

**MINUTES OF SHETLAND SPACE CENTRE (SSC) SATELLITE VERTICAL LAUNCH SAFETY
AREA ASSESSMENT MEETING HELD VIA SKYPE ON 13 SEPTEMBER 2019**

[13 September 2019]

Present	Appointment	Representing
██████████	Account Manager	CAA
██████████	Technical Regulator	CAA
██████████	Engagement & Consultation Regulator	CAA
██████████	Environmental Regulator	CAA
██████████	Trainee Airspace Specialist (Environment)	CAA
██████████	Economic Regulator	CAA
██████████	Engagement and Consultation Regulator	CAA
██████████	Chief Operating Officer	SSC
██████████	Director, Shetland Operations	SSC
██████████	IT Manager	SSC
██████████	Project Administrator [minutes]	SSC

CAA Assessment Meeting Opening Statement

CAA noted that the following Statement of Need, Agenda and Presentation Slides were received in advance of the Assessment Meeting and confirmed that the documents would be published together with minutes of the meeting on the CAA website. CAA explained the purpose of the meeting and confirmed that the meeting was an Assessment Meeting and not a Gateway. The CAA reinforced that the sponsor was required to provide a broad description of their proposed approach to meeting the CAA's CAP 1616 requirements, but the CAA was not deciding whether the proposed approach met the detailed requirements of the CAA's process at this stage. The purpose of the Assessment Meeting (set out in detail in CAP 1616) was broadly:

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

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

	ACTION
<p>Item 1 – Introduction</p> <p>██████████ started the meeting with some slides to show where the SSC is and what vertical orbital launch could look like. ██████████ suggested that orbital launch is new for the UK, although rockets have been launched into space from the Benbecula ranges but these were never expected to enter orbit. However, there is a big difference between sub-orbital and orbital launches so the airspace construct would not necessarily have to be the same.</p>	

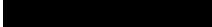
<ul style="list-style-type: none"> • <u>Slide 1</u> – this shows the lateral distance and altitude of aircraft on 60° and 48.5° elevation angle thresholds and relates to overflight. It was copied from CAP1616a as an example of what constitutes overflight. █████ noted this matrix is useful for illustration but doesn't determine what level airspace change is arrived at. • <u>Slide 2</u> – This slide was intended to show where the launch site was in comparison to the nearest occupied building. Using slide 1 and a 48.5° angle, overflight at 7000ft would occur within an 1888m circle. The Google image on the left shows North Unst and the image on the right shows the launch site. The red circle on the left image is centred on the only occupied house to a diameter of 1888 metres. The launch site is outside this circle, as indicated in the image on the right – the launch site lies to the right of the circle. To the North of the launch site is clear sea to the North Pole. • <u>Slide 3</u> – this shows the different trajectories of the █████ rocket and demonstrates its flight profile to various orbits. It doesn't go purely vertical as it has to be parallel to the earth's surface to enter orbit. About 5km from launch, it reaches 10km of altitude. ▪ <u>Slide 4</u> – the image on the left shows potential Sun Synchronous Orbit trajectories (yellow) and Polar Orbit trajectories (red). ▪ <u>Slide 5</u> – this shows the current air space above Shetland. The main airport, Sumburgh, is at the south of the island on the mainland, which is the largest island. There is another airport, Scatsta, at the north of the mainland which services the Oil industry with fixed wing and rotary aircraft. ▪ <u>Slide 6</u> – this shows the high-level air space around Unst. <p>█████ said he hoped that helped to put things into perspective. SSC want to engage with the CAA in a constructive manner.</p>	
<p>Item 2 – Statement of Need (discussion and review)</p> <p>The Statement of Need was discussed and accepted in its present form.</p> <p>█████ confirmed this assessment falls within the ACP process.</p>	
<p>Item 3 – Issues or opportunities arising from proposed change</p> <p>The uniqueness of this ACP was discussed and that it interacted with the UKSA's licensing process and future regulations. It was noted that these regulations were currently being formulated by the UKSA and could potentially impact on the ACP in the future.</p> <p>Given the uniqueness of the ACP it was noted that identification of the affected stakeholders for consultation was going to be key.</p> <p>█████ also stated that the likely environmental impacts would have to be considered in line with the requirements set out in CAP1616 Appendix B.</p>	

<p>Item 4 – Options to exploit opportunities or address issues identified</p> <p>To help identify stakeholders, █████ advised that the Consultation Institute suggest that consultants should consider the following six questions:</p> <ul style="list-style-type: none"> • Who is directly impacted? • Who is indirectly impacted? • Who is potentially be impacted? • Is their help needed to make the decision/implementation work? • Who knows about it? • Who will have an interest in it? <p>As SSC and the launch is close to the FIR boundary, █████ asked whether SSC is planning to engage internationally (e.g. with Norway).</p> <p>█████ said that SSC have to do an environmental impact assessment for planning and for UKSA, the UKSA have said we can use the same one for both. █████ said it needs to fit into the CAA regulations but would preferably be consistent with that submitted under other regimes.</p> <p>█████ discussed one of the main issues mentioned is lot of ‘what if’s’ and unknowns that can have impact on this ACP.</p>	
<p>Item 5 – Provisional indication of the scale level and process requirements</p> <p>█████ said they will start with Indicative Level 1. This won’t be confirmed until the end of the stage 2b but gives us time with the unknowns we are dealing with. He expects to end as Level 1.</p> <p>█████ asked what led them to make it Level 1, and █████ said it is the potential impact below 7000 feet, and the size and scope of the impact on airspace.</p>	
<p>Item 6 – Provisional process timescales</p> <p>SSC proposed that the first 3 gateways should be:</p> <ul style="list-style-type: none"> • DEFINE Gateway: 28 February 2020 • DEV & ASSESS Gateway: 29 May 2020 • CONSULT Gateway: 28 August 2020 • SUBMISSION: 2 April 2021 • DECIDE: 8 October 2021 • AIRAC: 03/22 27 January 2022 • IMPLEMENTATION: 24 February 2022 <p>CAA stated they would consider these suggestions against anticipated other ACPs.</p> <p>█████ compared the timelines to the anticipated timelines from the UKSA with regards to regulation of vertical launch. █████ said that SSC was hoping to be ready to launch in early 2021 and that the UKSA were working towards meeting this. █████ said UKSA timelines are what the entire industry is trying to work towards. The CAA won’t be a block to that timeline and there is a way to treat a</p>	

<p>launch should we require to do so before we complete the air space change process. For example, if the ACP takes till mid-2022 but our first launch is mid-2021, CAA have means by which they can facilitate it from an airspace change perspective. It was noted that the successful use of such a temporary airspace solution to enable a launch would neither indicate nor influence the outcome of an ongoing ACP. The ACP process will continue to run to its conclusion which will be the permanent solution which can be put in place.</p>	
<p>Item 7 – Next steps</p> <p>The CAA will consider the proposed timeline and reply to SSC.</p>	
<p>Item 8 – Any other business</p> <p>████ said we have talked about engagement and noted it has to be minuted any time we engage with anyone. █████ said stakeholder communication has to be mapped and how we are engaging.</p> <p>████ said the whole process is predicated on evidence. Any engagement or consultation has to be evidenced and submitted as back up. █████ advised that PowerPoint presentations have recently been developed to provide change sponsors with clarification of the CAA's requirements and expectations for the DEFINE, DEVELOP & ASSESS and CONSULT Gateways and that these would be shared accordingly. █████ stressed that these slides should be used as a supplement to CAP 1616 and not as a replacement for it.</p> <p>████ mentioned that the Sponsor is required to provide the options appraisal for all shortlisted options by Stage 2B which will then develop and refine in next steps. █████ asked if the options appraisal would be an economic assessment of the impacts of the change, and █████ confirmed that this would be an economic assessment with respect to all the opportunities and costs considered by the sponsor.</p> <p>████ suggested to consider the language used as well as inclusion of corporate format in all documentation, as it will be published on the portal</p> <p>████ confirmed she is our account manager and all questions should be directed through her.</p> <p>████ said SSC looked forward to working constructively with the CAA.</p>	

ACTIONS ARISING FROM [INSERT NAME OF CHANGE PROPOSAL] ASSESSMENT MEETING

Subject	Name	Action	Deadline
Timeline	CAA	Analyse and agree timeline to include in minutes	27/09/2019
Slides	SSC	Look at slides and add context after discussion	27/09/2019
Portal	SSC	Once minutes and slides are agreed, add redacted versions to the portal	27/09/2019


Chief Operating Officer
Shetland Space Centre