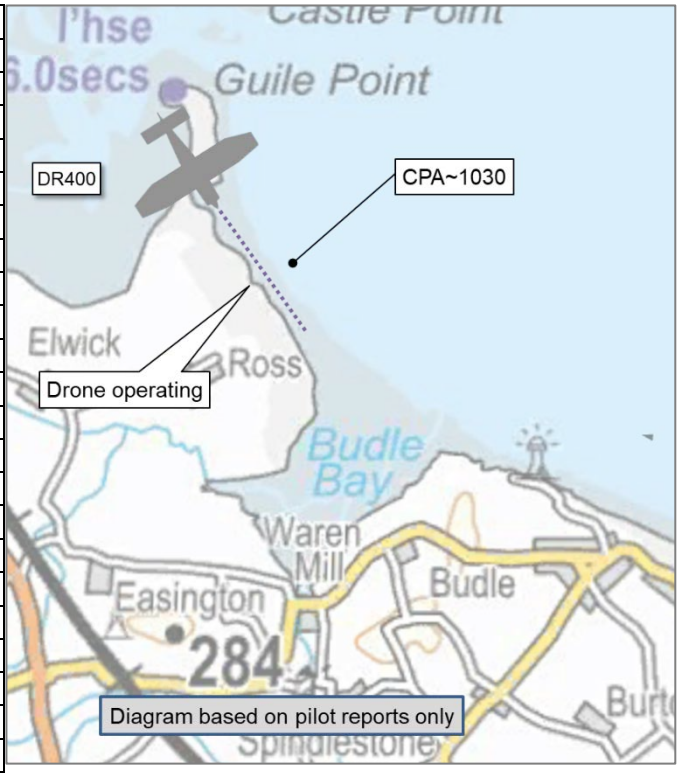
AIRPROX REPORT No 2021035

Date: 23 Apr 2021 Time: 1030Z Position: 5538N 00146W Location: Ross Sands Northumberland

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Drone	DR400
Operator	Civ UAS	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider		Newcastle
Altitude/FL	NK	NK
Transponder	Not fitted	A
Reported		
Colours	Grey	Blue, White
Lighting	Nil	Strobe, Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	15ft	200ft
Altimeter	NK	QNH
Heading	North	South
Speed	NK	110kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/4m H	Not Seen
Recorded	NK	



THE DRONE OPERATOR reports that they were flying their drone on the beach at Ross Sands. There were approximately 15 people on the beach in total, although there was no one else other than the operator and their partner within 100m of them on the beach. They were recording a video hugging the shore line heading North at approx 5m altitude, they looked ahead of the drone to ensure the route was clear (mainly looking for seagulls) when they spotted the plane in question heading for a head-on collision with the drone. Due to the low altitude they had to gain altitude as quickly as possible and in the process the drone span around over the beach. The plane did not change route so the operator assumed the pilot had not seen the drone. The plane then flew over to the Farne Islands so there was no emergency landing taking place.

The pilot assessed the risk of collision as 'High'.

THE DR400 PILOT reports that they were flying at about 200-400ft offshore, paralleling the shoreline at a height of around 200ft. The beach appeared to be empty and they descended slightly lower, climbing up again at the end of the beach prior to overflying the beach by Bamburgh Castle which usually has more people on it. The flight was uneventful from their perspective as they did not see the drone. They were flying into sun although the visibility was very good.

THE NEWCASTLE CONTROLLER reports that the DR400 called on frequency at 0950 and was given a squawk and a Basic Service. They transited along the coast under CAS, orbited around Holy Island then dropped beneath radar cover (below 1000ft). The pilot left the frequency at 1035 with no mention of any incident.

Factual Background

The weather at Newcastle was recorded as follows:

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METAR EGNT 231020Z VRB02KT CAVOK 16/M02 Q1029=
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Analysis and Investigation

UKAB Secretariat

General (SERA.5005(f)(2)) – Day VFR Flights a) The Civil Aviation Authority (CAA) permits, under SERA.5005(f), an aircraft conducting day VFR flight elsewhere than over the congested areas of cities, towns or settlements or over an open-air assembly of persons, to be flown at a height of: i) less than 500 ft above the ground or water; or ii) less than 500 ft above the highest obstacle within a radius of 150 m from the aircraft, subject to the condition in subparagraph (b). b) The aircraft must not be flown closer than 500 ft to any person, vessel, vehicle or structure except with the permission of the CAA[1].

The drone and DR400 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] During the flight, the remote pilot shall keep the unmanned aircraft in VLOS and maintain a thorough visual scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of collision with any manned aircraft. The remote pilot shall discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property.[3]

Summary

An Airprox was reported when a drone and a DR400 flew into proximity at Ross Sands at around 1030Z on Friday 23rd April 2021. Both pilots were operating under VFR in VMC, the drone pilot was not in receipt of an ATS and the DR400 pilot was in receipt of a Basic Service from Newcastle.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots and a report from the air traffic controller involved. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first discussed the actions of the drone operator, they were operating on the beach, under VLOS[4] conditions and, without any EWS, had no prior situational awareness that the DR400 was approaching (**CF4**). Under regulations for drone operators, it was for them to avoid any piloted aircraft if there was considered to be a conflict, and fortunately in this case the operator managed to see the DR400 with sufficient time to take avoiding action, ensuring that the see-and-avoid barrier worked.

Turning to the DR400 pilot, they had been receiving a Basic Service from Newcastle, but were operating below the radar coverage and so the controller was not in a position to be able to provide any Traffic Information, and did not know about the drone operating over the beach anyway (**CF1**). The Board noted that the pilot's report and the drone operator's account differed in the height estimation. By his own admission the DR400 pilot was operating below 500ft and although this was permitted provided that the aircraft was not within 500ft of any people on the beach, it was likely that the DR400 was closer to the beach than the pilot estimated and therefore closer to the drone operator (**CF2**). No doubt the pilot was not expecting there to be drone activity on the beach, and they reported believing the beach to be empty, still members cautioned against planning to fly low over areas such as beaches for precisely that reason (**CF3**). Whilst it may have been advisable to fly further out over the sea to ensure a safe separation on this occasion, members cautioned that they had received Airprox between drones and aircraft over the sea and noted that pilots should now factor drones into their planning when

[1] ORS4 No1479
[2] (UK) SERA.3205 Proximity.
[3] EASA Part UAS.OPEN.060 Responsibilities of the remote pilot (2)(b).
[4] Visual line of sight.

intending to fly at lower altitudes over the coast. The drone operator was entitled to fly along the beach but the DR400 pilot had no situational awareness that it was there (**CF4)** and furthermore did not see it (**CF5**), fortunately the drone operator was able to take avoiding action.

The Board then discussed at length the risk of collision for this event. Some members opined that the drone operator managed to take avoiding action to remove the drone from the path of the DR400 and that although safety had been degraded, the timely action meant there had been no risk of collision. Others thought that by needing to climb the drone and in spinning it to do so, the hurried nature of the avoiding action described a situation that contained some element of risk. In the end the latter view prevailed and the Board agreed that safety had been much reduced; Risk Category B (**CF6**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021035			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
2	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			
3	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
	• Situational Awareness of the Conflicting Aircraft and Action			
4	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
	• See and Avoid			
5	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
	• Outcome Events			
6	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B.

Safety Barrier Assessment[5]

[5] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the DR400 was in close proximity to the drone and therefore likely to be within 500ft from the drone operator on the beach.

Tactical Planning and Execution was assessed as **ineffective** because the DR400 pilot planned to fly low-level along the beach.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither the DR400 pilot, nor the drone operator, knew about each other.