ACP – 2022 – 103

Final Submission

CAELUS Project Trial C – Ayrshire and Arran

Nov 23

Doc v1.1

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1 Introduction

1.1 CAELUS Project

1. This temporary change for an airspace trial is in support of the CAELUS ConOps which looks to trial various aspects of an ecosystem that could be required to facilitate a drone service for NHS, capable of being scaled to operate nationally. The trials will aim to further understanding of the safe operations of BVLOS and indeed all airspace operations in controlled airspace while validating the important potential improvements in NHS services. The flights for this temporary change within a TDA and where appropriate a TSA. UAS operations will need to scale to meet the demand of the populous associated with conurbations. This temporary change enables the project to evaluate and develop the supporting systems in the round across the whole ecosystem to ensure safe and equitable integration of crewed and uncrewed operations whilst providing NHS staff valuable opportunity to understand how a service might operate and to compare across diverse geographies by working within multiple health boards in Scotland. The TDA and TSA provides the safety of flight for all airspace users with the intention to reduce the segregation as these supporting systems are validated, developed and approved by the regulator.

1.2 CAP 1616 ACP Submission

2. CAELUS submitted a DAP 1916 22 Dec 22 for a trial ACP for BVLOS operations in the vicinity of Prestwick Airport in the Ayrshire and Arran region to facilitate UAS operations between University Hospital Crosshouse, Arran War Memorial Hospital and University Hospital Ayr. An assessment meeting was held virtually on 03 May 23 between members of the CAELUS Consortium and the CAA Airspace Regulation (AR) team and RPAS Team. During the Assessment Meeting it was agreed that it would be appropriate for ACP 2022-203 to follow the Temporary Change process as per CAP 1616. A redacted version of the minutes of that meeting was uploaded to the CAA portal on the 21 May 23 together with a redacted version of the presentation.

3. This document forms part of the CAELUS Consortium submission to the CAA for consideration under the CAP 1616 process for a temporary change and should be read in conjunction with OSC submitted to the CAA RPAS team.

1.3 Statement of Need

4. The Statement of Need submitted is replicated below for ease of reference:

Project Overview

The CAELUS (Care & Equity – Healthcare Logistics UAS Scotland) consortium is led by AGS Airports Ltd on behalf of NHS Scotland and the consortium partners and part funded by Innovate UK through the Industrial Strategy Challenge fund, Future Flight competition. The project which brings together AGS Airports, NHS Scotland, NATS, ATKINS, Cellnex, Connected Places Catapult and 10 other companies are working together to demonstrate the viability of a national drone network that can transport essential medicines, bloods and other medical supplies throughout Scotland. The project will deliver a Concept of Operations (CONOPS) for the transition to fully integrated UAS operations at a national level. This specific workstream, led by NATS will develop and publish a phased approach outlining proposed airspace constructs and detailing regulatory and technology gaps required to enable the transition. Elements of this CONOPS will be validated through live flight operations, differentiating CAELUS from other projects by seeking to move the industry forward by proposing and validating a method of operations that are fully integrated and sustainable.

Opportunities /Need
Healthcare opportunity

With approximately 26% of Scotland's population living in remote or rural areas spread across 69% of the land mass, service delivery can encounter constraints which contributes to treatment inequity. NHS Scotland encompassing the Territorial Boards and Scottish Ambulance Service (SAS) views the adoption of Unmanned Aircraft Systems (UAS) or drones as an opportunity to transform the patient experience and reduce the impact of traffic congestion and CO2 emissions. Key to this is the driver of the NHS Scotland

Recovery Plan (2021) which highlights the essential need for research, innovation and redesign as integral to the recovery of NHS Services. For both SAS and NHS Scotland equity in the delivery of healthcare is a key driver for involvement in this project as NHS Scotland considers how to remobilise and redesign services to address the needs of Scotland's health and social care challenges. A current strategic directive for SHIP (Scottish Health Industry Partnership) is to grow the economy (community wealth building) and support remobilisation, accelerating the adoption of Innovation into NHS and Social Care (Life Sciences in Scotland, 2022). A drone-based network has the potential to reduce mileage and produce significant time saving opportunities improving patient experience, outcomes and equity in care delivery. As a formal partner of the consortium, NHS Scotland via lead board NHS Grampian, are providing a joined-up approach bringing input and expertise from health boards and SAS under the "Once-for Scotland" banner. The NHS will define and support at ground level the clinical use cases that will be flown or simulated in the live and digital demonstrations.

Informing Regulation

Today, most beyond visual-line-of-sight (BVLOS) UAS operations can only be conducted within segregated airspace[1]. The most common way to achieve this is to establish temporary danger areas (TDAs) for the UAS to operate within. Current regulation is designed to consider a per flight basis without means to provide a scalable solution. Recognised detect and avoid capabilities are basic. CAELUS intend to validate a developed concept of operations around airspace structure and use that is scalable and sustainable.

Proposed Operations

We aim to utilise volumes of segregated airspace across Scotland in a total of 5 locations to enable us to prove elements of our proposed future concept of integrated airspace. For this proposal, we intend to fly in the Ayrshire & Arran region representing use cases for West NHS Innovation board and Scottish Ambulance Service. The use cases will require the airspace to be in place for a maximum of 8 weeks with expected flying during 4 of those weeks. Our proposal is that we activate the segregated airspace for limited duration. The

[1] CAA Policy CAP 2533 requires the operation of BVLOS operations within Class D airspace to take place within a Temporary Segregated Area (TSA).

airspace dimensions and duration of activation will be informed by stakeholder feedback. This segment of flying will be undertaken by Skyports. A system of ADS-B Receivers[2] will be deployed to demonstrate an additional layer of situational awareness to the UAV pilot along the flying routes and contribute to the Detect and Avoid solutions that will form part of the demonstrations.

1.4 Concept of Operations

5. The CAELUS project is supported by a ConOps that has been provided to the CAA and the flights conducted during the activation of the TDA's and TSA's will be used to support this in order to work towards the accommodation phase of BVLOS flights in unsegregated airspace and to meet the following objectives in a safe manner:

    a. Demonstrate safe integrated BVLOS operations in the vicinity of commercial airport operations inside Controlled Airspace
    b. Determine level of impact for crewed aviation
    c. Demonstrate UA Remote Pilot (RP) can communicate with ATC to ensure airspace is only segregated when absolutely necessary, minimising impact to other airspace users.
    d. Demonstrate the UTM capabilities that could enable upscaling and integration in the future through adoption of technology (such as sharing of flight intent data, mission requests, conformance monitoring)
    e. Produce final report which can be used by CAA to enable a pathway to regulation.

6. The ConOps has been developed to align and be consistent with the CAA Airspace Modernisation Strategy 2040 vision.

7. The CAELUS consortium has developed a mapping of the trial objectives that will be assessed during the flights planned for this ACP. This work has been completed through a number of workshops held within the CAELUS Consortium. The output of this is attached to the ACP submission as Appendix 1 and demonstrates how each objective maps to a

[2] 1 It should be noted that this is part of the CAELUS trial and will in no way be used in operational context for separation standards, detect and avoid or any other safety measure but it will be used to gather data in support of the ConOps and CAELUS project.

Future of Flight 3 ‘parent’ objective together with details of the data and outcomes necessary to demonstrate the success of the trial objectives.

8. The following data will be gathered in order to validate success of the defined objectives and to inform any advice and recommendations to the stakeholders/regulators involved in similar trials:

   a. Operations fully conducted as per identified procedures. Any deviations from ideal uninterrupted flights are in agreement with pre-defined contingency procedures (e.g., rally point landing) and pose no additional risk.
   b. Record any events that would not have occurred if the UAV trial did not take place. That includes aircraft delays, refused/delayed clearances, transits of airspace.
   c. Collection of feedback via interview/questionnaire by ATC and RP.
   d. Supervision of the UTM system by non-operational ATC. Collection of feedback via interview/questionnaire by ATC and RP. Confirm reliability of the system as well as accuracy/delay of the streamed data.
   e. Gather CAA feedback on the received results. Agree on acceptable repetition required to confirm the concept; agree on any acceptable changes to the processes that would bring the trial a step closer to being considered "routine operations".
   f. Calculations and data recording to determine the surveillance (non-operational) and UTM partners (Plane Finder and ANRA) systems benchmarks.

2 Airspace

2.1 Overview of Operations

9. The activity undertaken will consist of a series of live flights between University Hospital Crosshouse and Arran War Memorial Hospital and University Hospital Ayr. The flights will take place over the course of 4 weeks with a payload provided by the NHS. The live trial will see the Skyports UAV flying for 4 weeks during the validity of the AIC (target AIC publication date 7 Mar 24) starting from 11 Mar 24 to ensure aviation stakeholders have sight of the AIC and promulgate of the activation via NOTAM.

10. Operations will take place over a 4 week period with periods of activation up to twice a day. The table below shows how the activity will be increased incrementally over the 4 week period.

	AM Activation		PM Activation	Comments
Week One	0700 – 1000 L	or	1300 – 1600 L	Only one period of flying with morning activation preferred dependent on weather. Only one appropriate NOTAM will be activated with 24 hours notice. 3-6 one-way flights are expected to be completed (1-2 flights per hour) Only one TDA (A or B) will be activated
Week Two	0700 – 1000 L	and	1300 – 1600 L	Afternoon activation will be planned in addition to the morning one Only one TDA (A or B) will be activated
Week Three	0700 – 1100 L	and	1300 – 1600 L	Morning activation is increased from 3 to 4 hours, Both TDA legs could be active between 0700-0900
Week Four	0700 – 1100 L	and	1300 – 1700 L	Both morning and evening activations are increased to 4h Both TDA legs could be activated for the whole duration of the morning OR afternoon activation
Note 1	Activation periods described above are maximum durations and could be reduced on particular days if not operationally required.			
Note 2	Danger Area Information Service will be provide information on the status of the TDAs.			
Note 3	Skyports will promulgate the TDA activation times and contact details of the Flight Operations Team by NOTAM at least 24 hours before the planned use.			

Table 1 Periods of activation proposed during the 4 week period

11. Activation periods described above are maximum durations and will be reduced on particular days if not operationally required.

Figure 1 - Arrival And Departure Route To/From Arran TOLP (Field Near Arran Outdoor Centre)

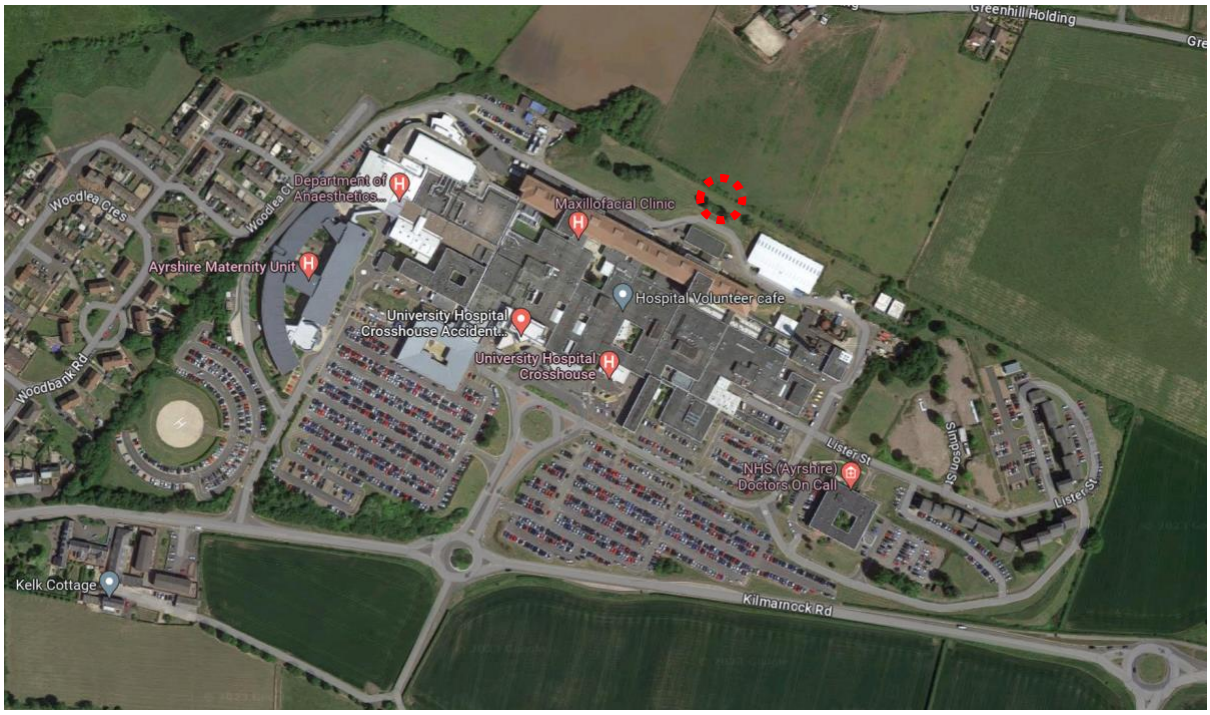

Figure 2 - Crosshouse TOLP at the back of University Hospital Crosshouse

Figure 3 - Ayr TOLP on the side of University Hospital Ayr

12. The Arran TOLP is situated in a field next to the Arran Outdoor Centre. The TOLPs for University Hospital Crosshouse and University Hospital Ayr are located on NHS hospital grounds. The sorties will be wholly contained within the temporary airspace which is comprised of a Temporary Danger Area where the airspace sits within Class G airspace or a Temporary Segregated Area where the structure overlaps the Prestwick CTR – Class D Controlled Airspace. The majority of the sortie is required to be operated Beyond the Visual Line of Sight (BVLOS).

3 UAV Aircraft

13. Skyports DS will be using the Swoop Kite for drone delivery operations, supplied by unmanned aircraft system (UAS) manufacturer, Swoop Aero. The UAS has been specifically selected by Skyports to further enhance air safety through the addition of ADS-

B 1090 IN and OUT, and Mode S, to further reduce the air risk profile of our operations and improve situational awareness.

14. Skyports have submitted their OSC to the CAA RPAS team and further details of this UAV can be found within Skyports OSC Vol.2 Swoop Kite. It is acknowledged that any approval of the ACP will be subject to the OSC approval, and no activation of the airspace will be possible without it.

15. An image of the Swoop Kite at 4 and Table 2 below show the image and UAV specifications respectively.

Figure 4 - Swoop Kite EVTOL

Table 2. Swoop Kite EVTOL specifications

Name	Swoop Kite EVTOL
Flight Performance	Max Range 160 km Cruise Speed 68 kt IAS

OEW/MTOW	22.5kg/26.4kg
Operating Conditions	Max wind speed: 30kts with gusts up to 44kts Precipitation: Moderate rain (10mm per hour) up to 30 minutes, light rain (less than 2.5mm per hour) indefinitely Temperature range: -10 degrees Celsius to 50 degrees Celsius
Transponders	Transponder 1090ES ADS-B Out and ADS-B IN , which can process uncertified ADB-B signals and Mode S

4 Airspace

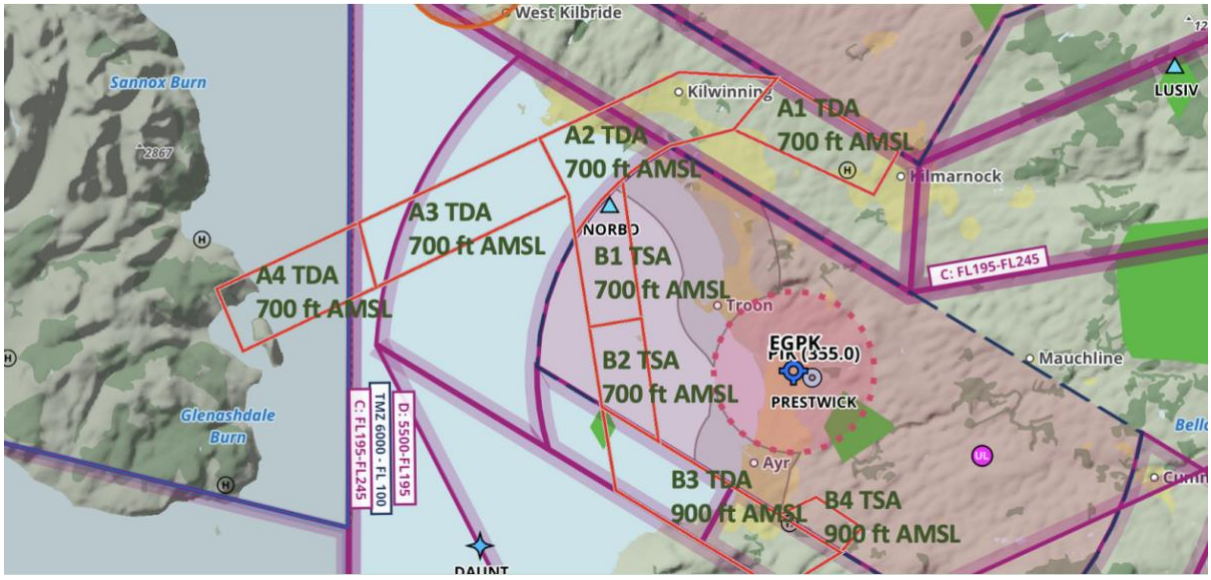

Figure 5 - Proposed routing with TDA and TSA segments detailed

16. The route itself is designed in such a way, so that it lies predominantly over sparsely populated areas and where possible over the sea (see noise assessment). The route is designed to mitigate populous and infrastructure ground risk, and the impact of noise pollution.

17. The TSA and TDA segments have vertical dimensions of Surface Level to a maximum of 900ft AMSL and lateral dimensions of 2-4 Kms and are in the form of a corridor which is

segmented as shown at Figure 5 above. Route A or B or both routes may be notified as active with the constituent TDA segments being subject to NOTAM.

18. The following is replicated from the draft AIC which will be submitted to CAA Airspace Regulation together with this document.

EG DXXXX . When operationally required between 07 March 2024 and 03 May 2024, a TSA/TDA is established within the area bounded by straight lines joining successively the following points:

TDA Segment A1 700ft AMSL
Lat DMS (N) Lon DMS (W)
1. 55° 38' 05.09" N 004° 38' 57.34" W
2. 55° 39' 40.40" N 004° 36' 35.26" W
3. 55° 37' 23.36" N 004° 29' 55.49" W
4 55° 36' 03.63" N 004° 31' 16.98" W
5 55° 38' 05.09" N 004° 38' 57.34" W

TDA Segment A2 700ft AMSL
Lat DMS (N) Lon DMS (W)
1 . 55° 34' 47.30" N 004° 47' 39.52" W
2 . 55° 36' 03.60" N 004° 48' 00.97" W
3 . 55° 36' 03.61" N 004° 48' 00.98" W
4 . 55° 36' 03.61" N 004° 48' 00.99" W
5 . 55° 37' 49.01" N 004° 49' 36.68" W
6 . 55° 39' 51.79" N 004° 41' 55.83" W
7 . 55° 39' 40.40" N 004° 36' 35.26" W
8 .55° 38' 05.09" N 004° 38' 57.33" W
9 . 55° 37' 34.46" N 004° 42' 28.30" W
10 . 55° 37' 15.62" N 004° 43' 23.42" W
11 .55° 37' 07.40" N 004° 43' 45.69" W
12 55° 36' 55.13" N 004° 44' 13.86" W
13 .55° 36' 44.69" N 004° 44' 38.39" W
14 . 55° 36' 32.48" N 004° 45' 03.49" W
15 . 55° 36' 10.74" N 004° 45' 44.03" W
16 . 55° 35' 50.68" N 004° 46' 17.68" W
17 . 55° 35' 16.24" N 004° 47' 05.30" W
18 . 55° 35' 01.34" N 004° 47' 23.84" W
19 . 55° 34' 57.83" N 004° 47' 27.93" W
20 .55° 34' 54.63" N 004° 47' 31.71" W
21 . 55° 34' 47.30" N 004° 47' 39.52" W

TDA Segment A3 700ft AMSL
Lat DMS (N) Lon DMS (W)
1 . 55° 33' 10.70" N 004° 58' 32.82" W
2 . 55° 35' 10.95" N 004° 59' 29.96" W

3 . 55° 37' 49.01" N 004° 49' 36.68" W
4 . 55° 36' 03.61" N 004° 48' 00.99" W
5 55° 33' 10.70" N 004° 58' 32.82" W

TDA Segment A4 700ft AMSL
Lat DMS (N) Lon DMS (W)
1 55° 35' 10.95" N 004° 59' 29.96" W
2 55° 33' 10.70" N 004° 58' 32.82" W
3 55° 31' 11.24" N 005° 05' 49.32" W
4 55° 33' 06.57" N 005° 07' 16.81" W
5 55° 35' 10.95" N 004° 59' 29.96" W

TDA Segment B1 700ft AMSL
Lat DMS (N) Lon DMS (W)
1 . 55° 32' 14.24" N 004° 44' 00.76" W
2 .55° 31' 58.19" N 004° 46' 51.86" W
3 55° 34' 47.30" N 004° 47' 39.50" W
4 . 55° 34' 53.13" N 004° 47' 33.11" W
5 . 55° 34' 57.91" N 004° 47' 27.77" W
6 . 55° 35' 16.68" N 004° 47' 04.59" W
7 . 55° 35' 31.84" N 004° 46' 44.06" W
8 . 55° 35' 50.39" N 004° 46' 17.68" W
9 . 55° 36' 05.98" N 004° 45' 51.81" W
10 . 55° 36' 32.15" N 004° 45' 04.07" W
11 .55° 32' 14.24" N 004° 44' 00.76" W

TDA Segment B2 700ft AMSL
Lat DMS (N) Lon DMS (W)
1 55° 31' 58.19" N 004° 46' 51.86" W
2 55° 32' 14.24" N 004° 44' 00.76" W
3 55° 28' 25.37" N 004° 43' 04.57" W
4 55° 29' 29.52" N 004° 46' 09.98" W
5 55° 31' 58.19" N 004° 46' 51.86"W

TDA Segment B3 900ft AMSL
Lat DMS (N) Lon DMS (W)
1 . 55° 29' 29.51" N 004° 46' 09.95" W
2 . 55° 24' 58.94" N 004° 33' 08.32" W
3 55° 23' 49.05" N 004° 36' 27.60" W
4 55° 26' 54.65" N 004° 45' 24.53" W
5 55° 29' 29.51" N 004° 46' 09.95" W

TDA Segment B4 900ft AMSL
Lat DMS (N) Lon DMS (W)
1 . 55° 25' 45.31" N 004° 31' 58.95" W
2 55° 24' 58.94" N 004° 33' 08.32" W
3 55° 26' 09.00" N 004° 36' 30.69" W
4 55° 26' 41.94" N 004° 34' 28.29" W

5 55° 25' 45.31" N 004° 31' 58.95" W

19. The activity within the TSA and TDA is a hazardous activity in accordance with the CAA Buffer Policy. However, since Prestwick ATC are the controlling authority providing the DACS and management of the temporary airspace and have been part of the development of the TDA design and operating procedures, CAELUS2 is seeking dispensation from the buffer policy for the ACP-2022-103. The UA is also subject to an OSC approval, which contains the evidence that the hazardous activity of BVLOS flight can be contained within the planned volume of airspace. A HAZID has also been carried out in support of the TOI which enables the provision of the DACS by Prestwick ATC.

5 Operations

20. There will be no change to established aircraft routes below 7000ft, no change to existing promulgated airspace including holds or VFR reporting points. A Temporary Operating Instruction (TOI) will be in place for Prestwick ATC and Letters of Agreement will be held between Prestwick ATC and the UAV operator (Skyports). The Letter of Agreement is agreed in draft form subject to this ACP submission, has been submitted with this ACP submission and will be in place prior to any operations taking place and will be subject to approval from the CAA Aerodrome Inspector:

5.1.1 Deconfliction Principles

21. As the ANSP, Prestwick ATC will be supporting the segregation of the UAV operating area and other airspace users. Temporary Danger Areas (TDA) in Class G airspace and Temporary Segregated Areas (TSA) in Class D airspace will be established and promulgated via AIC. Times of activation will be notified by NOTAM at least 24 hours in advance of drone flight operations.

22. There are two routes defined: Crosshouse/Arran (Route A) and Crosshouse/Ayr (Route B). Only the airspace required for the routes to be flown on each day will be activated.

23. The TDA/TSA are sectorised and the upper limit of most sectors is 700ft amsl, however there are two sectors on the Crosshouse/Ayr route to the South of Prestwick Airport whose

upper limit is 900ft amsl due to the ground elevation in these areas. The drone will operate not above 400ft above surface level at all times.

24. A Danger Area Crossing Service will be provided by Prestwick ATC who may permit other aircraft to access TDA airspace subject to the known status of activity within it and the relevant TOI and LOAs. A TSA however is totally segregated airspace and when active access by other aircraft is totally forbidden. If access is required by other aircraft the TSA must be tactically deactivated by Prestwick ATC following co-ordination with Skyports. Further details are included in the TOI which will be subject to approval by the Aerodrome Inspector and will be part of the condition upon which the TSA may be activated.

5.1.2 Infringements

25. In the event of an aircraft in emergency/priority flights or infringement of CAS by unknown aircraft, the ATCO follow the procedures as set out in the TOI which will be approved by the CAA Aerodrome Inspector. It is acknowledged that the approval of this ACP will be conditional upon the approval of the of the TOI.

5.1.3 Communications

26. The Remote Pilot (RP) of the drone will be located remotely at Skyports' facility in Buckinghamshire. The RP has 2-way communications with Hub Operators (HO) located at each of the take-off and landing sites.

27. All communications between ATC and the RP will be via telephone.

5.1.4 Weather

28. Drone flying will not commence when the visibility is less than 5km or cloud base is below 1500ft as reported in the Prestwick METAR. This is to help enable other VFR traffic to transit above the TDA/TSA and remain clear of cloud.

29. Prestwick ATC will inform Skyports whenever the METAR/SPECI reported visibility drops below 5km or cloud base falls below 1500ft when drone flying is taking place.

30. The drone has a number of other weather requirements which include wind speed, temperature and precipitation. Skyports will be responsible for continuing to monitor Prestwick METARS and TAFS to ensure all weather minima are complied with.

5.1.5 Emergencies

31. Emergency procedures are detailed in the Skyports OSC which has been submitted to the CAA RPAS Team. Further ATC emergency procedures are contained within the TOI and subject to the CAA Aerodrome Inspector.

32. Prestwick ATC have developed a TOI for the safe operations of the BVLOS flights within the TSA and TDA proposed under this ACP and will be subject to CAA regulatory approval. It is understood that any airspace approved under this ACP will not be activated without the relevant TOIs having been approved.

6 Environmental and Noise Impacts

33. As part of ConOps development, the flights were carefully planned to minimise noise in the areas of operations. Skyports do not envisage any adverse impact on tranquility when operating over inhabited areas due to the following reasons:

34. According to previous measurements, the mean maximum sound pressure level (L_{ASmax}) of the Swoop Kookaburra Mk III UA during take-off and landing is 76dB, and that when the UA is cruising at a height of 200ft AGL is 49dB, which is virtually undetectable from ground[3]. The most audible part of the flight, i.e. take-off and landing, typically takes 17.57 seconds at standard climb/descend rate, and 8.98 seconds at maximum climb/descend rate. The UA is a hybrid-powered lift transitional platform which takes off and lands vertically. In normal circumstances, the UA will cruise at a height of 400ft AGL. While the UA to be used on this part of the CAELUS project is the next generation Swoop aircraft, the Kite, due to it

[3] 86dB and 59dB if a 10dB noise penalty is added to account for the tonal nature of drones.

being designed very similarly to the Kookaburra (fixed-wing, VTOL), we believe the noise impact of the Kite to be extremely similar to that of the Kookaburra. The operations will take place over 4 weeks. Skyports believes the noise impact with such a short span of time, and small noise footprint, is negligible.

35. The routes were carefully designed that we prioritise operating over sparsely populated areas, and also where possible over the sea (see Figures 6 and 7 below; the colours denote population density). At key locations such as TOLPs, they were also chosen to be located outside/away from residential areas to minimise the noise impact during take-off and landing (see Figures 8 and 9 for Arran TOLP, 10 and 11 for Crosshouse TOLP and 12 and 13 for Ayr TOLP).

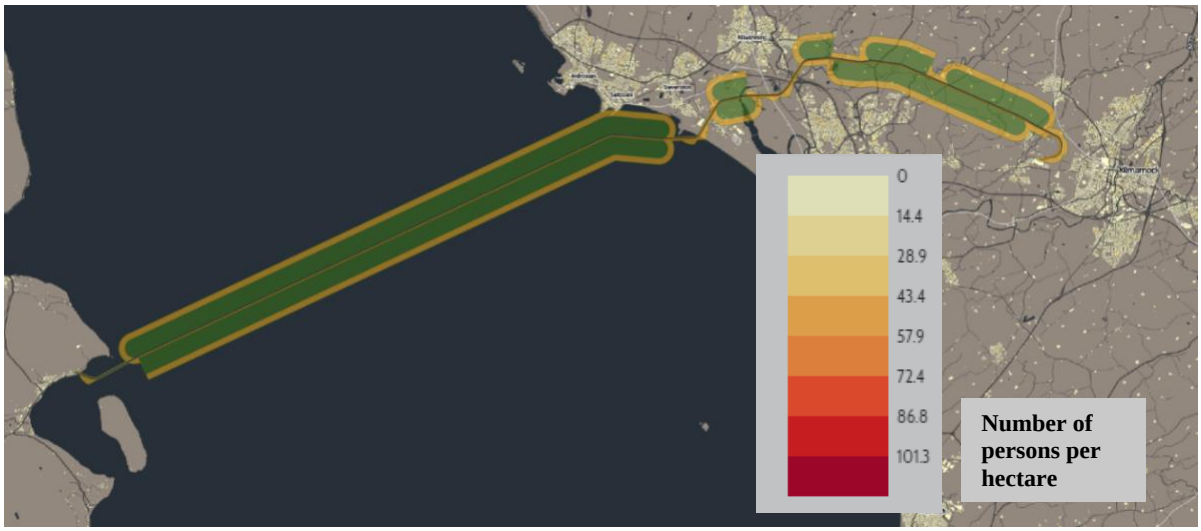

Figure 6 - Population density map with flight routes overlaid (Crosshouse hospital to Arran Outdoor Centre)

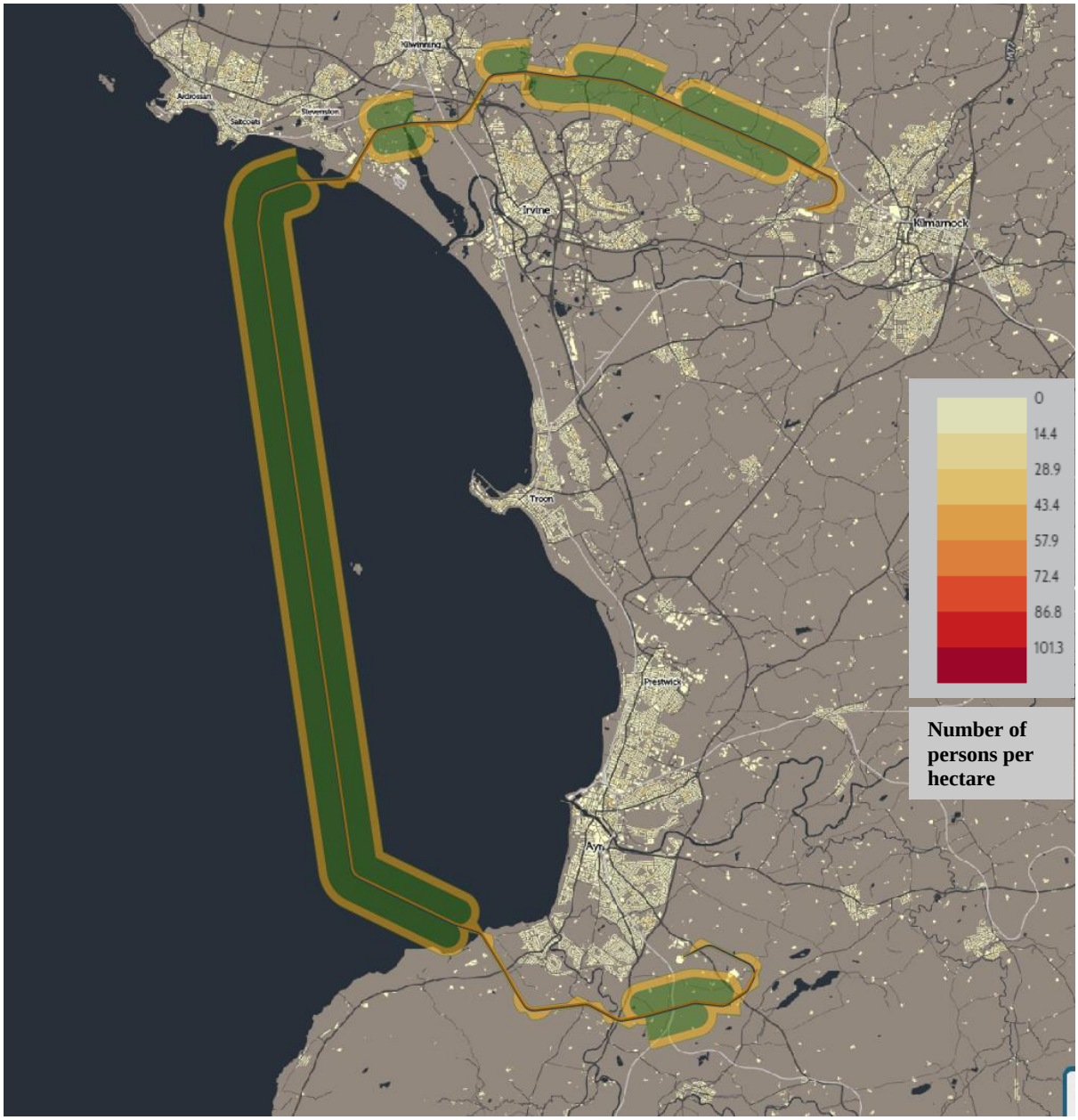

Figure 7 - Population density map with flight routes overlaid (Crosshouse hospital to University Hospital Ayr)

36. The Arran TOLP is situated in a field next to the Arran Outdoor Centre, as illustrated in Figure 4. The nearest sensitive noise receptors are residential buildings located to the west of the TOLP, with the closest ones being 65m away (70m for houses to the north of the TOLP). Since this is a spoke location, a low volume of flights is expected to take place here;

and with short take-off and landing of the UA, it is anticipated that the noise levels at this location and the impact of the noise events would be acceptable.

Figure 8 - Arrival and Departure route to/from Arran TOLP (field near Arran Outdoor Centre)

Figure 9 - Arran TOLP and its closest building

37. Both TOLPs for University Hospital Crosshouse and University Hospital Ayr are located on NHS hospital grounds, which means that they are close to sensitive noise receptors. However, the UA needs to take off and land as close to the hospital as possible to facilitate medical delivery for the NHS. Therefore, the TOLPs have been strategically selected at locations that have minimal noise impact on the public, while still remaining within an acceptable distance to the NHS, which retains the benefits of the operation. Furthermore, the noise level of the UA is expected to be the same or similar to vehicles and ambulances travelling to/from the hospital. For the Crosshouse TOLP, a field at the back of the hospital has been chosen to minimise any disturbance to patients and members of the public. Similarly, the Ayr TOLP is located on the edge of the hospital boundary, far away from the main building, to reduce noise impact as much as possible.

Figure 10 - Arrival and Departure route to/from Crosshouse TOLP (University Hospital Crosshouse)

Figure 11- Crosshouse TOLP at the back of University Hospital Crosshouse

Figure 12 - Arrival and Departure route to/from Ayr TOLP (University Hospital Ayr)

Figure 13 - Ayr TOLP on the side of University Hospital Ayr

7 Stakeholders and Engagement

38. The CAA CAP 1616 includes the requirement for Sponsors to engage with aviation stakeholders and relevant stakeholders and give due consideration to the potential impacts of the change on airspace users. The proposal is subject to those requirements for a temporary change as detailed at para xxx of CAP 1616. The stakeholder methodology and summary of feedback and also stakeholder evidence are attached at Appendix 2 and 3 respectfully.

39. CAELUS undertakes to engage with stakeholders post the decision of the CAA regarding this ACP to inform them of the outcome. CAELUS undertakes to also inform stakeholders of updated operations 2 weeks prior to any planned flying to remind them of the operations and enable schedule deconfliction. Promulgation will also take place via the AIC which will

be published in accordance with the cycle and NOTAMs issued at least 24 hours prior to any activation.

8 Complaints

40. It is understood by CAELUS that complaints may be received regarding the activation of the TSA and that these complaints need to be recorded and addressed appropriately. The stakeholders engaged so far have corresponded successfully via the caelus2airspace@traxinternational.co.uk email address and this email address will be provided in the email informing the stakeholders of the outcome as a method by which complaints can be raised. The AIC will contain this email address and ask that all are forwarded to the same for addressing. All complaints, together with any infringements, will be addressed and recorded accordingly.

41. The CAA AR team will be furnished with copies of any complaints, infringements and the outcomes of the same. The CAELUS consortium is made up of in part NATS and AGS and Skyports and there is a mature relationship between all parties, as well as an established relationship with Prestwick ATC which will allow the raising of any complaints that have been made by other methods, such as through Prestwick ATC direct, and the recording and addressing of the same. Again, the CAA will be furnished with copies of any complaints that are brough to the attention of any of the CAELUS partners in connection to this ACP

9 Safety Assessment

42. Temporary Operating Instructions by Prestwick ATC for the operation of the airspace (to be approved by the aerodrome inspector) and Letters of Agreement with the UAV operator will be in place to ensure safe operations. A HAZID was conducted at Prestwick ATC with the relevant stakeholders and forms the basis for the TOI.

43. Skyports DS OSC Vol 3. Swoop Kite contains further details of each hazard, mitigations, evidence, statements of tolerability and the safety risk summary statement for the operation of the platform to demonstrate the safe operation of the platform.

10 Summary

44. CAELUS seeks to develop the NHS Scotland use cases as detailed in the Statement of Need together with validation of the objectives in support of the CAELUS ConOps being developed by NATS. It is submitted that the temporary airspace is designed to minimise impact to other aviation users yet sufficient enough to contain the hazardous activity of the BVLOS flight. The stakeholder response was encouraging with a number of stakeholders engaging with meaningful discussions and their input was used to inform the final design and operations of the airspace. The final trial is also supported by a provision of DACS by Prestwick ATC who have been fully engaged with the process.