Based on the Sponsor's wide knowledge, experience and understanding of the design, operating procedures and Letters of Agreement (LoA) pertaining to the Hebrides Range, it was fairly straightforward identifying the key stakeholders (utilising information used for the Hebrides Range ACP in 2014 and current regular engagement with stakeholders affected by Range activities). It was noted at the CAA assessment meeting that some of these stakeholders operated helicopters from a number of different companies; the CAA forwarded a comprehensive list of these companies to the Sponsor who was able to add them to the engagement list. Following the WebEx meetings and subsequent update of the TDA it was also decided to engage with the UK Airspace Management Cell (AMC) given their functional input into the D701 complex.

It is acknowledged that the TDA will affect aircraft operating below 7000ft above ground level. However, local knowledge gained from Range operations and discussions with Benbecula airport suggest little or no GA traffic other than the helicopter operators contacted as detailed at Appendix [6A]. Furthermore, the only scheduled flights operating in this height band are Loganair who have stated the TDA will not affect them or necessitate any change in flight profiles. Therefore, it has been concluded that there will be no change in flight profiles below 7000ft that will affect the few local residents who live in the vicinity.

3.2 Engagement Methods

Due to COVID restrictions, the main engagement method was through email correspondence and telephone calls, the latter were evidenced through a follow up email confirming discussions and agreements. WebEx meetings were held, firstly with MOD to address the many points raised in their response and secondly, with NATS where it was deemed necessary to have two such events, the latter with the CAA in attendance.

3.3 Engagement chronology

The following list of main stakeholders at [Table 1] were contacted in advance of the CAA formal assessment meeting in the interests of expediency necessary because of the challenging original timeline of the TDA process and submission of data to meet the Aeronautical Information Publication (AIP) Supplement (SUPP) publication cycle, for a proposed September launch:

Stakeholder	Engagement Method	Date Sent	Remarks
Highlands and Islands Airports Ltd (HIAL) Benbecula, Barra and Stornoway	Email and Power Point Presentation (PPP) sent detailing basic TDA requirements	9 Mar 21	Initial engagement also included information on permanent airspace change and requested local aviation stakeholder contact details
	Email exchange	11 Mar 21	
	Email exchange	17 Mar 21	
	Email with PPP requesting formal response	5 May 21	Response received
	Letter detailing updated TDA	19 Aug 21	No additional comments
Loganair	Email as sent to Benbecula 9 Mar 21	17 Mar 21	Benbecula forwarded details of SP-1 to Loganair
	Email exchange	18 Mar 21	Introduction and details of At Sea
	Email with PPP requesting formal response	5 May 21	Demonstration/Formidable Shield (ASD/FS21) plus SP-1
	Letter detailing updated TDA	19 Aug 21	No response
Northern Lighthouse Board (NLB)	Email with PPP requesting formal response	5 May 21	Response received
	Letter detailing updated TDA	19 Aug 21	No response
MOD DAATM	Email with PPP requesting formal response	5 May 21	
	WebEx	8 Jun 21	Discussion MOD response
	Letter detailing updated TDA	19 Aug 21	No additional comments

MOD DAAM	Email with PPP requesting formal response	5 May 21	
	Telephone discussion	11 May 21	Response recorded
	Letter detailing updated TDA	19 Aug 21	No additional comments
NATS	Email with PPP requesting formal response	5 May 21	
	WebEx	15 Jun 21	Discussions on NATS response, issues and points of clarification.
	WebEx	7 Jul 21	Further discussion with CAA in attendance
	Letter detailing updated TDA	19 Aug 21	Detailed additional comments received
	Email referencing delay to 2022	8 Sep 21	

Table 1: List of Key Stakeholder Engagement Prior to CAA Formal Assessment Meeting

In addition, the following targeted stakeholder engagement at [Table 2] was conducted post the CAA formal assessment meeting:

Stakeholder	Engagement Details	Date Sent	Remarks
Highlands and Islands Airports Ltd (HIAL) Head Office	Email sent detailing basic airspace requirements	27 Apr 21	Sent before assessment meeting but not specific to TDA
	Email with PPP requesting formal response	5 May 21	
	Letter detailing updated TDA	19 Aug 21	No response
Maritime Coast Guard Agency (MCA)	Email with PPP requesting formal response	5 May 21	Response received
	Letter detailing updated TDA	19 Aug 21	No response
Selected NATMAC members as detailed at Appendix A	Email with PPP requesting formal response	17 May 21 and 2 Jun 21	A second email was sent on 2 Jun as no responses received Addressees confirmed first email had been received
	Letter detailing updated TDA	19 Aug 21	No response

Helicopter operators supporting MCA, police and other emergency services	Email with PPP requesting formal response	5 May 21	Response received
	Letter detailing updated TDA	19 Aug 21	No additional comments
Irish Aviation Authority (IAA)	Email with PPP requesting formal response	5 May 21	Response received
	Letter detailing updated TDA	19 Aug 21	No response
UK Airspace Management Cell (AMC)	Letter detailing updated TDA	19 Aug 21	Response received

Table 2: Additional Stakeholder Engagement List and Follow on Engagement Details

Due to the simplicity and small volume of airspace associated with the TDA it was considered acceptable to reduce the engagement period in light of the fact the main stakeholders had been approached in advance (Benbecula and Loganair in March 21) and the issues associated with D701 activation are well documented. Furthermore, with the expectation that the TDA activity can be fully integrated into the D701 procedures, this further simplifies the processes and provides a level of assurance to stakeholders that would not normally be available. Stakeholders were therefore given a minimum of 4 weeks to respond, this was extended for the MOD, HIAL and NATS as it was recognised these were the main stakeholders affected by the TDA and associated activation of the D701 areas. Several stakeholders responded within a few days and all main points have been consolidated; details can be found at para [3.4]. The selected NATMAC members were contacted twice as the Sponsor did not receive a single response after three weeks. The second email did prompt two addressees to respond accordingly. All stakeholders were contacted again on the 19 August 2021 with an update to the TDA design and asked to respond within two weeks if they intended to alter their original response. This second engagement round prompted very few responses and those that did, with the exception of one, had nothing further to add from their initial response. The Sponsor took the opportunity to invite the UK AMC to comment on the TDA proposal despite not being included in the initial round of engagement. This decision was made based on the fact they attended one of the WebEx events and their involvement in the ASM procedures for the Hebrides Range. Finally, all stakeholders were notified in November (by email letter), of the delay to the TDA and revised first sounding rocket launch date of June 2022.

3.4 Summary of Stakeholder Feedback

The main stakeholder feedback was received from the MOD and NATS; these are detailed separately.

MOD Feedback – The MOD sent a comprehensive response [Appendix 6B] and raised the following points for consideration:

- Location of the TDA adjacent to D701 had negligible impact on MOD operations;
- Radar mapping at Swanwick Military only updated quarterly in line with Aeronautical Information Regulation And Control (AIRAC) cycle; the TDA timeline would leave insufficient time to update their radar maps and temporary mitigations would have to be put in place;
- The AMC request extant Airspace Management (ASM) protocols are used for D701;

- It should not be assumed current procedures and practices for D701 are relevant or can be mapped across to rocket launch activity – further discussions necessary between MOD and QinetiQ;
- MOD will assume exemptions to the Air Navigation Order (ANO) and other CAA approvals regarding the firing of rockets will be in place prior to first launch;
- Commercial agreement between QinetiQ and MOD regarding access and use of D701 will need to be ratified prior to the first launch and commercial activities prioritised against other Range users and fit with current MOD agreements and LoAs; further amplification:
 - The potential impact on Oceanic Entry Points (OEPs) and current limitations on number of closures per year needs to be considered;
 - The current LoA prescribing number of OEP closures is being re-drafted and due to changes in jamming requirements, the figures may change and factored into any agreements made;
 - Safety trace information will dictate the number of D701 areas needed and subsequent impact on other airspace users;
 - Launches may have to take place at certain times of the day to minimise impact on other airspace users;
 - Implications on Benbecula airport removing ATC cover and Danger Area Crossing Service (DACS) for D704 should be considered along with the re-write of the current LoA with Benbecula;
- MOD wishes to understand procedures for enabling flights and operations of national security to enter/cross the TDA and associated D701 complex and provision for DACS/Danger Area Activity Information Service (DAAIS); furthermore, how 'Clear Range' will be effected for the TDA and associated D701 areas; and,
- UK Space Operations Centre (UK SpOC) will require launch details in advance namely, launch area, drop and abort zones, mission profiles, tracking data frequencies and understanding go/no go criteria.

MOD Feedback was discussed at length at the WebEx held 8 June 2021 and all points were addressed. Details of the outcome of the WebEx are contained at Appendix 6B with relevant issues and concerns addressed in the 'operational considerations' detailed at paragraph [3.5]. MOD had no further comments following the TDA redesign in August.

NATS Feedback – NATS provided detailed feedback, although the Sponsor considered some of the points raised were not relevant to the TDA and sub-orbital sounding rockets but were more suited to the final airspace solution for orbital rocket launch. Furthermore, some of the concerns were related to government and CAA policy. A copy of the letter containing NATS feedback is contained at Appendix 6B and is summarised as follows:

- NATS cannot support TDA without issues being addressed to NATS satisfaction;
- Clarification on how NATS work associated with TDA (e.g. Hazard Analysis) will be funded;
- How will the existing QinetiQ/MOD/IAA/CAA/NATS LoA be affected in particular to OEP closures and number permitted to be closed each year;
- Clarification required on whether additional Buffer Zones will be required or if rocket activity will be wholly contained in D701;
- Clarification that no further buffer zones will be applied when free route airspace D1 is deployed in December 2021;
- TDA would need to be included in Local and sub-regional airspace management support system (LARA);

- Danger Area descriptors do not include rocket launch therefore associated safety assurance around them does not exist;
- Clarity required on how SP-1 launches will be deconflicted from other launch sites in UK;
- Clarification needed concerning how airspace management priorities, especially with regard to military activities such as jamming, will be coordinated with SP-1 launches;
- Consideration should be given to design protocols associated with these SP-1 launches and Global Positioning System (GPS) jamming;
- Reference Period 3 (2020-2024) settlement to NATS is made when delays are attributable to Military Operations therefore, how will rocket launch activity be classified by the state where these cause delays;
- Sponsor and CAA will need to agree acceptable impact in relation to General Air Traffic (GAT) with respect to rocket launch activities;
- What happens if launch delayed, can launch times be adjusted to minimise impact on network;
- How will pre-planning be coordinated with NATS Prestwick and who will determine priorities, GAT v Rocket launch;
- What contingency arrangements are there for malfunction at launch and post launch;
- Lat and Long coordinates need to be ADQ approved - NATS require dimensions of airspace;
- Will launches use all D701 areas as depicted in briefing material, if not how will efficient use of airspace be managed;
- Have the 5 Letter Name Codes (5LNCs) been reserved with International Codes And Route Designators (ICARD) to allow circumnavigation of TDA;
- What is status of coordination with other ANSPs and states;
- What is the duration of sounding rocket activity;
- What is the impact on Oceanic airspace;
- TDA will not meet AIRAC timescale therefore AIP SUPP required and timelines tight NATS will need to prepare a Temporary Operating Instruction (TOI) and Hazard Analysis;
- Mapping changes to NATS equipment can only be made in March, Jun, Sep and Dec; and,
- Two solutions - Delay TDA implementation to meet Dec AIRAC or, using a TOI procedural fix between Sep and Dec to bridge AIRAC gap; second option high risk due outcome of Hazard Analysis.

All points raised by NATS were discussed during the 'Microsoft Teams' WebEx meeting convened on 16 June 2021; details of the outcome are captured at Appendix 6B and main concerns summarised:

- NATS wished to understand how their costs in supporting the establishment and activation of the TDA (development meetings with Sponsor, hazard analysis and TOI) would be funded as their main revenue is from the airlines who would be adversely affected by the TDA/D701 activation and therefore would not receive any benefit from this work. Furthermore, delays caused to the airlines as a result of MOD activity (normal use of D701) which NATS have to manage, are captured in NATS reporting period 3 settlement but no provision has been made for spaceport operations and additional usage of D701;
- The convenience of using D701 may induce a demand for more airspace than is actually required for sounding rocket activities especially where these rockets are approved under the ANO and by definition have a limited range – NATS would prefer to see sub-divisions within D701 or even a bespoke area that was designed to contain the sounding rocket hazards rather than relying on the existing D701 Areas; and,
- Despite recognising that extant ASM procedures for D701 will ease the notification and processes for SP-1 rocket launch NATS considered the current LoA, where the MOD was a

main signatory, was not applicable. The NATS position is that the LoA was agreed based on MOD use of the Range and this did not consider other 'commercial' users activating D701 at additional times; they consider this as a new requirement and one that needs to be renegotiated regarding activation periodic and process in order to safeguard their operations and impact on the ATM network in the UK.

NATS provided additional feedback following the second round of engagement in September:

- Due to the introduction of Free Route Airspace there is an imperative to establish a Flight Planning Buffer Zones (FBZ) around the proposed TDA noting the coordinates are to be ADQ compliant.
- There is also a requirement to establish new reporting point to facilitate circumnavigation of the TDA.
- FBZs and new reporting points requires joint effort of NATS, UK AMC and EUROCONTROL to implement – this necessitates a minimum of 3 month lead in time.
- As the Sponsor cannot declare exactly which D701 areas will be utilised in conjunction with the TDA, NATS cannot conduct a meaningful impact assessment; furthermore NATS are unable to develop tactical plans in good time to ensure adequate and consistent briefing of staff and customers.
- NATS concerned that time pressures may inhibit them conducting effective safety analysis and procedure development as well as controller familiarisation. NATS encourage early engagement on developing the appropriate LoAs.
- NATS would welcome definitive timelines for activation of the TDA in order to understand if sufficient time exists to complete the necessary work to support the TDA proposal.
- Due to other demands on similar airspace by a different spaceport operator, it may become necessary for multi-ANSP prioritisation and coordination processes to be developed and completed before requested activations can be confirmed, in particular for any subsequent activations of the same illustrative airspace design.

Other Stakeholder Feedback – The following summarised feedback was received from other stakeholders:

- Highlands & Islands Airports Ltd (HIAL):
 - Support any extension to current LoA to include SP-1 TDA activities;
 - QinetiQ would need to support Benbecula airport in conducting a Hazard Identification/Analysis pertaining to SP-1 activities;
 - Ideal if TDA could be activated during periods of nil traffic;
 - If D704 needed to be activated this would require close coordination with the airport with Search and Rescue (SAR) activities taking precedence; and
 - TDA may affect visual approaches and Loganair were best placed to comment.
- Northern Lighthouse Board (NLB):
 - No objection providing Notices to Mariners and Airmen are issued and NLB informed of activity in advance.
- Maritime Coastguard Agency (MCA):
 - No objection providing activation is via NOTAM.
- Bristow Helicopters – Feedback via MCA.
- Babcock Aviation – No objection.
- Gamma Aviation – No objection providing access can be obtained as SOP for TDAs.
- 2Excel Aviation – No objection.
- British Helicopter Association – No objection.



- Loganair – No objections raised.
- Heavy Airlines (Virgin Atlantic):
 - Would like to see activities commence after 1600 UTC;
 - Consider historical NAT track data to establish peak/common periods in the year when Jetstream favoured NAT tracks over Scotland; and,
 - Recommended spaceport operators to work with industry on developing airspace requirements/procedures.
- Irish Aviation Authority (IAA):
 - Supports the TDA proposal;
 - Encourage launches post 1400 UTC; and,
 - Continued engagement with IAA and NATS to identify any potential issues.
- UK Airspace Management Cell (AMC):
 - The AMC UK require a minimum of 3 months' notice before a newly established TDA can be incorporated into the UK pre-tactical Airspace management process.
 - Any TDA that is established outside of the UK ASM process will be managed tactically. In this case (less than 3 months' notice) the segregated airspace will be protected from incursion by the publication of a NOTAM and the protection that an ATC environment affords. After the 3-month lead in time, an "FUA flight planning restriction" may be established and managed by the UK AMC that will reject flight planned traffic during the pre-tactical phase as deemed appropriate. However, careful consideration must be given to this case where initially a tactical process for the TDA is coupled with a pre-tactical process for the activation of EG D701 (parts thereof). This, albeit temporary, arrangement sets a new precedent for UK ASM.

3.5 Operational Considerations and Airspace Design Following Feedback

Following stakeholder feedback and subsequent WebEx meetings with both the MOD and NATS, the resulting operational considerations are made:

- The intention is for QinetiQ to manage SP-1 launch activity and associated ASM processes and procedures thereby removing the need for SP-1 to develop any bespoke procedures or need to apply separately for use of the D701 complex;
- The TDA will be considered an extension of D701 and ASM processes and procedures will be mapped across accordingly subject to the conditions agreed in the Long Term Partnering Agreement (LTPA) Other Works Approvals (OWA) between QinetiQ and MOD [REDACTED]
- LTPA OWA will detail conditions of use for D701 including Range capacity, priorities (not overriding MOD activities) and requirement for rocket and launch operators to have the appropriate CAA approvals and licences (it was noted that sounding rockets would be licensed under the ANO and sit initially outside the Space Industry Act (SIA) 2018);
- QinetiQ use of the Hebrides Range, facilities and equipment all fall under the QinetiQ and MOD LTPA and as such require MOD approval; activities therefore, follow MOD guidelines and are subject to MOD Letters of Agreement associated with Range operations. This includes OWA, regardless of customer. It is argued that SP-1 activity still falls under MOD jurisdiction through the OWA process and consequently, use of the Range is covered under extant LoAs and ASM processes and procedures.
- Sounding rockets will be treated in the same manner as for rockets fired during ASD/FS21 regarding due diligence and safety management processes conducted by QinetiQ who will meet the necessary Health and Safety Executive (HSE) legislation on safety and risk to third

parties where the risk level must be at least As Low As Reasonably Practicable (ALARP) if not 'broadly acceptable'; it is considered that sounding rockets will be fired under the 'live munitions' descriptor for D701 Danger Area use;

- QinetiQ will work with the rocket operator to establish the appropriate safety traces based on the MEB of the system and follow due safety analysis and processes accordingly; this data will form part of the rocket operator approval to operate;
- It is anticipated that sounding rockets will be launched with a suppressed vertical ceiling to meet the restrictions of the ANO. This will result in an increase in range of the rockets that will broadly fall into one of three categories, namely: 80km, 114km and 250km range. To support these launches, the following D701 areas may need to be utilised and will be NOTAMed accordingly:
 - 80km range – Two Options Figure 4:
 - D701C and D701 E; or,
 - D701A, D701B, D701C and D701Y.



Figure 4: Sounding Rocket 80km Safety Range – Diagram Depicting Two Potential Options for D701 Activation

- 114km range – D701C and D701 E Figure 5;

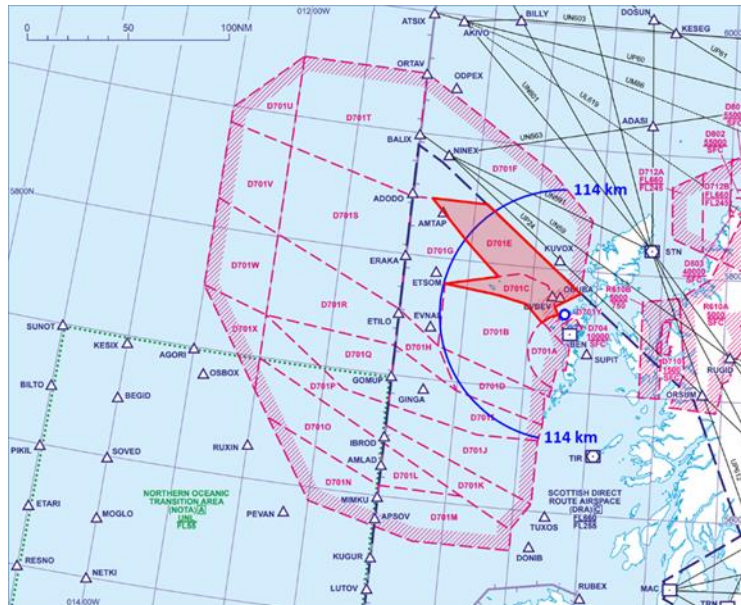


Figure 5: Sounding Rocket 114km Safety Range – Diagram Depicting Potential D701 Activation

- 250km range – Two Options Figure 6:
 - D701C, D701E, D701F and D701TE; or,
 - D701A, D701Y, D701B, D701C, D701G and D701S.

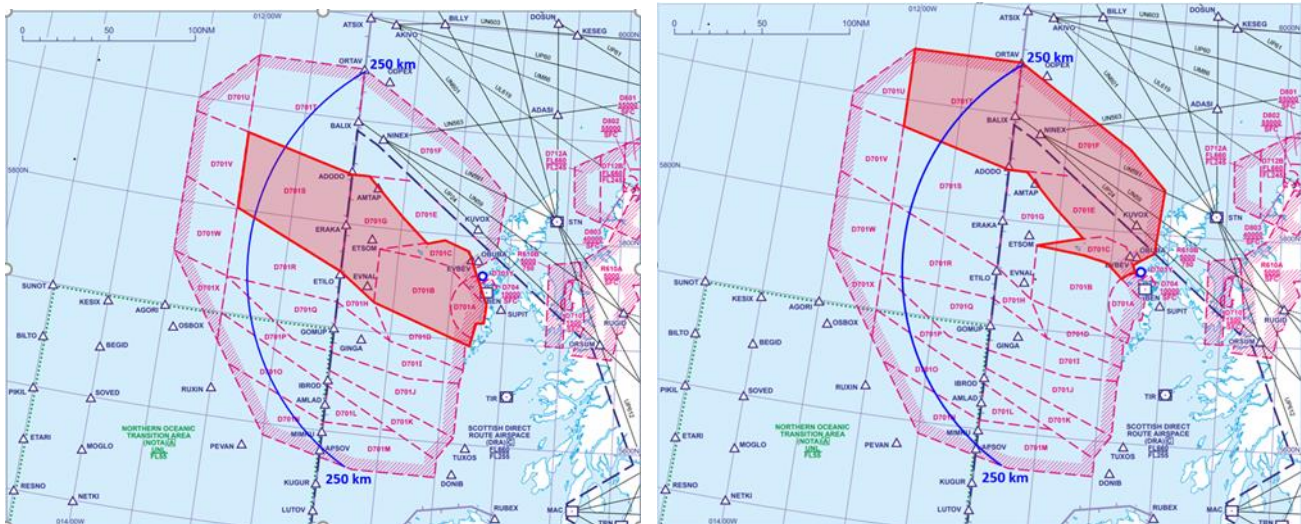


Figure 6: Sounding Rocket 250km Safety Range – Diagram Depicting Two Potential Options for D701 Activation

- The orientation of the rocket launch will aim to be aligned with the existing D701 areas to minimise the number of areas needed to be activated;

- Sounding rocket launches will occur post 1400 UTC (unless contained within D701A, B, C and Y – 80km range option 2) to prevent impact on the number of OEPs the Range is allowed to close as prescribed in the LoA that; defines the coordination, agreement and notification procedures for the use of airspace by MOD Hebrides Range within the Scottish Flight Information Region (FIR), the Shanwick Oceanic Control Area (OCA) and the Northern Oceanic Transition Area (NOTA) dated 1st Oct 2020 [C]. Where practicable, sounding rocket launch will be delayed beyond 1400UTC, this later time may also be driven by MOD usage of D701;
- TDA activation, by necessity, will require elements of D701 to be activated as prescribed above dependant on the maximum range of the rocket. Utilising the existing D701 structure for this purpose removes some of NATS concerns regarding 5LNCs being reserved with ICARD that allows circumnavigation of TDA however, it does induce the potential to activate more airspace than is necessary to contain the hazard. To reduce this risk NATS suggested an interim solution for launches in 2022 where the Sponsor should consider a more bespoke airspace design that does not rely wholly on the shape and size of the existing D701 areas. Such design could be modelled specifically for sounding rocket profiles using a layered approach, similar to how the MOD use D701 but orientated on the SP-1 launch site. It is recognised that this may be a more efficient use of airspace but the Sponsor considers that the consequential effects may outweigh any benefits; these consequential effects include but are not limited to:
 - TDA boundary within D701 would not be integrated into the systems and processes employed by the UK AMC and the Eurocontrol Network Manager (NM). Therefore, unlike the D701 complex, this would not enable the harmonised and dynamic planning of the Air Traffic Management (ATM) network. The TDA would therefore have to be built into the EUROCONTROL NM flight planning system (circa 6 months prior to activation) for each sounding rocket profile to enable the necessary safety testing and ATM impact assessments to be developed as well as applying the obligatory flight planning buffer zones;
 - The requirement for 5LNCs being reserved with ICARD that allows circumnavigation of the TDA (for each sounding rocket profile);
 - Renegotiating and designing complex LoAs specific to the bespoke TDA design;
 - The requirement for a significant update of Air Traffic Control and Range control maps as opposed to a single straight line connecting two existing ADQ coordinates;
 - Obtaining ADQ coordinates for each geographical point of the TDA; and,
 - Developing bespoke ASM procedures specific to the TDA.
- It should also be noted that the maximum number of launches in 2022 is highly unlikely to exceed 10. This is less than one per month on average and given these launches will occur post 1400UTC the impact on NATS and the NAT traffic is likely to be minimal. As such expending the resource required to design, implement and above all manage a bespoke airspace structure, is not considered cost effective when balanced against using the existing D701 structure and ASM procedures.
- Sounding rocket launch timings will remain flexible to work around MOD activity as necessary;
- Benbecula DACS provision for D704 not relevant as D704 is not required for SP-1 operations;
- QinetiQ is cognisant of HIAL ACP regarding removal of ATCOs and remote tower and will work with them on Hazard Identification and any additional procedures SP-1 activities may

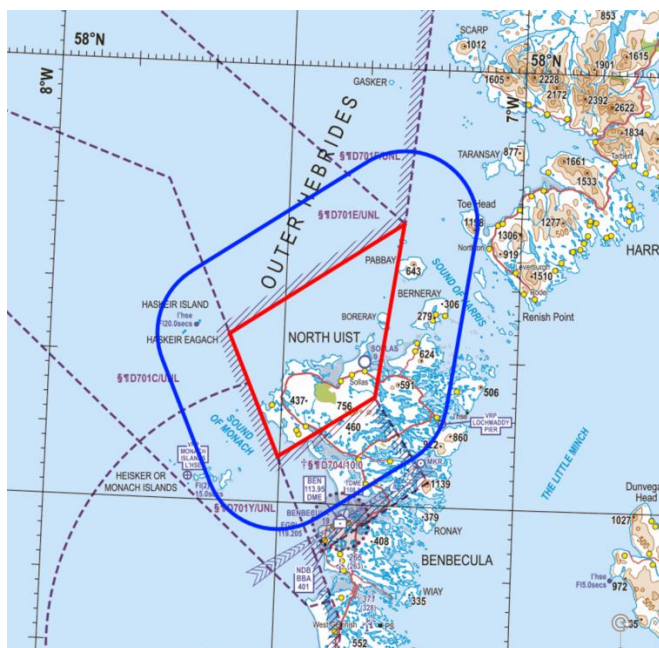


necessitate; it was suggested that it would be too late to include SP-1 Operations in the most recent update to the LoA and therefore a separate mechanism may be necessary;

- Extant Range procedures will be used for access to TDA and corresponding D701 areas by national security/emergency aircraft;
- Extant 'Clear Range' processes and procedures will be in place for SP-1 activities; the safety trace will be monitored to ensure awareness of what is there using sensors/surveillance systems (including use of MPA where necessary);
- Deconfliction and coordination with other spaceports and MOD activities. Members of the SP-1 consortium are engaging with Sutherland Spaceport with a view to open discussion regarding any process that may be developed to deconflict coincident rocket launch; it is also proffered that similar work will need to be done with the MOD where activation of D701 at the same time as other managed Danger Areas could have a significant impact on the ATM network. It is intended that this work commences soon and not only provides a short term solution for the TDA but also helps to future proof orbital spaceport activity.
- The SpOC will be informed of all necessary information regarding the launch, including the mission profile, tracking data, frequencies used, abort zones, etc;
- This requirement, to provision details to the SpOC, is the responsibility of the launcher operator and the SIA regulator (CAA), and is linked to the granting of a launch licence. It supports the UK responsibilities under the Outer Space Treaty; and,
- For commercial launches the launch operator also holds the responsibility for provisioning information to OfCom, the MCA, Environment Agencies, and a number on non-airspace related stakeholders.

All other feedback is addressed through these operational considerations, namely by treating the TDA as an extension of the D701 complex with regard to extant airspace management notification and control procedures.

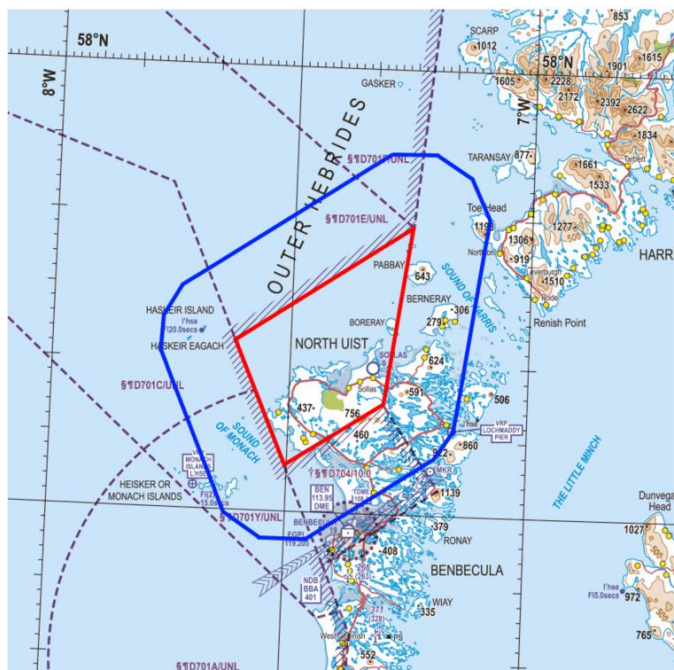
To address NATS and UK AMC concern regarding FBZs, the Sponsor proposes the following options at Figure 7 to Figure 9 below:



Minimal Buffer Zone – 5NM from TDA

574536N 0074217W -
 575332N 0072012W thence clockwise by the arc of
 a circle radius 5NM centred on
 574923N 0071500W to
 574841N 0070544W -
 573644N 0070858W thence clockwise by the arc of
 a circle radius 5NM centred on
 573727 0071811W to
 573318N 0071301W -
 572856N 0072507W thence clockwise by the arc of
 a circle radius 5NM centred on
 573305N 0073017W to
 573105N 0073847W -
 573929N 0074536W thence clockwise by the arc of
 a circle radius 5NM centred on
 574128N 0073703W to
 574536N 0074217W

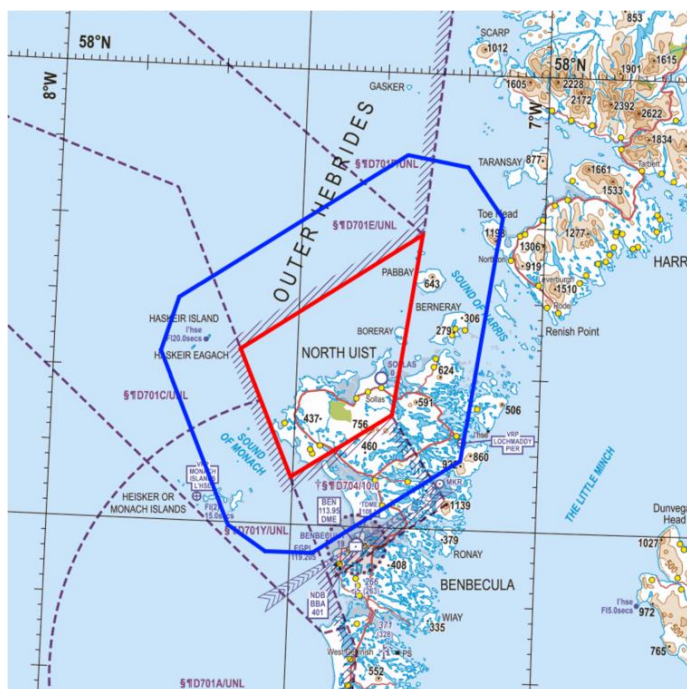
Figure 7: FBZ Option 1



Tight Buffer Zone – no more than 5.25NM from TDA

574457N 0074406W -
 575422N 0071753W -
 575424N 0071221W -
 575249N 0070739W -
 575008N 0070520W -
 573541N 0070915W -
 573353N 0071122W -
 572806N 0072726W -
 572804N 0073301W -
 572943N 0073742W -
 574034N 0074629W -
 574254N 0074615W -
 574457N 0074406W

Figure 8: FBZ Option 2



Loose Buffer Zone – no more than 5.5NM from TDA

574436N 0074504W -
575440N 0071703W -
575357N 0070936W -
575040N 0070512W -
573432N 0070934W -
572806N 0072726W -
572804N 0073301W -
572943N 0073742W -
574108N 0074657W -
574436N 0074504W

Figure 9: FBZ Option 3

3.6 Conclusions – TDA Design Post Stakeholder Feedback

The proposed TDA is a relatively small volume of airspace and it is evident that this ‘fillet’ of airspace is of little concern to any of the stakeholders whom provided a response. As recognised by the Sponsor, it is the subsequent use and activation of the adjoining D701 areas that causes disquiet and raises a number of issues. The MOD are primarily concerned with the processes involved by which the D701 areas may be used for commercial operations and any subsequent impact on MOD operations. NATS primary concern is how additional use of D701, above and beyond MOD use, will impact on their operations especially transatlantic traffic and whether utilising D701 is the most efficient use of airspace where a bespoke design might avail more airspace to be used for CAT. The Sponsor considers several of NATS other concerns are not specifically related to the TDA but would be more appropriately addressed in ACP-2021-12 and by the regulatory/government bodies. Other feedback (non-Mod/NATS) focused almost entirely on access to the TDA airspace and D701.

In considering the feedback as summarised in paragraph [3.4], the Sponsor proposes that all concerns and issues raised can be addressed through the operational considerations detailed at paragraph [3.5]. Although these are likely to satisfy the MOD concerns, and other stakeholders, it is unlikely they will meet all of NATS’ arguments however, as many of these are outside the scope of the TDA, the Sponsor would contend that the TDA proposal attends to most of the salient points with the exception of designing a bespoke volume of airspace within D701. Here the Sponsor advocates that the benefits of using an existing airspace structure and associated ASM procedures outweighs any benefit of reducing the overall volume of airspace required for sounding rocket activities in particular given the limited number of rocket launches expected and the flexibility of launch times. It is therefore proposed that the TDA should be configured as prescribed in Figure 1.



3.7 AIP SUPP Submission

The TDA design depicted in Figure 1 will be activated by NOTAM at the same time as the necessary corresponding D701 areas where required. The process and notification periods for activation will follow the same procedures as those for D701 as contained within existing LoAs. It is concluded that this should be the final design of the TDA extending surface to unlimited; the same as for the D701 areas. As for the D701 areas, the intention is for the TDA to be activated by NOTAM in accordance with the notification instructions contained within the 'Main LoA' [C].

It is proposed the following details are contained within the AIP SUPP at Table 3

Identification and Lateral Limits	Upper Limit Lower Limit	Remarks
(CAA to insert TDA identifier) Area bounded by straight line joining: 573305N 0073017W with point: 574128N 0073703W and point: 574923N 0071500W and point: 573727N 0071811W and back to: 573305N 0073017W	Upper Limit: UNL Lower Limit: SFC	Activity: Live Munitions ('Rocket Launch' is not currently in the CAA Danger Area activity nomenclature) Hours: Activated by NOTAM Service: DAAIS: Scottish Information on 127.275 MHz: Contact: Pre-flight information: Range Control, Tel: 01870-60499 Sponsor: QinetiQ Ltd

Table 3: Draft AIP SUPP Entry

4 Next Steps

4.1 DECIDE Gateway

Assuming the CAA approves the TDA as described herein, the Sponsor will upload the appropriate redacted documentation including this report onto the airspace portal and inform stakeholders of the CAA decision. A draft AIP SUPP will be drafted and forwarded to the CAA for approval; thereafter it will be sent to NATS AIS for publication.

QinetiQ will monitor the success of the TDA and capture any issues through engagement with the key stakeholders, namely: MOD, NATS, Benbecula Airport, HIAL, Loganair and local helicopter operators supporting NLB, MCA and other emergency services. All stakeholders will be encouraged to provide any feedback on the TDA through the SP1ACP@QinetiQ.com email address.

5 Glossary

Acronym	Meaning
5LNC	5 Letter Name Code
ACP	Airspace Change Proposal
ADQ	Aeronautical Data Quality
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation And Control
ALARP	As Low As Reasonably Practicable
AMC	Airspace Management Cell
ANO	Air Navigation Order
ANSP	Air navigation Service Provider
AOs	Airline Operators
ASD/FS 21	At Sea Demonstration/Formidable Shield 2021
ASM	Airspace Management
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAT	Commercial Air Transport
DA	Danger Area
DAAIS	Danger Area Activity Information Service
DAAM	Danger Area Airspace Manager
DAATM	Defence Airspace & Airspace Traffic Management
DACS	Danger Area Crossing Service
EG D	UK Segregated Airspace Designator and Danger Area
EIA	Environmental Impact Assessment
FAA	Federal Aviation Authority
FBZ	Flight planning Buffer Zone
FIR	Flight Information Region
FRA	Free Route Airspace
FUA	Flexible Use of Airspace
GAT	General Air Traffic
GPS	Global Positioning System
HFD	Hazardous Fragmentation Distances
HIAL	Highlands & Islands Airports Ltd
HIE	Highlands & Islands Enterprises
IAA	Irish Aviation Authority
ICAO	International Civil Aviation Organisation
ICARD	International Codes And Route Designators
LARA	Local and sub-regional airspace management support system
LoA	Letter of Agreement
LTPA	Long Term Partnering Agreement
MCA	Maritime Coastguard Agency
MEB	Maximum Energy Boundary
MOD	Ministry of Defence
NAT	North Atlantic
NATMAC	National Air Traffic Management Advisory Committee
NLB	Northern Lighthouse Board
NOTA	North Atlantic Transit Area

Acronym	Meaning
NOTAM	Notice To Airman
OEPs	Oceanic Entry Points
OWA	Other Works Approvals
PPP	Power Point Presentation
PT	Project Team
RP3	Reporting Period 3
SAR	Search And Rescue
SIA	Space Industry Act
SOPs	Standard Operating Procedures
SP-1	Spaceport 1
SUPP	Supplement
TCO	Trials Conducting Officer
UK SpOC	United Kingdom Space Operations Centre
US	United States
UTC	Coordinated Universal Time

6 References

- A. CAP 1616 Fourth Edition published March 2021; online, available at:
<http://publicapps.caa.co.uk/modalapplication.aspx?catid=1&pagetype=65&appid=11&mode=detail&id=8127>
- B. CAA Policy Statement 20200721 Policy for the Establishment of Permanent and Temporary Danger Areas; online available at:
<http://publicapps.caa.co.uk/docs/33/Policy%20Statement%20Permanently%20Established%20Danger%20Areas%20and%20Temporary%20Danger%20Areas.pdf>
- C. Letter of Agreement between NATS (en Route) plc, MOD DE&S, AMC UK, QinetiQ Ltd, UK CAA, IAA and Shannon V1.0 effective 01 October 2020.



A List of Stakeholders

2Excel Aviation
Aircraft Owners and Pilots Association (AOPA)
Airfield Operators Group (AOG)
Airspace Change Organising Group (ACOG)
Airspace4all
Babcock Aviation
Benbecula & Barra ATC
Bristow helicopters
British Airline Pilots Association (BALPA)
British Airline Pilots Association (BALPA)
British Airways (BA)
British Business and General Aviation Association (BBGA)
British Helicopter Association (BHA)
Gamma Aviation
General Aviation Alliance (GAA)
Guild of Air Traffic Control Officers (GATCO)
Heavy Airlines
Helicopter Club of Great Britain (HCGB)
Highlands and Islands Airports Ltd (HIAL)
HM Coastguard Maritime & Coastguard Agency (MCA)
Irish Aviation Authority (IAA)
Light Aircraft Association (LAA)
Loganair
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)
Ministry of Defence Danger Area Airspace Manager (DAAM)
NATS
Northern Lighthouse Board (NLB)
PDG Helicopters
Stornoway ATC
UK AMC



B Stakeholder Engagement Records – Evidence

Sent: 09 March 2021 12:33

Subject: UC Spaceport 1 Scolpaig ACP

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi again, a different subject from [REDACTED] Spaceport 1 at Scolpaig. I am unsure what if any visibility you have had regarding this matter and I have only recently been brought into the project to commence the ACP process for a small fillet of airspace over the future launch site in order that it can connect to the existing D701 Danger Areas.

We are only just commencing the process and at this stage are not asking for any formal responses as we have not yet had the initial CAA assessment meeting to establish if an ACP is appropriate or not. That said, I believe early exposure of the plans would be beneficial if shared with you now given your knowledge and understanding of aviation operations in the local area. To this end could I ask you to consider the attached and let me have your thoughts on the following:

- Would the new fillet of airspace affect any flights/approach or departure procedures at Benbecula airport? Please see attached for Benbecula's AIP entry which includes IAPs. It appears that none would be affected by the new fillet of Danger Area. We do not have formal departure procedures. Our missed approach procedures are contained wholly within D704.
- What level of GA or recreational flying occurs in this airspace, if any? Annual Sollas fly-in during July with multiple light aircraft. Sporadic GA, primarily in the summer months.
- What other flights could potentially be affected, e.g. Northern lighthouse board, SAR, Helo flights to/from hotels & businesses as well as fisheries flights? St Kilda resupply helicopter routeing may be affected. NLB. SAR/Ambulance. Fisheries. QinetiQ range clearance aircraft.
- Anything else we should consider? Would shipping have to be cleared in the same manner as QinetiQ range clearance?

As stated, this is informal at this stage as I just need to have a feel for the level of stakeholder engagement we are likely to need and any potential impact on local aviation activities. Please bear in mind the small fillet of airspace is only likely to be activated infrequently and for relatively short periods probably in the order of 30 mins or so (and probably no more than a few times per month). Formal consultation will follow and only if the CAA decide an ACP is appropriate for this infrequent type of activity.

BTW, I did email Logan air regarding [REDACTED] I wonder if you would be kind enough to check it was received. Please pass on my details if Logan Air would like more information on [REDACTED] or Spaceport 1.

Kind Regards

QINETIQ

Connect with us:





Wed 17/03/2021 14:56

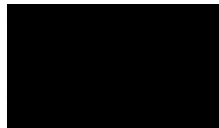
RE: UC Spaceport 1 Scolpaig ACP

This message is part of a tracked conversation. [Click here to find all related messages or to open the original flagged message.](#)

[Redacted]

Thanks for the update and forwarding the briefing material to Loganair.

Kind Regards



QINETIQ

Connect with us:



[Redacted]
Sent: 17 March 2021 14:36

Subject: RE: UC Spaceport 1 Scolpaig ACP

To follow up on my initial email and your response, the inbound/outbound radial from/to Stornoway is R044 so this would be out with the new fillet of airspace. Visual approaches and VFR arrivals would require to be instructed to remain clear.

It should also be noted that it is the intention to introduce GNSS approaches to Benbecula in advance of the removal of our VOR Navigational Aid. We have already had two postponements of its withdrawal so it is likely to be withdrawn in the not too distant future. The location of proposed waypoints would have to be considered in any ACP.

We got to the initial planning stage several years ago but it was paused for several reasons.

I have a new contact at Loganair who is happy for me to send your emails regarding the Spaceport and the upcoming exercise.

Best regards,

[Redacted]



Tue 18/05/2021 10:32

FW: UC Spaceport 1 Scolpaig - Temporary Dander Area ACP Targeted Engagement

To ☐ SP1 ACP

Follow up. Completed on 02 June 2021.

Sent: 08 May 2021 11:09

Subject: RE: UC Spaceport 1 Scolpaig - Temporary Dander Area ACP Targeted Engagement

Good morning

Thank you for the opportunity to comment on the potential impact on the ACP to Benbecula Airport Operations.

My previous email provided more detail on the stakeholders who may give additional feedback.

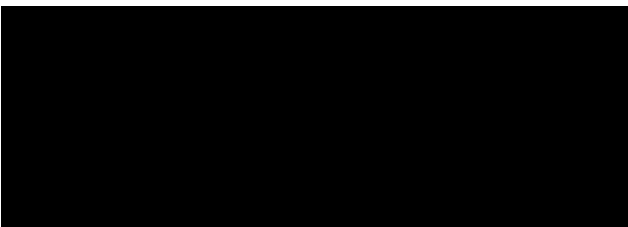
We have a good working relationship with QinetiQ supported by the LoA you refer to in your presentation. Expansion of this LoA to capture SP1 activities is something we would support.

The ideal scenario would be for the activity to take place during periods of nil traffic but coordination is an effective tool to enable minimum disruption to scheduled aircraft.

Activation of D704 effectively closes the airport so would only be agreed during periods of nil traffic with the caveat that Ambulance/SAR takes precedence over SP1 activities.

The location of the proposed TDA does not impact on our Instrument Approach Procedures but would impact on routeings available for visual approaches. Loganair will be best placed to comment on this.

Best regards,





Spaceport 1 Scolpaig TDA ACP-2021- 037 Planning

Briefing Prepared by:

V1.2 dated 12 May 2021

Background – SP1

- QinetiQ Manage the MOD sponsored Hebrides Range Danger Areas (EG D701)
- QinetiQ collaboration with MOD to enable access – [REDACTED]
- SP1 consortium led by local council comprising Highlands & Islands Enterprises, private investors and QinetiQ
- Location – Scolpaig North Uist, Outer Hebrides
- Site sits beneath Class G, adjacent to EG D701 and EG D704
- ACP required to protect launch site/other airspace users and connect to existing Danger Areas
- SP 1 - 2 Phases:
 - Phase 1 - 'Sounding rocket' sub-orbital launches to West (requiring TDA)
 - Phase 2 - Small satellite orbital launches to North/North East (permanent airspace solution ACP-2021-12)



Statement of Need

- Opportunity under government 'LaunchUK' space programme
- Local government investment programme for vertical launch small satellite site
- Generate revenue for local communities and jobs
- Low population, immediate 'over the sea' access
- Adjacent MOD Danger Areas D701/D704 providing safe testing environment
- Use irreducible spare capacity of Danger Areas
- Capitalise extant ASM procedures for Hebs Range
- Utilise full Range capabilities, surveillance/tracking/communications/FTS
- ACP for a small fillet of airspace to connect site to Hebs Range



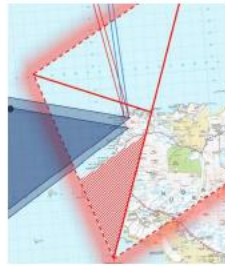
TDA Options

Preferred Option



Preferred option mirrors what we believe ACP-2021-12 will reveal; supports both Sounding Rockets and Polar/Sun Synchronous launches – future proof permanent solution

Alternate Option



Option 2 allows less airspace to be active for Sounding Rocket launch only. Hatched area may not be needed

Addressing Issues

Addressing Issues:

- Minimise impact on CAT by avoiding peak periods, DAs fully integrated into existing ATM systems enabling harmonised and dynamic planning (Sounding Rocket outside core hours/MOD use therefore minimal impact on NAT traffic)
- Benbecula airport LOA with QinetiQ expanded to capture SP1 activities
- QinetiQ can micro manage DAs expeditiously between MOD and SP1 use with opportunity for coincident activities, embracing FUA concepts
- Airspace only activated when needed; low frequency of sounding rocket launches & contingency days. Short duration (circa 2-3 hrs) – plan to launch early in 2-3 hr window, cancel airspace immediately after launch
- Extant Range procedures easily expanded to capture SP1 activities for Northern Lighthouse Board, Fisheries Protection/Survey and SAR



12/05/2021

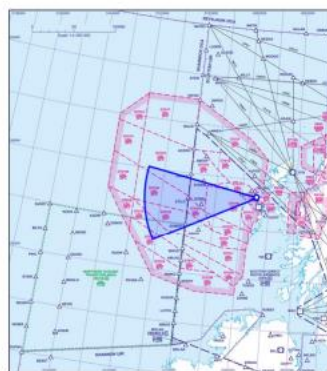
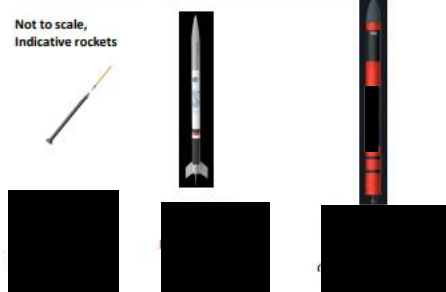
Commercial In Confidence

5

Timelines

- Suborbital 'Sounding Rockets', contained within D701 complex – Approvals under ANO (rocket capability < 50Km <10,240Ns or large rocket permission), expected launch requirements:
- First launch Sep 21, (possible 2nd launch Oct)
- 2 launches in Nov 21
- 2 -3 launches every other month commencing Mar 22

Not to scale,
Indicative rockets



12/05/2021

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6



Provisional TDA Timeline – Spaceport 1

Stage 1 DEFINE Complete awaiting CAA Formal Assessment Meeting w/c 10 May

- Assuming approved, commence Stage 3 Targeted Engagement
- Following engagement, TDA submission updated

TDA Submission to CAA by end May 21

- CAA Review (<28 days)

CAA DECIDE Gateway – Jun 21

- Target AIRAC 09 published Jul 21

Stage 6 Target IMPLEMENTATION Sep 21



12/05/2021

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7

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B-7



Tue 18/05/2021 10:28

UC FW: UC Spaceport 1 Scolpaig - Temporary Dander Area ACP Targeted Engagement

To: ☐ SP1 ACP

Follow up. Completed on 02 June 2021.

This message was sent with High importance.



20210504_SP-1_TDA_ACP_Provisional_Planning_V1.pdf
2 MB

Sent: 05 May 2021 08:59

Subject: UC Spaceport 1 Scolpaig - Temporary Dander Area ACP Targeted Engagement

Importance: High

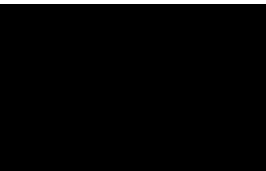
Good Morning

In addition to my request below I now need to commence the formal engagement process in support of ACP-2021-37 Spaceport 1, Scolpaig TDA. This TDA is required ahead of the main ACP (ACP-2021-12) to support the launch of suborbital 'sounding rockets' from Scolpaig into the Hebrides Range, EG D701. Ahead of the CAA assessment meeting I would like to commence formal engagement with HIAL regarding the TDA and offer the following for consideration:

- TDA requirements from Oct 2021 SFC – UNL activated by NOTAM as per D701 areas
- Associated D701 Areas activated simultaneously will be minimised with preference to utilise D701A, B, D & C in the first instance but may include D701E, G, H & I worse case (not necessarily all but combinations as determined by safety trace or sounding rocket)
- Sounding rockets will fit in around any MOD activity (where safe to do so – coincident operations); launches restricted to post 1300UTC and probably later (MOD activity dependent)
- Frequency of launches:
 - o First rocket circa late September 2021, with a second launch in October and two more in November 2021
 - o Recommence launch sequence in March 2022 with two to three launches occurring every other month
- Acknowledged TDA extending 90 days would accommodate the launches for 2021 but not for 2022 where it is envisaged a further two TDAs would be required, one of which would have to extend the 90 day period by approximately one month – This and requirement for repeat TDAs will be negotiated with the CAA at forthcoming Assessment meeting.
- Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place

As part of the ACP process for a TDA it would be useful if HIAL could consider the above bullets and presentation and highlight any concerns or issues with the TDA proposal to the undersigned by Thursday 13 May 21.

Kind Regards





Wed 17/03/2021 16:22

RE: UC Spaceport 1 Scolpaig ACP

i Follow up. Start by 18 March 2021. Due by 18 March 2021.
You replied to this message on 18/03/2021 08:57.
This message is part of a tracked conversation. Click here to find all related messages or to open the original flagged message.

Thanks for this slide deck, and the one for Exercise Formidable Shield. The only impact from FS will be mitigating against any GPS jamming associated with it; the spaceport shouldn't have any impact on us – apart from increased passenger numbers!

Regards,

Manager Flight Support

Web: <http://www.loganair.co.uk>



Sent: 17 March 2021 14:46

Subject: FW: UC Spaceport 1 Scolpaig ACP

As promised, this is the information on the proposed Spaceport and associated airspace.

Sent: 09 March 2021 12:33

Subject: UC Spaceport 1 Scolpaig ACP



Wed 12/05/2021 09:27

RE: UC Spaceport 1 Scolpaig - Temporary Dander Area ACP Targeted Engagement

To

Cc

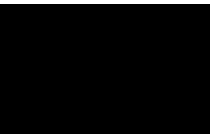


20210512_SP-1_TDA_ACP_Provisional_Planning_V1.2.pdf
.pdf File

Thanks for your response all points noted. I can confirm that there would not be a requirement to activate D704 during SP-1 activities and SAR aircraft would always take precedence of sounding rocket launch furthermore, the TDA will be managed in exactly the same way as the existing D701 areas. I am in discussion with my colleague who is responsible for the LoA update to establish if we can indeed include the SP-1 activities in here; my only cautionary note is that activities as it is purely a commercial civil activity.

Thank you too for your other email providing contact details – I will be forwarding the presentation to HIAL head office and Stornoway. PSA a slightly updated version V1.2, main PTN is slide 6 that shows a more accurate representation of D701 usage for sounding rockets.

Kind Regards



QINETIQ

Connect with us:



Sent: 08 May 2021 11:09

Subject: RE: UC Spaceport 1 Scolpaig - Temporary Dander Area ACP Targeted Engagement

Good morning,

Thank you for the opportunity to comment on the potential impact on the ACP to Benbecula Airport Operations.

My previous email provided more detail on the stakeholders who may give additional feedback.

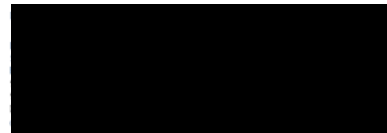
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Activation of D704 effectively closes the airport so would only be agreed during periods of nil traffic with the caveat that Ambulance/SAR takes precedence over SP1 activities.

The location of the proposed TDA does not impact on our Instrument Approach Procedures but would impact on routeings available for visual approaches. Loganair will be best placed to comment on this.

Best regards,



Please consider the environment - think before you print!



Wed 17/03/2021 16:22

RE: UC Spaceport 1 Scolpaig ACP

To: [REDACTED]
[REDACTED]

Follow up. Start by 18 March 2021. Due by 18 March 2021.
You replied to this message on 18/03/2021 08:57.

This message is part of a tracked conversation. Click here to find all related messages or to open the original flagged message.

[REDACTED]

Thanks for this slide deck, and the one for Exercise Formidable Shield. The only impact from FS will be mitigating against any GPS jamming associated with it; the spaceport shouldn't have any impact on us – apart from increased passenger numbers!

[REDACTED]

Manager Flight Support

[REDACTED]

Web: <http://www.loganair.co.uk>



[REDACTED]

Sent: 17 March 2021 14:46

[REDACTED]

Subject: FW: UC Spaceport 1 Scolpaig ACP

[REDACTED]

As promised, this is the information on the proposed Spaceport and associated airspace.

[REDACTED]



Wed 09/06/2021 08:42

SP1 ACP

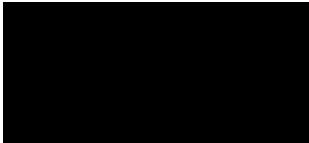
RE: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

To:

This message was sent with High importance.

Very many thanks your response and we agree your sentiment regarding finding a permanent solution. As you will be aware this is our intention for SP-1 and you should have been sent a copy of our design principles for you to comment on; ACP-2021-12 refers.

Kind Regards



QINETIQ

Connect with us:



Sent: 04 June 2021 11:58

To: SP1 ACP <SP1ACP@qinetiq.com>

Subject: RE: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

Apologies for the late reply. I can't foresee such a small chunk of airspace, particularly in the context of the D701 complex, to have an adverse impact on our operation.

Having said that, the sooner there's a permanent airspace solution the better – we're involved in a number of drone-related ACPs with TDAs and frankly we're minded to object. But that's primarily in relation to drone-related applications as TDAs seem to be the cheap and cheerful quick solution to getting drone trials underway. Our view is that the real issue for the drone operators is to solve the segregation problem first. In the case of Scolpaig that's not the issue and I'll ensure that the TDA isn't seen in the same adverse context as the other TDAs we're involved with currently.

Cheers

Manager Flight Support



Thu 27/05/2021 08:11

SP1 ACP

RE: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

To

Cc

Follow up. Completed on 02 June 2021.

Sent: 26 May 2021 12:11

To: SP1 ACP <SP1ACP@qinetiq.com>

Subject: RE: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

I can confirm that provided all associated TDA/Spaceport facility activity is covered under NOTAMs, we have no issues with these. I trust this covers the TDA and design principles however if you require me to reply to your other email as well, please let me know.

For your information, I have clarified this position with our aviation team and Bristow SAR.

Cheers

Offshore Energy Liaison Officer

HM Coastguard, Maritime & Coastguard Agency
Marine House, Blaikies Quay, Aberdeen, AB11 5EZ

Generic email: OELO@mcga.gov.uk



Maritime & Coastguard Agency



HM Coastguard

Safer Lives, Safer Ships, Cleaner Seas





Tue 18/05/2021 10:31

FW: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

To: ☐ SP1 ACP

Follow up. Completed on 02 June 2021.



20210504_SP-1_TDA_ACP_Provisional_Planning_V1.pdf
2 MB

Sent: 05 May 2021 16:45

Subject: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

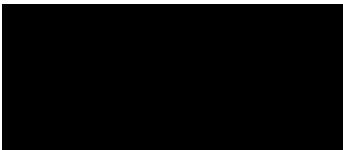
Good Afternoon

I am the QinetiQ lead for the airspace change proposal in support of the Spaceport 1 consortium looking to establish a vertical launch spaceport at Scolpaig on North Uist. The permanent airspace change is detailed in ACP-2021-12 and I will be progressing formal stakeholder engagement on this in due course. However, the most pressing airspace change is to establish a TDA at the Scolpaig site in order to support suborbital 'sounding rockets' by this September (ACP-2021-37). Ahead of the CAA assessment meeting I would like to commence formal engagement with the MCGA regarding the TDA and offer the following for consideration:

- TDA requirements from Sept 2021 SFC – UNL activated by NOTAM as per D701 areas – SOPs for the Hebrides Range regarding emergency services access will include the TDA
- Associated D701 Areas activated simultaneously will be minimised with preference to utilise D701A, B, D & C in the first instance but may include D701E, G, H & I worse case (not necessarily all but combinations as determined by safety trace or sounding rocket)
- Sounding rockets will fit in around any MOD activity (where safe to do so – coincident operations); launches restricted to post 1300UTC and probably later (MOD activity dependent)
- Frequency of launches:
 - o First rocket circa late September 2021, with a second launch in October and two more in November 2021
 - o Recommence launch sequence in March 2022 with two to three launches occurring every other month
- Acknowledged TDA extending 90 days would accommodate the launches for 2021 but not for 2022 where it is envisaged a further two TDAs would be required, one of which would have to extend the 90 day period by approximately one month – This and requirement for repeat TDAs will be negotiated with the CAA at forthcoming Assessment meeting.
- Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place

As part of the ACP process for a TDA it would be useful if MCGA could consider the above bullets and presentation and highlight any concerns or issues with the TDA proposal to the undersigned by Thursday 27 May 21. For information, I have sent a similar request to HIAL, NATS and LoganAir.

Kind Regards





Tue 18/05/2021 08:03

UC TDA for Spaceport 1 Scolpaig North Uist

To:

Cc: SP1 ACP

You forwarded this message on 25/05/2021 15:10.



Good Morning,

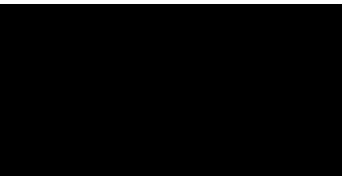
By way of introduction I am the QinetiQ Principal Air Traffic Management (ATM) advisor who is currently managing the Airspace Change Proposal (ACP) for the Spaceport 1 (SP-1) consortium who in turn are developing a small vertical launch spaceport at Scolpaig, North Uist on the Outer Hebrides.

The attached slide pack contains a brief summary of the requirement for a Temporary Danger Area (TDA) to support suborbital 'sounding rockets' by this September (ACP-2021-37). I would like to commence formal engagement on the TDA proposal in accordance with the ACP process. It should be noted that this ACP (ACP-2021-37) is being run in parallel to a permanent airspace change for the same site, namely ACP-2021-12; full details can be found via the CAA airspace portal at: <https://airspacechange.caa.co.uk/search?Page=1&SponsorOrganisation=QinetiQ%20Ltd> - Correspondence regarding ACP-2021-12 will be sent out separately in support of Step 1B, (design principles) of the ACP process. In addition to the information contained within the slide pack contained herein, the following is offered for consideration:

- TDA requirements from Sept 2021 SFC – UNL activated by NOTAM as per D701 areas
- Associated D701 Areas activated simultaneously will be minimised and orientation of launch sector depicted on Slide 6 might be variable to minimise impact on Oceanic Entry Points (OEPs)
- Sounding rockets will fit in around any MOD activity (where safe to do so – coincident operations); launches restricted to post 1300UTC and probably later (MOD activity dependent)
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- Acknowledged TDA extending 90 days would accommodate the launches for 2021 but not for 2022 where it is envisaged a further two TDAs would be required, one of which would have to extend the 90 day period by approximately one month – This and requirement for repeat TDAs will be negotiated with the CAA.
- Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place
- There will be no requirement to activate D704

As important aviation operators in the local area it is requested that you could consider the above bullets and attached presentation, and highlight any concerns or issues with the TDA proposal to the undersigned at SP1ACP@qinetiq.com by Wednesday 9th June 21. Your participation in this process is very much appreciated.

Kind Regards



QINETIQ

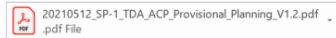
Connect with us:





Wed 12/05/2021 12:26

UC FW: UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)



Good Afternoon,

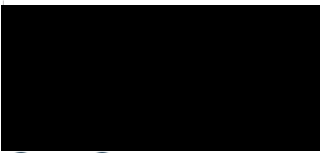
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- There will be no requirement to activate D704

As part of the ACP process for a TDA it would be useful if you could consider the above bullets and presentation, and highlight any concerns or issues with the TDA proposal to the undersigned by Wednesday 9th June 21.

Kind Regards



QINETIQ

Connect with us:





Wed 12/05/2021 12:27

UC FW: UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)

To



Good Afternoon,

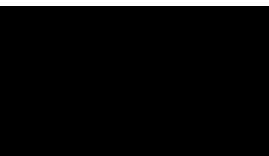
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- Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place
- There will be no requirement to activate D704

As part of the ACP process for a TDA it would be useful if you could consider the above bullets and presentation, and highlight any concerns or issues with the TDA proposal to the undersigned by Wednesday 9th June 21.

Kind Regards



QINETIQ

Connect with us:





Wed 12/05/2021 12:20

UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)

To: [Redacted]

You forwarded this message on 12/05/2021 12:28.



20210512_SP-1_TDA_ACP_Provisional_Planning_V1.2.pdf
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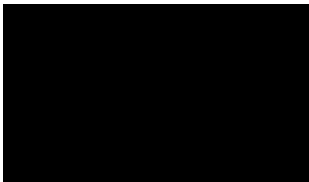
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 - o Recommence launch sequence in March 2022 with two to three launches occurring every other month
- Acknowledged TDA extending 90 days would accommodate the launches for 2021 but not for 2022 where it is envisaged a further two TDAs would be required, one of which would have to extend the 90 day period by approximately one month – This and requirement for repeat TDAs will be negotiated with the CAA.
- Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place
- There will be no requirement to activate D704

As part of the ACP process for a TDA it would be useful if you could consider the above bullets and presentation, and highlight any concerns or issues with the TDA proposal to the undersigned by Wednesday 9th June 21.



QINETIQ

Connect with us:

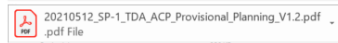




Wed 12/05/2021 12:22

UC FW: UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)

To



Good Afternoon [REDACTED]

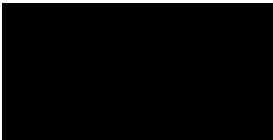
By way of introduction I am the QinetiQ Principal Air Traffic Management (ATM) advisor who is currently managing the Airspace Change Proposal (ACP) for the Spaceport 1 (SP-1) consortium who in turn are developing a small vertical launch spaceport at Scolpaig, North Uist on the Outer Hebrides.

The attached slide pack contains a brief summary of the requirement for a Temporary Danger Area (TDA) to support suborbital 'sounding rockets' by this September (ACP-2021-37). I would like to commence formal engagement on the TDA proposal in accordance with the ACP process. It should be noted that this ACP (ACP-2021-37) is being run in parallel to a permanent airspace change for the same site, namely ACP-2021-12; full details can be found via the CAA airspace portal - Correspondence regarding ACP-2021-12 will be sent out separately in support of Step 1B, (design principles) of the ACP process. In addition to the information contained within the slide pack contained herein, the following is offered for consideration:

- TDA requirements from Sept 2021 SFC – UNL activated by NOTAM as per D701 areas
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As part of the ACP process for a TDA it would be useful if you could consider the above bullets and presentation, and highlight any concerns or issues with the TDA proposal to the undersigned by Wednesday 9th June 21.

Kind Regards



QINETIQ

Connect with us:





Wed 12/05/2021 12:23

UC FW: UC PW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)



20210512_SP-1_TDA_ACP_Provisional_Planning_V1.2.pdf
.pdf File

Good Afternoon,

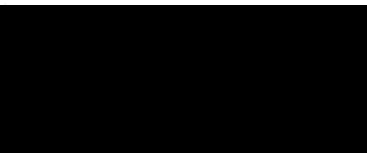
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As part of the ACP process for a TDA it would be useful if you could consider the above bullets and presentation, and highlight any concerns or issues with the TDA proposal to the undersigned by Wednesday 9th June 21.

Kind Regards



QINETIQ

Connect with us:





Wed 12/05/2021 12:24

UC FW: UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)

To: [Redacted]
20210512_SP-1_TDA_ACP_Provisional_Planning_V1.2.pdf
.pdf File

Good Afternoon,

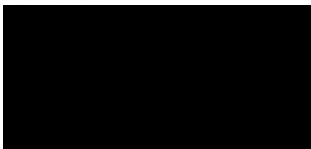
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As part of the ACP process for a TDA it would be useful if you could consider the above bullets and presentation, and highlight any concerns or issues with the TDA proposal to the undersigned by Wednesday 9th June 21.

Kind Regards



QINETIQ

Connect with us:





Thu 27/05/2021 12:53

SP1 ACP

RE: UC FW: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

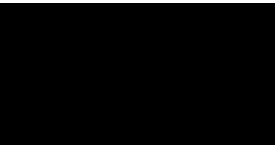
To: [REDACTED]
Cc: [REDACTED] SP1 ACP

[REDACTED]

Many thanks your swift response to the TDA application for SP-1 at Scolpaig. Your 'no objection' has been noted along with your other comments regarding notification processes to airmen and mariners as well as you helicopter requirements to service several islands located within the EG D701 Hebrides range complex. As stated, it is fully expected that extant procedures at the Range concerning access to EG D701 and notification procedures will be extended to include the TDA and SP-1 sounding rocket operations.

I thank you again for your timely response and look forward to hearing from with regard to the design principles for the permanent airspace solution contained in ACP-2021-12.

Kind Regards



QINETIQ

Connect with us:



|

[REDACTED]

Sent: 27 May 2021 12:38

Subject: RE: UC FW: UC Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist

Good afternoon [REDACTED]

Please see the attached response from the Northern Lighthouse Board Ref : Temporary Danger Area Application for Spaceport 1 Scolpaig North Uist.

If any further information is required please get in touch.

Best wishes,

[REDACTED]



Tue 18/05/2021 07:46
[Redacted]
UC Spaceport 1 Scolpaig North Uist - TDA
To: [Redacted]
Cc: [Redacted] SP1 ACP
This message was sent with High Importance.

20210518_SP-1_TDA_ACP_Provisional_Planning_V1.3pptx.pdf
2 MB

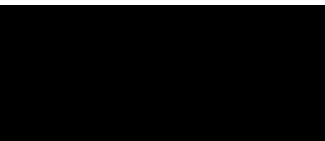
[Redacted]
By way of introduction I am the QinetiQ Principal Air Traffic Management (ATM) advisor who is currently managing the Airspace Change Proposal (ACP) for the Spaceport 1 (SP-1) consortium who in turn are developing a small vertical launch spaceport at Scolpaig, North Uist on the Outer Hebrides.

The attached slide pack contains a brief summary of the requirement for a Temporary Danger Area (TDA) to support suborbital 'sounding rockets' by this September (ACP-2021-37). I would like to commence formal engagement on the TDA proposal in accordance with the ACP process. It should be noted that this ACP (ACP-2021-37) is being run in parallel to a permanent airspace change for the same site, namely ACP-2021-12; full details can be found via the CAA airspace portal - Correspondence regarding ACP-2021-12 will be sent out separately in support of Step 1B, (design principles) of the ACP process. In addition to the information contained within the slide pack contained herein, the following is offered for consideration:

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- Acknowledged TDA extending 90 days would accommodate the launches for 2021 but not for 2022 where it is envisaged a further two TDAs would be required, one of which would have to extend the 90 day period by approximately one month – This and requirement for repeat TDAs will be negotiated with the CAA
- Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place
- There will be no requirement to activate D704

As part of the ACP process for a TDA it would be useful if you could consider the above bullets and presentation, and highlight any concerns or issues with the TDA proposal to the undersigned at: SP1ACP@qinetiq.com by Wednesday 9th June 21.

Kind Regards



QINETIQ

Connect with us:





Tue 18/05/2021 14:33

RE: UC TDA for Spaceport 1 Scolpaig North Uist

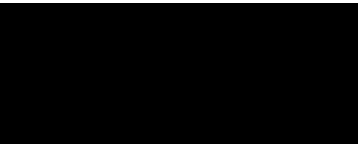
To: [REDACTED]

Cc: [REDACTED] SPI ACP

[REDACTED]

The Blue shaded area is a pictorial representation of the D701 areas we would have to activate in conjunction with the TDA to enable the sounding rocket launch. In essence the D701 areas will be activated in exactly the same way as they are today and QinetiQ will manage the airspace accordingly. Access to the danger Areas can be gained in the normal manner from range control.

Kind Regards



QINETIQ

Connect with us:



From: [REDACTED]

Sent: 18 May 2021 13:02

Subject: FW: UC TDA for Spaceport 1 Scolpaig North Uist

[REDACTED]

I hope you are well!

My DFO [REDACTED] forwarded this to me. We do some pretty regular flying trials work in (when the danger airspace is cold) or near D701 for the MoD - it looks like this would not have an effect but can I just check what the blue bounded airspace is on Slide 6 please (as opposed to the red on slide 2, 3 and 4 which I assume is the TDA)?

Thanks very much in advance [REDACTED]

[REDACTED]



Wed 19/05/2021 16:36

SP1 ACP

UC FW: UC TDA for Spaceport 1 Scolpaig North Uist

To

Follow up. Completed on 02 June 2021.
This message was sent with High importance.



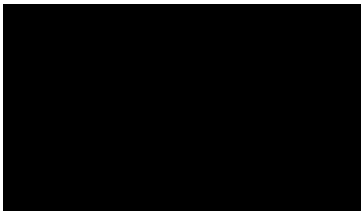
In addition to [REDACTED] am also managing the Airspace Change Proposal (ACP) for the Spaceport 1 (SP-1) consortium who in turn are developing a small vertical launch spaceport at Scolpaig, North Uist on the Outer Hebrides (as previously briefed at the UK/Irish FAB).

The attached slide pack contains a brief summary of the requirement for a Temporary Danger Area (TDA) to support suborbital 'sounding rockets' by this September (ACP-2021-37). I would like to commence formal engagement on the TDA proposal in accordance with the ACP process. It should be noted that this ACP (ACP-2021-37) is being run in parallel to a permanent airspace change for the same site, namely ACP-2021-12; full details can be found via the CAA airspace portal at: <https://airspacechange.caa.co.uk/search?Page=1&SponsorOrganisation=QinetiQ%20Ltd> - Correspondence regarding ACP-2021-12 will be sent out separately in support of Step 1B, (design principles) of the ACP process. In addition to the information contained within the slide pack, the following is offered for consideration:

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- Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place
- There will be no requirement to activate D704

As a key stakeholder affected by the activation of the EG D701 Danger Areas (in particular where they affect the NOTA), it is requested that you could consider the above bullets and attached presentation, and highlight any concerns or issues with the TDA proposal to the undersigned at SP1ACP@qinetiq.com by Wednesday 9th June 21. As always, your participation in this process is very much appreciated.

Kind Regards





Wed 19/05/2021 15:26

RE: CAUTION: External email - UC TDA for Spaceport 1 Scolpaig North Uist (UNCLASSIFIED)

CC: SP1 ACP

Follow up. Completed on 02 June 2021.

You replied to this message on 19/05/2021 15:54.

Sent: 18 May 2021 08:03

Subject: CAUTION: External email - UC TDA for Spaceport 1 Scolpaig North Uist

Good Morning,

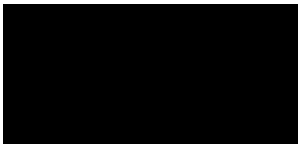
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As important aviation operators in the local area it is requested that you could consider the above bullets and attached presentation, and highlight any concerns or issues with the TDA proposal to the undersigned at SP1ACP@qinetiq.com by Wednesday 9th June 21. Your participation in this process is very much appreciated.

Kind Regards



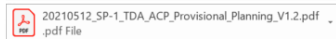
QINETIQ



Wed 12/05/2021 12:28

UC FW: UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)

To



Good Afternoon,

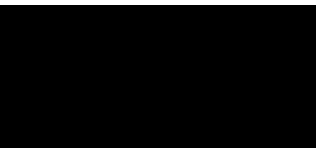
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QINETIQ

Connect with us:

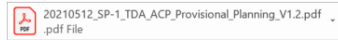




Wed 12/05/2021 12:24

UC FW: UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)

To



Good Afternoon,

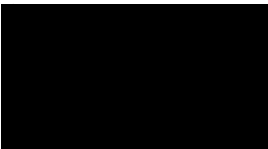
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Kind Regards



QINETIQ

Connect with us:





Wed 12/05/2021 12:25

UC FW: UC FW: UC Spaceport 1 Scolpaig North Uist - Temporary Danger Area (TDA)

To



20210512_SP-1_TDA_ACP_Provisional_Planning_V1.2.pdf
.pdf File

Good Afternoon,

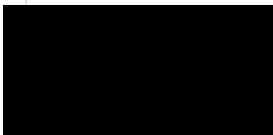
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Kind Regards



QINETIQ

Connect with us:





OFFICIAL



Ministry
of Defence

Defence Airspace and Air Traffic
Management (DAATM)

Email: DAATM-
AirspaceConsultation@mod.gov.uk

21 May 2021

Dear QinetiQ,

FORMAL MOD RESPONSE TO ACP-2021-037 SPACE PORT 1 TDA

1. The MOD would like to thank QinetiQ for the opportunity to provide feedback on ACP-2021-037 Space Port 1 (SP1). Whilst discussions have already taken place between QinetiQ and the MOD on some of the subjects described in this feedback, please accept this as the full formal MOD response for your consideration, which includes those discussions. The feedback is split into two parts: firstly, reference the TDA location itself and secondly on the wider impacts on MOD operations, including utilisation of D701.

Proposed TDA Location

2. Regarding the location of the TDA required for SP1, the MOD assess that there is a negligible impact to operations, as it is adjacent to existing Danger Areas (EG D701 and EG D704).

3. [REDACTED] are an ATS provider in that area and due to the constraints of the equipment provided by NATS, radar mapping is only updated on a quarterly basis in line with an AIRAC cycle. Therefore, they require a longer than normal lead in time of between 3 and 5 months to accurately depict the DA on their surveillance displays. In this instance the MOD are aware that these timescales may not be met and temporary mitigations may have to be put in place at 78 Sqn. This factor should be taken forward for related ACPs.

4. The Airspace Management Cell request that extant Airspace Management (ASM) procedures and protocols for the utilisation of D701 are used (or renegotiated by another party), to maximise FUA and minimise the impact of a military Danger Area on the wider route network.

Wider Impacts on MOD Operations and Other Comments

5. The following comments, although not necessarily linked to the airspace structure itself, are relevant to the activity involved and potential impact on MOD users. Regarding any utilisation of EG D701, it should not be assumed that current operating procedures and practices are relevant or can be mapped across to rocket launch activity until further discussions between the MOD and QinetiQ have taken place and agreements reached. These factors have been added for transparency and clarity.

6. As alluded to in informal discussions with QinetiQ, the MOD will assume that any exemptions to the Air Navigation Order (ANO), and/or other CAA approvals regarding the firing of rockets will be in place prior to the TDA being approved.

7. To enable activities to take place in D701, QinetiQ will be required, as a commercial user, to enter into some form of agreement with the MOD to access and utilise D701. This could be as part of the Long Term Partnering Agreement (LTPA) via the Other Work Approvals (OWA) process. Commercial activity, such as this proposal, would need to be correctly prioritised against

OFFICIAL

Page 1 of 2

OFFICIAL

other range users, fit in with current MOD agreements for airspace and range use and take into account any existing agreements within extant LoAs. MOD comments related to this are as follows:

- a. Any Airspace Management Protocols that are in force, such as the limitation on the number of days per calendar year that certain numbers of Oceanic Entry Points (OEPs) can be 'closed' due to the resulting impact on the North Atlantic Track should be considered. The D701 LOA pertaining to the range activation and OEP closures is about to be reviewed regarding the way jamming activity is classified in relation to weapons traces and effects on civil traffic. This may affect further use and closure of OEPs moving forward and should be considered within any agreements made.
- b. Information on the size of the safety traces/maximum energy boundary of the rocket would dictate how many segments of D701 and therefore the impact on other airspace users.
- c. As discussed informally, the launch activity may have to take place at certain times of day to help minimise the impact to other airspace users.
- d. Have the potential implications of HIAL removing ATS provision from Benbecula, and therefore a DACS from D704, unless the Hebrides Range is manned with ATCOs for larger scale activity, been considered? This may cause a bottleneck effect of traffic avoiding both D704 and also the proposed TDA. The current LoA with the MOD is being rewritten.

8. The MOD would like to understand what procedures would be put in place to enable flights and operations of national security to enter/cross the active TDA and D701 complex. This includes a routine DACS or DAAIS and times when they may not be available. The MOD would also like to understand how QinetiQ will employ 'clear range procedures' when operating within D701 and the TDA.

9. The UK Space Operations Centre (UK SpOC) is responsible for monitoring and reporting of all UK space launch activities. The UK SpOC require information on numerous elements of a launch and subsequent activity, including but not limited to: notification of upcoming launches, launch area, drop and abort zones, mission profiles, tracking data, frequencies and understanding going go criteria. This information will be used to enable the UK SpOC to Detect, Track, Characterise and Report (DTCR) UK space launches.

10. Please do not hesitate to contact the undersigned if further information, discussion or clarity is required. The comments above may also be relevant to the permanent ACP; however, the MOD are fully aware of the formal CAP1616 process and will be happy to re-assess them at the appropriate stage of that ACP process. The MOD look forward to working with QinetiQ on this and

B-30



Tue 18/05/2021 10:29

FW: SP-1 ACP TDA -: DAATM engagement

To: ☐ SP1 ACP

Follow up. Completed on 02 June 2021.

This message was sent with High importance.



20210504_SP-1_TDA_ACP_Provisional_Planning_V1.pdf
2 MB

Sent: 05 May 2021 12:09

Subject: SP-1 ACP TDA -: DAATM engagement

Importance: High

In addition to managing the ACP for Spaceport 1 (SP-1), ACP-2021-12, I have recently initiated an ACP for a TDA to cover the launch of suborbital 'Sounding Rockets' from the SP-1 site (North Uist) this September. Ahead of the formal assessment meeting with the CAA, I have decided to engage with targeted stakeholders such as NATS, HIAL and MOD in an effort to meet the challenging deadline of the first planned launch (full ACP not expected until Q1 2023). I therefore forward the following for your (and wider MOD) consideration:

- TDA requirements from Sep 2021 SFC – UNL activated by NOTAM as per D701 areas
- Associated D701 Areas activated simultaneously will be minimised with preference to utilise D701A, B, D & C in the first instance but may include D701E, G, H & I worse case (not necessarily all but combinations as determined by safety trace or sounding rocket)
- Sounding rockets will fit in around any MOD activity (where safe to do so – coincident operations); launches restricted to post 1300UTC and probably later (MOD activity dependent)
- Frequency of launches:
 - o First rocket circa late September 2021, with a second launch in October and two more in November 2021
 - o Recommence launch sequence in March 2022 with two to three launches occurring every other month
 - o Acknowledged TDA extending 90 days would accommodate the launches for 2021 but not for 2022 where it is envisaged a further two TDAs would be required, one of which would have to extend the 90 day period by approximately one month – This and requirement for repeat TDAs will be negotiated with the CAA at forthcoming Assessment meeting.
 - o Launches in 2022 are likely to cease by late October with the intention of recommencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place

As part of the ACP process for a TDA it would be useful if MOD could consider the above bullets and presentation and highlight any concerns or issues with the TDA proposal to the undersigned by Thursday 13 May 21. If you have any questions please drop me an email or call on the numbers below. I intend to contact the DAAM in a separate email as I am aware that DE&S do have concerns regarding future spaceport use of EG D701 however, if you would prefer me not too then please let me know.

Kind Regards



Tue 11/05/2021 08:40

UC SP-1 Discussion

Required

As the meeting organizer, you do not need to respond to the meeting.

When 11 May 2021 09:30-10:00

Location

Hope this Webex link works if not call me

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Tue: 11/05/2021 16:14

RE: UC 20210510-UC SP-1 TDA

To

Cc

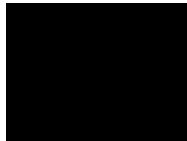
Bcc

This message was sent with High importance.



Thanks again for your timely response and follow up Telcon this morning. I offer the following (inline below) in response to your questions and highlighted points. If you have any further questions or points please do not hesitate to contact me.

Kind Regards



QINETIQ

Connect with us:



Sent: 10 May 2021 17:11



Subject: 20210510-UC SP-1 TDA

for delay in responding.

Looking at the requirement my thinking is:

The PP appears to suggest that the sounding rocket and follow up space launches are all joint QQ projects with a presumption that they are, therefore, within current MOD agreements for airspace and Range use? Yes, the intention is for QQ as part of the SP-1 consortium to manage the airspace and seospace associated with SP-1 activities (both suborbital and orbital launches) in the same manner current activities are managed in the Hebrides Range. Any such 'commercial' activities will be conducted within current MOD agreements for airspace and Range use.

The proposed requirement is not, as far as myself and the DE&S DAA, part of the current LTPA. This is being addressed through commercial with an update to the 'Other Work Approvals' (OWA) process. I am not sure what level of Range support and use of any equipment associated with the Range would be required but, if available, use the airspace without such support is clearly available to all through the booking process you highlighted. That is now the same for all users. This use would, therefore, be seen as a commercial agreement and would need to be a commercial contract in areas where MOD/DE&S Range equipment is utilised. For the purposes of the TDA ACP it is assumed the appropriate OWA will be in place in time for the first sounding rocket launch later this year (circa September) but recognise this is dependant on MOD approval.

Clearly any booking would be as per the process and adheres to that booking priority – any MOD requirement would sit higher. Accepted, as per direction detailed in the MOD (DAATM signed) memo as referenced. SP-1 are fully aware any sounding rocket activity will have to fit around MOD activity with MOD retaining priority. It is envisaged that the sounding rockets will only launch after 1300 UTC to minimise impact D701 activity has on the NAT tracks and any such launches, as infrequent as they are, may have to be delayed until late afternoon/early evening if MOD activity dictates.

I would be interested to know what regulations they would be following and launching under and to what ANO? The CAA have made provision under the ANO for small rocket launch where such rockets fall within specified criteria; this means certain sounding rockets can be launched under CAA regulation vice space industry act as referenced in your following bullet. It is recognised that the secondary legislation for the act is not to be released until July this year. More information on the CAA process can be found at: <https://www.caa.co.uk/Consumers/Space/Rocket-launch/Requirements-for-launching-a-rocket/>

The MOD utilises an exemption against the ANO - i.e. Formidable Shield...as they sit under the MOD umbrella etc. Do they have such an exemption? When you book you would need to confirm which ANO you will operating or what exemption you have. DE&S cannot approve non-MOD use under exemption. Understood, for the purposes of the TDA ACP it is assumed all appropriate CAA approvals will be in place.

If this an approved MOD use then DE&S could approve but the ANO and information we have seen suggests there will be a separate SPACE ANO, (SPACE INDUSTRY ACT 2018 stated there would be a separate SPACE regulatory body). As such, I do not think there are currently regulations or ANOs specific to this task? Please see previous response.

We have had no direction on prioritisation from HM Govt and, as such, would look at this as simply another booking, at this stage. Acknowledged, as above; SP-1 recognise MOD priority.

The Benbecula vs QQ LOA for Ops at Benbecula Airport is currently being re-written, following extensive liaison as Benbecula Airport will shortly become a remote asset of HIAL. As such, the operating procedures have changes considerable in relation to EG D704 and portions of EG D701 around the airfield. This LOA is due signature in the next few weeks. I note the aspiration is for an ACP for an additional DA to be bolted onto the e.g. d701/704 Complex. Given the recent conversation and changes with Benbecula I expect this may be challenged. QQ is cognisant of the LOA re-write and potential implications of Benbecula removing ATC cover however, the TDA will not necessitate activation of D704 and the proposed airspace design will not affect any of the airport's procedures or flight profiles flown by LoganAir; both parties have confirmed this. The clear range procedures that QQ operate for D701 will be extended to cover the TDA airspace.

The diagrams suggest that up to 2 x OEPs could be affected. What is the trace based upon, as if the trace is any larger there could be an issue re the current MIOD V NATS LOA on numbers of closures per annum? The diagram is for representational purposes only; the actual D701 areas affected will be driven by the type of sounding rocket in use. These areas will be the minimum required to safely contain the Maximum Energy Boundary (MEB) of the subject rocket using the same process and procedures the Range experts use for any T&E activity. The aim will be to plan a trajectory that will have the minimum impact on OEPs and launches will be planned post 1300 UTC. It is envisaged any OEP closures necessary for SP-1 operations in the future (for both sub and orbital operations) would have to be negotiated separately to the MOD/QQ/NATS/CAA/IAA LOA

I will follow up through the official DAATM channel for the MOD formal response but happy to chat as required. Thanks for the call, our discussion most useful and hopefully clarified many of your points.

Regards



Tue 08/06/2021 12:07

SP1 ACP

UC SP-1 TDA Sep 21 - MOD Response WebEx Meeting Record.

To

Cc

Bcc

This message was sent with High Importance.

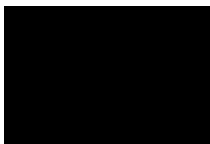
Dear All,

Thank you again for your participation in today's WebEx meeting (20210608-0900) and clarifying the MOD position and concerns associated with the proposed TDA to support SP-1 Sounding Rocket activities later this year. As promised, I have summarised the details of points raised, discussion and understanding:

- in attendance; all addressees listed in this email;
- QinetiQ provided a brief background description of SP-1 and the requirement for a TDA; it was further explained that the TDA and associated airspace requirements was just one piece of the jigsaw with many other parallel activities (planning consent, licences, environmental impact, etc) dependent on each other, and needing to be completed prior to first launch;
- the intention is for QinetiQ to manage SP-1 launch activity and associated Airspace Management (ASM) processes and procedures thereby removing the need for SP-1 to develop any bespoke procedures or need to apply separately for use of the EG D701 complex;
- in effect, the TDA will be considered an extension of EG D701 and ASM processes and procedures will be mapped across accordingly subject to the conditions agreed in the LTPA Other Works Approvals (OWA) between QinetiQ and MOD [REDACTED];
- LTPA OWA will detail conditions of use for EG D701 including Range capacity, priorities (not overriding MOD activities) and requirement for rocket and launch operators to have the appropriate CAA approvals and licences (it was noted that sounding rockets would be licenced under the ANO and sit initially outside the space industry act 2018);
- sounding rockets will be treated in the same manner as for rockets fired during ASD/FS21 regarding due diligence and safety management processes conducted by QinetiQ who will meet the necessary Health and Safety executive (HSE) legislation on safety and risk to third parties where the risk level must be at least ALARP if not 'broadly acceptable';
- QinetiQ will work with the rocket operator to establish the appropriate safety traces based on the Maximum Energy Boundary (MEB) of the system and follow due safety analysis and processes accordingly;
- once MEB is known the corresponding EG D701 areas will be identified and where possible, the orientation of the rocket launch will be adjusted to cause the minimum impact on other airspace users;
- sounding rockets launches will occur post 1300 UTC to prevent impact on the number of OEPs the Range is allowed to close as prescribed in the LoA that defines the coordination, agreement and notification procedures for the use of airspace by MoD Hebrides Range within the Scottish Flight Information Region (FIR), the Shanwick Oceanic Control Area (OCA) and the Northern Oceanic Transition Area (NOTA) dated 1st Oct 20;
- sound rocket launch timings will remain flexible to work around MOD activity as necessary;
- Benbecula DACS D704 not relevant as D704 is not required for SP-1 operations;
- QinetiQ is cognisant of HIAL ACP regarding removal of ATCOs and remote tower and will work with them on Haz ID and any additional procedures SP-1 activities may necessitate; it was suggested that it would be too late to include SP-1 Ops in the most recent update to the LoA and therefore a separate mechanism may be necessary;
- extant Range procedures will be used for access to TDA and corresponding D701 areas by national security/emergency aircraft;
- extant 'Clear Range' processes and procedures will be in place for SP-1 activities; the safety trace will be monitored to ensure awareness of what is there using sensors/surveillance systems (including use of MPA where necessary);
- the SpOC will be informed of all necessary information regarding the launch, including the mission profile, tracking data, EM frequencies used, abort zones, etc
- this requirement, to provision details to the SpOC, is the responsibility of the launcher operator and the SIA regulator (CAA) and is linked to the granting of a launch licence. It supports the UK responsibilities under the Outer Space Treaty; and,
- for commercial launches the launcher operator also holds the responsibility for provisioning information to OfCom, the MCA, Environment Agencies, and a number on non-airspace related stakeholders.

Please contact me by COP today if you believe I have missed anything significant or you disagree any of my points above.

Kind Regards



QINETIQ

Connect with us:





Tue 18/05/2021 10:29

FW: UC 'Space' enquiry

To ☐ SP1 ACP

i Follow up. Completed on 02 June 2021.

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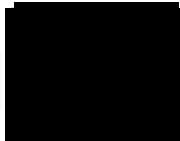
Sent: 27 April 2021 16:40

Subject: RE: 'Space' enquiry

Hope all is well at your end! In addition to the four of us, can we request that you also include [REDACTED] as the NATS POC for external (ie not NATS sponsored) ACPs in any correspondence in the first instance.

Look forward to continuing engagement on the ACPs.

Regards



Working remotely until further notice

UAS
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Sent: 27 April 2021 12:54



As requested.

Please contact [REDACTED] in the first instance regarding any SPACE enquiries you may have.

[REDACTED] c'd also

Kind regards



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Tue 18/05/2021 10:29

FW: UC 'Space' enquiry

To: ☐ SP1 ACP

Follow up. Completed on 02 June 2021.

This message is part of a tracked conversation. [Click here](#) to find all related messages or to open the original flagged message.

Thanks Paul,

I'll have a chat internally and come back ASAP

Regards

Sent: 05 May 2021 08:46

Subject: RE: UC 'Space' enquiry

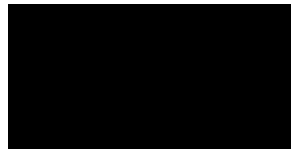
Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

In addition to ACP-2021-12, I have commenced an ACP on behalf of the Spaceport 1 (SP-1) consortium for a TDA (ACP-2021-037) that is required for sub-orbital sounding rockets. Ahead of the CAA assessment meeting I would like to commence formal engagement with NATS regarding the TDA and offer the following for consideration:

- TDA requirements from Oct 2021 SFC – UNL activated by NOTAM as per D701 areas
- Associated D701 Areas activated simultaneously will be minimised with preference to utilise D701A, B, D & C in the first instance but may include D701E, G, H & I worse case (not necessarily all but combinations as determined by safety trace or sounding rocket)
- Sounding rockets will fit in around any MOD activity (where safe to do so – coincident operations); launches restricted to post 1300UTC and probably later (MOD activity dependent)
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 - o First rocket circa late September 2021, with a second launch in October and two more in November 2021
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 - o Launches in 2022 are likely to cease by late October with the intention of re-commencement in March 2023 by which time it is anticipated a permanent airspace solution will be in place

As part of the ACP process for a TDA it would be useful if NATS could consider the above bullets and presentation and highlight any concerns or issues with the TDA proposal to the undersigned by Thursday 13 May 21.

Kind Regards



QINETIQ

Connect with us:



Tue 25/05/2021 15:32

RE: UC 'Space' enquiry

To: ☐ SP1 ACP

Cc: [REDACTED]

i Follow up. Completed on 02 June 2021.

You replied to this message on 01/06/2021 17:21.

From: [REDACTED]

Sent: 25 May 2021 13:55

Subject: RE: UC 'Space' enquiry

Can I check that the consultation on TDA ACP (ACP-2021-37) closes on the 9th Jun

Regards

Michael

NATS

Manager NATS Operational Policy



Sent: 12 May 2021 14:11

Subject: RE: UC 'Space' enquiry

Thanks for the update. The affected areas of the business are Impact Assessing the change. We will endeavour to respond to you by the 27 May. I will let you know if that timescale will slip.

Regards

NATS

NERL plc Response to Spaceport 1 TDA (ACP-2021-37)

Thank you for allowing NATS to respond to your consultation on Spaceport 1 TDA (ACP-2021-37). At the time of writing, NATS cannot currently support this ACP until:

1. The questions posed below are resolved to our satisfaction,
2. NATS has clarity on how any work associated with the development of this TDA will be funded. Therefore, this response is provided on a no commitment basis.

Set out below are some issues/considerations raised by the ACP.

Impact on EG D701

NATS understands that the use of EG D701 is tightly controlled by a Letter of Agreement (LoA) signed by NATS, the MOD, QinetiQ and the IAA. The use of EG D701 can have a significant impact on North Atlantic traffic. This has raised some questions on which we would seek clarity from the Sponsor,

1. Is there capacity left within the LoA to fulfil the Spaceport requirement?
2. Can the Spaceport activity be contained within the overall number of activations per year?
3. Will the LOA need to be re-negotiated to allow for the increase in activity? If so, can this be achieved within the timescale stated?

Airspace Capacity Management

NATS seeks clarity from the Sponsor on the protocols that will allow a predictable flow of GAT that works beyond the current low levels of traffic that we see now. Forecasts show traffic will likely return to 2019 levels by around 2024 so the impact modelling needs to reflect this regeneration of civil traffic. Specific issues include,

Buffer Zone:

NATS would seek clarity from the Sponsor that

- (a) No further Buffer Zone is to be applied and that all activity is contained within the EG D701 complex.
- (b) No further Buffer Zone is to be applied when Free Route Airspace D1 is deployed in December 2021.

ERNIP Pt3 requires all SUA to be managed by the UK AMC that effect the network. EG D701 is a managed danger area. The Network Manager doesn't recognise TDAs in terms of airspace management and as such the new area would need to be added to the UK ASM tool, LARA. To enable management of the proposed area it would require a SUPP to the AIP to be published. Danger Area activity descriptors do not cover 'Space Rockets' and therefore the associated Safety assurance around them does not exist.

Total Impact on the UK Network:

These launches will have an impact on the UK Network and the effects are yet to be quantified. NATS would seek clarity from the Sponsor on

- (a) What criteria will be used to deconflict launches here, and across the UK, when more space ports become available, to minimise any impact to GAT and support the recovery of the airline sector?
- (b) Airspace management priorities and how this activity and other related activities (e.g. Military exercises, GPS jamming) which have an impact on the UK network will be coordinated.

Consideration should also be given to designing protocols associated with these launches, and GPS jamming, that allows for civil suppressions to minimise disruption to civil traffic flows.

NERL plc Response to Spaceport 1 TDA (ACP-2021-37)

Attributable Delays:

In our RP3 settlement, delay due to direct military activity is NATS attributable. NATS needs to understand how these events are to be classified by the state.

Similarly, we would expect any impact to flight efficiency (the SDI metric) because of launch activity to be afforded the same treatment.

The sponsor and CAA would need to agree the acceptable impact in relation to GAT with respect to these activities.

General Queries Requiring Sponsor Clarification

1. There are no references to altitudes or scheduled times. Whilst it states the launch will "avoid peak periods" what happens if there is a delay and impact on NAT? Can the delay time be adjusted to minimise the impact on the network? NATS would seek clarity on the definition of 'peak period'.
2. How will the sponsor ensure that there is robust pre-planning and co-ordination with Prestwick Centre? Who will determine the priority and balance airspace demand between a Space launch and a busy North Atlantic track day?
3. What are the contingencies arrangements if it malfunctions before/after lift-off?
4. There is no associated detail in terms of altitudes or lats/longs. The airspace should always be the minimum required to safely undertake the required activity. NATS will require the dimensions of the Segregated Airspace including details of all points associated with the area which would need to be ADQ checked.
5. Will all launches require the full extent of the identified airspace, and if not how will the efficient use of airspace be managed by reducing the activated volumes to minimise the impact and burden on other users?
6. Flight Plan Buffer Zones (FBZ) Dimensions: These need to be ADQ checked co-ordinates. Have the 5 LNCs been reserved with ICARD to allow circumnavigation of the new area?
7. What is the status of co-ordination with other States & ANSPs (if applicable)?
8. What is the anticipated duration of each activation?
9. What is the impact to the Oceanic Airspace?

Timelines and ATC Procedures

The AIP submission date for the September AIRAC is the 11th of June. The June gateway targeted for approval is the last Friday of June. If being promulgated via a SUPP (as is the ERNIP P3 requirement) the final submission date is the 13th of August. To enable these to be 'managed areas', adaptation would be required. Furthermore, the cut-off date for the 09 Sep AIRAC for changes to the EU NM system is the 15 July 21. The dates for system updates would also need to be considered and co-ordinated with NATS and considered by the sponsor to ensure they could be accommodated into their plan.

Therefore, timescales to deliver this change in time for the Sept AIRAC build are not considered feasible. This means that there is an associated risk that the proposed TDA will not be AMC managed nor will the necessary EU NM flight plan avoidance requirements be introduced should the CAA approve this ACP in the proposed timescale.

NERL plc Response to Spaceport 1 TDA (ACP-2021-37)

To overcome this issue, NATS will need to prepare a Temporary Operating Instruction (TOI) and associated hazard analysis before the TDA can become active. September will be a challenging timescale to complete this work. We will require input from the Sponsor to assist with the associated Hazard Analysis work. We will require further details to enable the team to develop this TOI. It should be noted by the sponsor, that the outcome of the hazard analysis is far from certain and there is potential for the identification of a risk which would be unacceptable to NATS.

Major system (including mapping) changes can only be made in March, June, September and December.

Based on the information provided, NATS can describe two options which may be able to deliver the change;

1. Ask the sponsor to delay implementation to the December AIRAC date so the changes could be made to the system.
2. Using a TOI, it may be possible to implement a 'procedural fix' between September and December so that ATC could tactically manage the TDA to bridge this AIRAC gap. If possible, the TDA could be implemented in the December AIRAC to align with the implementation of FRA DP1.

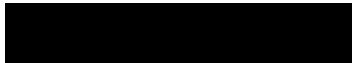
As previously stated, option 2 carries a risk for the sponsor that, as a result of a hazard analysis, an unacceptable risk to the operation is identified.



Thu 10/06/2021 08:28

SP1 ACP

RE: UC 'Space' enquiry

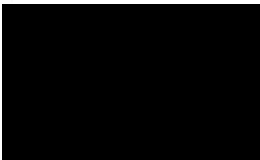


This message was sent with High importance.



Thank you for the NATS response to ACP-2021-37 TDA for SP-1 Scolpaig. Now that we have had time to consider all the points raised we would very much like to discuss these with you and your colleagues as soon as possible, ideally via WebEx that I can arrange. As time is extremely tight to meet the June Gateway approval, we would be much obliged if you could accommodate this meeting early next week (as previously suggested). We are available Mon, Tue, Wed and Thu morning next week. Please could you consider our request and come back to me with your preferred day and time.

Kind Regards



QINETIQ

Connect with us:



Sent: 09 June 2021 18:06

To: SP1 ACP <SP1ACP@qinetiq.com>



Subject: RE: UC 'space' enquiry



Please find attached the NERL plc response to Spaceport 1 TDA (ACP-2021-37)

Regards



NATS





would be put in place. Sponsor confirmed that the actual volume of airspace expected to be activated is not yet known, is subject to confirmation and further analysis by consortia partners, but would be known no later than D-21.

This led to NATS primary concern - that more airspace would be activated for 'convenience' than will be needed, especially given the limited range of the sounding rockets operating under an ANO approval (circa 50 km), leading to greater airspace access being frequently denied to GAT (in particular NAT operators), and in addition to the extant disruption created by additional military activation of the D701 complex (e.g. FS 21, GPS jamming et al). The Sponsor reiterated the fact the Range would only activate the minimum number of corresponding D701 areas that were absolutely necessary to contain the hazard and as yet this information was not available. Orientation of rocket launch would also factor in the best use of D701 areas to minimise impact on the ATM network – Range staff are very familiar with these requirements. Full safety analysis regarding the safety trace/Maximum Energy Boundary (MEB) of the subject sounding rockets would have to be undertaken before the number of D701 areas could be declared. NATS expressed concerns that this information might not be known until D-21 and therefore the subsequent impact on the network not understood until after D-21. The increased cost to the airline operators could not be evaluated neither could the environmental impact through increased fuel burn and CO₂ emissions.

NATS suggested further sub-division in D701 once safety trace/MEB detail known may offer a more suitable, safe and sustainable approach, as this could lead to a more efficient use of airspace and would demonstrate compliance with CAA policy and Sponsor requirements to only use the minimum airspace necessary to contain hazards/activity. It was recognised this could not be done in time for Sep launch but NATS would like to see this approach, or similar, implemented for 2022 launches and beyond to achieve a more sustainable operation for SP-1 and GAT alike. This requirement is especially pertinent following the introduction of FRA in Dec 21 given each area is required to be managed by the UK AMC in this environment and have an appropriate Flight Plan Buffer Zone associated to it. Sponsor agreed this should be considered and made a priority. NATS requested early engagement once full airspace requirements were known for first and corresponding launches.

It was also recognised that the UK AMC would need to add the TDA into LARA for it to be managed through the AUP process, noting that this would not be possible for Sep activations; however, QinetiQ were encouraged to start reusing LARA at the Hebrides Range for them to be in position to manage this activity.

NATS highlighted the issue regarding descriptors associated with Danger Area activities as prescribed in the AIPs and the fact 'rocket launch' did not feature **therefore there was no safety assurance against such activity**. The Sponsor explained that as the first sounding rocket launches would most likely be under the ANO their performance/capability would be limited accordingly and as such they would have significantly less impact or capability of the ballistic missile targets flown during the At Sea Demonstration/Formidable Shield (ASD/FS) MOD exercises; it was therefore considered that the appropriate assurance against this activity was in place and could be fielded under one of the existing descriptors. However, it was recognised that sounding rockets were not a MOD activity and as such the Sponsor agreed that this should be a subject of discussion with the CAA. The Sponsor recognised that for orbital rocket launches this issue would need ratifying by the regulator and this would most likely fall out of the secondary legislation associated with the Space Industry (SIA) Act 2018.

NATS-QinetiQ WebEx Discussion SP-1 TDA Response – 16 June 2021

In Attendance:

QinetiQ:



Introductions:

Aim of meeting to run through NATS response and for Sponsor to gain an understanding of concerns and issues as highlighted:

Funding:

Discussion on how will NATS activities associated with TDA be funded. Wider aspects of funding discussed (i.e. NATS gain revenue from charges to airlines for their investment and operating expenses) – TDA development costs, plus corresponding use of D701 for additional activities may cause delays and/or increased costs for airlines with no corresponding benefit to them. Justification for increased costs are expected to be difficult for NATS to pursue. NATS RP3 settlement is based on a planned programme of airspace change, and SP-1 activity for 2021/22 was not identified or included, was confirmed to be not MOD activity as per extant D701 LOA, and funding to support implementation would need to be resolved. Sponsor agreed that funding for these changes should be captured in the submission and they would discuss with the CAA accordingly.

LOA

Sponsor explained that process and procedures will be in accord with extant LoA for all D701 areas, TDA will be managed as an extension of D701 and the numbers of OEP closures were not considered an issue as sounding rockets will be launched post 1400UTC. NATS view is that the LoA and use of D701 was previously agreed for MOD activity and planned MOD use, and not for use as proposed here. Therefore, it is anticipated that new agreements/arrangements would have to be negotiated regarding SP-1 use as in effect this was an unforeseen increase in use that is currently not agreed.

Buffer Zones

It was recognised that the TDA requested for Sep and Nov 21 would not be managed by the UK AMC given the time needed to achieve the system updates and associated management processes required to be introduced with the Network Manager. As a consequence, the Sponsor acknowledged that specific D701 areas would need to be activated in conjunction with the TDA; as a minimum these would be: D701Y, D701C and D701E in order that appropriate flight planning restrictions



recognising the Westerly NAT tracks occur predominately 0900- 1600 UTC with 'peak' traffic occurring 1000-1300 UTC based on NATS heat Maps from 2018 and 2019.

2. QQ will use the same ASM protocols and procedures that are established in the existing LoA with MOD, NATS and IAA; QQ will therefore provide the necessary pre-planning accordingly at D-21, D-5 and D-1 – recognising that the formal LoA may not be applicable as this is with MOD DE&S however, the Range would still adopt exactly the same processes and procedures for the TDA and activation of the associated D701 areas; it is considered that this is the safest and most easily managed process for airspace management. It is noted however, NATS concern regarding inefficient use of airspace by using the D701 areas without any sub-divisions. The Sponsor considered on balance, until the extent of D701 usage was known, the safest option was to utilise the existing D701 areas and corresponding ASM procedures as this is understood by all airspace users.
3. Contingency arrangements for the TDA will be that same as for D701 procedures.
4. ADQ checks – [REDACTED] the TDA coordinates are derived from existing ADQ checked D701/4 coordinates. The Sponsor Acknowledged the TDA briefing pack did not contain the coordinates however, the single line depicting the boundary of the TDA is drawn between two existing ADQ geographical points associated with the existing D701 and D704 Danger Areas. These coordinates are:

574923N 0071500W

574128N 0073703W

573305N 0073017W

In addition, the Sponsor will need to provide ADQ compliant coordinates for the Flight Plan Buffer Zone that will need to be established around the area, upon introduction of FRA (Dimensions and Design guidance can be provided by NAT [REDACTED])

5. As per SoPs at the Range once the Max Energy Boundary (MEB) of the rocket system is known (as evidenced in the CAA approvals process), the Range will determine which D701 areas will need to be activated - QQ will work with NATS PC to establish which areas may have the least impact if we can alter the launch orientation of the rocket. Only the minimum areas require will be activated as per current FUA processes at the Range.
6. Flight planning buffer zones – previously covered.
7. IAA engaged pre 1400UTC launches their only concern.
8. Duration of activity expected to be between 2 – 3 hours per launch
9. Impact on oceanic airspace will not be known until MEB fully understood.

It is recognised the timelines are tight but the CAA have advised the TDA change if approved, will be promulgated via an AIP SUPP that the Sponsor will draft; the Sponsor is aware of the associated submission dates to meet a Sep launch and associated risks to the project.

Discussion points prepared by:

[REDACTED] sponsor for ACP-2021-37 TDA Scolpaig.
16 Jun 21

The Sponsor explained that the TDA and associated airspace requirements was only one of many requirements to enable the first sounding rocket launch; others including planning consent, launcher and rocket licences and potentially a space range licence. All were parallel work strands inextricably linked but each carrying its own risk to the project. The Environmental Impact Assessment (EIA) was also part of this work and it was recognised by the Sponsor that the ACP for the permanent solution would also need to consider the impact on GAT being re-routed as a result of D701 being active.

Total impact on UK network:

NATS is keen to understand how coincident airspace restrictions such as MOD activities and other spaceports would be coordinated in order to minimise impact on ATM network. Of particular concern to NATS is when the MOD are conducting GPS jamming and the associated volume or airspace needed to contain this activity. Discussion included the UK AMC involvement and their role in pre-planning. It was identified that new protocols would be required and it was unclear how priorities or future arbitration would be conducted as no priority for access to airspace has been laid out with regard to space industry activity under CAA UK ASM policy. PMN: [REDACTED] with a view to deconflict future launch activities and [REDACTED]

The Sponsor shared the expected sounding rocket activity with first proposed launch Sep this year, a second launch in October and two further launches in November. Launches would recommence in March 2022 with a rate of approximately two launches every other month until November (a potential for circa 9-10 launches). It was acknowledged that the TDA duration is nominally 90 days and the Sponsor had already engaged with the CAA to establish how this could be extended or, the TDA reactivated for 2022 without the need to expend resource on applying for additional TDAs.

NERL expressed the concern that the activation of components of the D701 Danger Area and the Temporary Danger Area proposed in ACP 2021-037 to support commercial activity, such as Sounding Rockets and Spaceflight would create delays and increased track mileage to commercial aircraft. It is expected that the activation of the volumes of airspace necessary to ensure safety of life will have a detrimental impact on the KPIs and environmental metrics that NATS is measured on. D701 is a Defence sponsored complex under the authority of DE&S and designated for defence activity. The effects of direct military activity is accounted for in the setting of the targets for the KPI's and metrics. Additional utilisation for commercial activity of D701 and associated TDA will create a detrimental impact on the KPI's and metrics, and NATS needs to understand how this will be accounted for in the KPI's and Metrics, to ensure that it is not unreasonably penalised as a result of these activities. Therefore, NERL cannot support activity where it leads to a NERL-attributable degradation in the performance metrics assigned by customers and/or our regulator (e.g. airline delays, degraded environmental or 3Di performance etc.). In this regard, and consistent with how these are handled in different circumstances (e.g. airports), NERL expects attribution of such degradations to be assigned/designated as non-NERL attributable.

General Queries Requiring Sponsor Clarification – Sponsor Response

1. The first sounding rockets will be regulated under the ANO and as such their Range and altitude are restricted accordingly as per details provided in the PPP. However given the altitude will still be above 29000ft it is expected the TDA and D701 areas will be promulgated as SFC to UNL. Timings are not yet known but it has been accepted [REDACTED] launches will be post 1400 UTC and not after 2359 UTC thus the statement avoiding 'peak periods' -



Thu 24/06/2021 14:03

SP1 ACP

RE: UC 20210616_WebEx_QQ_NATS_Response_Discussion_Points

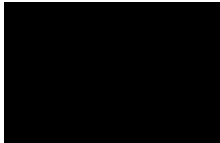
To: [REDACTED]
Cc: [REDACTED]

This message was sent with High importance.

[REDACTED] Can we stick with the 7th Jul 0930-1100 and could I ask you to facilitate the meeting through 'Microsoft Teams' again given our IT issues and preferred use of WebEx. Please could you also invite those CC'd. Might I suggest two parts to the meeting with a rough agenda as follows:

- TDA (ACP-2021-37) Discussion covering:
 - o Expected sounding rocket profiles
 - o Use of D701 for any launches (circa max of 4) this year – ASM considerations
 - o Subsequent TDA requirements 2022 and potential design options for a bespoke area within D701
 - o Activation processes, notification periods
 - o Orientation of launch to minimise impact on ATM network
- ACP-2021-12 Design principles:
 - o Discussion covering NATS response

Kind Regards



QINETIQ

Connect with us:



Sent: 24 June 2021 10:51

To: SP1 ACP <SP1ACP@qinetiq.com>

Subject: RE: UC 20210616_WebEx_QQ_NATS_Response_Discussion_Points

[REDACTED]

Unfortunately, the other dates don't suit. There is availability on the 8th July between 1400 and 1600. Would this work?

Regards

[REDACTED]

NATS

[REDACTED]



Thu 08/07/2021 13:24

RE: UC FW: UC ACP-2021-37 TDA SP-1 Scolpaig - WebEx meeting 2 NATS, QQ, CAA

To

Cc

You forwarded this message on 08/07/2021 15:39.

Good afternoon, [REDACTED]

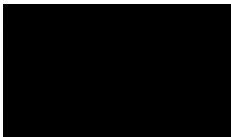
Thank you for the invite to yesterday's meeting and for the read out below. I agree, the meeting was very useful indeed and I think we achieved some progress. Certainly still more to do and I can assure you that I am following up within the CAA to keep the momentum.

Regarding your bullet points, I do have a few comments:

- We can stick with the original TDA design that provides the minimum airspace necessary around the SP-1 launch site to enable segregated airspace connectivity to the D701 complex for the launches this year; **Agreed.**
- This will facilitate the first launch in late Sep or Oct depending when we can submit the TDA submission proposal (23 Jul or 20 Aug) and subsequent launches thereafter within the 90 day period;
- We will include in the submission report the expected airspace requirements (in terms of D701 areas) that we calculate will be needed for the first launches – if more than one rocket type then the corresponding areas for each type will be provided once known;
- The TDA will be for a duration of 90 days from first day of activation (activated by NOTAM in accordance with normal process and procedures – aligned to the QQ/MOD/NATS/IAA/CAA LoA with regard to notification periods and processes); The TDA will be 'in existence', if you will, for a period of 90 days from the day of the AIC publication, which is referred to as its notification. For example, using our timeline of submission to us 23 July, AIS submission 13 Aug, AIC publication 23 Sep, this would notify the TDA for the period 23 Sep to 22 Dec. It will then be activated by NOTAM as agreed during the notification period.
- Extant Airspace Management (ASM) procedures for activation of D701 will be used when activated in support of SP-1 sounding rocket activity as already agreed with MOD;
- All information on rocket type (capabilities), D701 airspace requirements, expected dates of launch, duration of NOTAM and any other pertinent information will be shared with NATS, CAA and MOD as soon as it is available;
- **SP-1 airspace change Sponsor is recommended to commence a further TDA for sounding rocket launch commencing March 2022; as always, the request from AR is that the temporary application process is started as early as possible and preferably a minimum of 6 months ahead of the planned activity date. The remainder of your points in this bullet (highlighted) summarise the NATS feedback on how they would prefer to see any future temporary airspace applications to be structured. From a CAA perspective we do not tell sponsors what a future application *should* look like or seek to influence your proposal or design at this stage. It is possible that some feedback may be provided following the Decision related to this application that could be fed into any future application you may make. **this TDA should be proposed as an interim solution to the final airspace design and should consider:****
 - o **A more bespoke airspace design that does not rely wholly on the shape and size of the existing D701 areas;**
 - o **Should be modelled specifically for sounding rocket profiles using a layered approach, similar to how the MOD use D701 but orientated on the SP-1 launch site;**
 - o **A combination of a bespoke solution but integrated into elements of D701 where this proves the most viable solution while considering impact on the ATM network;**
 - o **Work should commence on this second TDA as soon as possible to ensure there is at least a 6 month lead in time to manage the process properly;**

I hope this is of use but please feel free to get in touch if you have any questions or require any further clarification of any of the points I have made.

Kind regards,



Follow us on Twitter: [@UK_CAA](#)



Thu 15/07/2021 16:29

RE: UC SP-1 WebEx (2) 7 Jul 21 - QinetiQ Readout

To ☐ SP1 ACP

Thanks for your brief summarisation below. Following internal review, and whilst also acknowledging your reflection that we were in danger of going round the wheel again on detail when we met last, we would suggest that your notes of the meeting have some inaccuracies with those we took.

Given all sides want to move forward on this matter, we would offer the following summary of our position as this may assist the sponsor in formulating next steps:

1. We advised that, to assure the safety of the network and our operation, we have commenced work to implement use of any approved TDA/airspace needed for a September launch, should that be granted UK CAA approval. This work, regardless of the nature of any approval issued by CAA in this regard, does not constitute NERL's endorsement of this airspace design as either suitable or sustainable beyond the initial September launch, and should be viewed simply as a pragmatic approach by NERL to ensure our customers' safe operations within this airspace.
In our meeting, both NATS and CAA were consistently clear that the accommodation was for one single launch, and had followed senior level discussions between both organisations. QinetiQ noted that this fell short of what they had indicated to be a possible requirement in their statement of need, with CAA/NATS consensus being that more than one launch had not been agreed and would require further discussion. QinetiQ advised the potential for the September launch, originally planned for September 15th, to move to end of September or potentially further into very early October. NATS did not expect this to prove problematic in itself, but that typical prioritisation processes would be used to ensure the Network isn't already reserved by other sponsors and/or wouldn't become compromised (i.e. business as usual processes) before confirming any date would be suitable.
2. NATS indicated that they would categorise any consequential delays or 3Di penalties following the use of this airspace (for this purpose, and for the September launch) as "other" (i.e. not NATS-attributable).
3. Consistent with our previously stated position, these arrangements apply only to the single September launch as there was insufficient time to bring forward a more transparent, justifiable and sustainable airspace design to accommodate this launch, but NERL expects that launches after September be subject to full and timely coordination to achieve a safe and sustainable use of the airspace that aligns more closely with CAA policy on airspace use.
In this regard, NATS advised that airspace requested by the sponsor should expect to satisfy DfT policy guidance to the CAA, recently published, that requires them (the CAA) "to ensure that spaceflight activities do not unduly impact on the efficient use of airspace which could result in an increase in the emissions contributing to climate change produced by air traffic. All reasonable steps should be taken to ensure that these impacts are minimised."
4. NATS commented that SP1 had not yet provided any indication of anticipated launch trajectories and/or of the airspace impact this may have, nor any indication of when this information may become available and this was hampering their ability to impact assess this against the network. NATS noted this contrasts with other Spaceports who have responded to NERL requests to share this information. SP1 indicated that some basic data could be provided, that NATS expected to find helpful, that they may be available to share, and SP1 agreed to progress this.
5. NERL and SP1 remain unclear of the airspace that will be necessary. For pragmatic reasons, and to accommodate only the single September launch, NATS indicated it would seek to be prepared for this single event, using an airspace design that reflects:
 - a. The airspace described in the TDA application, plus
 - b. A defined volume of airspace, recognised and bounded by ADQ-compliant and published coordinates. By proxy, this defined volume of airspace is recognisable as one or more sub-divisions of the D701 complex.
 - c. Consensus existed that ASM processes recorded within the D701 LOA provide an adequate template for this single September launch, and SP1 indicated their intent to follow them.
 - d. NATS notes that this complex has not been notified for this purpose, nor has it been consulted or agreed by LOA signatories that it be used for this purpose. [post-meeting note: For the avoidance of doubt, NATS requests that the accommodation of the single September launch does not indicate support for a change of use of any part of D701 for this purpose. Should this be the outcome desired, we would advise that LoA signatories should schedule a separate meeting to discuss, something NATS are willing to commence or facilitate if considered necessary].
NATS reiterated its lack of understanding around documented CAA policy on the re-purposing of Danger Areas for activities, durations and utilisation that haven't previously been consulted or approved. Further, NATS referenced the description by QinetiQ that "precedent had been set" in this regard with activities around [REDACTED] sponsors who were not signatories to the LoA for that airspace structure. NATS indicated that they intended to follow this up with CAA to ensure that there was a commonly held view on what sponsors and impacted stakeholders can expect as CAA policy and suggested the sponsor may also wish to consider an approach on this matter.
6. CAA indicated that their Manager Airspace Regulation had granted a form of approval for one or more space launch sponsors to "re-use" TDAs on a limited number of occasions. Where re-use of TDAs has been agreed with other spaceports the CAA indicated that a maximum of three utilisations had been agreed in principle, which was understood to mean that, subject to satisfying other steps in their TDA approval review and approval processes, there could be a maximum 3 x 90-day windows of use – a total of 270 days – coverage from the three "approvals". [post-meeting request of QinetiQ - please confirm this to be your understanding and clarify if it is not (?)] CAA described that the timing of those 3 "approvals" were down to the sponsor, with contextual discussion indicating that some ACPs take longer to approve than others, thus implying that sponsors needed to time the use of each use wisely.

We discussed a possibility that, after the initial September launch, a separate "interim" TDA be established to bridge the gap between this year's activity and the projected approval of a permanent ACP solution/outcome. CAA provided guidance around how to progress such an idea and there was consensus that this approach may offer an opportunity to co-develop an airspace design that offers a more sustainable solution for all airspace users and the regulator alike. The CAA indicated that they would require a separate ACP for this interim TDA. SP1 agreed to consider this suggestion.

NATS indicated that space launches currently were not assigned a priority by CAA and that an action was agreed by CAA in April for this to be considered, the risk for space launch sponsors being that low priority activity could potentially put at risk launches which cannot be assigned any priority. NATS considered it would be helpful for CAA to issue policy or guidance in this respect to prevent any undue delay to sponsors, and so that expectations are set fairly and transparently for all airspace users.

QinetiQ commented on the prolonged timescales for airspace change processes, hence their need to manage the risks created and their proposal to use D701 as a simple and efficient solution. NATS indicated their mutual understanding of CAA processes, that they recognised that these processes applied to all airspace users, equally, and that their experience was in working closely across industry to navigate the process as fairly and efficiently as possible for all stakeholders. Specifically, NATS indicated that sponsor-risk cannot conveniently be crystallised to other airspace users to work around, and that industry must work together to create the best, and a fair, solution for all.

Finally, whilst our readout from the meeting doesn't appear to align with you in all places, we trust these points will assist as we fully recognise there can be some discrepancies in small meetings of complex discussion and detail. Whilst it wasn't our intent to invite CAA to this meeting, your decision to do so may with hindsight proved beneficial within the meeting and may be helpful again; should you consider our account to be significantly different to that stated in the meeting-incomplete or unrecognisable. I haven't shared this with them, but I'm happy to do so – please advise?

As always, I would be more than happy to follow up on any of the above as I believe we all recognise how important it is to progress both the Interim and permanent solutions in order to ensure the safe and efficient operation of Airspace in the future.

Regards



Reply Reply All Forward IM



Wed 18/08/2021 17:30

SP1 ACP

UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification

To

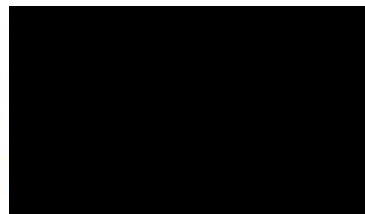
This message was sent with High importance.



Dear All,

Following further in depth safety analysis it has been necessary to modify the TDA for the Spaceport-1 site at Scolpaig North Uist. PSA letter explaining the change and offering more detail regarding the potential activation of corresponding D701 Danger Areas. It should be noted that the first launch from the SP-1 site is now not expected until mid-November this year. Please can you respond if you wish to provide any additional feedback as a result of this necessary change. Responses are required by the 1st September please.

Kind Regards



QINETIQ

Connect with us:



ACP-2021-37 Temporary Danger Area Spaceport-1 Scolpaig North Uist

Introduction

As Sponsor for the above titled temporary airspace change, I contacted you in May this year requesting feedback on the change proposal for a Temporary Danger Area (TDA) over the Spaceport 1 (SP-1) proposed launch site at Scolpaig, North Uist. A Power Point Presentation (PPP) and accompanying email description were delivered outlining the TDA proposal and airspace management processes, in particular the main purpose of the TDA; to enable connectivity to the existing D701 Danger Areas. Although the particulars pertaining to connectivity, airspace management processes and use of the D701 areas has not changed, it has been necessary to modify the TDA design over the SP-1 launch site. The original TDA is depicted at Figure 1, with the new requirement depicted at Figure 2.



Figure 1: Original TDA Design 25 May 2021



Figure 2: Revised TDA Design 18 Aug 2021

Details of Change

The change to the original design was needed following a comprehensive re-evaluation of the safety analysis, this resulted in an extension of the TDA to the East. The extension now enables a number of different types of sub-orbital sounding rockets to be launched safely from the Scolpaig site into D701. It is recognised that this extension of the Eastern boundary of the TDA may now have an



increased impact on Benbecula airport operations and as such it is intended to utilise the same procedures for accessing the TDA as those currently in place for access to D701Y when active.

The coordinates for the revised TDA are as follows:

573305N 0073017W -
574128N 0073703W -
574923N 0071500W -
573727N 0071811W and back to
573305N 0073017W.

All coordinates are coincident with existing D701 coordinates using pre-existing Aeronautical Data Quality (ADQ) approved points. The TDA extends from surface level to unlimited (SFC-UNL).

It should be noted that the sounding rockets are likely to fall into one of three 'safety range' categories, namely 80km, 114km and 250km. The associated D701 areas that could potentially be activated in conjunction with these launch categories are depicted below in Figure 3 to Figure 5:



Figure 3: Sounding Rocket 80km Safety Range – Diagram Depicting Two Potential Options for D701 Activation



Figure 4: Sounding Rocket 114km Safety Range – Diagram Depicting Potential D701 Activation



Figure 5: Sounding Rocket 250km Safety Range – Diagram Depicting Two Potential Options for D701 Activation

Purpose

The purpose of this letter is to inform you of the TDA design change and request that you confirm your original response still remains extant or, if you wish to add any new comments as a result of this necessary change. It should also be noted that the TDA is predicted to be required from November this year, precise timing is still uncertain at this time, and is expected to be utilised for up to four launches during the 90 day period. The requirement for further launches and possible repeat of the TDA in 2022 remains extant and will be subject to CAA approval.



You are respectfully requested to respond to this letter by 1200 Wednesday 1st September 2021.
Please provide feedback by email to the airspace change manager at: SP1ACP@QinetiQ.com

Distribution:

NATMAC
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SATCO Benbecula (and Barra)
SATCO Stornoway
IAA
UK AMC



Mon 23/08/2021 15:06

RE: SP-1 ACP TDA -: DAATM engagement - Updated TDA Design

To: ☐ Qinetiq-SP1 ACP

Follow up. Start by 24 August 2021. Due by 24 August 2021.

Having reviewed the new proposal we have no further comments to add to our original response regarding the change in dimensions. We agree that all other processes and procedures will remain as already discussed. Thanks for the update.

Regards

From: SP1 ACP <SP1ACP@qinetiq.com>
Sent: 19 August 2021 07:52

Subject: SP-1 ACP TDA -: DAATM engagement - Updated TDA Design
Importance: High

I am not sure if you received this through the NATMAC DAATM email address so sending again to you direct to ensure receipt. In sum we have had to redesign the Eastern edge of the TDA in order to facilitate the launch of more than one type of sounding rocket – all other processes and procedures (and outstanding actions as described in previous correspondence with you and [REDACTED]) are unaffected. If you do wish to add anything to your original response due to this change, then please let me know.

Kind Regards

QINETIQ



Wed 18/08/2021 17:35

RE: CAUTION: External email - UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification (UNCLASSIFIED)

To: ☐ SP1 ACP

i Follow up. Start by 19 August 2021. Due by 19 August 2021.
You replied to this message on 19/08/2021 07:39.

Classification: UNCLASSIFIED

Nothing additional from Babcock Onshore.

BW,

Chief Pilot

UK Aviation | Aviation
Babcock International Group
Babcock Onshore | Building Se32-33 | Gloucestershire Airport | Cheltenham | Gloucestershire | GL51 6SP
www.babcockinternational.com

babcock[™]

Please consider the environment before printing this email



Thu 19/08/2021 10:02

RE: UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification

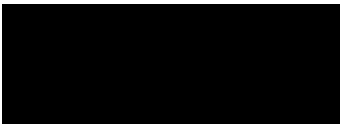
To ☐ SP1 ACP

Follow up. Start by 19 August 2021. Due by 19 August 2021.

Hello

I can confirm that we see no change to our original response as a result of the modified TDA.

Kind regards



Director of Flight Operations
2Excel Aviation Ltd



Aviation from a World-Class Team

Registered Office: The Tiger House | Sywell Aerodrome | Sywell | Northampton | NN6 0BN | Company No: 05391365

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Mon 23/08/2021 09:29

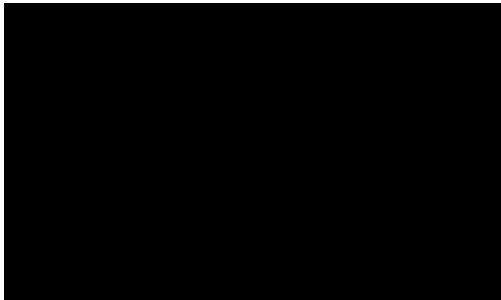
RE: UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification

To ☐ SP1 ACP

Follow up. Start by 24 August 2021. Due by 24 August 2021.

Thanks, no additional comments.

Best Regards



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Wed 01/09/2021 13:27

RE: UC FW: UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification

To

Cc

Good afternoon

The SATCO email address has been deleted so we operate with named accounts from now on.

Thank you for providing the opportunity to feedback on your revised TDA design.

My original response remains extant. As stated in your email, good comms and coordination will be key to managing the launches in close proximity to Benbecula Airport.

I do not believe that this change will have a material change to Loganair operations but they should respond under separate cover.

Best regards,



SATCO
Benbecula Airport, Isle of Benbecula, HS7 5LW



www.hial.co.uk

Please consider the environment - think before you print!

From:

Sent: 19 August 2021 07:58

To

Subject: UC FW: UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification

Importance: High



NERL plc Response to Spaceport 1 TDA (ACP-2021-37) V2.0

CAP1616, and in providing clear and credible feedback to this consultation and/or to other airspace users. Specifically:

1. The consulted document lists 5 different "illustrative" airspace configurations (Figures 3, 4 and 5 respectively), all of which could be used and would seem to indicate a welcome and more sustainable reduction in the volume of airspace requested under this revised proposal.
2. However, the inclusion and intent of the word "potential" confirms that these airspace configurations cannot be relied upon though, that the design and final volume of airspace requested may rise/revert to previous levels much later in the process and serves to undermine confidence in exactly how much airspace Spaceport 1 will eventually choose to activate.
3. NATS would like to see evidenced, further design or assurance around the design, to confirm the likely extent of impact on the primary airspace users of the airspace here (i.e. the NAT flow), recognising that the sponsor may not yet know how much airspace they need, even at this late stage. This will enable NATS to better predict this impact, develop tactical plans in good time and ensure adequate and consistent briefing of staff and customers.
4. We note that all 5 "illustrative" potential design options continue to include airspace that will be booked under this TDA yet cannot / will not be used under the operational scenario envisaged by the sponsor, either because of stated range limitations, or because the airspace booking is constrained using existing airspace structures that weren't originally designed for the purpose the sponsor intends within this ACP. We continue to believe this has the potential to lead to additional Oceanic Entry/Exit Point access constraints with the undesirable consequence for additional Airline and ATC workload, cost, and adverse environmental impact.
5. NATS is concerned that the operational uniqueness of certain airspace configurations not stated here may present time pressures for NATS to conclude safety analyses, procedure development and controller familiarisation. The timely completion of planned LoA work may go some way to tackling this risk (and NATS would encourage early engagement around this) but this risk, and the impact(s) this may have, may not be known until final designs become clear/reliable.

Timescale

NATS remain unclear of the timeline that supports the path to activation for this TDA and would welcome a clear indication of dates by which this Airspace design (including ADQ compliant coordinates) will be approved vis-à-vis the earliest expected promulgation of activation, noting the notice period that AMC need to establish this airspace. Without this we are not yet able to provide confirmation that NERL and our partners can complete the necessary work to support this proposal and your launch activities.

Quotas

We note that timing of planned launch activities is unchanged and are intended to sit outside of the quotas agreed within the extant LoA for D701.

Conflicting Activity

It is noteworthy that some potential and illustrative airspace configurations may "conflict" with the indicative design of other potential space launch operators. We await final designs from all before we can confirm, but it may become necessary for multi-ANSP prioritisation and coordination processes to be developed and completed before requested activations can be confirmed, in particular for any subsequent activations of the same illustrative airspace design.

NERL plc Response to Spaceport 1 TDA (ACP-2021-37) V2.0

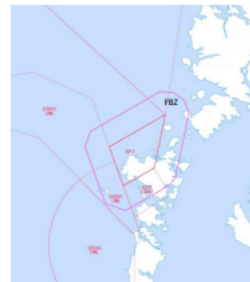
Thank you for allowing NATS to respond to your consultation of August 18th on Spaceport 1 TDA (ACP-2021-37) V2.0. This response augments that supplied previously on 09/06/21 which remains extant.

We note changes to the potential size and scale of this TDA and the deferment of initial activity until later in 2021 and, following internal discussions, we have added some further comments because of the changes contained within V2.0 of the document.

Flight Plan Buffer Zone (FBZ)

Deferment of the establishment of TDA initial operations to Nov 21, extending over a 90 day duration, alongside your intent to reactivate this airspace again in 2022, necessitates a requirement to introduce a FBZ around the proposed airspace volume as well as the introduction of reporting points to facilitate the circumnavigation of the area. An example of this requirement can be found in [UK SUP 039/2021](#), noting the requirement for all coordinates to be ADQ compliant. This requirement, whilst noted in NATS previous response, is now an imperative given the introduction of Free Route Airspace on the 02 Dec 2021. This work needs to be jointly managed between NERL and our partners in AMC/Eurocontrol and this requires a minimum notice period of 3 months to ensure joint safety processes can be completed.

A non-ADQ compliant visualisation of what a Flight Plan Buffer Zone may resemble is provided below. This is provided purely to visualise and bring to life this requirement, noting that this work was not prepared by a qualified procedure designer.



Management of Activities

Additionally, the management of any activations must be undertaken by the UK AMC in accordance with their planning, notification and publication requirements [European Route Network Improvement Plan - Part 3 \(ERNIP P3\)](#). This process activates both the TDA and FBZ restriction within the EU NM systems and consequently ensures that flight plan acceptance and rejection is assured and underpins NATS operational safety processes.

"Potential" D701 Danger Area utilisation

We note the indications provided around the "potential" usage of D701 activation areas. Whilst we understand the complexity faced by the sponsor and agent, the continued lack of clarity around, and commitment to, the actual airspace that's intended to be used (that's planned for the near future) presents challenges for NATS in many areas, not least in concluding our impact assessment under



UK Airspace Management Cell response to:

ACP-2021-37 Temporary Danger Area Spaceport-1 Scolpaig North Uist.

The UK AMC response is separate to the NATS and MOD response and only considers matters relating to pre-tactical airspace management.

Ref: Page 3 "It should also be noted that the TDA is predicted to be required from November this year, precise timing is still uncertain at this time"

The AMC UK require a minimum of 3 months notice before a newly established temporary danger area (TDA) can be incorporated into the UK pre-tactical Airspace management process. Any TDA that is established outside of the UK ASM process will be managed tactically. In this case (less than 3 months notice) the segregated airspace will be protected from incursion by the publication of a NOTAM and the protection that an ATC environment affords. After the 3-month lead in time, an "FUA flight planning restriction" may be established and managed by the UK AMC that will reject flight planned traffic during the pre-tactical phase as deemed appropriate. However, careful consideration must be given to this case where initially a tactical process for the TDA is coupled with a pre-tactical process for the activation of EG D701 (parts thereof). This, albeit temporary, arrangement sets a new precedent for UK ASM.



Mon 06/09/2021 17:07

UK AMC response

To

Cc

Follow up. Start by 06 September 2021. Due by 06 September 2021.



UK AMC response to ACP 2021-12 ADP- Kev comments.pdf
.pdf File



ACP-2021-37 Temporary Danger Area.pdf
.pdf File

Please see the attached response from the UK AMC

NATS

Senior Airspace Management Specialist
UK Airspace Management Cell

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Wed 08/09/2021 15:13

SP1 ACP

RE: UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification

To
Cc

[REDACTED]

I appreciate the detailed response from NATS and I would like to thank [REDACTED] for his time yesterday in explaining the rationale behind the comments. I acknowledge the minimum 3 month lead in time that is required to ensure the correct ADQ coordinates for the associated FBZ are in place to enable the AMC and Eurocontrol to fulfill their ASM obligations. I can hereby confirm that we will make best endeavours to adhere to this requirement. It should be noted that we have delayed submission of the TDA ACP proposal this week and no longer intend to meet a 25 Sep Decide Gateway review therefore, there will be no TDA or launch in November this year as planned. Once I have a better idea of the revised timeline I will share with you and other stakeholders accordingly and arrange for a meeting to ensure that we can meet all the requirements to safely implement this temporary airspace change early next year.

Kind Regards

[REDACTED]

QINETIQ

Connect with us:



Sent: 08 September 2021 14:24

To: SP1 ACP <SP1ACP@qinetiq.com>

Subject: RE: UC ACP-2021-37 Spaceport-1 Scolpaig North Uist TDA - Minor Modification Notification

Please find attached the NATS NERL response to V2.0. Please let me know if you wish to discuss any of the comments with the Team.

Regards

NATS



Sent: 16 September 2021 16:02

Subject: RE: UC ACP-2021-37

Good afternoon [REDACTED]

Sorry for the delay in getting back to you, I have been tied up with another capability team here at the CAA.

With regards to the delay of your ACP, you may wish to look at temporarily pausing the TDA ACP until the new dates have been confirmed. We are unable to make a decision for a final submission unless we have the planned dates and time included, as this makes up a part of your stakeholder engagement. We can discuss further if needed the process for pausing and unpausing a Temporary Airspace Change. With regards to the FBZ, I will take this away and discuss this with management with Airspace Regulation and see how we are able to accommodate this part of the ACP. As most TDAs are of low impact, this has not been an issue to date.

With regards to the local stakeholder comments, you are correct. A Temporary Airspace Change needs to only focus on targeted aviation stakeholder unless you have assessed you will affect traffic patterns below 7000ft over inhabited areas, at which you are required to inform those affected communities. If you assess there is no change to traffic patterns, you do not need to provide formal feedback or comments from local stakeholders. For further details, I would engage with your Engagement and Consultation Regulator who attended the Assessment Meeting to discuss this matter further.

Kind regards,

Sent: 16 September 2021 09:52

Subject: RE: UC ACP-2021-37

Importance: High

I wondered if you had had chance to consider my questions below, in particular the line highlighted? The situation has become a little more pressing as we engage with the customer and decide how to best move forward.

On the same topic; while engaging with local resident groups on the design principles for ACP-2021-12, they were most interested in the TDA and queried why they had not been asked to comment on this too. I suggested that for a TDA the same level of stakeholder engagement that is required for a permanent airspace change is not necessary and a more targeted aviation audience is engaged for a TDA given it is only temporary. I recognised however, that keeping local interested parties informed is important and I agreed I would do this with regard to the TDA (I also signposted the airspace portal) – Can you please confirm that this is correct and an appropriate level of engagement or, should I be asking them formally to comment on the TDA proposal?

Kind Regards

From: SP1 ACP

Sent: 09 September 2021 08:58

Subject: UC ACP-2021-37

I have just been informed by the SP-1 Ops Dir that there has been a delay in the approvals process for the first sounding rocket launch that was planned for November. As such, the requirement to establish a TDA around the Scotpaig site will need to be deferred. When I have a clearer indication of when the TDA will be required I will notify you (and stakeholders) accordingly – best guess early March 22.

In the meantime I do have the following question. As I have just completed a second round of engagement due to the resizing of the original TDA and have captured all comments and actions in the proposal report, **can I still submit the report to the CAA for consideration, but without committing to an exact date when we would like the TDA to be established?**

My reasoning behind this is that, the only respondent to add anything to their original response (following TDA change) was NATS. Their addition mainly focused on the need to establish ADQ FBZ around the TDA due to the advent of FRA in the region. They, and the UK AMC, have stipulated that a minimum of 3 months lead in time is required following publication and validation of these coordinates, before the airspace can be implemented. Therefore, in essence this means we will need to have successfully passed through the CAA Gateway at least 3 months before the TDA is activated. Ideally, I would like to submit the TDA proposal to meet a DECIDE Gateway in October so we have sufficient time to put all the necessary processes, procedures, agreements and ADQ coordinates in place well in advance of the TDA – keeping the activation date of the TDA on hold (subject to the AIP SUPP lead in times) until we have a high level of confidence that the first sounding rocket will launch.

Kind Regards



SP-1 Airspace Change Manager
Room 113 AT Building
QinetiQ Malvern technology Centre
St Andrews Road
Malvern
Worcestershire
WR14 3PS

17 November 2021

ACP-2021-37 Temporary Danger Area Spaceport-1 Scolpaig North Uist – Updated Timeline

Introduction

As Sponsor for the above titled temporary airspace change, we contacted you in August this year updating you on the dimensions of the anticipated Temporary Danger Area (TDA) over the Spaceport 1 (SP-1) proposed launch site at Scolpaig, North Uist; at Figure 1. At time of writing it had been hoped to launch the first sub-orbital rocket from SP-1 into the existing Hebrides Range D701 in November. However, we are writing again to inform you that, due to a number of factors, there has been a delay to the first launch; this is now planned for early June 2022. A temporary airspace change proposal report has been submitted to the CAA with the updated timeline and additional comments received in August.



Figure 1: Proposed TDA airspace over SP-1 Launch Site at Scolpaig

Update

Assuming the CAA approve the TDA application, it remains our intention to activate and manage the TDA in exactly the same fashion as we manage D701; using the same Airspace Management (ASM) processes and procedures. This is considered essential, as activation of the TDA will nearly always



necessitate corresponding D701 areas to be activated at depicted in Figure 2, Figure 3 & Figure 4 below. It is acknowledged that formal agreement to operate under this modus operandi remains work in progress however, given the extended timeline it is considered that sufficient time exists to complete this task and others (that had previously been time critical), well in advance of the first launch. It is anticipated that this and other work strands will commence early in the new year, if not before. We will be contacting relevant stakeholders in due course to coordinate timings.

The first sub-orbital sounding rocket launch is planned for 13th June 2022 and is expected to be a low capability vehicle that may only require the airspace contained within the TDA, and not the D701 areas. It is expected this launch will be followed by four subsequent launches within the 90 day period. These will be larger launch vehicles however, they are all predicted to be contained within the areas depicted in Figure 2 & Figure 3; remaining east of 10° west. Following the first activation of the TDA in June, and assuming CAA Manager Airspace Regulation (Mgr AR) approves subsequent 90 day activation periods (circa late Sep/Oct 22), it is likely the sounding rockets will be larger and requiring the D701 areas depicted in Figure 3 & Figure 4. These details will be confirmed later next year.



Figure 2: Sounding Rocket 80km Safety Range – Diagram Depicting Two Potential Options for D701 Activation



Figure 3: Sounding Rocket 114km Safety Range – Diagram Depicting Potential D701 Activation



Figure 4: Sounding Rocket 250km Safety Range – Diagram Depicting Two Potential Options for D701 Activation

Next Steps

It is recognised that details of the TDA will need to be published through NATS Aeronautical Information Service (AIS) and to achieve a June 2022 launch, such details will need to be with NATS AIS no later than 22nd April 2022 (publication date 02nd June 2022). We will therefore, be contacting key stakeholders presently to address outstanding actions and ensure the appropriate ASM



processes and procedures are agreed and in place. If you have any queries, or require more information, please contact the SP-1 airspace change manager at: SP1ACP@QinetiQ.com

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