Bristow
Unmanned Aircraft Systems

Maritime and Coastguard Agency
Urgent Operational Requirement (North Wales)

Definition of Requirement (Stage 1)

Date:- July 2021

Introduction

This document details a proposed temporary change to airspace in the vicinity of Caernarfon airport, the Lleyn peninsula and the West Anglesey coast to support UAS operations conducted by Bristow Helicopters Limited on behalf of the Maritime & Coastguard Agency.

This document intends to:

1. Define the State requirement.
2. Inform you of the Unmanned Aircraft System (UAS) to be deployed.
3. Inform you of the areas of high incident rate as collated by HM Coastguard.
4. Inform you of the proposed duration of the of the change.
5. Airspace management
6. Define local aviation stakeholders
7. Summary

1. FORMAL STATE REQUIREMENT – CAERNARFON AND NORTH WALES

This statement confirms the essential State operational requirement that will be addressed by Bristow Helicopters Limited (BHL) utilising unmanned aircraft systems (UAS) deployed from Caernarfon Airport.

The Department for Transport (DfT) has been requested to reinstate routine, pro-active beach patrols in busy areas as result of the anticipated increased levels of visitors to the coast this year. Crewed SAR helicopters are currently being used to proactively patrol popular tourist areas. The strategic measures of safety overwatch for high-risk locations will provide real time operational intelligence to HM Coastguard operational commanders, and offering reassurance to those enjoying coastal leisure activities. These proactive presence flights potentially remove these assets from their primary life-saving function to those in immediate distress.

The Requirement:

• In Summer 2020 the easing of lockdown restrictions saw an overwhelming increase in visitors to the coast and a subsequent surge in SAR incidents.

• The surge in incidents corresponded to a rise in ‘Regulation 28 Reports to Prevent Future Deaths’ in coastal locations in 2020 compared to previous years.

• Statistics published by Visit Britain, predict a further increase in domestic overnight trips in Summer 2021 compared to 2020 with a considerable proportion intending to visit/stay in traditional coastal/seaside towns and rural coastline locations.

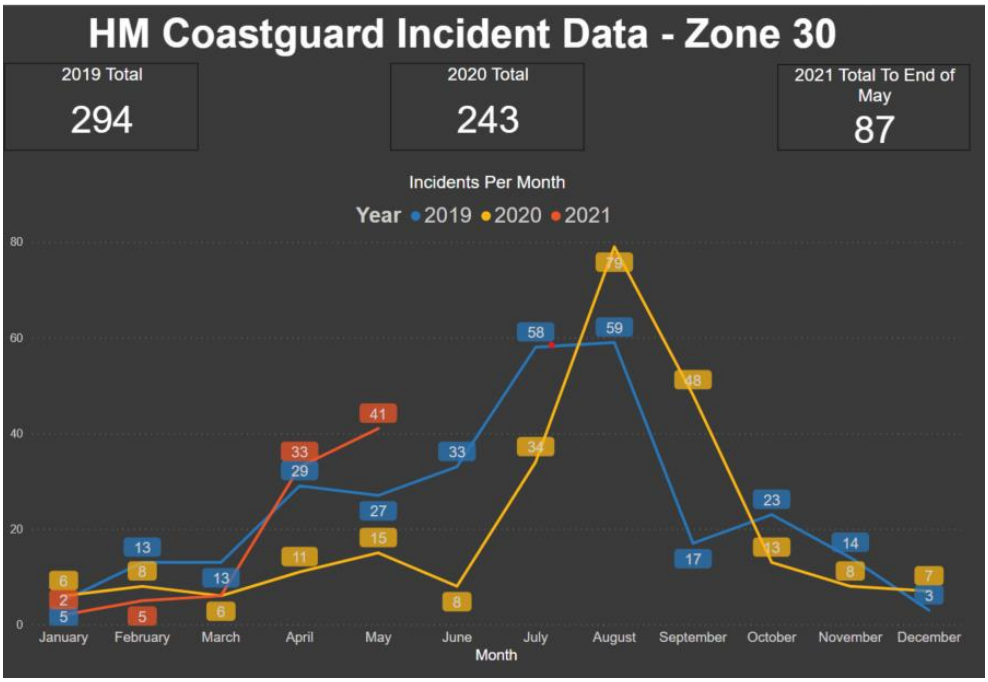
• The coast of North Wales is the second busiest area of the UK in terms of MCA recorded incidents.

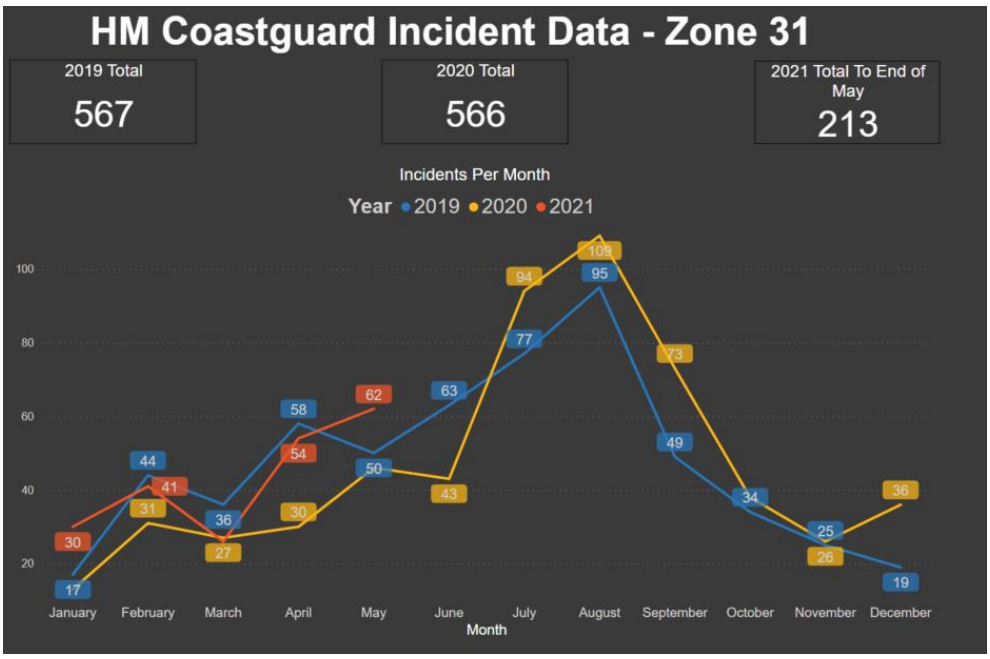
HM Coastguard has been working closely with local authorities and emergency services to utilise resources effectively to cope with the predicted increase in SAR Incidents. Deploying Bristow’s UAV to conduct beach patrols and safety overwatch in areas of North Wales will provide HM Coastguard with vital intelligence which can be shared with other first responders. This will help , ensuree the effective deployment of resources and allow for preventative measures to be put in place. This will therefore result in SAR Helicopters being relieved of these duties and remain on standby to deliver its primary lifesaving function in support of HM Coastguard, North Wales Police and the Welsh Ambulance Service.

The areas for the safety overwatch flights have been selected based on operational statistics collated by Holyhead Coastguard and the HM Coastguard Drowning Prevention Team. An overview of these statistics is included below. The intended airspace will incorporate standard operating procedures that have been used consistently and effectively for the past year by Bristow, with minimal impact to other airspace users, and include areas that will be needed to support areas of concern, again based on historical incident locations. The proposed airspace design will be formally articulated via the agreed route in due course.

The MCA is keen to embrace innovative aviation technology that can improve the efficiency and effectiveness of SARand thereby reduce the risk to MCA personnel and ultimately save lives. Bristow have been working closely with the CAA to develop the regulatory requirements to safely incorporate UAV technology into the future of aviation, the work undertaken to date underpins this requirement and it is hoped that this opportunity can further develop the effective use of this technology to reduce risk to life of members of the public.

HM Coastguard Historic Incident Data – North Wales (Zones 30 & 31)





These charts show the number of HM Coastguard incidents in the North Wales and Anglesey area for 2019, 2020 and 2021 so far.

- The yellow line shows how the number of HM Coastguard incidents increased in Summer of 2020, with a significant surge correlating with the relaxation of lockdown measures and the start of the Summer Holidays.
- The orange line shows data for 2021, clearly showing a further increase on 2020, and should the trend continue predicts that th enumber of incidents will exceed 2020. This increase is being driven by the restrictions on foreign travel and the UK's relaxation of Covid measures.
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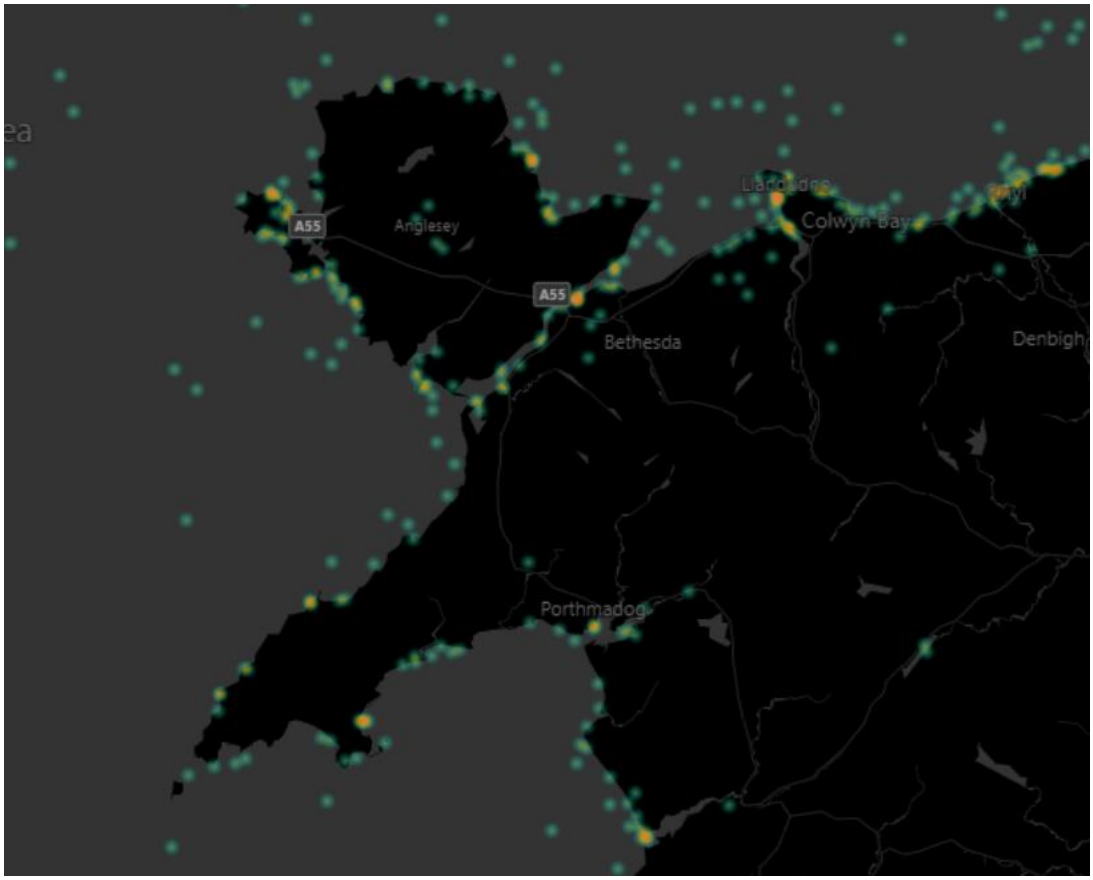
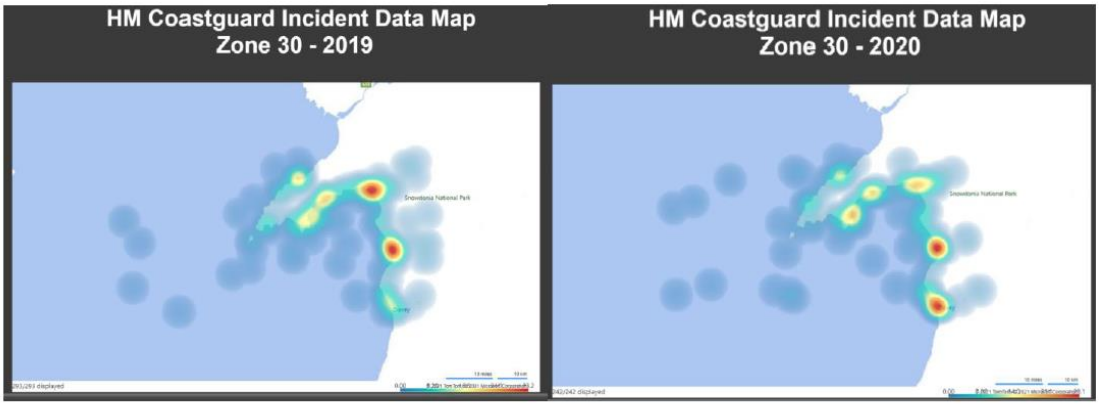
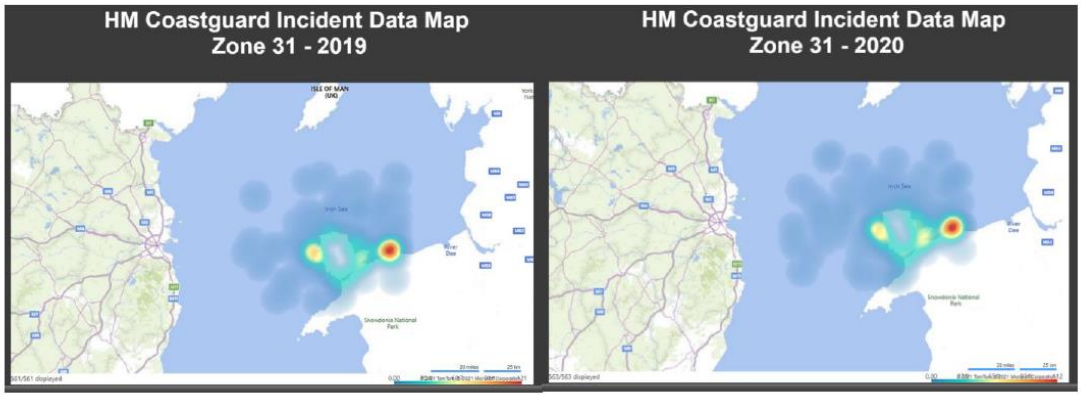
The heat maps below show the distribution of incidents in the North Wales and Anglesey area for 2019 and 2020 and demonstrate the safety overwatch coverage needed and therefore the UAS airspace requirements. It is important to note that the area of Colwyn Bay is well covered by a good quality webcam which can provide overwatch within the HM Coastguard Operations Room so there is no requirement for airspace in that area at this time.







2. Unmanned Aircraft System (UAS) to be deployed.

Currently based at Caernarfon Airport, Bristow Helicopters Ltd hold a CAA Operation Authorisation to operate the Schiebel S-100 Camcopter. Bristow routinely perform complex UAS operations with UK SAR(H) and have displayed to the UK regulator and MCA aviation assurance teams the ability to integrate within busy, known air traffic environments. Bristow UAS have also displayed viable and effective operational capability during legacy Safety Overwatch taskings undertaken in North Wales at the request of the MCA in 2020. The DfT have been requested to reinstate these routine assurance patrols and therefore the MCA have formally requested that Bristow's UAS support to the emergency services in the wake of the UK's ongoing recovery from the Covid-19 pandemic.

Bristow S-100 Camcopter on HM Coastguard operations

The Schiebel S-100 Camcopter is a sub 150kg (dry) UAS employed by military and civilian organisations alike with some 400+ units operating worldwide. It has accrued in excess of 80,000 flying hours.

The aircraft can operate for up to 6 hours during both day and night under adverse weather conditions. The UAS has a potential operating range of 100 km using current Bristow capability, both over land and at sea.

Electronic conspicuity is provided by a dedicated transponder module consisting of a Mode S/ADS-B transponder (In/Out). The Bristow UAS ground station is also equipped with a VHF radio to allow UAS crews, air traffic control agencies and other manned aircraft to communicate directly on the appropriate channel. In addition to its main EO/IR payload, the S-100 is also fitted with a forward-looking camera, permanently displayed and monitored in the ground control station to assist in terrain, obstacle and traffic avoidance. Live payload feed from on board sensor suites can be exported securely to command centres and ground teams.

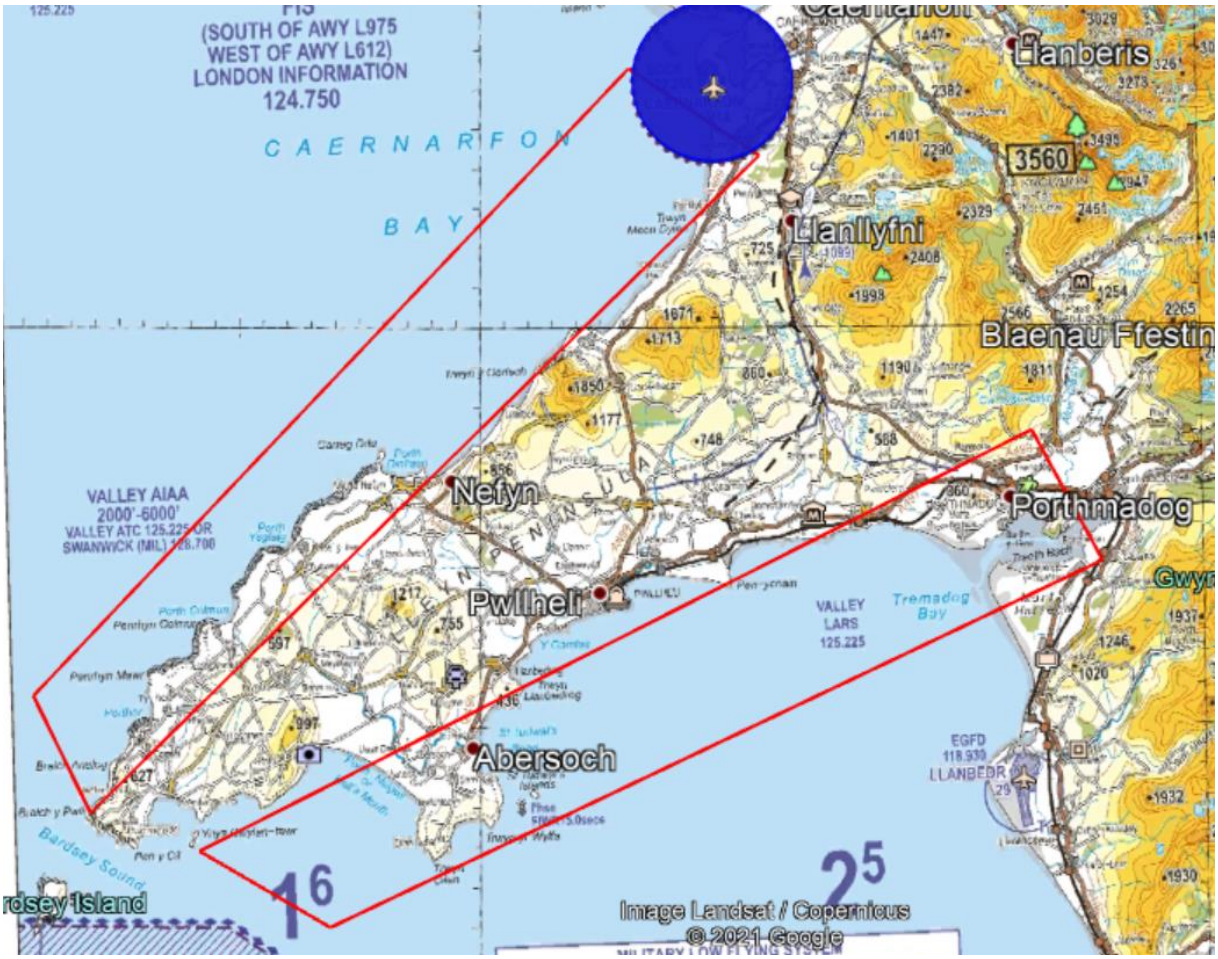
Bristow's current UAS Operational Authorisation details standard operating procedures closely mirroring that of manned aviation. As such, this allows suitably equipped air navigation service providers (ANSP's) to control a known airspace environment allowing other collaborative aircraft to pass through any required temporary danger areas, significantly reducing the impact to other air users.

3. Areas of high incident rate as collated by HM Coastguard

a) West Anglesey

West Anglesey area/s of high incident rate as collated by HMCG.

b) Lleyn Peninsula / Portmadog



Lleyn Peninsula area/s of high incident rate as collated by HMCG.

4. Proposed Duration of the Change

In line with regional incident statistics, UAS capability has been requested to cover the period from the 1st of August 2021 to the 17th of September 2021.

5. Airspace Management

Airspace management will be in accordance with Bristow's extant UAS Operational Authorisation. The CAA remains supportive of BHL UAS control within the air traffic control zones and therefore there is no requirement for further segregation of airspace within Caernarfon Airport ATZ. UAS will arrive, depart, penetrate, and cross under the control of the appropriate controlling authority. This will be coordinated via VHF comms as per manned aircraft operation or by redundant means should VHF become unviable due to range, atmospherics, equipment failure etc. This operational model is currently in daily use without issue and successfully limits any potential impact to regional GA and military flying operations.

The CAA's policy on managed and flexible segregation requires TDAs to be broken down into sectors. While these are less easy to plot, and to draw to the attention of traffic unfamiliar with them, they will be much less restrictive to those who regularly and routinely use the airspace and means that other traffic need only avoid the sector that the UAS is within at that time. This will be managed by the nominated controlling authority as NOTAM'd.

Provision to pass under or over a TDA sector has also been built in through the construction of 'floating' TDA's sectors which do not extend to surface and capped TDA ceilings. Again, this mirrors Bristow's current operational UAS airspace model.

DAAIS/DACS

In line with current and established Bristow airspace management and during their normal operating hours, RAF Valley will act as the controlling authority for the complex providing both a DAAIS and DACS. DACS will only be provided where a full airspace surveillance picture is available and the increase in workload does not adversely affect normal RAF Valley operations.

In periods when RAF Valley are closed or unable to provide DAAIS/DACS i.e weekend operation, this function will be carried out by Caernarfon Airport as is currently the case for Bristow's established UAS operations. Due to having no radar capability, Caernarfon Airport will not provide a DACS.

TDA Activation

TDA's by their very nature, would ***not be*** permanently active but would instead be activated by utilising Notice to Airmen (NOTAM). This activation would occur a minimum of 24 hours prior to use or as dictated by emergency tasking. In the event of emergency activation, this will be carried out by the Aeronautical Rescue Coordination Centre. The activation of the entire complex on the same day may not be required. Only the minimum amount of airspace required will be activated to satisfy tasking objectives.

TDAs will ***only be activated for the duration of the UAS tasking window*** and would be deactivated on completion. Bristow do not intend to task more than one unmanned air vehicle at a time.

It is not the MCA's or BHL's intent to deny airspace. Mirroring manned aircraft traffic management, the DAAIS/DACS will manage all airborne assets in and around the complex and allow access through, under or over the sector in question if deemed safe to do so by the managing authority. The S-100 Camcopter's positional accuracy has been verified by RAF Valley LARS during

previous collaborative flight trials. This will be achieved through effective communication between the UAS crew, the air traffic controlling authority offering DAAIS/DACS and by utilising the known airspace picture provided by electronic conspicuity. (ADS-B/Mode-S).

S-100 Camcopter UAS Electronic Conspicuity (EC) is provided by an integrated MODE S/ADS-B transponder module providing visibility, tracking and real time location of the UAS. This system also integrates with detect and avoidance technology such as the Traffic Collision Avoidance System (TCAS II), as fitted to Bristow SAR(H). The S-100 is also fitted with a EO/IR turret and forward-looking camera, permanently displayed, and monitored in the ground control station to assist in terrain, obstacle and traffic avoidance.

Emergency Access
In the event emergency access is required for take-off/landing or access into the TDA by other manned aircraft such as Bristow SAR(H) or HEMS, then this would be facilitated and coordinated by the relevant and managing air traffic authority. Bristow UAS crews can be contacted directly on Caernarfon Radio, RAF Valley or UAS GCS freq. In addition, established telephone and ground radio comms provide comms redundancy.

6. Regional Aviation Stakeholders

<u>UAS Tasking/Operation</u>

- RAF Valley
- Caernarfon Airport
- Holyhead CGOC
- ARCC

<u>Military</u>

- RAF Valley - DAATM
- RAF Shawbury - DAATM

<u>Aviation Stakeholders</u>

- RAF Valley
- Caernarfon Airport.
- Snowdonia Aerospace Centre
- North Wales Helimed (Caernarfon HEMS)
- National Police Air Service NPAS
- General Aviation Alliance (GAA)
- Light Aircraft Association (LAA)
- BGA
- BHPA
- NATS

7. Summary

The MCA and Bristow propose the establishment of a temporary danger area complex to support the urgent operational requirement defined in this document as requested by the DfT. The TDA complex and the management thereof, will be designed to minimise the impact on other airspace users to as low as reasonably practicable whilst providing maximum operational benefit to HM Coastguard and other regional emergency services.