

QINETIQ



ACP-2021-12

**GATEWAY
DOCUMENTATION: STAGE 1
DEFINE**

**STEP 1B DESIGN
PRINCIPLES &
STAKEHOLDER
ENGAGEMENT**

27th July 2021

61 pages

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Administration Page

Reference	Description
Document Title	STEP 1B DESIGN PRINCIPLES & STAKEHOLDER ENGAGEMENT
Document Reference	QINETIQ/EMEA/MLW/TR2 11355
Date due	7 th July 2021

Principal Author

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Technical Approval

Name	Date
[REDACTED]	2 nd July 2021

Record of changes

Issue	Date	Detail of changes
1	7 th July 2021	
2	27 th July 2021	Corrected post CAA review, evidence added.



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Executive Summary

Spaceport 1 (SP-1) vertical rocket launch site is being developed, subject to planning consent, at Scolpaig, North Uist on the Outer Hebrides. The purpose of the site is to enable the safe operation of both sub-orbital and orbital rocket launches. Such rocket launches pose a hazard to other airspace users and, therefore, in the interests of safety, it is considered necessary to segregate this activity accordingly. Segregation is achieved in a number of ways. However, due to the site sitting beneath Class G airspace, all methods of segregation necessitate a change in airspace in the immediate vicinity.

As described in Annex D to Civil Aviation Publication (CAP) 1616, the airspace change Sponsor is required to conduct a detailed stakeholder analysis to ensure they engage with all potential stakeholders over the airspace design principles. Given the location of the site, a remote part of the Outer Hebrides that is extremely sparsely populated, little or no General Aviation (GA) activity and only limited aviation activity below 7000ft; the number of interested stakeholders was restricted. Notwithstanding, the Sponsor reached out to all National Air Traffic Management Advisory Committee (NATMAC) members, local council; Nature Scotland; local helicopter operators; airports; regional airlines; national and international Air Navigation Service providers (ANSPs) and the Ministry of Defence (MOD).

Due to COVID-19 restrictions, the change Sponsor conducted all engagement by email. It was decided, following only sparse feedback, that additional engagement via WebEx was not necessary. The lack of feedback was probably due, in part, to the lack of aviation activity below 7000ft in this area of the UK but also as a result of the parallel engagement with many of the stakeholders on the proposal for a Temporary Danger Area (TDA) for the same site; ACP-2021-37 refers. In some cases, comprehensive feedback was received on the TDA proposal, the content of which will be used in designing the final airspace solution and corresponding operating procedures, in addition to informing these design principles. This is of particular relevance to the use of the adjacent D701 Hebrides Range Danger Areas where it has been identified (through the TDA feedback) that any additional activity, beyond that of normal MOD use, is likely to impact on the Air Traffic Management (ATM) network. Furthermore, such impact could have a consequential effect on airline operators, ANSPs and the MOD. It is here where the airspace usage protocols will need to be carefully designed and agreed at governmental level.

Despite less than 25% of stakeholders responding, the vast majority of those that did had no objection to the proposed design principles. Two of the respondents provided detailed feedback although only one of these was relevant to the design principles, the other was a generic response to airspace change and was more focused towards an increase in controlled airspace. Despite one respondent providing extensive feedback, upon examination it was determined that this had been influenced by recent correspondence and a WebEx meeting relating to the TDA proposal for the same site. Although many of the points raised were valid and worthy of future investigation, they did not suggest any additional design principles or, changes to those that had been presented. The original design principles are therefore retained and forwarded to the CAA for consideration.

1 Introduction

The report is compiled as part of the Airspace Change Proposal (ACP) process prescribed in Civil Aviation Publication (CAP) 1616 [A] for permanent airspace changes. ACP-2021-12 has been commenced in order to establish segregated airspace around the Spaceport 1 (SP-1) launch site on the Outer Hebrides. QinetiQ is the Sponsor for the airspace change process.

The SP-1 consortium led by the local council, Comhairle nan Eilean Siar, comprising Highlands & Islands Enterprises (HIE), private investors and QinetiQ, is developing, subject to planning consent, a vertical launch spaceport located at Scolpaig, North Uist for the launch of sub-orbital (sounding rockets) and orbital, small satellite carrying rockets. 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.

A temporary airspace change for SP-1 in the form of a Temporary Danger Area (TDA) is in progress (ACP-2021-37 refers) [B], as a parallel work strand, to enable sub-orbital sounding rocket launch this year and subsequent years, until the permanent airspace solution is in place.

The SP-1 site at Scolpaig currently lies beneath Class G unregulated airspace but is only a few miles from the D701 complex. As 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 segregated airspace around the launch site such that it provides connectivity to the existing D701 segregated airspace complex. Figure 1 shows the position of the launch site in relation to the D701 complex.

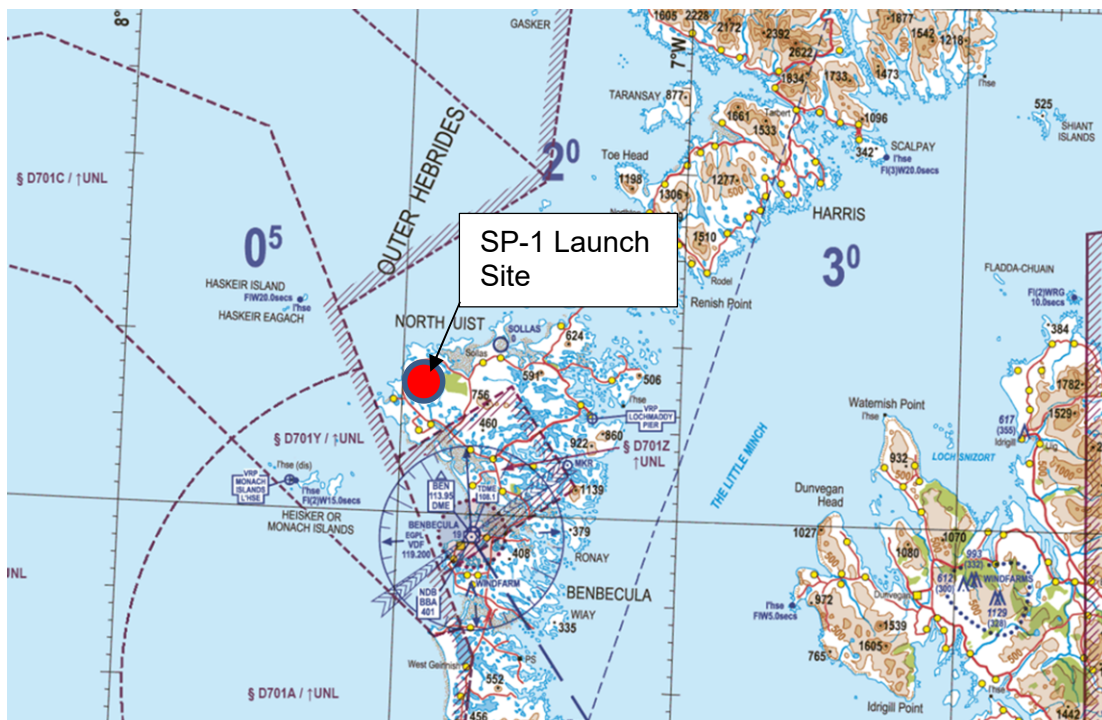


Figure 1: Diagram Depicting the Position of the SP-1 Launch Site in Relation to D701 Complex



1.1 Purpose

The purpose of this report is to demonstrate that the Sponsor has followed due process as defined in CAP 1616 [A], Stage 1, Step 1B for a permanent airspace change; demonstrating that the appropriate level of stakeholder engagement has been undertaken in developing the airspace design principles.

1.2 Report Structure

The report is split into the following sections

- Section 1 – Introduction:
 - Purpose
 - Structure
- Section 2 – Stakeholder Engagement:
 - Stakeholder Identification
 - Engagement Methods
 - Engagement Chronology
- Section 3 – Design
 - Draft Design Principles
 - Stakeholder Feedback
 - Revised Design Principles
- Section 4 – Next Steps
- Section 5 – Glossary
- Section 6 - References
- Appendices
 - A – List of Stakeholders
 - B – Stakeholder Feedback Evidence

2 Stakeholder Engagement

2.1 Stakeholder Identification

Following CAP1616 Stage 1 Step 1B of the ACP process, it is necessary to develop a set of design principles that provide a framework that is used in drawing up the airspace design. In developing the design principles, the Sponsor is required to engage with affected local aviation stakeholders, including airspace users; Air Navigation Service Providers (ANSPs); airports; relevant members of the National Air Traffic Management Advisory Committee (NATMAC); relevant aviation and non-aviation national organisations including those which represent areas likely to be affected by potential impacts; and, elected representatives of environmental interest groups likely to be affected by potential impacts. Following this engagement process ensures a fair and transparent flow of information between the change Sponsor and any affected stakeholders.

The Sponsor elected to use the same stakeholder engagement list as that used for the TDA ACP (ACP-2021-37) as this had captured all the main aviation stakeholders in the local area as well as the relevant ANSPs and airports. Additionally, the Sponsor invited all members of the NATMAC to comment as well as the local council whom, although being part of the SP-1 consortium, were able to suggest the main Scottish environmental group whom should be engaged, namely Nature Scotland. It was decided not to engage with any other local environmental or resident groups as these were already actively



involved in the launch site planning process. Furthermore, the land and sea environmental issues are captured in the Environmental Impact Assessment (EIA) that is inextricably linked to the planning consent. Beyond the TDA stakeholder list, it was also decided to include Reykjavik ANSP as they are potentially affected by SP-1 rocket launch. A full list of stakeholders is contained at Appendix 6A.

2.2 Engagement Methods

Written Communication - Due to COVID restrictions, the main engagement method was by written communication (letter) sent to stakeholders through email. The letter provided the necessary background to SP-1 detailing the purpose and operation of the site as well as describing the draft design principles and the need for engagement. Details of how to provide feedback and when this was due along with a link to the CAA airspace portal were also provided.

WebEx – The lack of responses, and any detailed concerns (other than those posed by NATS), determined that there was no requirement to conduct WebEx events. It was evident from the NATS response that the points they raised were similar as those previously presented in response to the TDA proposal. These were discussed at length with NATS during more than one WebEx event as evidenced in the TDA proposal report. As detailed at paragraph [3.2], the Sponsor does not consider that the points raised affect the design principles.

Surveys - The use of a survey was considered as an engagement method. However, review of other surveys relating to spaceports, identified that stakeholders tend to overlook the design principles per se and focus more on issues better associated with the environmental and planning consultation process. It was therefore decided that a survey would probably not add value and as such, was discounted.

Members of Parliament – It was decided not to engage directly with members of the Scottish Parliament at this stage as dialogue had already been conducted through the council who is the lead on the SP-1 consortium. It is considered that such engagement may be appropriate during the consultation stage of the process.

2.3 Engagement chronology

The list of stakeholders detailed at Appendix 6A were contacted in relation to the Design Principles with evidence presented at appendix 6B

Table 1 provides a chronological summary of this engagement process.

Stakeholder	Engagement Method	Date Sent	Remarks
NATS	F-2-F Meeting PPP	Apr 2019	SP-1 Operations Director presented to NATS explaining use of D701 and potential airspace requirements
	Email	27 Apr 21	Initial contact
	Letter via email	20 May 21	Detailed Response
MOD DAATM	Email exchange PPP	12/16 Nov 20	SP-1 Airspace Requirements

	Email exchange	27 Nov 20	Discussing MOD position
	Various emails	8 Dec 20 – 23 Mar 21	Discussions centred on commercial use of MOD Danger Areas for SP-1
	Letter via email	20 May 21	No objection
Benbecula & Barra Airport - SATCO	Email & PPP sent detailing basic airspace requirements	9/11 Mar 21	Email exchange various
	Letter via email	20 May 21	No objection
Northern Lighthouse Board (NLB)	Letter via email	20 May 21	No objection
Comhairle nan Eilean Siar	Letter via email	20 May 21	No response
PDG Aviation	Letter via email	20 May 21	No response
Babcock Aviation	Letter via email	20 may 21	No objection (captured Police and air ambulance)
Gamma Aviation	Letter via email	20 May 21	No response
2Excel Aviation	Letter via email	20 May 21	No objection
Highlands and Islands Airports Ltd (HIAL) Head Office	Letter via email	20 May 21	No response
Maritime Coastguard Agency (MCA)	Letter via email	20 May 21	Response received 27 may 21, no objection (also responded on behalf of Bristow SAR)
NATMAC members as detailed at Appendix A	Letter via email	20 May 21	One response, British Microlight Aircraft Association (BMAA) letter
Helicopter operators supporting MCA, police and other emergency services	Letter via email	20 May 21	No objection
Irish Aviation Authority (IAA)	Letter via email	20 May 21	No response
Nature Scotland	Letter via email	24 May 21	No response



Reykjavik ANSP	Letter via email	25 May 21	No response
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Table 1: Chronological Summary of Stakeholder Engagement

3 Design Principles

3.1 Initial Draft Design Principles (DP)

The following DPs were shared amongst all stakeholders whom were asked to comment:

DP1	Safety	The safety of all airspace users is the paramount factor in the airspace design
<p>Safety is the single most important factor and DP1 establishes the need to design airspace that provides adequate protection from any hazards associated with rocket launch from SP-1 to other airspace users. Note: safety of third parties on the ground or seaspace is detailed in separate but parallel work packages associated with the planning consent regulations.</p>		
DP2	Safety	The airspace design will be of the smallest volume to safely segregate Spaceport activities from other airspace users thereby minimising the impact on other airspace users
<p>In ensuring safety of other airspace users the airspace design should consider the potential failure of the spacecraft both at the launch site, immediately after launch and when in flight. The airspace design must be of sufficient volume to contain all credible risks associated with rocket malfunction. For this purpose the new airspace design is primarily (see also DP 9) in the vicinity of the spaceport in order that the rocket can safely transition to the existing segregated airspace provided by the EG D701 complex.</p>		
DP3	Operational	Minimise the impact (on other aviation stakeholders) of activating specific EG D701 Danger Areas in support of SP-1 operations
<p>When considering the impact on other airspace users the new airspace should not be considered in isolation but must also take into account the consequential impact of activating numerous EG D701 areas for SP-1 operations at times when the Danger Areas may not normally be activated. This design principle includes consideration of which EG D701 areas need to be activated and their impact on other stakeholders in particular where these necessitate the closure of Oceanic Entry Points (OEPs) for the North Atlantic (NAT) tracks.</p>		
DP4	Operational	Use Flexible Use of Airspace (FUA) principles by integrating the airspace design into the extant Airspace Management (ASM) procedures operated within the EG D701 complex
<p>This design principles should include integration of the new airspace into the Airspace Management (ASM) processes of the existing EG D701 complex thereby minimising the need for new multifaceted standalone procedures and exploiting current Standard Operating Procedures (SOPs). This will enable timely notification of operations and swift cancellation of NOTAMs thereby freeing up airspace efficiently. Furthermore, expanding extant EG D701 procedures to include the new SP-1 airspace will enable safe access for other airspace users when deemed necessary, in particular emergency services.</p>		

DP5	Operational	Integrating/deconflicting SP-1 activity safely with MOD activity in EG D701 is a vital element of the operational use of the airspace design
<p>It is recognised that use of the EG D701 areas will be subject to MOD activities and priorities therefore an important design principle will be the operational integration of SP-1 activities in and around MOD use. By managing both programmes, QinetiQ expects to be able to facilitate the most efficient use of airspace especially where it is proven safe to conduct simultaneous operations.</p>		
DP6	Operational	The airspace design shall take into account Free Route Airspace (FRA) and Flight Planning Buffer Zones (FBZs) remaining cognisant of CAA Buffer Policy
<p>It is recognised that any new Danger Area airspace will have to comply with the CAA Buffer policy and ANSPs may be required to apply FBZs. The design principles will have to take into consideration both these requirements. Furthermore, the advent of FRA in the Scottish Flight Information Region (FIR) will need to be considered.</p>		
DP7	Environmental	The airspace design and associated activation of EG D701 need to consider the environmental impact of aircraft being re-routed around the Danger Areas due to SP-1 activities
<p>Despite the likelihood that the new airspace around the launch site will be relatively small in volume and therefore current traffic patterns should be unaffected, a holistic approach is required to consider the wider impact that subsequent activation of the EG D701 Danger Areas, (and any additional airspace requirements beyond EG D701 (see DP9)) will have, in particular on the NAT tracks. Any deviation caused by unavailability of OEPs will have to be carefully considered in the airspace design to understand the environmental impact of additional miles flown by aircraft forced to route around EG D701 Danger Areas. It is further acknowledged that rocket launch from the site at Scolpaig will create noise and light pollution and these elements are being considered within the planning application and further captured in the EIA; the latter will help inform part of the ACP process.</p>		
DP8	Regulatory	The airspace design will need to consider any emerging regulations pertaining to spaceports and Ranges under the Spaceport Act 2018
<p>It is recognised that the airspace design might be influenced by the emerging secondary legislation to the Space Industry Act 2018 expected in July 2021 – The design principles will have to account for any additional requirements the legislation may prescribe in particular where these may be linked to the Spaceport operator licence and Range operator licence.</p>		
DP9	Operational	Rocket stage drop zones may be required outside the EG D701 Areas and will need to be considered
<p>For orbital rocket launch, it is expected that one or more rocket stages may be required that will separate after launch. Where separation and return to earth occurs outside the EG D701 complex, additional segregated airspace will be required – The design principle should include the most efficient use of airspace to accommodate this requirement.</p>		

Table 2: Draft Airspace Design Principles



3.2 Summary and Evaluation of Stakeholder Feedback

Summary - From the 43 stakeholders contacted 9 responses were received and from these 7 provided no objection to the draft DPs. Amongst the 'no objection' responses there was a general theme regarding access to new airspace being accorded to the emergency services in the same manner which access to the D701 complex is achieved. One organisation provided a standard letter that it is assumed is sent to every sponsor of an airspace change, and one professional body provided comprehensive comments against the majority of the DPs; both are addressed in the evaluation of feedback paragraphs below. Evidence of all responses is contained at Appendix 6B.

Evaluation of Feedback BMAA - The response from the BMAA appeared to be a standard letter to anyone proposing an airspace change and as such did not refer to any of the specific draft design principles for SP-1. Furthermore, the majority of points raised are clearly aimed at ACPs relating to controlled airspace. The Sponsor therefore would argue that this response does not alter any of the design principles for SP-1 as they adequately cover the main points highlighted regarding FUA and using the minimum airspace necessary.

Evaluation of Feedback NATS - This response featured many of the points and concerns raised in their formal response to ACP-2021-37 regarding the TDA for SP-1 and follow on WebEx's held 15 Jun 21 and 7 July 2021 evidenced at Appendix 6B. These concerns, as articulated against each DP, do not necessarily disagree with the DP but merely call for extra clarification and detail as well as offering a view on potential airspace solutions. For example DP2: 'The airspace design will be of the smallest volume to safely segregate Spaceport activities from other airspace users thereby minimising the impact on other airspace users'. NATS response is: *"the airspace should be of a modular design, to accommodate variations in desired trajectories, and down range length, so as to efficiently accommodate launch with no excess airspace delivering Safe and Sustainable use of the airspace"*. The Sponsor agrees that this may well prove to be part of the solution but would argue the DP meets this requirement in full – therefore, the DP remains valid.

DP3 recognises that part of the airspace solution may be the use of D701 areas and where this is the case their activation should be cognisant of other airspace users. NATS is suggesting that D701 should not be part of the solution as they perceive a risk more airspace may be activated than is actually needed because of the existing shape and size of the D701 areas. The Sponsor would argue that the DP is still valid and, where D701 is considered as part of the solution, then selection of specific D701 areas must be made cognisant of other airspace stakeholders – therefore DP remains valid.

DP4 is aimed at integration of extant D701 ASM procedures to cover spaceport activity. The Sponsor recognises that this may not be straightforward especially as current LoAs are MOD specific. However, in the interest of minimising the need for new multifaceted, standalone procedures and exploiting current 'best practice' the Sponsor considers that this still should be considered as a viable DP. Moreover, there does not appear to be a substantive counter argument by NATS to suggest otherwise – therefore DP remains valid.

Similarly for DP5; the Sponsor recognises the need to integrate and deconflict with MOD activities; the response, although not disagreeing with this principle, highlights areas for consideration in the later stages of the ACP process. The response also highlights the need for airspace protocols to be developed in conjunction with the final airspace solution; such protocols should involve all activity, not just MOD D701 operations. The Sponsor considered expanding the DP to include all MOD activity and other spaceports rather than just focusing on MOD activity in D701. However, upon reflection



this DP is specific to the use of D701 and the need to deconflict SP-1 activity with MOD operations. It is considered that the airspace operational protocols, although a critical part of the ACP process, will be better addressed later in the process and will be a key element of the consultation process – therefore DP remains valid.

The comments associated with DP6 are noted and are areas for consideration as the airspace design is developed. However, the Sponsor would contend that the DP as written, captures these areas – therefore DP remains valid.

Despite the length of the NATS comments associated with DP7 it would appear that they accepted the DP but are concerned how SP-1 activities will impact the ATM network by causing delays to Commercial Air Transport (CAT) and having a detrimental impact on their Key Performance Indicators (KPIs) and metrics. Although these points appear valid to the overall strategic *modus operandi*, the Sponsor considers these points to be outside the scope of the DPs – therefore DP remains valid.

DP8 provides recognition that emerging secondary legislation to the Space Industry Act (SIA) 2018 may affect or shape DPs as the ACP process advances. The Sponsor accepts that these criteria are yet unknown and there is no proven methodology associated with airspace design for spaceport ranges. However, it is considered that this DP remains valid as evolving regulation will have to be considered - therefore DP remains valid.

DP9 recognises the need that there may potentially be a requirement for additional segregated airspace outside the boundaries of the current D701 complex and is presented as a requirement that needs to be factored into the airspace design considerations. The Sponsor accepts that we do not yet have the full criteria to determine what shape or size this airspace might be but this does not remove the need for this DP - therefore DP remains valid.

3.3 Revised Design Principles Following Stakeholder Feedback

Evaluation of the feedback received as detailed in paragraph [3.2] above does not suggest any new DP should be added to the list proposed by the Sponsor. Furthermore, after careful consideration of the responses, in particular the very comprehensive response from NATS, the Sponsor believes the DPs as written, address the concerns, (where relevant) of the stakeholders engaged. It is, therefore, proposed that the DPs as prescribed at paragraph [3.1] remain unchanged and are forwarded to the CAA for consideration.

4 Next Steps

4.1 DEFINE Gateway

This document will be submitted to the CAA as evidence to support Stage 1, Step 1B of the CAP 1616 airspace change process. This documentary evidence is provided to inform the CAA's decision to sign off the DEFINE Gateway at the gateway assessment meeting planned for Friday 30th July 2021. Sign off will enable ACP-2021-12 to proceed to Stage 2 of the process.



5 Glossary

Acronym	Meaning
ACP	Airspace Change Proposal
AIP	Aeronautical Information Publication
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
BMAA	British Microlight Aircraft Association
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
FBZ	Flight planning Buffer Zone
FIR	Flight Information Region
FRA	Free Route Airspace
FUA	Flexible Use of Airspace
GAT	General Air Traffic
HIAL	Highlands & Islands Airports Ltd
HIE	Highlands & Islands Enterprises
IAA	Irish Aviation Authority
ICAO	International Civil Aviation Organisation
KPI	Key Performance Indicators
LoA	Letter of Agreement
MCA	Maritime Coastguard Agency
MOD	Ministry of Defence
NAT	North Atlantic
NATMAC	National Air Traffic Management Advisory Committee
NLB	Northern Lighthouse Board
NOTA	North Atlantic Transit Area
NOTAM	Notice To Airmen
OEPs	Oceanic Entry Points
PPP	Power Point Presentation
SAR	Search And Rescue
SIA	Space Industry Act
SOPs	Standard Operating Procedures
SP-1	Spaceport 1



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. ACP-2021-37; online, available at:
<https://airspacechange.caa.co.uk/PublicProposalArea?PID=368>



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)
Comhairle nan Eilean Siar
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)
National Air Traffic Management Advisory Committee (NATMAC) Members
NATS
Nature Scotland
Northern Lighthouse Board (NLB)
PDG Aviation
PDG Helicopters
Reykjavik ANSP
Stornoway ATC




B Stakeholder Response – Evidence


PPP Delivered by [REDACTED] (SP-1) to NATS Apr 2019




Spaceport 1




- Brief/Update
- Site
- Plans
- Sounding Rockets
- Orbital Launch
- CONOPS Development
- Getting it Right First Time




Activities for Discussion – Sounding Rockets



SkyHy



SK1



1
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3
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Activities for Discussion – Orbital Launch




The diagram illustrates the stages of an orbital launch. It shows a satellite in a Sun-synchronous orbit (SSO) with an inclination of $i=98.7^\circ$. The launch path starts from the launch point at Oinetiq, passing through a 3rd stage coast flight, a 2nd stage boost flight, and a 3rd stage boost flight. A map of the region shows the launch point and the trajectory. A small inset map shows the satellite's position relative to the Earth's surface.

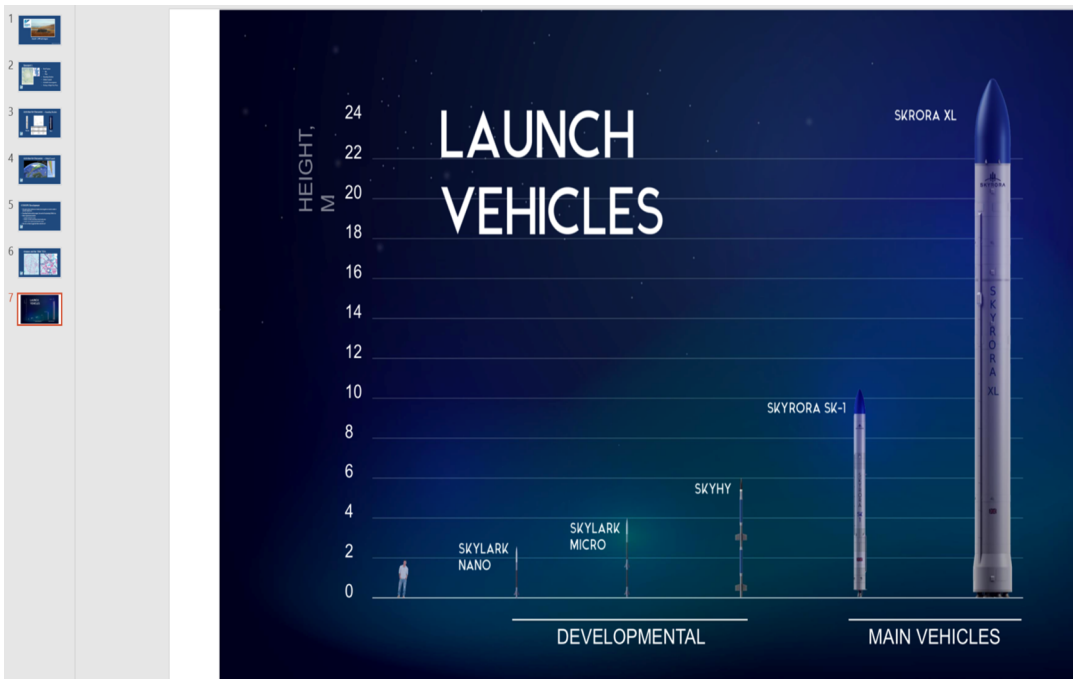
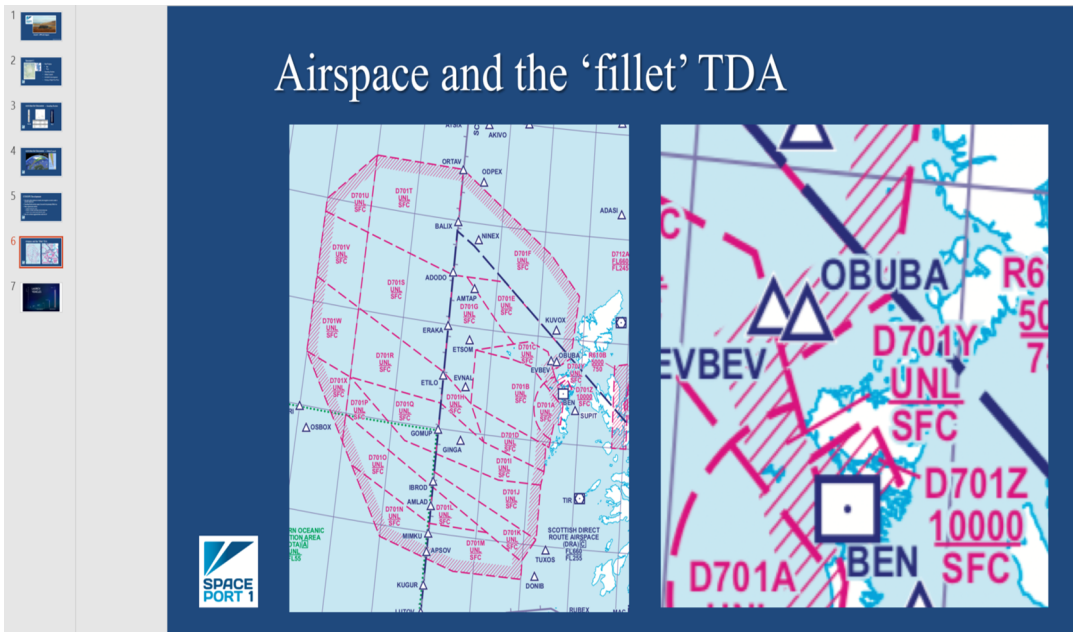


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CONOPS Development

- We need to find windows to launch, but recognise we need to make it work for others too.
- Sounding Rocket activity urgent, but need to be planning Orbital too.
- Basic requirements similar:
 - Airspace needs to be closed.
 - Primary, secondary and perhaps tertiary backup days.
 - Airspace can be rapidly opened after the launch.
- How do we find an approach that works for all?








Thu 12/11/2020 15:49

RE: FS21 Update and Spaceport 1 discussion

To [Redacted]

i You forwarded this message on 20/05/2021 16:41.

 DAATM_SP1_Briefing_V1.0.pptx
4 MB







[Redacted]

PSA PPP that I will run through with you on Monday.

Kind Regards




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Way Forward

- Meeting involving key stakeholders with aim to understanding the path to enable SP1 to operate in EG D701
- Suggested attendees:
 - MOD
 - [Redacted]
 - [Redacted]
 - [Redacted]
 - CAA
 - SARG
 - Space Team
 - QinetiQ (may include SP1 Proj Dir A [Redacted])
 - [Redacted]
 - UK AMC (?)
- Outcome of meeting will drive ACP for SP1



27/07/2021

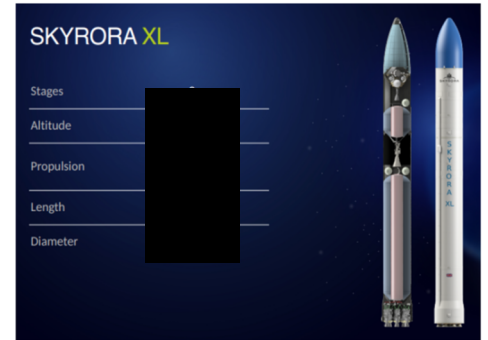
QinetiQ Proprietary

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Considerations

- Airspace is a National asset and in spirit of FUA should be utilised accordingly
- Precedent has been set at Aberporth where commercial operations are facilitated in MOD sponsored Ranges
- CAA responsible for safety oversight and assurance activity for spaceports
- QQ will continue to meet exactly same safety criteria as for MOD weapon/rocket firings i.e. HSE Regs and observance of DSA OME Pt3 (Ranges)
- SP1 could commence ACP that reflects part of EG D701
- MOD position/strategy on [REDACTED]



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27/07/2021

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Spaceport 1 Airspace Requirements

Briefing Prepared for DAATM 16 Nov 2020



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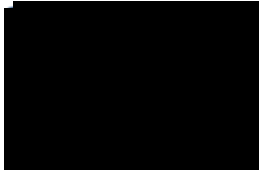
From: [REDACTED]
Sent: 27 November 2020 09:14
To: [REDACTED]
Subject: Space Ranging Airspace

[REDACTED]
Following on from our meeting last week I am pleased to inform that the Western Isles Island Council (WIIC) are proposing to commence an Airspace Change Proposal (ACP) request for the Spaceport1 (SP1) vertical launch facility to be located on North Uist on the Outer Hebrides. This does mean the urgency to establish a methodology/processes for access to MOD sponsored Danger Areas such as the Hebrides Range, has now become more pressing and I was wondering if you had made any progress in pulling together the necessary parties for discussion? I believe we agreed the following:

- that airspace was a National asset and not owned by a single entity;
- the CAA would have to regulate and assure any commercial spaceport activity that occurred in the UK FIR including activities in Danger Areas regardless of the airspace sponsor for that airspace;
- the DAATM had a role to play in unblocking the current impasse and would consider:
 - o investigating the MOD position on future spaceports and open dialogue with the 'Space Team' in MOD;
 - o assign a staff member (SO2) as space lead on DAATM business; and,
 - o convene a meeting of interested parties to work out what was required to enable MOD sponsored Danger Areas to be used for commercial spaceport operations; such meeting would not include spaceport operators (in the interests of remaining impartial to commercial interests) but could include QinetiQ given QinetiQ's role in managing many if the MOD Ranges (and those most likely to be used for Spaceport Operations).
- the meeting should probably have the following representatives:
 - o [REDACTED]
 - o [REDACTED]
 - o [REDACTED]
 - o [REDACTED]

Happy to chat regarding any of the above

Kind Regards



QINETIQ



Sent: 27 November 2020 11:50

Subject: RE: Space Ranging Airspace

Good morning

I hope that you keeping well amidst the current covid pandemic. Just by means of a quick virtual introduction, I have been appointed as the DAATM lead for Space activity. I also sit on the Eurocontrol/NATO High Level Entrants Group which allows close liaison directly with the NMOC (if required) for any UK space related activity.

With regards to the email below, I am in liaison with both the QinetiQ and DIO DAAM Teams to ascertain if there is an already existing process by which a commercial provider can staff access request to a Military Danger Area. I will let you know once I receive responses.

In the meantime if you have any further questions/queries etc please send them my way.

Regards,

From:

Sent: 27 November 2020 10:52

T:

C:

Subject: FW: Space Ranging Airspace

Thanks for your input yesterday at our internal Spaceport scoping meeting. Please see below from Paul Brundle which aligns with the themes we discussed yesterday, ie the spaceport companies are starting to accelerate their applications, and so starting their ACPs.

Below is a specific request from QQ to understand if and how a civilian spaceport company can have assured access to existing mil danger areas for the purpose of commercial space launch. Can you liaise with [redacted] as my DAATM Space poc, and discuss with [redacted] initially about how spaceports start the danger area access discussions? Highlight through [redacted] that the MoD position (c/o FMC Space Pol yesterday) was that mil has primacy of use of danger areas and so access to non-mil will be based around that.

Key here is to ensure we delineate the request from QQ who have a request to commercial access to the Danger Area from any ACP CAP1616 advice which the Spaceport company is doing to work through the CAP1616 process and then to us for comment etc.

At this stage, DAATM don't need to have a view on any aspects of the launch, safety assessments, safety traces etc – this is merely a request from QQ on how a spaceport can use the danger area airspace.

As discussed yesterday, I don't think this is, in process terms, complicated as this is 'merely' a request from a commercial company to undertake activity in a mil range (ie vertical rocket launch as has happened elsewhere I think, but clearly of a bigger scale....) but access sits [redacted] initially I suggest and is not in itself new.



Send

From [Redacted]

To [Redacted]

Cc [Redacted]

Bcc [Redacted]

Subject RE: Space Ranging Airspace

[Redacted]

I thank you for your introduction and help in this matter, as [Redacted] probably explained things are starting to move forward at pace and we are keen to unblock the current 'apparent' impasse regarding access for commercial spaceport operators to utilise existing MOD Danger Areas, in particular where there is spare capacity.

In sum I am trying to obtain the following:

- written agreement (possibly verbal in the first instance) for commercial spaceport operators to gain access to MOD sponsored Danger Areas, in particular those where QinetiQ manage the Range airspace; and,
- demonstration to the CAA that access to MOD Danger Areas is possible thereby assisting them in the decision making process regarding ACPs made by spaceport operators where such ACPs connect the spaceport to the Danger Areas.

You should be aware that QinetiQ has had discussions with [Redacted] regarding the use of the Hebrides Range for such activities and although part of the discussion focused on the commercial aspects of QinetiQ supporting such activities and how this was resolved through the Long Term Partnering Agreement (LTPA) with the MOD, the sticking point was one of access to the airspace and liabilities. [Redacted] raised the following:

- that they were not responsible for providing any formal approval/agreement to use the airspace; it was considered this lay elsewhere in MOD although they were uncertain where;
- concern that spaceport activity might be considered, under certain circumstances, a higher priority than [Redacted] delivery might be compromised;
- as sponsor of the Hebrides D701 Range Danger Areas, where liability would fall in the case of a serious incident involving commercial space rocket activities over which [Redacted] had no control; and,
- using up the Hebrides Range [Redacted] over the year.

Points of discussion have already centred around the following:

- airspace being a national asset neither civil or military but one entity that should be operated in the spirit of FUA concepts;
- the CAA will regulate spaceport activity (along with UKSA and HSE) and therefore will hold the liability for safe operations regardless of airspace type the operation is being conducted in;
- precedent has already been set regarding civil commercial use of MOD sponsored Danger Areas namely [Redacted]
- commercial rocket firing at a MOD air weapons Range in the UK has also been undertaken; and,
- the potential for [Redacted]

Hopefully this brings you up to speed where we are at the moment and some of the past discussions and considerations; I look forward to engaging soon on developing a way forward that is acceptable to all parties.

[Redacted]

QINETIQ

[Redacted]



Reply Reply All Forward IM



Fri 08/01/2021 15:22

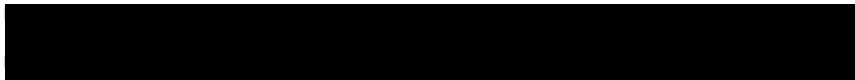
UC Use and booking of QQ operated MDAs - Memo

To

Cc



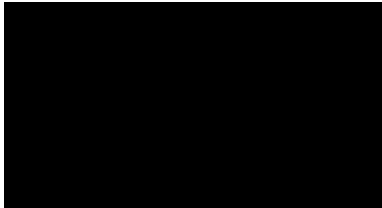
20201208-Use_and_booking_of_QQ_Operated_MDAs_QQ_Comments.docx
64 KB



Again, many thanks for sharing the above titled Memo prior to leave and a huge thank you to [REDACTED] for facilitating the MOD stakeholder meeting and getting something down on paper in short order; I now believe this memo provides a way forward and should be adequate to satisfy the CAA regarding commencement of an ACP (for Spaceport 1) that is underpinned by access to MOD DAs.

Recognising that this is only a first step and draft note, I have taken the liberty of adding my comments to the note that I forward (attached) for your consideration. I recognise that the DAATM needs to remain impartial to commercial use of the DAs however, as the note is specifically referring to MOD Ranges/DAs managed by QinetiQ and also mentions the LTPA, I wonder if there would be any value in me participating in any future discussions on the subject in particular in light of my comments attached. As always, happy to discuss and provide support for this work as you see fit.

Kind Regards



QINETIQ

Connect with us:





From: [REDACTED]
Sent: 11 January 2021 11:27
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: UC Use and booking of QQ operated MDAs - Memo
Importance: High

[REDACTED]

Thanks for your timely response; something else commercial probably need to consider is the existing procedures/processes that exist under the LTPA as Other Works Approvals (OWA) that are managed by [REDACTED]. The OWA already accommodate commercial use of Range facilities although, not specifically airspace related, they do address the commercial aspects – I wonder if they need to collaborate with QQ commercial on this?

[REDACTED]

Sent: 11 January 2021 11:06
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: UC Use and booking of QQ operated MDAs - Memo

[REDACTED]

Many thanks – we are chatting with Commercial to see if the language needs tightening taking into account some of your observations.

[REDACTED]

08 December 2020

USE AND BOOKING OF QINETIQ OPERATED MILITARY RANGES AND DANGER AREA COMPLEXES

Introduction

1. Military Ranges and Danger Area (DA) Complexes provide extensive airspace for the primarily for weapons, systems and platform Test, Evaluation and Training purposes, operated through a Long-Term Partnering Agreement (LTPA) on behalf of Defence Equipment and Support (DE&S) by QinetiQ. Many users have current and future intent for the use of the airspace and this note sets out prioritisation of use and general booking processes noting that each DA has its own site-specific restrictions.

Prioritisation for Use

1. DE&S Ranges are to be utilised, in the first instance for MOD Test and Trials and as such, MOD use will always have priority. High priority trials or essential operational tasks may result in short notice changes for other users.
2. Beyond MOD use, in order to enhance FUA principles, the airspace is, where practicable, available to other users.
3. Where several requests are received for the same slots out with MOD use, they will be prioritised by the Danger Area Authority (DAA)¹.

Booking

4. All airspace must be booked through the Military Airspace Booking Co-ordination Cell (MABCC). All non-MOD booking requests should be forwarded to the appropriate DE&S contracted booking agent and copied to the DAA and Danger Area Airspace Manager (DAAM).
5. Booking requests can be made in advance, best effort will be made to organise MOD trials and operations around the bookings noting that MOD will retain priority for use.
6. Booking requests for civil/commercial use should include information detailing that the user will accept responsibility and full liability for the airspace and include confirmation of the relevant CAA approval or authorisation for any air systems that will operate in the airspace.
7. Any request for regular or routine use of the DE&S Ranges and DA's outside of the contracted LTPA, should be subject to an agreed Letter of Agreement (LOA) with the MOD/ Airspace Manager (AM) to agree use and booking. The LOA will also confirm that the non-MOD user holds the risk for all operations within the airspace. The DAAM will instigate when a LOA is required on behalf of the DAA.
8. On request the DAA/DAAM will provide longer term booked MOD activity windows to allow other users to identify likely availability whilst maintaining MOD priority including short notice operational requirements. The MOD holds no liability for delayed or

¹ In the absence of the DAA, SO1 DAAM & HD BM Assurance/SO3 DAAM hold authority.

cancelled bookings due to MOD requirements. The likely activity is published monthly by the AM through SO1 DAAM.



Tue 09/03/2021 12:33
UC Spaceport 1 Scolpaig ACP
Follow up. Start by 16 March 2021. Due by 16 March 2021.

HIAL_Msg_20210309.pptx
2 MB

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.

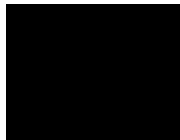
We are only just commencing the process and at this stage are not asking for any formal responses as we have not yet had the initial CAA assessment meeting to establish if an ACP is appropriate or not. That said, I believe early exposure of the plans would be beneficial if shared with you now given your 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?
- What level of GA or recreational flying occurs in this airspace, if any?
- What other flights could potentially be affected, e.g. Northern lighthouse board, SAR, Helo flights to/from hotels & businesses as well as fisheries flights?
- Anything else we should consider?

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 [redacted] 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] but have not had a response, 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] Spaceport 1.

Kind Regards



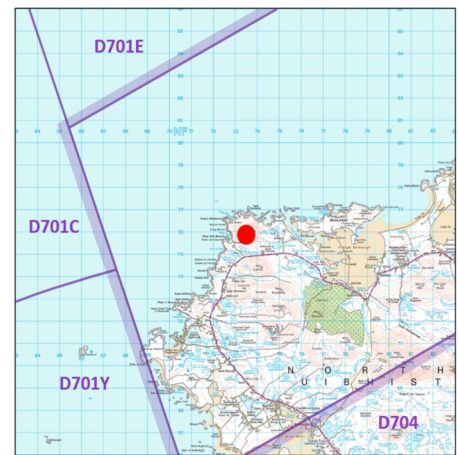
QINETIQ

Connect with us:



Background – SP1

- Consortium led by Highlands & Islands Enterprises, local council, 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 and connect to existing Danger Areas
- 2 Phases:
 - Phase 1 - 'Sounding rocket' launches to West
 - Phase 2 - Lower earth orbit small satellite launches to North



QINETIQ



Thu 11/03/2021 12:03

RE: UC Spaceport 1 Scolpaig ACP

To

Follow up. Start by 12 March 2021. Due by 12 March 2021.

You replied to this message on 11/03/2021 12:15.

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



Benbecula AIP Entry.htm
.htm File

Good morning

Please see below for initial comments in red, embedded in your original email.

I will ask our local Loganair staff if they are able to contact Nev.

Best regards,

From:

Sent: 09 March 2021 12:33

To:

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 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.

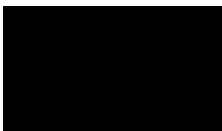
We are only just commencing the process and at this stage are not asking for any formal responses as we have not yet had the initial CAA assessment meeting to establish if an ACP is appropriate or not. That said, I believe early exposure of the plans would be beneficial if shared with you now given your 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 [redacted]. 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] but have not had a response, 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]

Kind Regards



QINETIQ

Connect with us:





Tue 25/05/2021 14:55
FW: UC 'Space' enquiry

To: SP1 ACP

20210329_Formal_Assessment_Meeting_Presentation_REDACTEDv1.4).pdf
3 MB

From: [REDACTED]

Sent: 27 April 2021 17:07

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: UC 'Space' enquiry

[REDACTED]
I thank you for your response; I will forward a proposed date for the stakeholder engagement meeting in due course. In the meantime PSA the airspace that is being considered under the ACP. Clearly one of the exam questions for the orbital launches is, 'what happens beyond the boundary of D701?' This will be a key discussion point going forward as part of the design principles and I recognise we will need to include Reykjavik in the discussions due to the northerly trajectory; do you have a POC at Reykjavik that I can include?

Kind Regards



QINETIQ

Connect with us:



From: [REDACTED]

Sent: 27 April 2021 16:40

To: [REDACTED]

Cc: [REDACTED]

Subject: [REDACTED]

Tue 25/05/2021 15:00
[Redacted]
FW: UC 'Space' enquiry

To: SP1 ACP

From: [Redacted]
Sent: 28 April 2021 17:36
To: [Redacted]
Cc: [Redacted]
Subject: RE: UC 'Space' enquiry


[Redacted] most helpful.

Kind Regards

[Redacted]

QINETIQ

Connect with us:



From: [Redacted]
Sent: 28 April 2021 17:03
To: [Redacted]
Cc: [Redacted]
Subject: RE: UC 'Space' enquiry

[Redacted]

Here are a couple of contacts at Isavia that may be useful for your engagement.

Contacts for Reykjavik:

[Redacted]

Regards

[Redacted]



Tue 25/05/2021 17:13
SP1 ACP
UC Spaceport 1 Scolpaig North Uist Outer Hebrides Scotland UK

To [REDACTED]

20210520_Step_1B_Airspace_Design_Principles_ENGAGEMENT_V1.4.pdf
566 KB

20210525_SP1_Presentation_REDACTEDv1.5).pdf
3 MB

Good Afternoon,
In addition to dealing with the coordination and negotiation of the large [REDACTED] I am also the lead for a UK Airspace Change Proposal (ACP) in support of the UK Spaceport 1 (SP-1) consortium. SP-1 is developing a vertical launch small satellite site on the island of North Uist on the Outer Hebrides, Scotland; adjacent to the UK MOD Hebrides Range.

For your information please see attached presentation regarding the ACP and also a letter inviting you to comment on the airspace principles to be adopted in the design of the airspace and subsequent use of the EG D701 Areas. Of interest to yourselves will be what happens beyond the UK FIR boundary and as such your opinion will be of value to us as we move forward with any airspace development and associated ASM procedures.

Kind Regards

[REDACTED]

QINETIQ

Connect with us:



Mon 24/05/2021 09:26

SP1 ACP

UC Spaceport1 Airspace Design Principles - ACP-2021-12

To ENQUIRIES@nature.scot

Cc SP1 ACP

i Follow up. Completed on 25 May 2021.
This message was sent with High importance.

 20210520_Step_1B_Airspace_Design_Principles_ENGAGEMENT_V1.4.pdf
566 KB

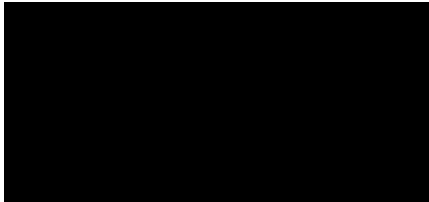
To Whom it May Concern,

I am acting as the airspace change sponsor for the Spaceport 1 consortium who are in the process of developing (subject to planning consent) a vertical launch Spaceport at Scolpaig, North Uist; full details are available at:

<https://airspacechange.caa.co.uk/PublicProposalArea?plD=344>

Please see attached letter requesting your input into the 'airspace design principles' associated with this airspace change proposal ACP-2021-12.

Kind Regards



QINETIQ

Connect with us:





Sponsor Letter to Stakeholders Requesting Feedback on Design Principles:

QINETIQ



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

19 May 2021

AIRSPACE CHANGE PROPOSAL – ACP-2021-12

1 Introduction

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 a vertical launch spaceport located at Scolpaig, North Uist. In addition to the requirement to gain planning consent and conducting associated Environmental Impact Assessments (EIA), there is a regulatory requirement to ensure any activity that may be hazardous to other airspace users is segregated accordingly. Such segregation is normally achieved through the establishment of airspace restrictions in the form of a notified Danger Area. Danger Areas are then activated when required through existing airspace Notice to Airman (NOTAM) processes and procedures.



To enable SP-1 to operate, the method of establishing segregated airspace around the launch site is enabled through the Civil Aviation Authority (CAA) Airspace Change Proposal (ACP) process as defined in Civil Aviation Publication (CAP) 1616. QinetiQ Ltd is acting as the airspace sponsor for the ACP in support of SP-1. CAP1616 process comprises 7 stages each of which are considered by the CAA separately and sequentially. Each stage informs the next and is not solution driven. In this particular instance, the requirement to launch sub-orbital and orbital small satellite rockets from Scolpaig has been presented to the CAA at Step 1A of Stage 1 of the ACP process and the CAA has agreed that an airspace change is an appropriate means by which to achieve the SP-1 requirement.

Details of this step can be found on the CAA's online airspace change portal at:
<https://airspacechange.caa.co.uk/search?Page=1&SponsorOrganisation=QinetiQ%20Ltd>

This ACP is just one part of the full regulatory process to enable SP-1 to operate. Other processes underway include planning consent, spaceport licence, launch operator licence and Range control licence. By necessity, several of these processes overlap in particular where stakeholder engagement and consultation is necessary. It should be noted that this part of the ACP process (Stage 1 Step 1B) is 'engagement' to inform the airspace design; further engagement on the actual airspace design occurs during Stage 2 (later this year) with formal consultation on the establishment of the airspace occurring in Stage 3. This is likely to occur early 2022; addressees will be notified accordingly.



Note: This is a separate engagement package to that some addressees may have received with regard to a Temporary Danger Area (TDA) for the same site; ACP-2021-37 refers. Please delineate clearly between the two if you have been requested to respond to both.

2 Stage 1 Step 1B – Design Principles



QinetiQ will follow the next steps of CAP1616 to develop options which will help to deliver the most appropriate solution and address the requirements for a spaceport. Under the ACP process it is necessary to develop a set of design principles that provide a framework that is used in drawing up the airspace design. In developing the design principles the sponsor is required to engage with affected local aviation stakeholders, including airspace users; Air Navigation Service Providers (ANSPs); airports; relevant members of the National Air Traffic Management Advisory Committee (NATMAC); relevant aviation and non-aviation national organisations including those which represent areas likely to be affected by potential impacts; and, elected representatives of environmental interest groups likely to be affected by potential impacts. Following this engagement process ensures a fair and transparent flow of information between the change sponsor and any affected stakeholders. QinetiQ is keen to engage with stakeholders and is asking for your feedback when considering the airspace design principles. QinetiQ has compiled a set of draft design principles detailed at Table 1. You as a stakeholder are invited to comment on these principles while also contemplating any omissions that you believe should be accounted for. You may wish to ask for more information on these principles. Any additional detail and reasoning behind your feedback is encouraged. For this stage of the ACP



'engagement' process, we are only asking for your view on the airspace design principles; further engagement and consultation takes place in later stages of the process as described above.

Table 1: List of Draft Design Principles for Consideration

DP Ref	Category	Design Principle
DP1	Safety	The safety of all airspace users is the paramount factor in the <i>airspace design</i>
DP2	Safety	The airspace design will be of the smallest volume to safely segregate Spaceport activities from other airspace users thereby minimising the impact on other airspace users
DP3	Operational	Minimise the impact (on other aviation stakeholders) of activating specific EG D701 Danger Areas in support of SP-1 operations
DP4	Operational	Use Flexible Use of Airspace (FUA) principles by integrating the airspace design into the extant Airspace Management (ASM) procedures operated within the EG D701 complex
DP5	Operational	Integrating/deconflicting SP-1 activity safely with MOD activity in EG D701 is a vital element of the operational use of the <i>airspace design</i>
DP6	Operational	The airspace design shall take into account Free Route Airspace (FRA) and Flight Planning Buffer Zones (FBZs) remaining cognisant of CAA Buffer Policy
DP7	Environmental	The airspace design and associated activation of EG D701 need to consider the environmental impact of aircraft being re-routed around the Danger Areas due to SP-1 activities
DP8	Regulatory	The airspace design will need to consider any emerging regulations pertaining to spaceports and Ranges under the spaceport act 2018
DP9	Operational	Rocket stage drop zones may be required outside EG D701 and will need to be considered



2.1 Design Principles Expanded

DP1	Safety	The safety of all airspace users is the paramount factor in the airspace design
<p>Safety is the single most important factor and DP1 establishes the need to design airspace that provides adequate protection from any hazards associated with rocket launch from SP-1 to other airspace users. Note: safety of third parties on the ground or seospace is detailed in separate but parallel work packages associated with the planning consent regulations.</p>		
DP2	Safety	The airspace design will be of the smallest volume to safely segregate Spaceport activities from other airspace users thereby minimising the impact on other airspace users
<p>In ensuring safety of other airspace users the airspace design should consider the potential failure of the spacecraft both at the launch site, immediately after launch and when in flight. The airspace design must be of sufficient volume to contain all credible risks associated with rocket malfunction. For this purpose the new airspace design is only needed in the vicinity of the spaceport in order that the rocket can safely transition to the existing segregated airspace provided by the EG D701 complex.</p>		
DP3	Operational	Minimise the impact (on other aviation stakeholders) of activating specific EG D701 Danger Areas in support of SP-1 operations
<p>When considering the impact on other airspace users the new airspace should not be considered in isolation but must also take into account the consequential impact of activating numerous EG D701 areas for SP-1 operations at times when the Danger Areas may not normally be activated. This design principle includes consideration of which EG D701 areas need to be activated and their impact on other stakeholders in particular where these necessitate the closure of Oceanic Entry Points (OEPs) for the North Atlantic (NAT) tracks.</p>		
DP4	Operational	Use Flexible Use of Airspace (FUA) principles by integrating the airspace design into the extant Airspace Management (ASM) procedures operated within the EG D701 complex
<p>This design principles should include integration of the new airspace into the Airspace Management (ASM) processes of the existing EG D701 complex thereby minimising the need for new multifaceted standalone procedures and exploiting current Standard Operating Procedures (SOPs). This will enable timely notification of operations and swift cancellation of NOTAMs thereby freeing up airspace efficiently. Furthermore, expanding extant EG D701 procedures to include the new SP-1 airspace will enable safe access for other airspace users when deemed necessary, in particular emergency services.</p>		

DP5	Operational	Integrating/deconflicting SP-1 activity safely with MOD activity in EG D701 is a vital element of the operational use of the airspace design
<p>It is recognised that use of the EG D701 areas will be subject to MOD activities and priorities therefore an important design principle will be the operational integration of SP-1 activities in and around MOD use. By managing both programmes, QinetiQ expect to be able to facilitate the most efficient use of airspace especially where it is proven safe to conduct simultaneous operations.</p>		
DP6	Operational	The airspace design shall take into account Free Route Airspace (FRA) and Flight Planning Buffer Zones (FBZs) remaining cognisant of CAA Buffer Policy
<p>It is recognised that any new Danger Area airspace will have to comply with the CAA Buffer policy and ANSPs may be required to apply FBZs. The design principles will have to take into consideration both these requirements. Furthermore, the advent of FRA in the Scottish Flight Information Region (FIR) will need to be considered.</p>		
DP7	Environmental	The airspace design and associated activation of EG D701 need to consider the environmental impact of aircraft being re-routed around the Danger Areas due to SP-1 activities
<p>Despite the likelihood that the new airspace will be relatively small in volume and therefore current traffic patterns should be unaffected, a holistic approach is required to consider the wider impact subsequent activation of the EG D701 Danger Areas will have in particular on the NAT tracks. Any deviation caused by unavailability of OEPs will have to be carefully considered in the airspace design to understand the environmental impact of additional miles flown by aircraft forced to route around EG D701 Danger Areas. It is further acknowledged that rocket launch from the site at Scolpaig will create noise and light pollution and these elements are being considered within the planning application and further captured in the EIA; the latter will help inform part of the ACP process.</p>		
DP8	Regulatory	The airspace design will need to consider any emerging regulations pertaining to spaceports and Ranges under the spaceport act 2018
<p>It is recognised that the airspace design might be influenced by the emerging secondary legislation to the Spaceport Act 2018 expected in July 2021 – The design principles will have to account for any additional requirements the legislation may prescribe in particular where these may be linked to the spaceport operator licence and Range operator licence.</p>		



DP9	Operational	Rocket stage drop zones may be required outside the EG D701 Areas and will need to be considered
For orbital rocket launch it is expected that these may have one or more rocket stages that will separate after launch. Where separation and return to earth occurs outside the EG D701 complex additional segregated airspace will be required – The design principle should include the most efficient use of airspace to accommodate this requirement.		

3 How to Provide Feedback

Feedback can be provided by email to the airspace change manager at: SP1ACP@QinetiQ.com

You are politely requested to provide any response regarding the Draft Airspace Design Principles by Wednesday 23rd June 2021.

4 Distribution:


NATMAC
MOD DAATM
NATS
HIAL
Loganair
MCGA
NLB
UK Search and Rescue
Bristol Helicopters
Gamma Aviation
Babcock Aviation
2Excel Aviation
SATCO Benbecula (and Barra)
SATCO Stornoway
Comhairle nan Eilean Siar
IAA
Reykjavik



Thu 20/05/2021 17:45
SP1 ACP
UC ACP-2021-12 Spaceport-1 Scolpaig North Uist - Design Principles

To [Redacted]


i Follow up. Completed on 25 May 2021.

 20210520_Step_1B_Airspace_Design_Principles_ENGAGEMENT_V1.4.pdf
566 KB

Dear NATMAC Members,
Please see attached letter requesting your input into the design principles associated with the airspace change proposal for Spaceport-1 (SP-1) located at Scolpaig, North Uist on the Outer Hebrides. I acknowledge that I have contacted several of you before (only a week or so ago) regarding a Temporary Danger Area (TDA) for the same site; although the two ACPs are linked they are different and by necessity we are required to conduct two separate engagement processes. The one contained herein is with regard the 'design principles' for the permanent airspace structure that will connect the Spaceport site to the existing EG D701 MOD Hebrides Range Danger Areas. If you are involved in providing feedback on the TDA ACP (ACP-2021-37), it is kindly requested that you clearly delineate between the two and make it clear in your response which ACP you are responding too. I apologise for any confusion this may cause.

Kind Regards

[Redacted Signature]

QINETIQ
Connect with us:




Thu 20/05/2021 17:43
SP1 ACP
UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement

To [Redacted]

i Follow up. Completed on 25 May 2021.

20210520_Step_1B_Airspace_Design_Principles_ENGAGEMENT_V1.4.pdf
566 KB

Dear All,
Please see attached letter requesting your input into the design principles associated with the airspace change proposal for Spaceport-1 (SP-1) located at Scolpaig, North Uist on the Outer Hebrides. I acknowledge that I have contacted several of you before (only a week or so ago) regarding a Temporary Danger Area (TDA) for the same site; although the two ACPs are linked they are different and by necessity we are required to conduct two separate engagement processes. The one contained herein is with regard to the design principles for the permanent airspace structure that will connect the Spaceport site to the existing EG D701 MOD Hebrides Range Danger Areas. If you are involved in providing feedback on the TDA ACP (ACP-2021-37) due by 9th Jun, it is kindly requested that you clearly delineate between the two and make it clear in your response which ACP you are responding too. I apologise for any confusion this may cause.


Kind Regards

[Redacted Signature]

QINETIQ
Connect with us:

Thu 24/06/2021 14:03
SP1 ACP
RE: UC 20210616_WebEx_QQ_NATS_Response_Discussion_Points

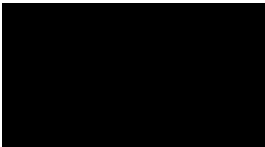
To: [REDACTED]
Cc: [REDACTED]

 This message was sent with High importance.

[REDACTED]
Regret the 8th is no good for [REDACTED] either. 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:

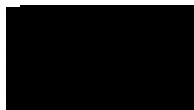


From: [REDACTED]
Sent: 24 June 2021 10:51
To: SP1 ACP <SP1ACP@qinetiq.com>
Subject: RE: UC 20210616_WebEx_QQ_NATS_Response_Discussion_Points

Hi [REDACTED]

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

Regards





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

In Attendance:

QinetiQ:

[redacted] TDA Sponsor

NATS:

[redacted]

Apologies:

[redacted]

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

[redacted]

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. [REDACTED] 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; [REDACTED]

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[SAMI]. 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 [REDACTED] 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.

[REDACTED]



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 [REDACTED] 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: SP-1 are engaging with [REDACTED] with a view to deconflict future launch activities and how this may be accomplished[SAM2].

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[SAM3] launches will be post 1400 UTC and not after 2359 UTC thus the statement avoiding 'peak periods' -



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 – ~~No requirement is~~ 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 NATS) (CMCS) (JIS16)

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 [REDACTED] 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





Thu 15/07/2021 16:29

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

To: SPI ACP

Cc: [Redacted]

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 sense 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 [Redacted] and/or wouldn't become compromised (i.e. business as usual processes) before confirming any date would be suitable. 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.
2. NATS indicated that they would categorise any consequential delays or TDAs penalties following the use of this airspace (for this purpose, and for the September launch) as "other" (i.e. not NATS attributable).
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 DTI 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 SPI 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. SPI indicated that some basic data could be provided, that NATS expected to find helpful, that they may be available to share, and SPI agreed to progress this.
5. NERL and SPI 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 SPI 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 D701 Cardigan Bay by 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 utilizations 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 approve at the time of 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. SPI 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 misrepresentable. 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

[Redacted Signature]

NERL plc Response to Spaceport 1 Stage 1 Step 1B
Design Principles (ACP-2021-21)

Thank you for allowing NATS to respond to Spaceport 1, Stage 1, Step 1B, Design Principles (ACP-2021-21)

At the time of writing, NATS cannot currently support this ACP until NATS has clarity on how any work associated with the development of this ACP will be funded. Therefore, this response is provided on a no commitment basis.

Design Principle	DP	NATS Comment
DP1	The safety of all airspace users is the paramount factor in the airspace design	No Comment
DP2	The airspace design will be of the smallest volume to safely segregate Spaceport activities from other airspace users thereby minimising the impact on other airspace users	<p>Clarity is required on the difference between Spaceport activities and Spaceport launches. Does the same area need to be activated for both activities? The documentation implies that the area is required for the transition to the D701 complex. This would suggest that the area is required for Spaceport launches. Therefore, if activation is also required for Spaceport activities, should the sponsor consider the need to establish 2 separate activation areas to optimise Airspace use.</p> <p>Additionally, activation of large areas of the D701 complex will not achieve this design principle.</p> <p>The airspace should be of a modular design, to accommodate variations in desired trajectories, and down range length, so as to Efficiently accommodate launch with no excess airspace delivering Safe and Sustainable use of the airspace.</p>
DP3	Minimise the impact (on other aviation stakeholders) of activating specific EG D701 Danger Areas in support of SP-1 operations	Following discussions on the Spaceport 1 TDA ACP (ACP-2021-37), it became apparent that if the safety trace were to penetrate even a small sub part of the D701 complex, that entire area would need to be activated for the duration of the launch. Therefore, this is not an efficient use of airspace and does not minimise impact to



21/6/21

NERL plc Response to Spaceport 1 Stage 1 Step 1B
Design Principles (ACP-2021-21)

		<p>other airspace users. The activation of these areas has a significant (both financial and environmental) impact on Oceanic Entry Points. Therefore, this DP can never be achieved within the current design of the D701 complex. If the D701 complex is to be used, further subdivision of areas must be completed to not segregate more airspace than required.</p> <p>In addition, the 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.</p>
DP4	<p>Use Flexible Use of Airspace (FUA) principles by integrating the airspace design into the extant Airspace Management (ASM) procedures operated within the EG D701 complex</p>	<p>Complying with current ASM procedures and policy will require integration with current collaborative decision-making (CDM) processes on prioritisation of airspace activities. Primarily this is to ensure that the cumulative effect of segregated activities across the whole of the UK FIR and wider network and ocean is minimised which must be a key consideration within this principle.</p> <p>If the area is extended beyond the boundaries of D701 the same FUA principles must apply.</p> <p>The maximum number of permitted activations of D701 shall also be taken into consideration. This maximum number of activations is both time dependent, as well as dependant on the overall volume of D701 segments that are required to be active and the number of Oceanic Entry/Exit points that it affects. The Sponsor is fully aware of this international agreement and should demonstrate how it intends to manage such constraints.</p>
DP5	<p>Integrating/deconflicting SP-1 activity safely with MOD activity in EG D701 is a vital element of the operational use of the airspace design</p>	<p>D 701 complex is Danger Area under MOD authority for which QinetiQ provide management services. Within this design principle QinetiQ recognises the priority of MOD activity and then to commercial and finally to general aviation. Protocols will need to be established to reconcile how Spaceport 1 fits into this priority list and then reflected in ASM Policy.</p>



NERL plc Response to Spaceport 1 Stage 1 Step 1B
Design Principles (ACP-2021-21)

		<p>The DP also articulates 'QinetiQ expect to be able to facilitate the most efficient use of airspace'. Within the Stage 3 consultation for this ACP, NATS would expect greater detail on how the priorities of the MOD and those of the commercially driven SP1 requirements are to be managed effectively; within the overriding requirement to minimise impact to other airspace users and in particular maintaining the current constraint associated to the number of permissible activations of D701.</p>
DP6	<p>The airspace design shall take into account Free Route Airspace (FRA) and Flight Planning Buffer Zones (FBZs) remaining cognisant of CAA Buffer Policy</p>	<p>The establishment of FBZ within Free Route Airspace is not purely an ANSP requirement.</p> <p>The CAA's SPECIAL USE AIRSPACE - SAFETY BUFFER POLICY FOR AIRSPACE DESIGN PURPOSES does not consider Space launch activity. The EG D701 complex Danger Area Authority is DE&S. The CAA Policy states,</p> <p><i>4.1 Promulgation of DA Limits</i></p> <p><i>The MOD is responsible – in accordance with Defence Instruction 2013DIN03-002 which sets out the responsibilities for Danger Area Authorities – for ensuring that the promulgated vertical and lateral dimensions of the DA are the <u>minimum required to meet the task for which the DA has been established.</u></i></p> <p>FBZ are published within the AIP (ENR 5.1) and used by the EU Network Manager to block flight plan acceptance during periods of activation. It is a <u>requirement of the sponsor</u> of an airspace change to introduce this as part of their proposal. Furthermore, within FRA, the addition of reporting points around danger areas may also be required to facilitate safe circumnavigation. This factor needs to be taken into consideration by the sponsor.</p>
DP7	<p>The airspace design and associated activation of EG D701 need to consider the environmental impact of aircraft being re-routed around the Danger</p>	<p>NATS agrees that the overall environmental impact needs to be considered and this will require stakeholder engagement.</p> <p>The increased activation of components of the D701 Danger Area to support commercial activity, such Sounding Rockets and Spaceflight</p>

NERL plc Response to Spaceport 1 Stage 1 Step 1B
Design Principles (ACP-2021-21)

	Areas due to SP-1 activities	<p>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.</p> <p>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 KPIs and metrics. Additional utilisation for commercial activity of D701 will create a detrimental impact on the KPIs and metrics, and NATS needs to understand how this will be accounted for , to ensure that it is not unreasonably penalised as a result of these activities.</p> <p>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.</p>
DP8	The airspace design will need to consider any emerging regulations pertaining to spaceports and Ranges under the spaceport act 2018	<p>If regulation isn't available currently, what are the criteria for the DP?</p> <p>There is at present no overarching regulatory spaceport range requirements i.e., a proven methodology associated to airspace design. It is therefore the sponsors responsibility to provide such evidence as required to ensure that the overall airspace design is safe for the operation of such technology.</p>
DP9	Rocket stage drop zones may be required outside EG D701 and will need to be considered	<p>This DP implies that additional segregated airspace requirements are needed to accommodate a down range area for the separation of rocket stages. Further detail on the potential size and location of such areas is required as it is not provided in section 2 of this</p>

21/6/21

NERL plc Response to Spaceport 1 Stage 1 Step 1B
Design Principles (ACP-2021-21)

		<p>document. Therefore, whilst this DP may be valid it is not possible to determine what criteria are being used in relation to this ACP and whether the principles associated to this inclusion are valid. Furthermore, given the current size of D701 it can only be assumed that such areas would be at a significant distance from the launch position on North Uist and may require international agreements to be reached that are beyond the scope of the UK CAA's ACP process. Greater clarity is needed on this issue.</p>
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Wed 26/05/2021 16:10



RE: UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement

To: SP1 ACP

Cc: [Redacted]

i Follow up. Start by 27 May 2021. Due by 27 May 2021.
You replied to this message on 27/05/2021 07:38.

Good Afternoon,

Noting the difference and responding to UC ACP 2021-21, only one comment:

Provision for Danger Area/Airspace crossing in event of live SAR Ops should be considered.

No other comments, thank-you.

Best Regards



Head of Surveillance



www.2excelaviation.com

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

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From: [Redacted]
Sent: 26 May 2021 15:44
To: [Redacted]
Subject: FW: UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement

Note this is slightly different to the last TDA only notice.





Reply Reply All Forward IM

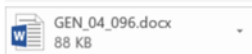


Fri 28/05/2021 11:36

RE: UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement

To SP1 ACP

You replied to this message on 01/06/2021 07:30.

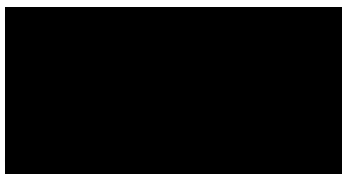


Dear [REDACTED]

Please see the attached response from the Northern Lighthouse Board ref : ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement.

If you need further assistance from us please come back to me.

Best wishes,



Navigation Officer

NLB Navigation, 84 George Street, Edinburgh, EH2 3DA



www.nlb.org.uk



Our mission: To deliver in the most sustainable way practicable, a reliable, efficient and cost-effective Aids to Navigation service for the benefit and safety of all Mariners.

Our values: Safety, Pride, Integrity, Teamwork, Fairness, Innovation, Respect, Environment

Follow NLB on:





Northern Lighthouse Board

84 George Street
Edinburgh EH2 3DA

Tel: 0131 473 3100
Fax: 0131 220 2093

Website: www.nlb.org.uk
Email: enquiries@nlb.org.uk

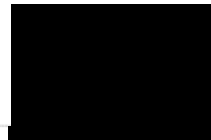
Your Ref:	Airspace Change Proposal ACP-2021-12	
Our Ref:	GB/ML/GEN_04_096	
QinetiQ		27 May 2021

ACP-2021-12 SPACEPORT-1 AIRSPACE DESIGN PRINCIPLES STAKEHOLDER ENGAGEMENT

Thank you for your e-mail correspondence dated 20th May 2021 relating to the draft design principles associated with the Airspace Change Proposal (ACP) application by **QinetiQ** for the permanent airspace structure of EG D701 MOD Hebrides Range Danger Areas to include the Spaceport 1 launch site at Scolpaig, North Uist.

Northern Lighthouse Board have no objections to the draft design principles associated with the ACP application and welcome further engagement and consultation as the application progresses.

Yours sincerely



Navigation Manager



Thu 27/05/2021 08:19

RE: UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement

To: SP1 ACP

Cc:

i Follow up. Completed on 27 May 2021.
You replied to this message on 27/05/2021 16:27.

Morning [REDACTED]



I can confirm that provided all associated Spaceport facility activity is covered under NOTAMs, we have no issues with the airspace design principles.

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

Cheers

[REDACTED]
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



From: SP1 ACP <SP1ACP@qinetiq.com>

Sent: 20 May 2021 17:43

To:



Tue 22/06/2021 09:08

SP1 ACP <SP1ACP [redacted]>

RE: UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagem

To: [redacted] Qinetiq-SP1 ACP

Dear [redacted]
Thank you for the MOD response to the airspace design principles for ACP-2021-12 SP-1 Scolpaig. Your comment is noted and appreciated.

Kind Regards



QINETIQ

Connect with us:



From: [redacted]
Sent: 21 June 2021 09:56
To: Qinetiq-SP1 ACP [redacted]
Subject: RE: UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement

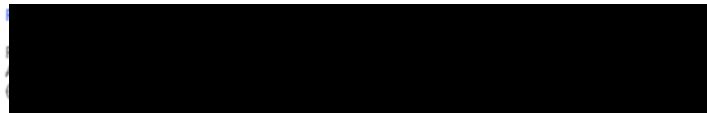
Good Morning [redacted]

Please accept this as the formal MOD response for Stage 1 Design Principles for **ACP-2021-012**.

The MOD have no further comment on the design principles and are content that they sufficiently cover interactions between the proposed airspace and MOD activity.

We look forward to working with you on this ACP. If you have any further questions please do not hesitate to contact me.

Regards



From: SP1 ACP <SP1ACP [redacted]>



Fri 04/06/2021 15:00

RE: UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement

To SP1 ACP

Cc

Good afternoon

Thank you for giving me the opportunity to comment on the design principles associated with the subject ACP.

The impact on other airspace users is clearly a priority in your considerations regarding safety, operational, and environmental considerations.

From an Air Traffic Control perspective, it is difficult to answer as HIAL are currently working to downgrade Benbecula's level of service from an ATC Unit to an AFIS Unit. Consequently, the Letter of Agreement we currently have with QinetiQ is in the process of being rewritten and I am not privy to the changes with the process. I expect that the new airspace will become part of the revised Letter of Agreement.

The CAA have requested that Benbecula carry out their 5-yearly Instrument Flight Procedures Review prior to any decision on the proposed downgrade of service. I suggest that this ACP be included in that review.

Best regards,



SATCO

Benbecula Airport, Isle of Benbecula, HS7 5LW



01870 602051 (Switchboard)



www.hial.co.uk

Please consider the environment - think before you print!



Mon 24/05/2021 10:59

RE: UC ACP-2021-12 Spaceport-1 Scolpaig North Uist - Design Principles

To: SP1 ACP

Follow up. Completed on 25 May 2021.

BMAA Principles during ACP engagement.pdf
250 KB

Good morning
Thank you for details of your proposed ACP.
Please find attached a response to your request for input to the Design Principles stage.
Regards

[Redacted]

CE
[MICROLIGHTS GO TO 600KG – MORE INFO + FULL FAQ HERE](#)
British Microlight Aircraft Association – The natural home of microlights



This e-mail is for the intended recipient only. If obtained in error, please delete and notify the sender.

From: SP1 ACP [mailto:SP1ACP@qinetiq.com]
Sent: 20 May 2021 17:45
To: [Redacted]

British Microlight Aircraft Association
Policy for Design Principles during ACP engagement

Introduction

The following text describes the underlying principles that the British Microlight Aircraft Association (BMAA) believes must be followed by applicants for airspace change proposals.

Consultation

1. The BMAA welcomes the opportunity to engage in consultation at an early stage within the ACP CAP 1616 process.
2. Sponsors are encouraged to engage with the BMAA and its members as early as possible during the development of the ACP. Previous ACPs have missed the opportunity for early engagement and dialogue resulting in significant and costly delays.

Airspace classification

1. The BMAA considers that the UK airspace's default classification is G and that sponsors must establish a safety case for proposing to change this class or add any further restrictions or requirements by their ACP.
2. All sponsors must demonstrate that alternatives have been considered such as RMZ and TMZ before considering controlled airspace.
3. Where Class E is proposed, without a TMZ or RMZ should be considered as the default option.

Access by GA

1. Sponsors must accept the assumption that GA including sporting and recreational aviation is entitled to continued safe use of airspace and that commercial aviation does not have a right to limit airspace access.
2. Sponsors should ensure that there will be measures to allow flexible use of airspace and prepare for the wider use of electronic conspicuity devices and interoperability with existing e-conspicuity, e.g. FLARM and Pilot Aware etc...

Airspace volume

1. In line with the principles of the Airspace Modernisation (was FAS) principles the ACP must respect the requirement for minimum airspace volumes designed for efficiency and reduced environmental impact. These principles will include:
 - Minimum size of controlled airspace
 - Minimum number of departure/arrival routes
 - Steeper and continuous climbs and descents for cost and environmental benefits as well as minimisation of CAS footprint.

Justification

1. Sponsors must conduct and present proper analysis of overall airspace safety changes i.e. based on modelling and evidence rather than purely subjective opinion.
2. Sponsors must provide proper validation of forecast traffic levels. There is an expectation that data used, particularly forecasts, will be verifiable including details of any and all assumptions.

Airspace integration

1. Sponsors must show how they are integrating their proposal within the overall UK airspace modernisation context, for example proposals which do not connect efficiently between upper and lower airspace (potentially under different airspace "management") would only inhibit overall airspace efficiency and therefore not receive our support)
2. Optimisation of the development work above and below the 7,000ft NATS en-route split.



Fri 21/05/2021 11:51

CEO

RE: UC ACP-2021-12 Spaceport-1 Scolpaig North Uist - Design Principles

To: SP1 ACP

i Follow up. Completed on 25 May 2021.

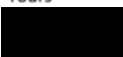
You replied to this message on 27/05/2021 16:37.



Thank you for both consultations. I have passed them on to PDG helicopters as they were the only BHA members who were not on your distribution and might be affected by these ACPs. I know [REDACTED] their Chief Pilot is contacting you separately.

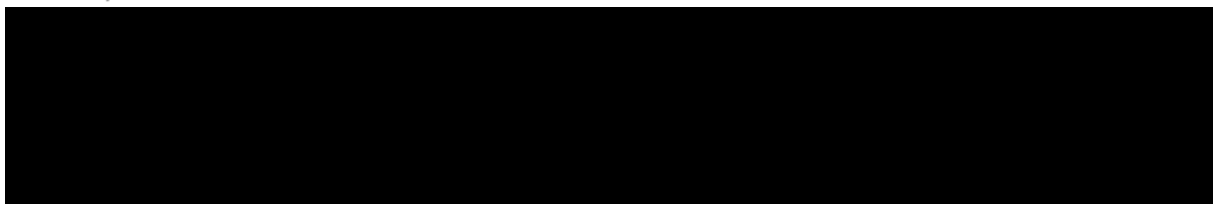
I have read both this ACP and ACP-2021-37 and they appear to be logical and reasonable. In the very remote chance that SAR or HEMS need to access the active TDA at short notice I take it the normal range control frequency or telephone number will be manned during any times of activation of the TDA.

Yours



From: SP1 ACP

Sent: 20 May 2021 17:45



Subject: UC ACP-2021-12 Spaceport-1 Scolpaig North Uist - Design Principles

Reply Reply All Forward IM



Fri 21/05/2021 08:42

RE: CAUTION: External email - UC ACP-2021-12 Spaceport-1 Airspace Design Principles Stakeholder Engagement (UNCLASSIFIED)

To: SP1 ACP

i Follow up. Completed on 25 May 2021.

You replied to this message on 21/05/2021 09:19.

Classification: UNCLASSIFIED

Hi [REDACTED]

Having perused your Airspace Design Principles and also now having discussed this with both our Senior Pilot Scotland (Air Ambulance Aberdeen and Perth based) and also our Senior Police Pilot Scotland (Glasgow based) we feel that the impact of your proposals on our operations will be minimal.

Therefore, we have no objections or comments on the proposals at this time.

BW,

Nige

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

