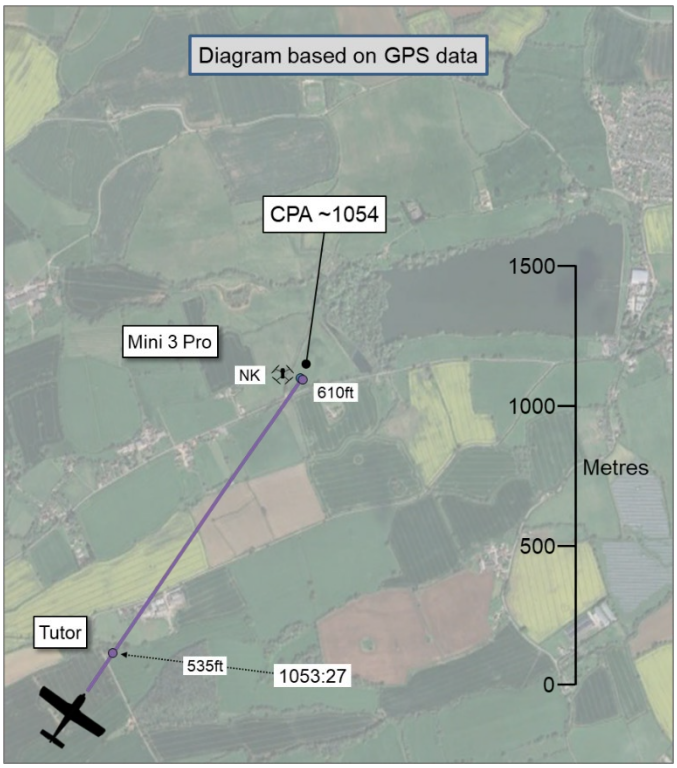
AIRPROX REPORT No 2025003

Date: 14 Jan 2025 Time: ~1054Z Position: 5107N 00303W Location: IVO Durleigh reservoir

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Mini 3 Pro	Tutor
Operator	Civ UAS	RN
Airspace	London FIR	London FIR
Class	G	G
Rules	VLOS (Specific Cat.)	VFR
Service	None	Traffic
Provider	N/A	Yeovilton Approach
Altitude/FL	NK	610ft
Transponder	Not fitted	A, C, S
Reported		
Colours	Grey	White
Lighting	Nav	HISL, landing, nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	38ft	500ft
Altimeter	AGL	MSD
Heading	NR	NR
Speed	"*hover*"	120kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	None
Separation at CPA		
Reported	280ft V/50ft H	"*not seen*"
Recorded	NK	



THE MINI 3 PRO PILOT reports that they were undertaking a UAV survey of the Durleigh Wetlands area and had an active flight report visible on the Altitude Angel drone safety map. A company risk assessment had been completed and the potential for aircraft users was noted as well as the proximity to Yeovil AIAA. Some airspace users in the area had been noted before flight but not within the immediate airspace. Some photographs were to be taken using the Mini 3 Pro (before the main survey using a M300) and takeoff occurred at 1050.

The noise of an aircraft was heard behind the remote pilot (located at a layby on a nearby road) who turned around to spot the [Tutor] within 200m distance, above a house to the south-east, flying directly towards the ascending Mini 3 Pro. Immediate action was taken to stop ascending and to descend to 12 to 13m (40ft) in the field where the UAV hovered for 90sec. They continued to assess any further threat. The [Tutor] circled around again and a decision was made to land.

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

THE TUTOR PILOT reports that their sortie was a student-flown low-level navigation sortie which was planned at 500ft Minimum Separation Distance (MSD) in clear conditions. The sortie was put into CADS and NOTAMs were checked with no conflictions. The reservoir mentioned in the report was the last turning point on the navigation route and was used as the start point of an unplanned leg back towards Yeovilton. At no point was either pilot visual with a drone.

[The pilot of the Tutor opined that] their aircraft was operating at 500ft MSD. The drone should not have been above 400ft, therefore, the implications should be minimal.

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

THE YEOVILTON APPROACH AND LARS CONTROLLER reports that they have been informed that they were the controller at the time of the occurrence. The [Tutor] pilot did not report an Airprox on frequency.

The controller perceived the severity of the incident as 'Negligible'.

Factual Background

The weather at Bristol was recorded as follows:

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METAR EGGD 141050Z AUTO 25007KT 9999 OVC006 08/07 Q1035
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Analysis and Investigation

[Tutor Owner] Aviation Safety and Risk Manager

[Figure 1 shows] the navigational route, routinely used, associated with the area of this Airprox. There is a small lake circled to the west of Bridgewater where the Airprox is reported to have occurred. The map shows no area to avoid, such as a bird sanctuary, nor was there a NOTAM on this or any other day to notify any UAV activity.

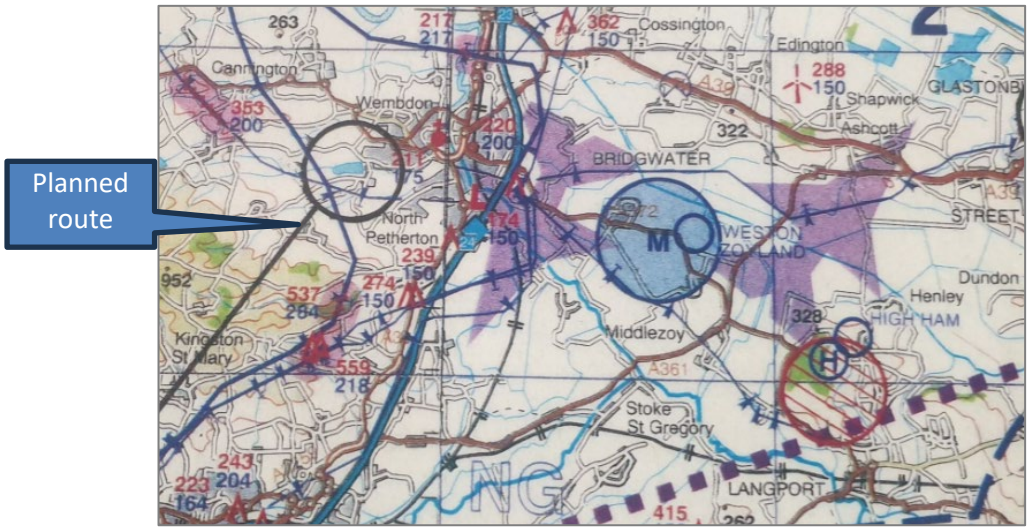


Figure 1

The QFI was operating in accordance with SOPs and within the MAA/CAA regulations and, as the aircraft was on a military task, this was a military flight. The flight was a navigational instructional sortie which involved flying at 500ft AGL for some parts of the sortie. [The routes will be] reviewed in light of this investigation.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the Tutor could be positively identified from Mode S data. However, radar returns from the Tutor faded at 1052:35. The Mini 3 Pro was not observed on the replay.

An analysis of ADS-B data was undertaken and the track and altitude of the Tutor was observed (Figure 2). The pilot of the Mini 3 Pro kindly supplied GPS track data for their flight. The diagram was constructed by combining the data sources.

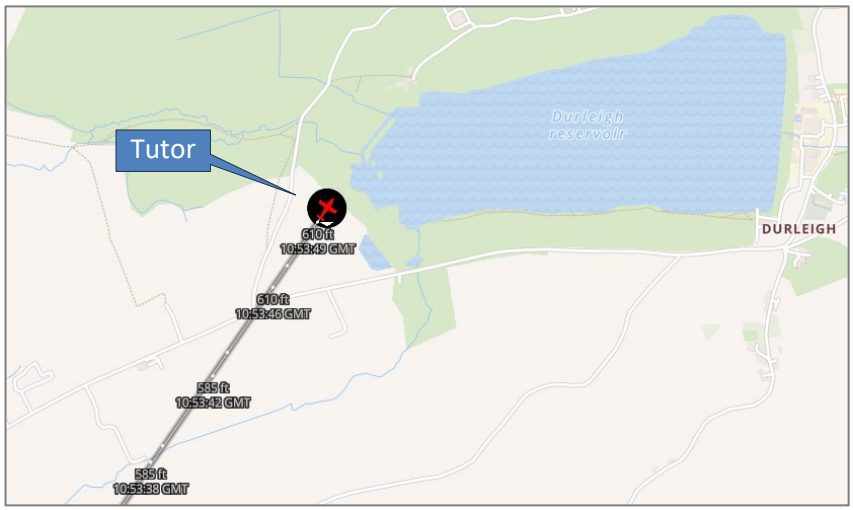


Figure 2 – The position of the Tutor at 1053:50

The maximum height attained by the Mini 3 Pro during its flight had been 124ft above its takeoff point (the elevation of which is 115ft AMSL).

Whilst the GPS data included elapsed flight time, it did not include UTC. Consequently, the exact moment of CPA could not be determined. However, at the reported time of CPA, the height of the Mini 3 Pro had been 40ft AGL (terrain elevation 107ft) and the altitude of the Tutor had been 610ft AMSL. Therefore the vertical separation at the reported time of CPA had been 463ft but this could not be verified. The horizontal separation at the reported time of CPA had been less than 20m but this could not be verified.

The Mini 3 Pro and Tutor pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] The Operational Authorisation issued to the operator of the Mini 3 Pro specified that: Flights may be conducted within 150m of any residential, commercial, industrial, and/or recreational area.[2] Flights must be conducted within VLOS as per the definition given in UK Reg (EU) 2019/947, Article 2(7) and must not exceed 500m from the remote pilot.[3] During the flight, the remote pilot shall: avoid any risk of collision with any manned aircraft and discontinue a flight when continuing it may pose a risk to other aircraft, people, animals, environment or property.[4]

Comments

Navy HQ

A mandatory local DASOR was raised and investigated by RNAS Yeovilton ATC following notification of the events of Airprox 2025003. The ATC DASOR was linked to the mandatory DASOR submitted by the RN Tutor squadron on receipt of notification of an Airprox being filed by the Mini 3 Pro UAV operator.

Neither RNAS Yeovilton ATC nor either aircrew from the RN Tutor aircraft saw, or were aware of, the Mini 3 Pro UAV at the time of the event. The Tutor was operating to an MSD of 500ft and, having checked NOTAMs, the LFA handbook for avoids in the local area etc, and submitting the flight details on CADS, completed the sortie safely and as expected. From discussions with [the Squadron] it is apparent that the Tutor aircraft was flown in accordance with SOPs and MAA/CAA regulations.

[1] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] Operational Authorisation (Specific Category) as issued to the operator of the Mini 3 Pro 2.1.
[3] Operational Authorisation (Specific Category) as issued to the operator of the Mini 3 Pro 7.1.
[4] Assimilated Regulation (EU) 2019/947- UAS.SPEC.060 Responsibilities of the remote pilot (3)(b)

RNAS Yeovilton ATC and the Tutor pilot both correctly discharged their duties in accordance with national and local procedures and regulations on the basis of known information at the time. The report makes reference to the [Squadron] sortie route being reviewed, however, this will not happen as the route is a typical and safe Low Level Navigation route used by [the Squadron] in Class G airspace remaining clear of any mandatory avoids.

Summary

An Airprox was reported when a Mini 3 Pro UAV and a Tutor flew into proximity in the vicinity of Durleigh reservoir at approximately 1054Z on Tuesday 14th January 2025. The Mini 3 Pro pilot was operating under VLOS in VMC, not in receipt of an ATS. The Tutor pilot was operating under VFR in VMC in receipt of a Traffic Service from Yeovilton Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS track data for the flight of the Mini 3 Pro, a report from the air traffic controller involved and a report from the appropriate operating authority. 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 discussed the actions of the pilot of the Mini 3 Pro. Members commended the diligence with which they had conducted their pre-flight preparation but wished to point-out that the submission of a flight report to a website used predominantly by UAV operators would not have provided any degree of 'protected airspace' nor had it defined an area for other pilots to avoid. However, members acknowledged that such a system may have, if consulted, provided some information which other pilots may have incorporated into their own flight planning.

Members noted that pilot of the Mini 3 Pro had been first alerted to the presence of the Tutor by having heard it approach and had had a few seconds in which to consider their subsequent actions. Members noted that the pilot of the Mini 3 Pro had considered that the safest course of action had been to descend the UAV to approximately 40ft and to have continued to assess the flightpath of the Tutor. Members appreciated that to have sighted the Tutor in close proximity to the Mini 3 Pro had caused concern and noted that a decision had subsequently been made to land the UAV.

Turning to the actions of the pilot of the Tutor, members agreed that the TAS fitted to the Tutor would not have been expected to have detected the Mini 3 Pro. Members were in agreement that the pilot of the Tutor had not had situational awareness of the presence of the Mini 3 Pro and had not sighted it.

Focussing on the actions of the Yeovilton Approach and LARS controller, members agreed that they had not had situational awareness of the presence of the Mini 3 Pro and could not have passed any Traffic Information to the pilot of the Tutor.

Members concluded their discussion and agreed that, once the pilot of the Mini 3 Pro had been aware of the presence of the Tutor, they had correctly discontinued their task and had lowered the UAV to have ensured no risk of collision. Members were satisfied that there had not been a risk of collision and agreed that normal safety margins had pertained. The Board assigned Risk Category E to this event and agreed on the following contributory factors:

CF1. The Yeovilton Approach and LARS controller had no situational awareness of the Mini 3 Pro.

CF2. The pilot of the Tutor had no situational awareness of the Mini 3 Pro. The pilot of the Mini 3 Pro had generic situational awareness of the Tutor.

CF3. The TAS fitted to the Tutor would not have been expected to have detected the presence of the Mini 3 Pro.

CF4. The pilot of the Tutor had not visually acquired the Mini 3 Pro.

CF5. The pilot of the Mini 3 Pro had been concerned by the proximity of the Tutor.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2025003			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
2	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
	• Electronic Warning System Operation and Compliance			
3	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
	• See and Avoid			
4	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
5	Human Factors	• Perception of Visual Information	~~Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement~~	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: E.

Safety Barrier Assessment[5]

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

Ground Elements:

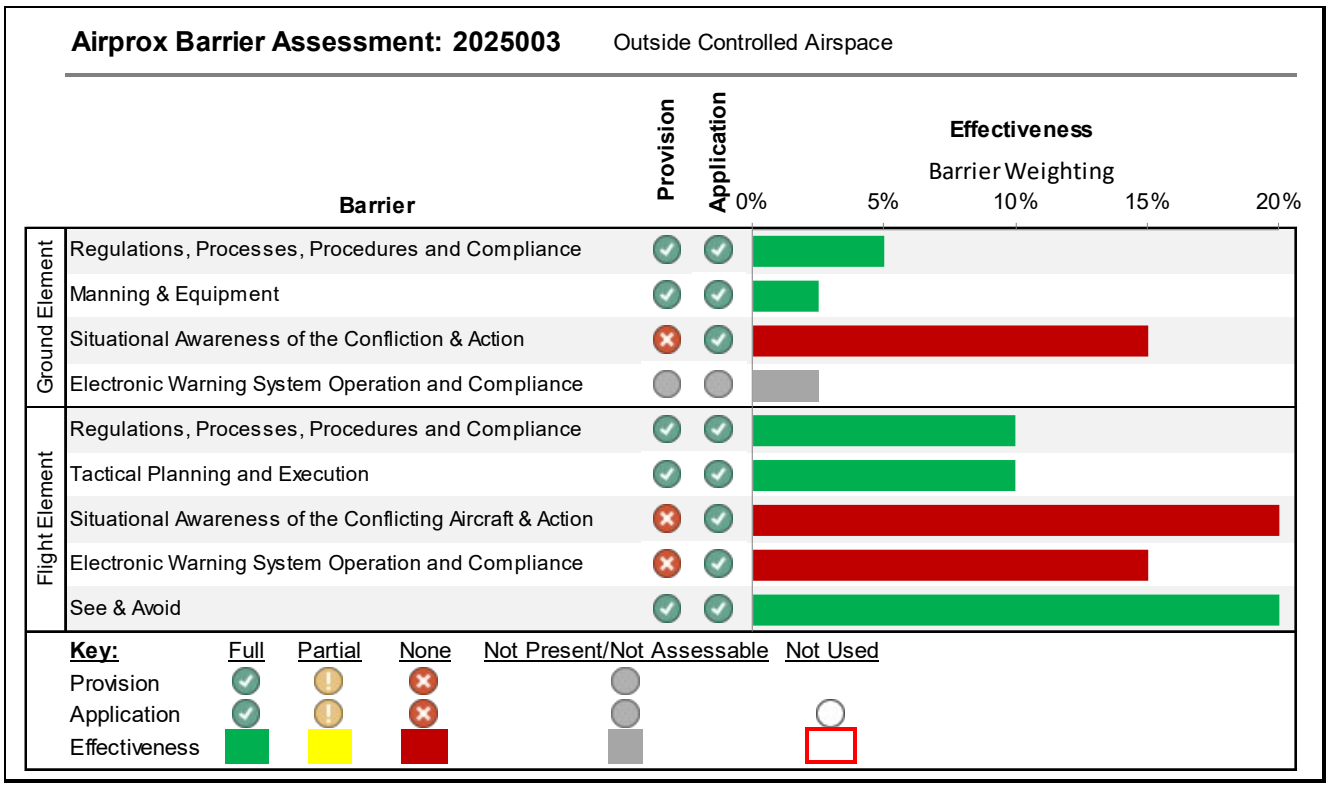
Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Yeovilton Approach and LARS controller had no situational awareness of the Mini 3 Pro.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the Tutor had no situational awareness of the Mini 3 Pro.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TAS fitted to the Tutor would not have been expected to have detected the presence of the Mini 3 Pro.

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


Airprox Barrier Assessment: 2025003
Outside Controlled Airspace
Barrier
Provision
Application
Effectiveness
Barrier Weighting
0%
5%
10%
15%
20%
Ground Element
Regulations, Processes, Procedures and Compliance
Manning & Equipment
Situational Awareness of the Confliction & Action
Electronic Warning System Operation and Compliance
Flight Element
Regulations, Processes, Procedures and Compliance
Tactical Planning and Execution
Situational Awareness of the Conflicting Aircraft & Action
Electronic Warning System Operation and Compliance
See & Avoid
Key:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness