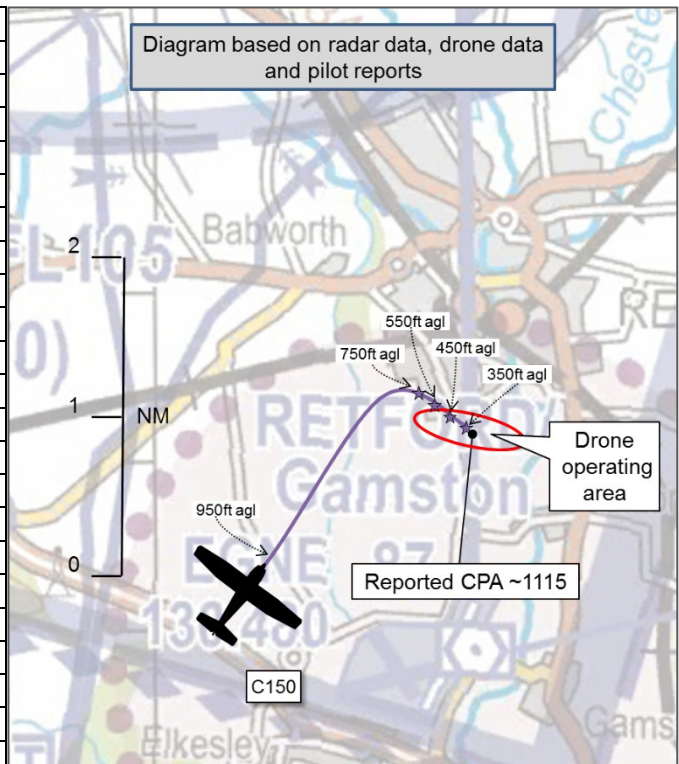


**AIRPROX REPORT No 2020039**

Date: 19 May 2020 Time: ~1115Z Position: 5318N 00056W Location: Gamston ATZ

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

| Recorded    | Aircraft 1             | Aircraft 2    |
|-------------|------------------------|---------------|
| Aircraft    | DJI Matrice            | C150          |
| Operator    | Civ UAS                | Civ FW        |
| Airspace    | Gamston ATZ            | Gamston ATZ   |
| Class       | G                      | G             |
| Rules       | VFR                    | VFR           |
| Service     | None                   | AGCS          |
| Provider    | NA                     | Gamston       |
| Altitude/FL | 390ft agl <sup>1</sup> | 350ft agl     |
| Transponder | Not fitted             | A, C          |
| Reported    |                        |               |
| Colours     | NK                     | Blue, White   |
| Lighting    | None                   | Beacon        |
| Conditions  | VMC                    | VMC           |
| Visibility  | >10km                  | >10km         |
| Altitude/FL | 400ft                  | 300ft         |
| Altimeter   | NK                     | QFE (1018hPa) |
| Heading     | NK                     | 210°          |
| Speed       | NK                     | 65kt          |
| ACAS/TAS    | Not fitted             | Unknown       |
| Separation  |                        |               |
| Reported    | 200ft V/200m H         | Not seen      |
| Recorded    | N/K                    |               |



**THE DJI MATRICE DRONE OPERATOR** reports that they were operating an emergency service drone tasked to operate in the Ordsall area of Nottingham. They had followed the protocol of notifying NPAS and Helimed. Upon checking Drone Assist it was identified that deployment would need to be within the FRZ for Gamston/Retford Airport, on the edge of the zone, so they rang Gamston Airport to seek permission for the flight to take place, and to explain the operational reasons for doing so. They initially spoke to someone who said if they were outside the 5km zone then it was fine, they then explained that it was within the 5km and they were subsequently put through to the A/G operator. Again, reasoning, location and flight parameters were passed: a maximum altitude of 400ft and operating for about 20-40 minutes. The Gamston staff member said there wasn't much in the air at the minute but would pass out a message to aircraft flying and would re-route them to avoid the Ordsall area. This call was made at 1050Z to Gamston prior to deployment. After take-off they completed their mandatory control checks prior to taking the drone to an altitude of 400ft. The Remote Pilot (RP) had a number of competent observers keeping



Figure 1: Drone Operating Area

<sup>1</sup> DJI maximum height obtained from DJI onboard systems, height at CPA cannot be established.

an eye on the surrounding airspace. The Drone was taken to 607m away, with the RP utilising Emergency Service Exemptions following a dynamic risk assessment. The RP ensured that VLOS was continued throughout having walked towards the open field to increase his view. The flight was then continued to the West, with the drone travelling a further 622m. Having checked the areas, the Drone had continued back toward the TOLA. His attention was briefly drawn to two people walking towards him. As they were about to bring the drone back in, whilst at around 80m out from his TOLA, and at an altitude of 400ft, a Cessna type aircraft flew over his head and underneath the drone. The RP estimated that the aircraft was at an altitude of about 200ft, turning east towards south and appearing to make an approach at Gamston Airport. The RP saw that the aircraft was flying at a height between both him and his drone and was confident in having a gap in altitude so did nothing with the drone, leaving it at 400ft altitude. Once the aircraft was clear the RP began the descent again, bringing the drone to 200ft, as another aircraft making a similar approach but at a higher altitude flew above. The 2nd aircraft was apparently much higher than the first aircraft. The RP re-contacted Gamston Airport once the drone had landed to explain what had happened and the A/G operator stated that aircraft were in the circuit and wasn't overly concerned about what was reported to him. The drone Chief Pilot then contacted Gamston to discuss the incident, specifically with the Airport Manager. They were unaware of any issue in relation to a near miss but were aware that the RP had contacted them to report a low flying aeroplane. They had not received any reports from the pilots operating at Gamston and stated that it was unlikely that an aeroplane would have been at an altitude of 200ft over Ordsall. Aircraft preparing to land are usually at an altitude of 600ft at the village of Eaton, which is approximately 950m away from the drone's closest trajectory.

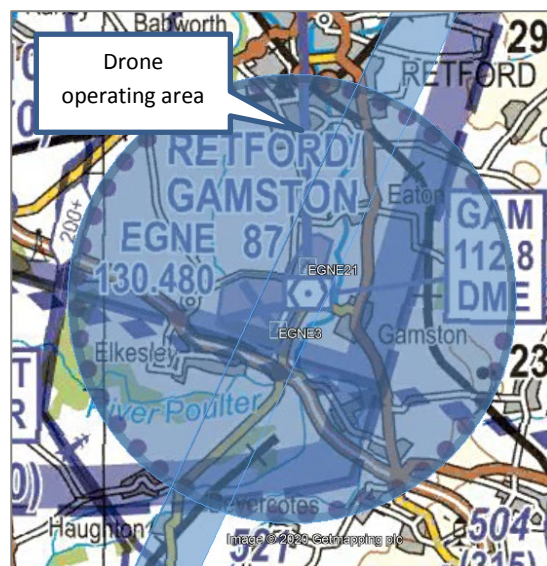


Figure 2: Gamston with FRZ Overlay

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

**THE C150 PILOT** reports that just prior to take off from RW21 to complete a circuit Gamston radio informed him of drone activity in the *Elkesley* area between surface and 400ft, the A/G operator advised him that an early right turn onto the crosswind leg might be appropriate [they recalled]. Take off was normal and a right turn was initiated over the displaced area of RW03, adjacent to the RW32 threshold when they were passing through 300ft. Their climb to 1000ft on heading 300° was completed and they joined RW23 downwind for a full stop landing. There was never any visual contact with a drone during the circuit. They regret not being able to provide any other information to assist the Airprox investigation.

**THE GAMSTON AIR/GROUND OPERATOR** reports that they were the A/G operator, also in the Tower was the Airport Manager. When the phone rang, the Airport Manager answered and reported that it was a call from an emergency services drone unit requesting permission to fly a drone at a local village close to Ordsall, Retford. The Airport Manager requested the details to which they responded 40mins and within 4km of the RW. The Airport Manager then passed the phone to him to provide the caller with further information. They asked the drone operator if the flight was required for training purposes and at what height the drone was required to fly at. The drone operator confirmed that it was not a training flight and that they needed to operate up to a maximum of 400ft. They then gave the drone operator permission to fly the drone but to fly with caution as aircraft were active in the Gamston visual circuit. The drone operator confirmed they would be careful, would keep an eye out and would call back when their work was complete. From this moment onwards, all aircraft in the visual circuit and any aircraft departing or entering the airspace were made aware that a drone was active over Ordsall, all pilots confirmed receipt of this message and were asked to stay vigilant. During this time, they did not receive any indication from the pilots that a hazard had been identified. At about 12:00pm local time, a telephone call was received from the drone operator that the drone operation was complete but that they had been concerned that a Cessna aircraft had flown beneath the drone at about 200ft. The A/G operator said that it was highly unlikely that an aircraft would fly at less than 200ft over Ordsall, given its distance from the RW, they were operating on RW21RH at the time. The A/G operator asked the drone pilot if

they had any footage of the event which the caller responded as negative. Later that day, at about 14:00 local, the Airport Manager received a phone call from the emergency service responsible for the drone. They engaged in a conversation regarding the incident to which the police were informed that it is highly unlikely for an aircraft to fly at less than 200ft over Ordsall.

**THE GAMSTON AIRPORT MANAGER** reports that they were present in the Tower and received a call from an emergency service requesting permission to fly a drone at a local village close to Ordsall, Retford. They asked the intention of the flight and how long they would be flying for and the caller said about 30 to 40 mins. They asked the caller to confirm if their location was within the 5km radius from the runway, the caller confirmed they were 4.8km. They then passed the phone to the A/G operator to provide the caller with further information. They listened as the A/G operator enquired about the purpose of the flight and what height the drone would need to fly at, to which the A/G operator said that the drone should not breach a maximum of 400ft. Permission was given to fly the drone but with caution as aircraft were active in the visual circuit. They then discussed with the A/G operator that they would communicate with all aircraft in the visual circuit and any aircraft departing or entering the airspace that a drone was active over Ordsall and all pilots confirmed receipt of this message. Later that day, around about 14:00 local, they received a phone call from the emergency service responsible for the drone, from the chief drone operator and not the drone operator. They explained that the drone operator was concerned and upset regarding an incident involving an aircraft which had reportedly flown between the drone and the ground at less than 200ft. They consulted with the A/G operator at the time, to which they both confirmed that at 4.8km from the RW, an aircraft on approach or departing was extremely unlikely to be at 200ft. They commented further that to fly at this height over the town would probably result in a noise complaint and would have been deemed unsafe airmanship. Following this phone call, they contacted the four pilots known to have flown in and around a 1hr window from the reported incident time, to which they received a response from three of them to confirm they had not encountered any difficulty, none reported seeing anything and denied they flew at such height. They have not received a reply from the fourth pilot.

Since the event the Airport Manager has instigated changes by conducting training to their tower, ramp and office staff to refamiliarise everyone with the drone code regulations from the CAA, to ensure they are up to date with the regulations. They are also working on updating the airport's website with the information for other drone users and, although they have a process of reporting all requests to fly, they are developing a system to collect more information from the drone operator, e.g. the drone operators contact details and name.

## **Factual Background**

The weather at Doncaster Sheffield was recorded as follows:

METAR EGCG 191120Z 27009KT 9999 BKN030 19/12 Q1022

## **Analysis and Investigation**

### **UKAB Secretariat**

The DJI Matrice and C150 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>2</sup>

## **Summary**

An Airprox was reported when a DJI Matrice and a C150 flew into proximity at about 1115Z on Tuesday 19th May 2020. Both pilots were operating under VFR in VMC, the DJI Matrice pilot had permission to operate within the FRZ from the Gamston A/G operator and the C150 pilot was in receipt of an AGCS from Gamston.

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<sup>2</sup> SERA.3205 Proximity.

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

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the A/G operator involved and reports from the appropriate operating authorities. 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 dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board began by looking at the actions of the drone operator. The Board were heartened that the operator had been forthcoming by reporting this Airprox which will serve to enhance the awareness of the operation of drones within an FRZ. The drone operator had correctly identified that they would be operating within the FRZ and had contacted the Gamston A/G operator for permission, which had been granted. The drone operator had been preparing to descend to land the drone when they saw the C150, the drone operator had stopped the drone's descent in time to maintain adequate separation (**CF6**). Board members highlighted that it is the responsibility of both the C150 pilot and the drone operator for collision avoidance, notwithstanding that the smaller drones can be very difficult to see until the aircraft are closer than normal, the Board hoped that this incident would serve to increase the awareness of both pilots and drone operators of the hazards associated with drone operations, both within an FRZ and in the FIR.

Next, the Board turned to the actions of the C150 pilot. The A/G operator had passed the general location of the drone's operating area to all aircraft in the visual circuit (**CF3**). Airfields that operate with an A/G operator are not mandated to record the R/T, although some do, therefore there were no recordings to determine if the C150 pilot's recollection of the location of the drone operation was as a result of the A/G operator passing the incorrect location or his assimilation of the information (**CF4**). The Board believed that, because other aircraft in the visual circuit had avoided the drone's operating area, it was possible that the C150 pilot had misunderstood the location of the drone's operating area and this had resulted in a descent along base-leg which was lower than normal. Because the C150 pilot was lower than normal on base-leg, members thought that they would have been concentrating on looking at the runway to set the aircraft up for turning onto final, this was probably why the pilot did not see the drone operating above the C150 (**CF5**).

Next, the Board looked at the actions of the A/G operator. They had given permission for the drone to operate and agreed to inform all aircraft they were in communication with until the drone operation was complete. They had no ongoing communication with the drone operator, outside of a mobile phone number, and therefore could not have accurate information on the drone's height and location at any given time (**CF1 & 2**).

Turning to the Risk, the Board agreed that the drone operator had seen the C150 and stopped the drone's descent until the C150 had safely passed underneath, therefore there was no risk of collision, a Risk category C.

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

Contributory Factors:

| 2020039   |               |  |   |
|---|---------------|--|---|
| CF  | Factor        | Description                                | Amplification   |
| <b>Ground Elements</b>  |               |  |   |
| <b>• Situational Awareness and Action</b>                             |               |  |   |
| 1   | Contextual    | • ANS Flight Information Provision         | Not required to monitor the aircraft under the agreed service     |
| 2   | Contextual    | • Situational Awareness and Sensory Events | The controller had only generic, late or no Situational Awareness |
| <b>Flight Elements</b>  |               |  |   |
| <b>• Situational Awareness of the Conflicting Aircraft and Action</b> |               |  |   |
| 3   | Contextual    | • Situational Awareness and Sensory Events | Pilot had no, late or only generic, Situational Awareness         |
| 4   | Human Factors | • Understanding/Comprehension              | Pilot did not assimilate conflict information                     |
| <b>• See and Avoid</b>  |               |  |   |
| 5   | Human Factors | • Monitoring of Other Aircraft             | Non-sighting or effectively a non-sighting by one or both pilots  |
| 6   | Human Factors | • Perception of Visual Information         | Pilot was concerned by the proximity of the other aircraft        |

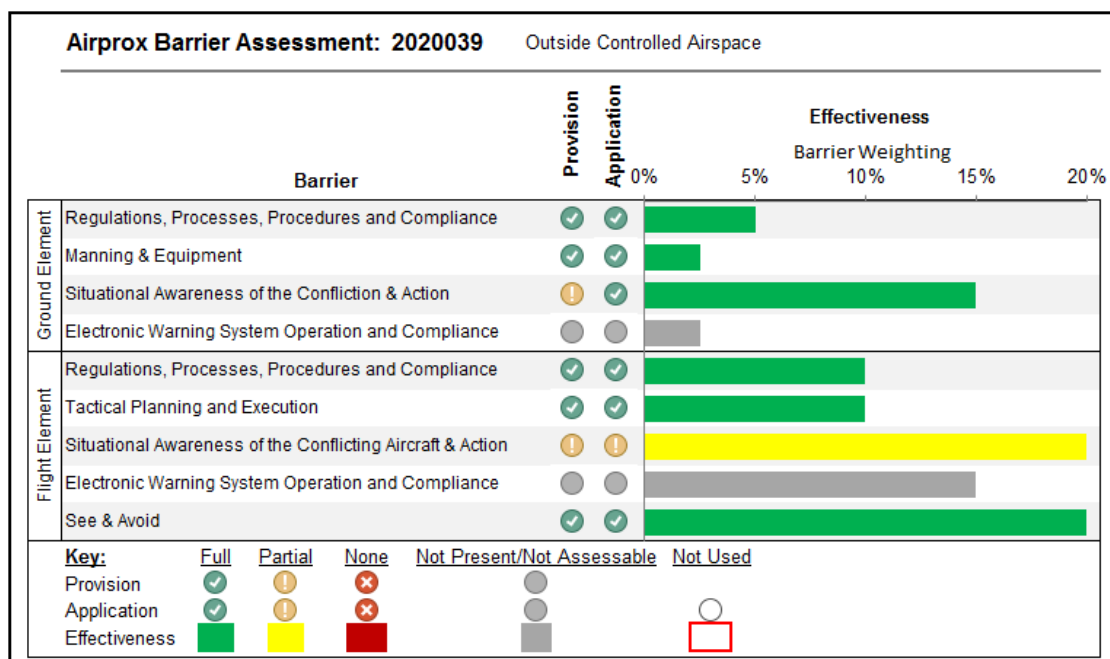
Degree of Risk: C.

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 **partially effective** because the C150 pilot had flawed SA on the drone’s location and conducted their flight based on that flawed SA.



<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](#).