ACP-2021-067

Group of TDAs connecting Orkney and Shetland Islands for SATE UAS operations – Phase 2

Targeted Engagement with Aviation Stakeholders

Dear Stakeholder,

We are contacting you as a valued member of the aviation community to kindly request your feedback to the Temporary Airspace Change Proposal ACP-2021-067. This ACP aims to establish a complex of Temporary Danger Areas (TDA) during notified periods to enable trial operations of Unmanned Aircraft Systems (UAS).

These TDAs will connect selected locations the Orkney and the Shetland Islands as part of the Sustainable Aviation Test Environment (SATE) project.

Phase 1 of the project and its associated airspace change (ACP-2021-025) have been approved and will be implemented between 27th September and 24th October 2021.

This Phase 2 of the project (ACP-2021-067) is intended to take place between 14th March and 17th April 2022 and aims to enable UAS flights connecting the Orkney to the Shetland Islands.

Details of these operations and associated airspace are described in the following sections.

SATE Project

The SATE (Sustainable Aviation Test Environment) will create the UK's first operationally based low-carbon, aviation test centre at Kirkwall Airport in the Orkney Islands.

Part funded by UK Research and Innovation (UKRI) through the Industrial Strategy Challenge Fund. The Future Flight Challenge is investing up to £125 million to develop greener ways to fly, such as all-electric aircraft and deliveries by drone, by advancing electric and autonomous flight technologies. The investment is matched by £175 million from industry.

The challenge aims to bring together technologies in electrification, aviation systems and autonomy to create new modes of air travel and capability.

The SATE will be a UK first and it is hoped will test and showcase new technology that can be adopted for island and wider use, with the aim to create social benefit and economic prosperity.

The SATE project will feature:

- Flight trials demonstrated in a real-life context
- Trials including low-carbon aircraft using electric, hydrogen and Sustainable Aviation Fuels (SAF) as well as Unmanned Autonomous Vehicles (UAV)
- Airport infrastructure improvements
- Improved regional air connections
- Local supply chain and employment impacts
- Contribute to Net-Zero aviation goal

As part of the SATE consortium, Windracers will demonstrate the application of ULTRA Unmanned Aircraft System (UAS) for delivering on-demand supplies to remote communities that currently suffer from mistimed or limited logistics. Preliminary engagement with key local stakeholders has confirmed the priority for medical supplies to remote heath care service providers and other relevant use cases that would generate significant benefit to local residents and businesses.

About ULTRA UAS

Windracers Ltd and the University of Southampton have been working together since 2018 in the development of an Unmanned Aircraft System (UAS) specially conceived to provide a solution to a multitude of operational requirements that involve the transport of critical supplies for humanitarian and research activities.

The result is ULTRA UAS: a twin-engine, fixed wing aircraft with an MTOW of 400 kg capable of carrying 100-kg payloads. The aircraft is designed for reliability with a fault-tolerant architecture that features multiple redundancy of critical subsystems, proven fail-safe mechanisms and electronic conspicuity.

Figure 1 ULTRA UAS has a 10 m wingspan and cruises at 75 knots

Airspace Change Proposal

ACP-2021-067 aims to set up a complex of Temporary Danger Areas divided in 3 segments, connecting the following locations:

- Kirkwall Airport
- Eday Airport
- North Ronaldsay Airport
- Lerwick/Tingwall Airport
- Unst Airport

These airspace structures will be activated during short periods of time, separately or in combination to allow the intended itinerary. Activation times will be agreed with local stakeholders around scheduled flights.

It is anticipated that the TDA will be activated via NOTAM, at least 24 hours in advance, during expected hours of low aerial activity, between 14th March and 17th April 2022.

The initial proposal (Figure 2) identifies three different segments:

- B: Kirkwall - Eday – North Ronaldsay
- D: North Ronaldsay – Tingwall
- E: Tingwall – Unst

In this proposal, each TDA segment is 1.54 nm wide and extend on the following altitude ranges.

- B: Surface to 1500 ft
- D: 1500 ft to 2500 ft
- E: Surface to 2500 ft

Changes to geometry, altitudes and schedule can be made upon analysis of feedback from all airspace Stakeholders. The earlier we receive this feedback, the easier it is for us to come up with a solution that causes the least impact on everybody's operations. Stakeholders will be informed of these changes and opportunity to provide additional comments will be provided.

Details of the TDA segments can be found in Appendix A.

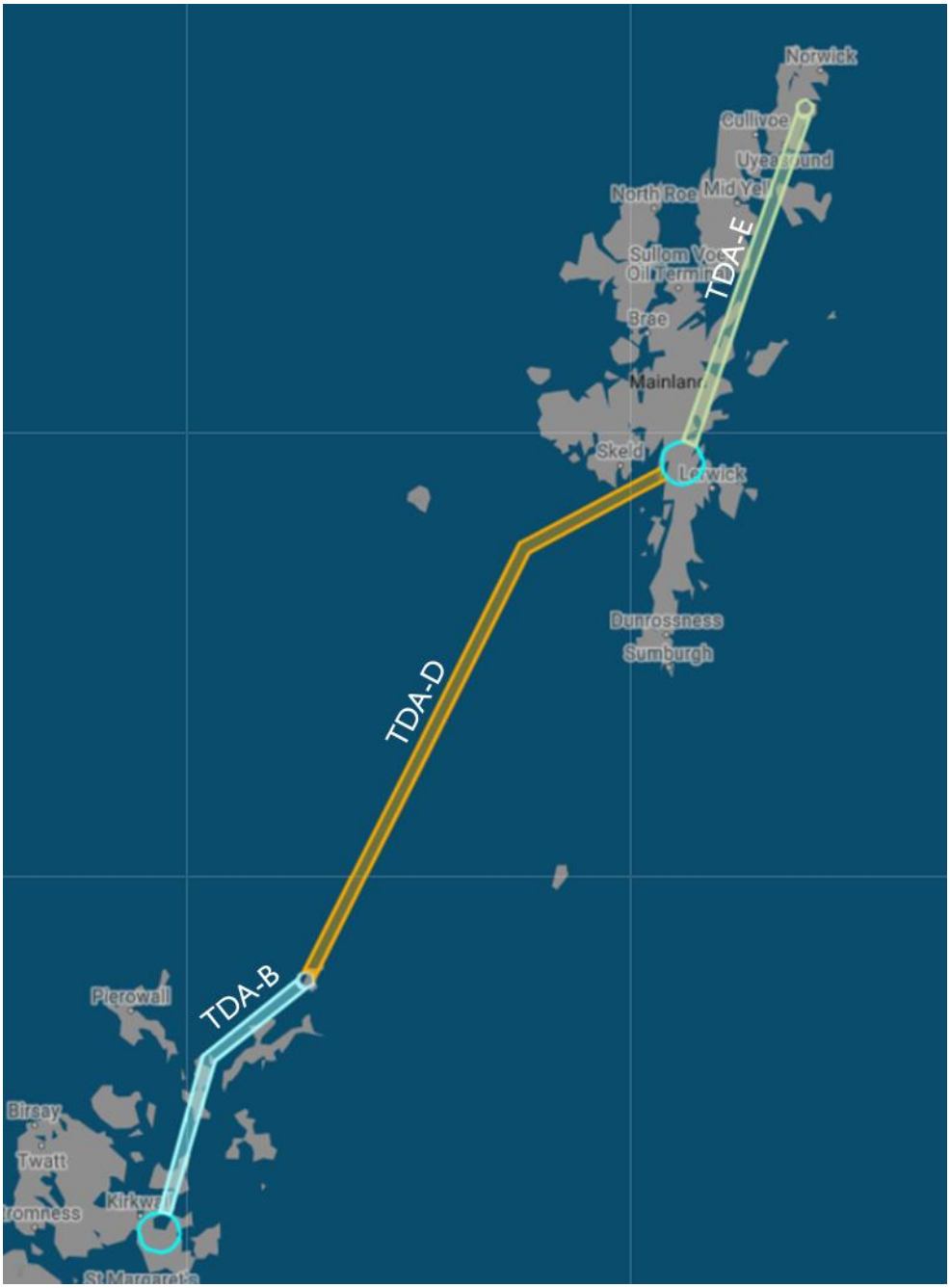

Figure 2 The proposed TDA is divided in 3 segments

Timeline

The intended operations will take place during a period of up to six weeks during Spring 2022. An initial proposal of the TDA activation timeline has been summarised in the following table. Specific times of operations will be defined based on the requirements of the various stakeholders involved.

Table 1 Proposed scheduled of implementation ACP-2021-025

TDA Segment	Route	Proposed activation dates
B	Kirkwall- North Ronaldsay	14th March – 27th March 4th April – 10th April
D	North Ronaldsay-Lerwick	21st March – 27th March 4th April – 10th April
E	Lerwick-Unst	28th March – 3rd April

Why are we contacting you?

During the planning of this airspace change we have identified a number of members of the aviation community that may be affected or might have interest in this airspace change, and we believe you (or the organization you represent) fall into this group.

You have been contacted as part of a Stakeholder Engagement Strategy intended to:

- ensure the safety and operational viability of the project,
- keep you informed of any changes to the ACP-2021-067 process,
- make sure that the principles of design and the proposed TDA will not have a harmful impact on other aviation activities, and
- develop deconfliction procedures with selected agencies to preserve adequate separation between the unmanned aircraft and other frequent airspace users.

How to submit your feedback

We have sent you a form for you to provide feedback in PDF format. You can fill in the form and email it to operations@windracres.org.

Please remember to submit your feedback as soon as possible to allow us the maximum time to discuss any changes needed to ensure the operations are safe, viable, and minimise the impact on stakeholders.

Please send us your feedback before **17:00 on Friday 15th October 2021**.

If you have any queries, please do not hesitate to contact us. We look forward to hearing from you.

Yours Faithfully,

[redacted]

Appendix A Detail of TDA segments

Segment B: Kirkwall – North Ronaldsay

The initial proposal is to split the TDA into two legs connecting in a straight line 15.8 NM long the ATZ of Kirkwall airport and Eday airport and in another straight line 12 NM long Eday airport and North Ronaldsay airport. The TDA is 1.54 NM wide and extend from surface to 1500 ft and the UAS will fly the route at 1000 ft.

Figure 3 TDA Segment B, Kirkwall-Eday-North Ronaldsay, Proposed Design

Segment D: North Ronaldsay - Lerwick

The proposed TDA provides a corridor 1.54 NM wide connecting North Ronaldsay airport and the ATZ of Tingwall airport. The corridor is split into two legs in order to avoid Sumburgh's Controlled Traffic Region (CTR) where a minimum of 2.5 NM clearance is kept from this area. The two legs are 46.5 NM and 15 NM long respectively. The TDA will extend from 1500 ft to 2500 ft and the UAS will fly the route at 2000 ft.

Figure 4 TDA Segment D, North Ronaldsay-Lerwick, Proposed Design

Segment E: Lerwick – Unst

In this initial proposal, the TDA connects the ATZ or Tingwall airport and Unst airport in a straight line with a corridor of 33.5 NM long and 1.54 NM wide. The TDA will extend from surface to 2500 ft and the UAS will fly the route at 2000 ft.

Figure 5 TDA Segment E, Lerwick-Unst, Proposed Design