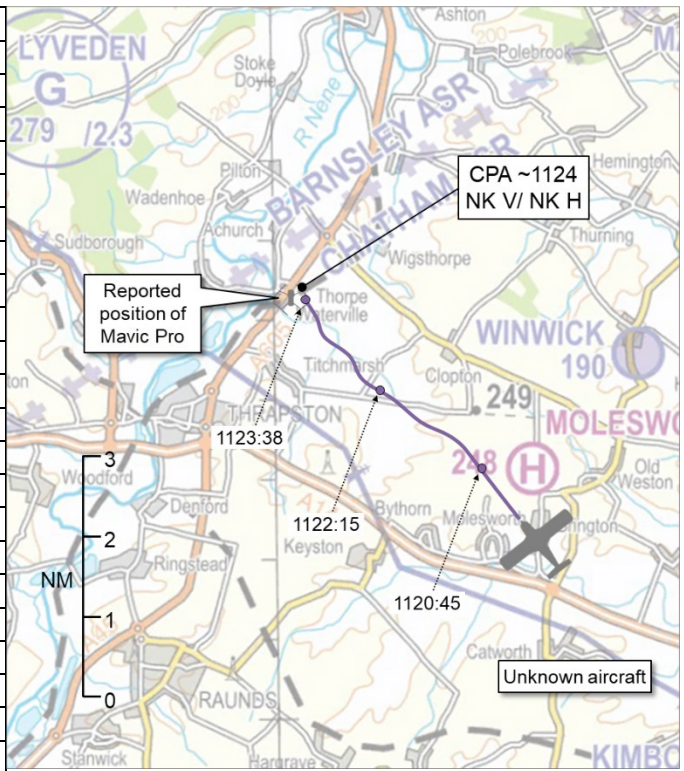


**AIRPROX REPORT No 2023036**

Date: 24 Mar 2023 Time: ~1124Z Position: 5225N 00030W Location: 2NM NE Thrapston

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	Mavic Pro	Unk light-aircraft
Operator	Civ UAS	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VLOS	NK
Service	None	NK
Provider	N/A	NK
Altitude/FL	NK	NK
Transponder	Not fitted	A
<b>Reported</b>		
Colours	NR	NK
Lighting	NR	NK
Conditions	VMC	NK
Visibility	NR	NK
Altitude/FL	~250ft	NK
Altimeter	NR	NK
Heading	NR	NK
Speed	NR	NK
ACAS/TAS	NR	NK
<b>Separation at CPA</b>		
Reported	"25m"	NK V/ NK H
Recorded	NK V/ NK H	



**THE MAVIC PRO PILOT** reports that they had just launched their drone for a short flight and it was climbing to a safe altitude. Their flight records show that the flight lasted 3min and reached a maximum altitude of 116m agl. The winds aloft were higher than they were comfortable with, so they decided to return to land when a light-aircraft suddenly appeared from the east, very low and, in their opinion, in a direct conflict with the drone.

They were in line-of-sight (LOS) of the drone at all times with the maximum distance from the controller being 446m. They assessed that, at the time of the incident, the drone was at an altitude of 75-80m and at a range of 80-85m from the controller.

Their view to the east was obscured by buildings so they had no warning of the light-aircraft's approach. The aircraft was white, single-engine, low-wing configuration and was very low and close to the A605. Due to the speed of the incident it was hard to estimate the aircraft's height but they would say less than 100m. Their estimate is that the aircraft was within 25m of the drone at the closest point. Their actions on seeing the aircraft were to hold the drone's position as it was very difficult to judge whether a rapid descent would have helped to minimise the conflict. The aircraft pilot applied power and climbed away over the village to the west, in a gentle left-hand climb. It's not possible to say whether the pilot saw the drone but it was fitted with bright-orange rotors for additional conspicuity. They lost sight of the aircraft soon afterwards as they had been maintaining LOS with the drone and bringing it back to land safely in windy conditions. They were quite shaken by the event and, once the aircraft was well clear, they climbed the drone away from the village whilst they collected themselves. The winds were significant at this altitude, hence the north-easterly drift of the drone during this time. The drone was recovered back to the landing site in good order.

[The Mavic Pro pilot] confirmed that they were operating the drone legally, within LOS and within the CAA Drone Code at all times. They opine that their only error was in launching more closely than is

advisable to a building but there were no persons nearby and they were comfortable that the climb-out would be safe.

[The Mavic Pro pilot opines that] the conflict was caused entirely by the aircraft being below a safe and legal altitude in a location inappropriate for such activity. They could not get a photo of the aircraft as they had been piloting the drone and it would not have been safe to have taken their eyes from it, or their hand from the controller. They added that they had approximately 100 hours of flight-time as a [military] navigator and supernumerary crew, and have approximately 750 hours of operating military drones in complex airspace.

**THE PILOT** of the aircraft tracking northwest could not be traced.

## Factual Background

The weather at Wittering was recorded as follows:

METAR EGXT 241120Z 22020KT 9999 BKN031 12/05 Q0995 RMK BLU

## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The Mavic Pro was not observed on radar at any point. A primary-only return was observed on radar to have tracked towards the reported position of the Mavic Pro. At 1423:38, this aircraft was observed to have been approximately 0.3NM from the position of the reported CPA (see Figure 1). The returns faded on the next sweep.

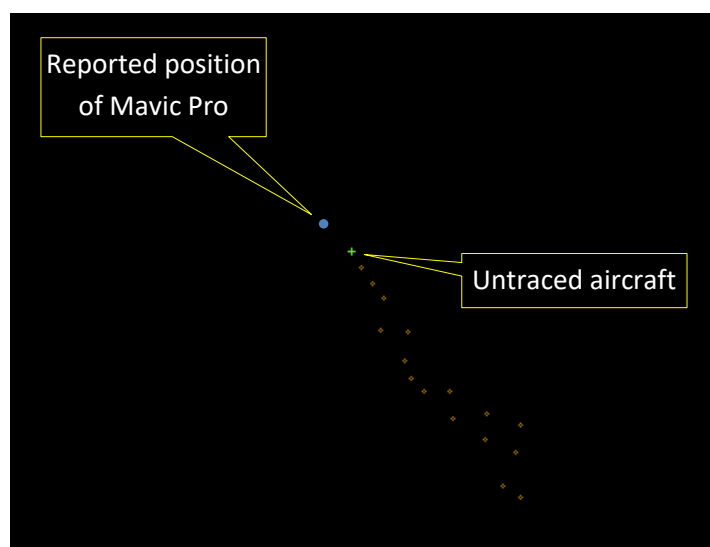


Figure 1 – 1123:38

Best efforts were made to trace the aircraft and its pilot, but these proved unsuccessful. The precise time of CPA and the separation between the Mavic Pro and the aircraft could not be determined.

Both 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> 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

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

shall discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property.<sup>2</sup>

## Summary

An Airprox was reported when a Mavic Pro and an untraced aircraft flew into proximity 2NM northeast of Thrapston at approximately 1124Z on Friday 24<sup>th</sup> March 2023. The Mavic Pro pilot was operating under VLOS in VMC not in receipt of an ATS. The pilot of the other aircraft could not be traced.

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

Information available consisted of a report from the Mavic Pro pilot and radar photographs/video recordings. 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 Mavic Pro and noted that they had conducted their flight from a position close to a building. Members were in agreement that, whilst the pilot of the Mavic Pro had already identified that point in their narrative report, the rules for their applicable flight category and the privileges of their authorisation to have operated in that category must be considered for every flight. Notwithstanding that the pilot of the Mavic Pro had felt that they had mitigated the risk to persons, it was agreed by members that this occurrence had highlighted the danger of having a limited view of the area of operation given that the fixed-wing aircraft had appeared from behind a nearby building. The Mavic Pro pilot had not had any Situation Awareness of the presence of the fixed-wing aircraft until it had been visually acquired. That the fixed-wing aircraft had been obscured from view until the last moment, meant that the Mavic Pro pilot had sighted the fixed-wing aircraft late. Nevertheless, members commended the quick reactions of the pilot of the Mavic Pro to have assessed the situation and to have considered that the safest course of action was to have maintained the position of the Mavic Pro. Members appreciated that such a close encounter had caused the pilot of the Mavic Pro considerable concern.

Turning their attention to the pilot of the fixed-wing aircraft, members were disappointed that, despite best efforts, the aircraft and pilot could not be traced. Members discussed that the images from the radar replay had not included any indication of the fixed-wing aircraft's altitude, possibly due to being at the limit of the radar's coverage or the aircraft not being equipped with a transponder. However, this left members with the only assessment of the height of the fixed-wing as that provided by the pilot of the Mavic Pro. Whilst members felt that the encounter had been startling, it was agreed, reluctantly, that an assessment of the risk of collision had not been possible due to the limited information available. As such, the Board assigned Risk Category D to this event. However, members agreed the following contributory factors:

- CF1.** The pilot of the Mavic Pro had conducted their flight close to a building.
- CF2.** The pilot of the Mavic Pro had had no Situational Awareness of the presence of the fixed-wing aircraft until it had been visually acquired.
- CF3.** The pilot of the Mavic Pro had visually acquired the fixed-wing aircraft late.
- CF4.** The pilot of the Mavic Pro had been concerned by the proximity of the fixed-wing aircraft.
- CF5.** The fixed-wing aircraft had been obscured from the view of the pilot of the Mavic Pro.

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<sup>2</sup> Regulation (EU) 2019/947 as retained (and amended in UK domestic law) Under the European Union (Withdrawal) Act 2018 - UAS.SPEC.060 Responsibilities of the remote pilot (2)(b).

**PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK****Contributory Factors:**

2023036				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Tactical Planning and Execution</b>				
1	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
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
<b>• See and Avoid</b>				
3	Human Factors	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
4	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
5	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: D.

**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:**

**Tactical Planning and Execution** was assessed as **partially effective** because the pilot of the Mavic Pro had commenced their flight close to a residential building.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the pilot of the Mavic Pro had had no Situational Awareness of the presence of the other aircraft until it had been visually acquired.

**See and Avoid** were assessed as **partially effective** because the pilot of the Mavic Pro had visually acquired the other aircraft late.

<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](#).

**Airprox Barrier Assessment: 2023036** 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 Conflicition & 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	!	!					
<b>Key:</b>		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	○				
Application	✓	!	✗	○	○			
Effectiveness	■	■	■	■	□			