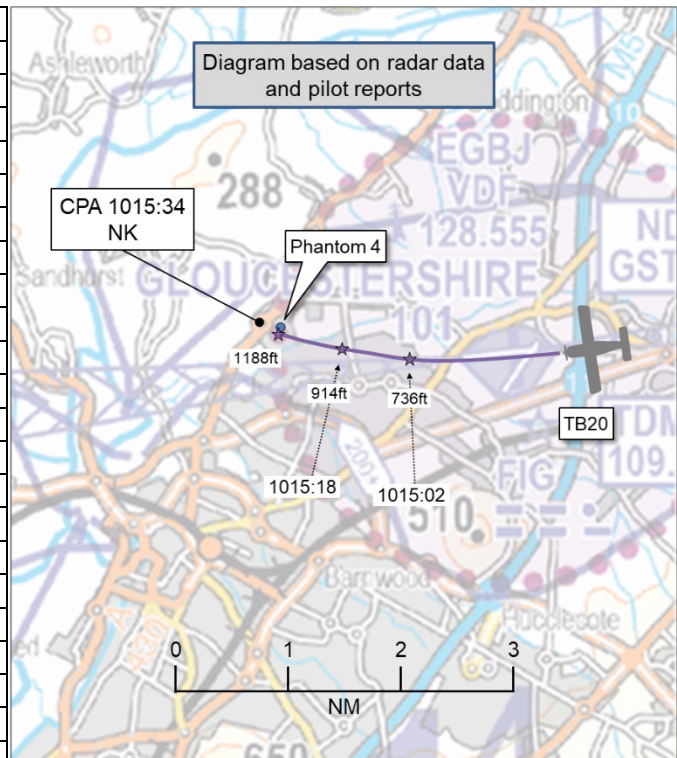


**AIRPROX REPORT No 2023193**

Date: 23 Aug 2023 Time: 1016Z Position: 5154N 00213W Location: Gloucestershire Airport ATZ

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	Phantom 4	TB20
Operator	Civ UAS	Civ FW
Airspace	Gloster ATZ	Gloster ATZ
Class	G	G
Rules	VLOS	IFR
Service	None	Procedural
Provider	N/A	Gloster Appr
Altitude/FL	NK	1188ft
Transponder	Not fitted	A, C, S
<b>Reported</b>		
Colours	White	White, maroon
Lighting	Nav	Strobes
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	280ft	1200ft
Altimeter	AGL	QNH
Heading	NK	280°
Speed	0kt	120kt
ACAS/TAS	Not fitted	SkyEcho
Alert	N/A	None
<b>Separation at CPA</b>		
Reported	0ft V/100m H	NK
Recorded	NK	



**THE PHANTOM 4 PILOT** reports that they were flying their UAV above a housing estate for surveying purposes, with a permit to fly. They had telephoned [Gloucestershire Airport] ATC to amend the time of their permit to 11am [local]. ATC requested that they call before they lift.

[Gloucestershire Airport] ATC called at approximately 11am [local] and confirmed that they could fly at an altitude of no higher than 90m/300ft. They completed a traverse of the housing estate, flying at 85m/280ft. They had observed other light-aircraft taking off and moving out of their area of operation with no factor. At 1115 [local], they were hovering before taking final, oblique photos of the estate, when they heard an aircraft approaching. They located it visually and observed it heading in their direction. They decided to hover as to not distract the pilot. The aircraft was banking towards the north and climbing, and it became apparent that there would be no collision so they took no evasive action.

The pilot assessed the risk of collision as ‘Medium’.

**THE TB20 PILOT** reports that they were on an IR revalidation flight with an examiner in the right-hand seat. [The pilot of the TB20] was on the initial missed approach track from the ILS, passing about 1200ft, and preparing to route for the RNP approach. They did not see a drone and were unaware of any issue.

[In retrospect, the pilot of the TB20 opined that] the reported position and time indicated that the other aircraft was on the edge of the ATZ and on the noise abatement climb-out track.

**THE GLOSTER APPROACH CONTROLLER** reports that they have no recollection of the event and, to their knowledge, there was no notification on frequency or by telephone about an Airprox.

## Factual Background

The weather at Gloucestershire was recorded as follows:

METAR EGBJ 231020Z 14003KT 9999 FEW018 19/15 Q1020

An excerpt from the Drone Operations Permit issued to the pilot of the Phantom 4 is shown in Figure 1.


Office use only Permit number: [REDACTED]		
<b>Drone Operations Permit Form – Part B</b>		
This permit is for the approved use of a <b>DRONE</b> within the 6km radius of Gloucestershire Airport and is solely to be used by the named person in the permit.		
<b>Date Of Operation:</b>	23/08/2023	
<b>Operating during the following times:</b>	1300 - 1330 (All times in Local)	
<b>Approved by:</b>	Safeguarding Department Approved by: Safety Officer Date: 21/08/2023	

Figure 1

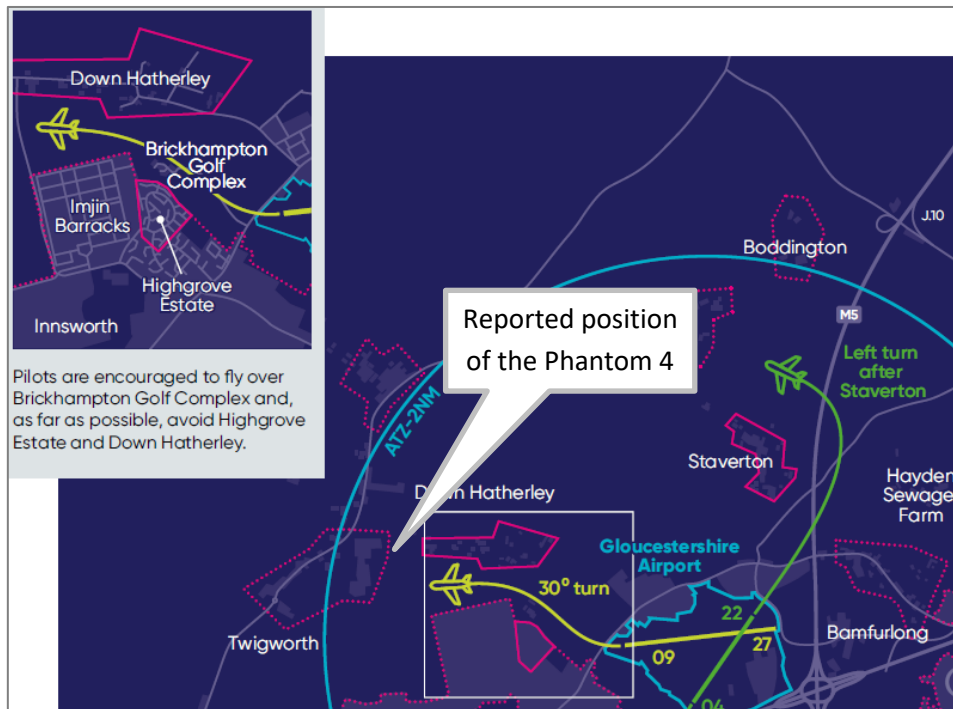


Figure 2 – The noise abatement procedure at Gloucestershire Airport and the reported position of the Phantom 4

## Analysis and Investigation

### Gloucestershire Airport Investigation

The drone operator had initially received permission to operate the drone during the afternoon of the 23<sup>rd</sup> August. On request, this was brought forward to 1000Z and ATC was aware of the operation. The operator was believed to be operating VLOS and not above 300ft (limit assessed against safeguarding criteria). No NOTAM was issued. The ATIS at Gloucestershire Airport is not able to

broadcast more general information and no general information about the drone operation was transmitted to [the pilot of the TB20] by the controllers. This was reasonable as the drone operation was not relevant to what [the pilot of the TB20] was expected to do.

At the time of the incident [the pilot of the TB20] was carrying out a missed approach procedure following a low approach from an RNP arrival procedure to RW27. No information was provided to the pilot about the drone operation. It cannot be confirmed from the recordings what level [the pilot of the TB20] was at in the Twigworth area, however, it can be assumed that the aircraft would have been well above 400ft following the MAP. The pilot did not mention any sighting of a drone during the flight. Ultimately, when operating VLOS, the drone operator is responsible for separation against other airspace users.

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The TB20 could be positively identified from Mode S data (see Figure 3). The Phantom 4 was not observed on radar.

The pilot of the TB20 kindly supplied GPS track data for their flight, and the pilot of the Phantom 4 provided coordinates for the position of their UAS at the moment of CPA. It was by combining the data sources that the diagram was constructed.

The pilot of the Phantom 4 reported the height of their UAS had been 280ft AGL. The elevation of the terrain at the reported position of the Phantom 4 was approximately 46ft. Consequently, the vertical separation between the aircraft may have been approximately 862ft but this could not be verified. From the reported position of the Phantom 4, the horizontal separation between the aircraft had been 0.1NM but this could not be verified.

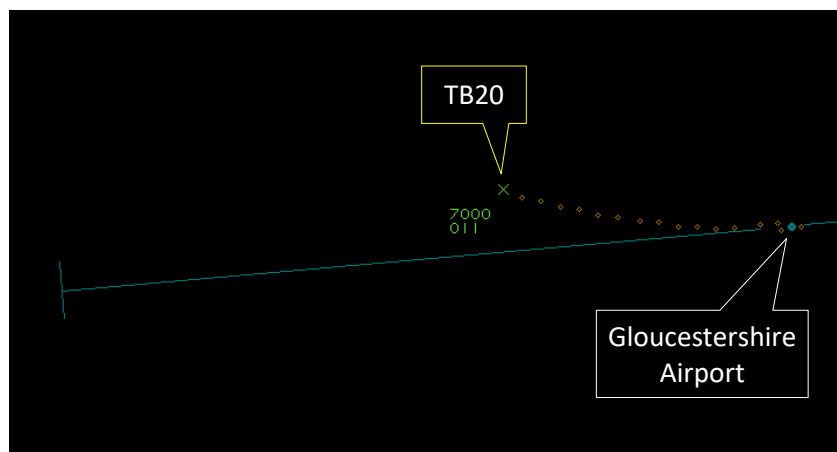


Figure 3 – CPA at 1015:34

The Phantom 4 and TB20 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>1</sup> The remote pilot must follow the requirements of UK Reg (EU) 2019/947, Annex B, UAS.SPEC.060.<sup>2</sup> The flight must be conducted within VLOS and must not exceed 500m from the Remote Pilot.<sup>2</sup> The flight may be conducted within 150m of residential, commercial, industrial, and/or recreational areas.<sup>2</sup> Flights must not be conducted within the Flight Restriction Zone (FRZ) of a protected aerodrome, or within any Restricted, Prohibited or Danger Area, unless the appropriate clearance or permission to enter has been obtained.<sup>2</sup>

### Summary

An Airprox was reported when a Phantom 4 and a TB20 flew into proximity at the western edge of the Gloucestershire Airport ATZ at 1016Z on Wednesday 23<sup>rd</sup> August 2023. The pilot of the Phantom 4 had

<sup>1</sup> (UK) SERA.3205 Proximity.

<sup>2</sup> Operational Authorisation (Specific category) issued to the UAS operator (sections 4.9(1)(d), 4.6(1), 4.3(2), 4.4(1))

been operating under VLOS in VMC not in receipt of an ATS. The pilot of the TB20 had been operating under IFR in VMC in receipt of a Procedural Service from Gloster Approach.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS track data 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.

The Board first considered the actions of the pilot of the Phantom 4 and commended their diligence in acquiring the correct permissions for their intended flight. Members agreed that sufficient information regarding the Phantom 4 pilot's intentions had been passed to Gloster ATC.

Members next turned their attention to the actions of the Gloster controller. Members pondered whether the presence of the Phantom 4 would have been considered 'relevant traffic' and if Traffic Information ought to have been passed to the pilot of the TB20. Members were in agreement that there had been a reasonable assumption that the pilot of the TB20 would follow the missed-approach procedure and that the presence of the Phantom 4 would not have been a relevant factor. Some members suggested that it may have been beneficial to the pilot of the TB20 to have been passed information regarding the Phantom 4 if time had permitted. Members indicated that they had no particular comment to make regarding the actions of the pilot of the TB20 and noted that, as far as the TB20 pilot had been concerned, there had not been any reduction in safety margins.

Concluding their discussions, it was agreed that the pilot of the Phantom 4 had visually acquired the TB20 in plenty of time to have considered the safest course of action. It was further agreed that there had been significant vertical separation between the aircraft and that no risk of collision had existed. As such, the Board assigned Risk Category E to this event. Members agreed on the following contributory factors:

- CF1.** The pilot of the TB20 had not had situational awareness of the presence of the Phantom 4. The pilot of the Phantom 4 had generic situational awareness of the presence of the TB20.
- CF2.** The EC equipment fitted to the TB20 would not have been expected to have detected the presence of the Phantom 4.
- CF3.** The pilot of the TB20 had not sighted the Phantom 4.
- CF4.** The pilot of the Phantom 4 had been concerned by the proximity of the TB20.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

2023193				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
1	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
<b>• Electronic Warning System Operation and Compliance</b>				
2	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
<b>• See and Avoid</b>				
3	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

4	Human Factors	<ul style="list-style-type: none"> <li>Perception of Visual Information</li> </ul>	<del>Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement</del>	Pilot was concerned by the proximity of the other aircraft
---	---------------	--	--	--

Degree of Risk: E.

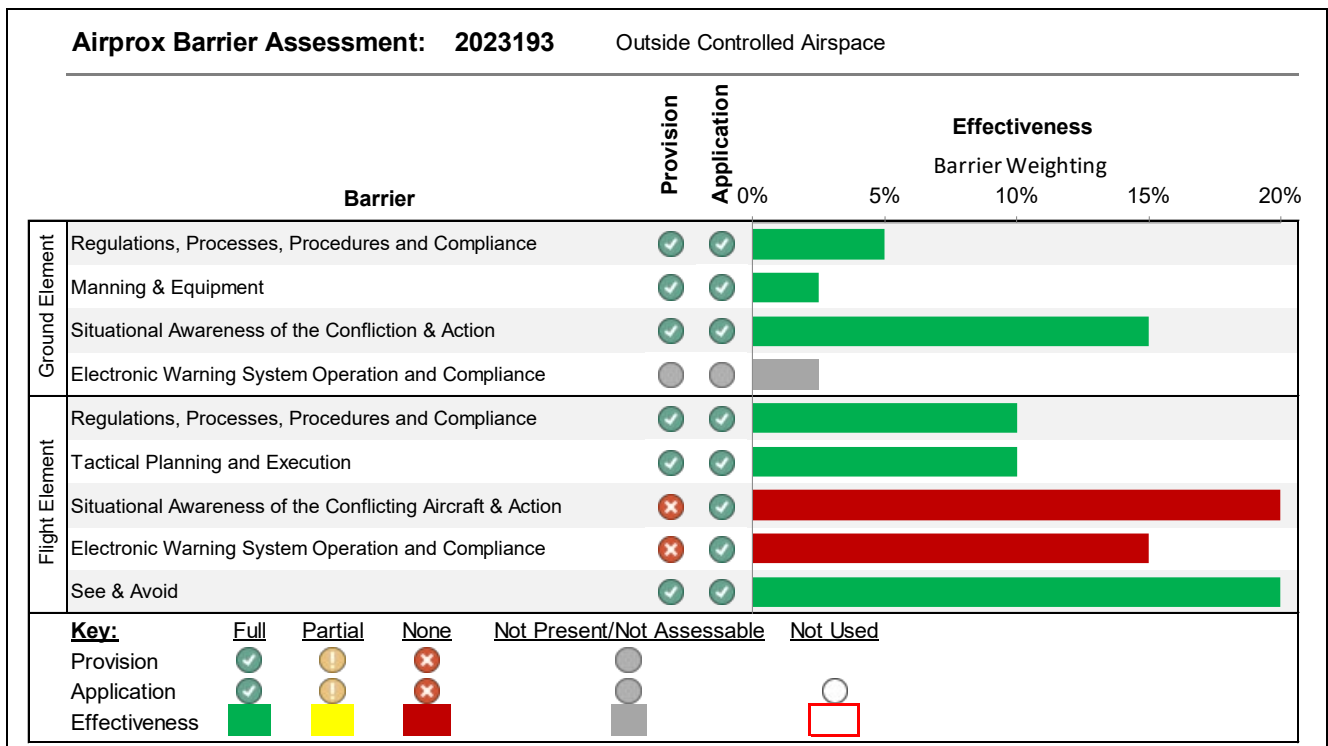
Safety Barrier Assessment<sup>3</sup>

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

**Flight Elements:**

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the pilot of the TB20 had not had situational awareness of the presence of the Phantom 4.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the EC equipment fitted to the TB20 would not have been expected to have detected the presence of the Phantom 4.



<sup>3</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).