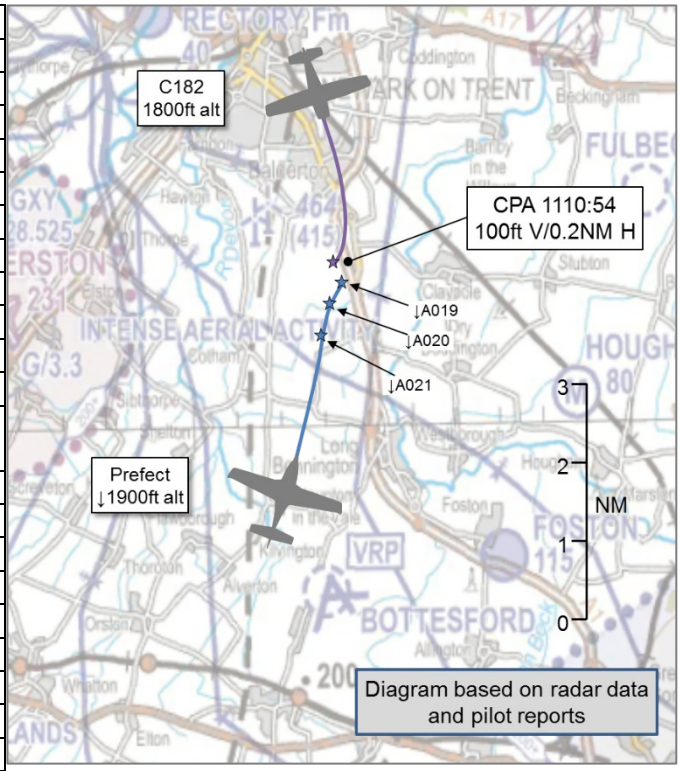
AIRPROX REPORT No 2020027

Date: 13 Mar 2020 Time: 1110Z Position: 5302N 00046W Location: 2NM S Newark

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Prefect	C182
Operator	HQ Air (Trg)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Listening Out
Provider	Cranwell App	East Midlands
Altitude/FL	1800ft	1900ft
Transponder	A,C,S	A,C,S
Reported		
Colours	White	White, Green
Lighting	NR	Strobes, Flashing LED Tail, Beacon
Conditions	VMC	VMC
Visibility	25km	>20NM
Altitude/FL	2000ft	2000ft
Altimeter	QNH (1012hPa)	QNH (1009hPa)
Heading	015°	195°
Speed	100kt	120kt
ACAS/TAS	TAS	Not fitted
Alert	TA	N/A
Separation		
Reported	30ft V/0.5NM H	300-400ft V/800-1000m H
Recorded	100ft V/0.2NM H	



THE PREFECT PILOT reports that at around 1110hrs during a medium-level navigational training sortie, the instructor had to take control from the student to make a prompt turn to the right, to avoid a head-on situation with a light-aircraft. It was believed to be a Cessna 150/170 type aircraft, with dark coloured markings. The Cessna passed down the left-side at a range of approximately 0.5NM, appearing to be less than 50ft below. The instructor recalled that the aircraft Traffic Alerting System (TAS), the ATC traffic call, and the pilot spotting the aircraft, all happened concurrently. At the time the student's attention had been drawn to another aircraft that they had been informed of, and were in sight of, in the vicinity of Belvoir Castle and their attention may have been focussed on that. The Airprox aircraft colourings were dark and it was first seen due to the lights, but the backdrop of the urban area made it difficult to see until it drew left and was visible against the open countryside. Following the avoiding action, the aircraft commander maintained control for the return to base.

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

THE C182 PILOT reports that whilst over Newark the passenger in the P2 seat, a qualified, 5000+ hrs and Instructor Rated pilot, pointed out a Grob 120. It appeared to be on a similar track but 200ft lower in altitude and 2NM range on their starboard side. They both followed it visually and saw it making a turn to the west away from them. Shortly thereafter, they had visual contact with another Grob 120 in the 11 o'clock at approximately 1NM range. It appeared to be on an almost reciprocal heading, but at what was estimated to have been 300-400ft lower in altitude and closed to 800-1000m horizontal separation. Visual contact was maintained until it was into the 8 o'clock, as it passed down their port-side. There was sufficient vertical and horizontal separation that they did not need to take avoiding action. At no time whilst in visual contact did the Grob appear to make any adjustment to its flightpath in terms of a direction or altitude change. If, therefore, the Grob had taken any avoiding action it would have had to have been carried out prior to the first visual contact at about 1NM range. Having used

SkyDemon to plan the flight, they were aware of the large model-aircraft flying area to the SW of Newark and so had avoided it despite being at higher altitude.

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

THE CRANWELL CONTROLLER reports that the radar display was fully serviceable with both Watchman PSR and SSR displayed and no radar suppression was in use for what was a reasonably clean picture. The display was initially set to 40NM whilst they helped the Departures controller monitor traffic well to the south on NAVEXs, but this was reduced this to 30NM at some point. They were operating bandboxed with RA, DIR and the VHF Zone frequency (124x450), which they had taken off the Departures controller earlier to assist them with their traffic loading. All the traffic under a service was on Stud 5, RA, the Cranwell ICF. The Prefect had been handed over by Wittering southwest of the Melton Mowbray TV Mast at 2000ft. When the pilot made two-way comms on Stud 5, they were placed under a Traffic Service, but reminded of their responsibilities for terrain clearance because they were below the Radar Vector Chart. It continued on track northbound towards the Bottisford VRP, which is a standard routing, and the controller expected them to call for recovery in the region of the VRP. Prefect traffic operating low-level north of Saltby was called twice and the pilot reported visual. The order of the next few events was written according to memory, but without listening to the RT recordings. Humberside Radar rang on the external landline to handover a Phenom. The landline was very quiet, and even with the headset volume turned up to almost maximum, they could only just make out what the Humberside controller was trying to say. They made out enough to believe it was a handover and the callsign. Given the handover was potentially going to become protracted, they offered Humberside the opportunity to freecall the Phenom 'if clean' on a 2602 squawk to Stud 5. For the subsequent few RT calls, they had to continue to turn the headset volume back down to a comfortable level. Another Prefect called a Practice Pan which was offered a steer and the details of the simulated emergency requested when the pilot was ready. It was believed to be a 7000 squawk southeast of Cranwell by approximately 8NM tracking towards Cranwell and appeared to have climbed out of low-level. The Practice Pan pilot acknowledged the steer but did not immediately pass any details. The controller believed that whilst waiting for further information from the Practice Pan pilot, they made a later than normal call to the Prefect pilot to alert them to traffic in their 12 o'clock 3NM, opposite direction and indicating 300ft below based on the Mode C readouts. This was acknowledged and the controller did not give any further updates. There was other traffic in the vicinity (closer to Newark and Syerston respectively), but this was the one that was identified as a threat. At some point an aircraft freecalled on Stud 5, northeast of Coningsby at FL100 wearing the 2602 squawk they had offered to Humberside Radar. They asked the pilot to squawk ident to formally identify the aircraft and gave Traffic Information on traffic 3NM away. Once identified, a heading was given for IFR recovery for RW26. The Prefect pilot reported they would declare an Airprox against what the controller assumed was the southbound traffic. It was acknowledged, Airprox noted on the flight strip and the ATC Supervisor notified.

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

THE CRANWELL SUPERVISOR reports that whilst undertaking the role of Supervisor, they had been carrying out normal duties as expected of the role. Although they did not witness the reported Airprox, they immediately ensured that the Approach controller was relieved. The off-going controller had already made a note regarding matters relating to the incident and they liaised with Ground Radio to ensure that the tapes were impounded. All details were then entered into the Supervisors' log.

Factual Background

The weather at Cranwell was recorded as follows:

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METAR EGYD 131050Z 30010KT 9999 FEW025 BKN035 08/02 Q1016 NOSIG RMK BLU BLU=
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Analysis and Investigation

Military ATM

The Prefect pilot was conducting a medium level navigation exercise as part of the elementary flying training syllabus and was returning to Cranwell at the end of their sortie in receipt of a Traffic Service from Cranwell Approach. The Cranwell Approach frequency was busy with multiple recoveries to Cranwell including a simulated emergency aircraft which freecalled for recovery close to the airfield. Approaching Newark, the Prefect Instructor reported taking control of the aircraft to avoid an aircraft on a reciprocal heading less than 1NM away and approximately 50ft below.

The C182 pilot reported being on a cross country flight at 2000ft. Although the pilot was not receiving an ATS, they were maintaining a listening watch with East Midlands and utilising a listening squawk. The C182 pilot reported becoming visual with the Prefect at a range of about 1NM, on a reciprocal heading with a vertical separation of 3-400ft and a lateral separation of 800-1000m. The C182 pilot reported that they believed there to be sufficient separation and therefore no need for avoiding action.

Figures 1-6 show the positions of the Prefect and the C182 at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using NATS Radars, which are not utilised by RAF Cranwell, therefore are not representative of the picture available to the controller.

At 1105:45 (Figure 1) the Prefect was handed over to Cranwell Approach and placed under a Traffic Service. At this point separation between the Prefect and the C182 was in excess of 24NM.

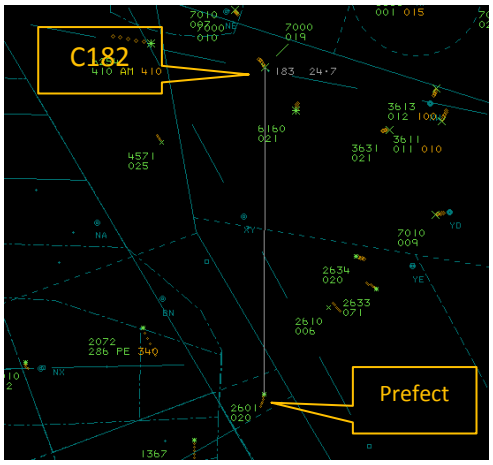


Figure 1

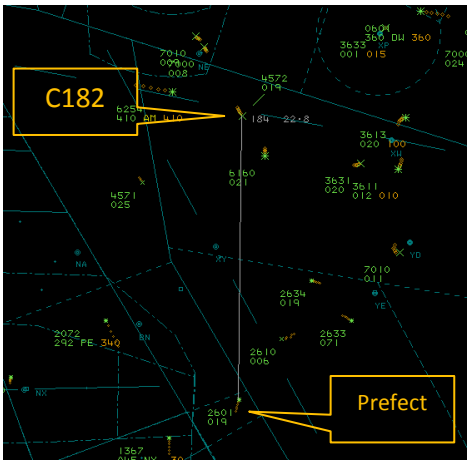


Figure 2

Over the next minute, the Cranwell Approach controller passed Traffic Information to the Prefect on another aircraft and it was during this time that the C182 changed their squawk to an East Midlands Listening Squawk (Figure 2). Separation at this point was in excess of 22NM.

Over the next two minutes the Cranwell Approach controller's workload began to rapidly increase. Humberside attempted to handover a Phenom inbound to Cranwell but due to poor landline communications this handover became protracted and the Cranwell Approach controller advised Humberside to freecall the aircraft. In addition, Traffic Information was again passed to the Prefect pilot on another aircraft and a second Prefect pilot declared a Practice Pan, was given a steer for the airfield, and told to pass details when ready. Separation between the Prefect and C182 at this point had decreased to 14NM (Figure 3).

At 1109:14 the Phenom which had been the subject of the failed handover from Humberside freecalled for recovery, was identified, passed Traffic Information on a conflictor and vectored for sequencing. This RT exchange ended at 1109:54 by which point separation between the Prefect and C182 had decreased to 5.4NM (Figure 4).

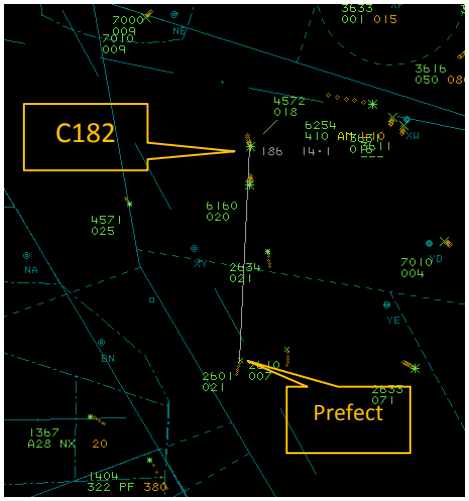


Figure 3

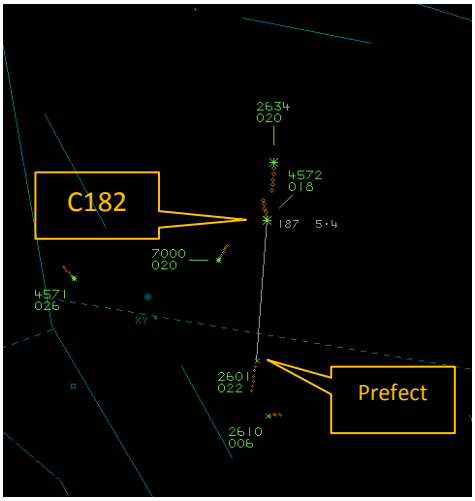


Figure 4

Nine seconds later, the Prefect pilot who had declared a Practice Pan began to pass details of the simulated emergency. This RT exchange took 22sec and on completion the Cranwell Approach controller immediately passed accurate Traffic Information to the incident Prefect on the C182 (Figure 5). This Traffic Information was passed at 2.4NM at which point the Prefect pilot reported being visual with the C182.

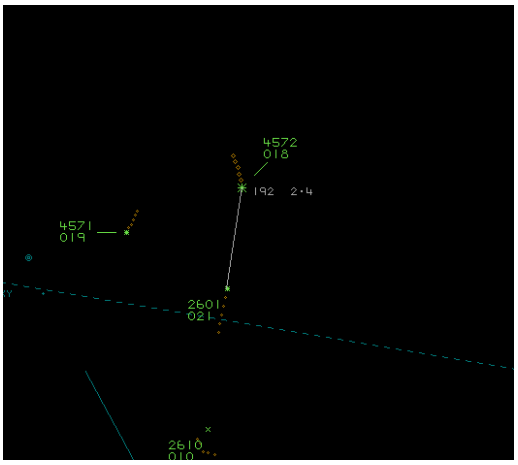


Figure 5

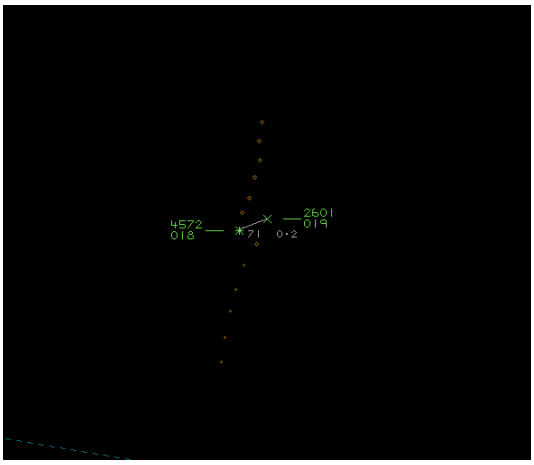


Figure 6 - CPA

CPA occurred 27sec after the Traffic Information was passed and was measured at 0.2NM and 100ft. The Prefect instructor reported taking control of the aircraft and manoeuvring away. This turn can be seen on radar.

This was an extremely busy period for the Cranwell Approach controller. In the 5min leading up to this incident there were 24 RT transmissions as well as liaison with Humberside for a handover and Cranwell Tower for the Practice Pan recovery. In ideal circumstances, Traffic Information should have been passed at 5NM. However, CAP 774 notes that high controller workload and RT loading may reduce the ability of a controller to pass Traffic Information and may adversely affect the timeliness of such information and this is evident in this case. Notwithstanding this, accurate Traffic Information was passed at 2.4NM which enabled the Prefect pilot to become visual with the C182.

UKAB Secretariat

The Prefect 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] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[2]

Comments

HQ Air Command

This occurrence was subject to a Local Investigation. As the DDH was content with the barriers in place to prevent Loss of Safe Separation (LoSS) of 3FTS Air Systems, there were no formal recommendations. Standard 3FTS risk management protocols designed to reduce the risk of LoSS require all such sorties to be flown with a serviceable Transponder, TAS and FLARM system; crews are also required to maintain a Traffic Service where possible. In this Airprox all these barriers happened coincidently, allowing the QFI to gain contact with the C182 and take appropriate avoiding action and subsequently reduced the risk of collision.

The area where the Airprox happened is extremely congested and in the vicinity of several major airfields, some of which could have provided a LARS. It would be prudent for any aircraft operating in this area to be in receipt of an ATS. Noting the experience of the crew in the C182, one would expect that they would have taken an ATS from a LARS provider, noting the area of intense aerial activity.

The DDH notes [that when] on Prefect medium-level navigation sorties, crews are encouraged to plan for a nominal height of 5000ft but will frequently deviate from this height based on conditions. In this instance, the sortie was initiated at 5000ft but due to increasing cloud cover the aircraft was descended to 2000ft to remain visual with the ground and VFR. A BKN cloud layer at 2500ft likely also affected the GA traffic, meaning both aircraft were operating VFR at a similar height due to weather, emphasising the importance of having an ATS as a vital barrier to help avoid LoSS.

Summary

An Airprox was reported when a Prefect and a C182 flew into proximity in the vicinity of Newark at 1110Z on Friday 13th March 2020. Both pilots were operating under VFR in VMC. The Prefect pilot was in receipt of a Traffic Service from Cranwell and the C182 pilot was not receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and 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 contributed via 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.

[1] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

The Board first looked at the actions of the Prefect pilots; they were receiving a Traffic Service from Cranwell ATC and received Traffic Information and a TAS indication at the same time as seeing the C182 (**CF3**, **CF5**). Although the Traffic Information was provided later than ideal, the instructor was able to take control and take avoiding action, however, the instructor reported maintaining control for the return to base, implying that they felt the situation to be unsettling (**CF6**, **CF7**). Military members noted that, as a mitigation to mid-air collision, 22Gp had mandated that the Prefect fleet receive a Traffic Service when operating and that generally routes were planned to be flown at 5000ft, above the level normally used by most GA aircraft. Unfortunately, in this case the weather had forced the Prefect down to 2000ft and into the area where they were most likely to encounter GA aircraft.

Turning to the C182, the Board noted they were both experienced pilots and some members opined that in such a busy area as the Trent valley with its numerous ATZ, they may have been better served requesting an ATS, rather than operating on a listening squawk with East Midlands, which would not provide them with any Traffic Information. A discussion followed in which civilian members pointed out that the CAA was recommending and highly publicising the use of listening squawks to GA, in order to reduce the number of airspace infringements. Military members felt differently, in that by requesting an ATS, and in particular a Traffic Service, pilots would be more likely to receive Traffic Information on other aircraft, as well information on airspace infringement. However, members discussed that they were hearing anecdotally that pilots were often requesting an ATS and being refused due to staffing. Whilst it was thought that this was likely to be a symptom of the COVID-19 pandemic, in that some units were reducing the numbers of controllers that were available for LARS, this Airprox occurred before the lockdown. Nevertheless, the Board agreed that the use of the listening squawk should not be criticised and that given that the C182 pilot had seen the Prefect 1NM away, an ATS might not have materially affected this Airprox anyway. Having seen the Prefect, which had probably already taken the avoiding action by then, (**CF6**) the C182 pilot assessed that avoiding action was not necessary.

The Board considered that the Cranwell controller was extremely busy during this particular period; whilst they accepted that, by its nature, air traffic controlling often went from quiet to very busy, very quickly, they noted that the App controller had been operating a number of frequencies bandboxed as well as trying to help the Deps controller. The Board thought that had the Air Traffic Supervisor been more attuned to the situation, other controllers could have been brought in to alleviate the App controller's workload (**CF1**, **CF2**). In the event, the RT loading and the controller's workload meant that they were unable to give Traffic Information to the Prefect pilot any earlier (**CF3**, **CF4**). Nevertheless, the Board noted that there still had been enough time for the Prefect pilot to take action when the Traffic Information was passed at 2.4NM.

In assessing the risk, the Board quickly agreed that the action taken by the Prefect pilot was timely and effective and so, whilst safety had been degraded, there had been no risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2020027		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Manning and Equipment		
1	Organisational	• ATM Staffing and Scheduling	Sub-Optimal establishment or scheduling of staff
2	Human Factors	• Leadership and Supervision	
	• Situational Awareness and Action		
3	Human Factors	• ANS Traffic Information Provision	TI not provided, inaccurate, inadequate, or late
4	Human Factors	• Distraction - Job Related	Controller engaged in other tasks
	Flight Elements		
	• Electronic Warning System Operation and Compliance		
5	Contextual	• ACAS/TCAS TA	
	• See and Avoid		

6	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots
7	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft

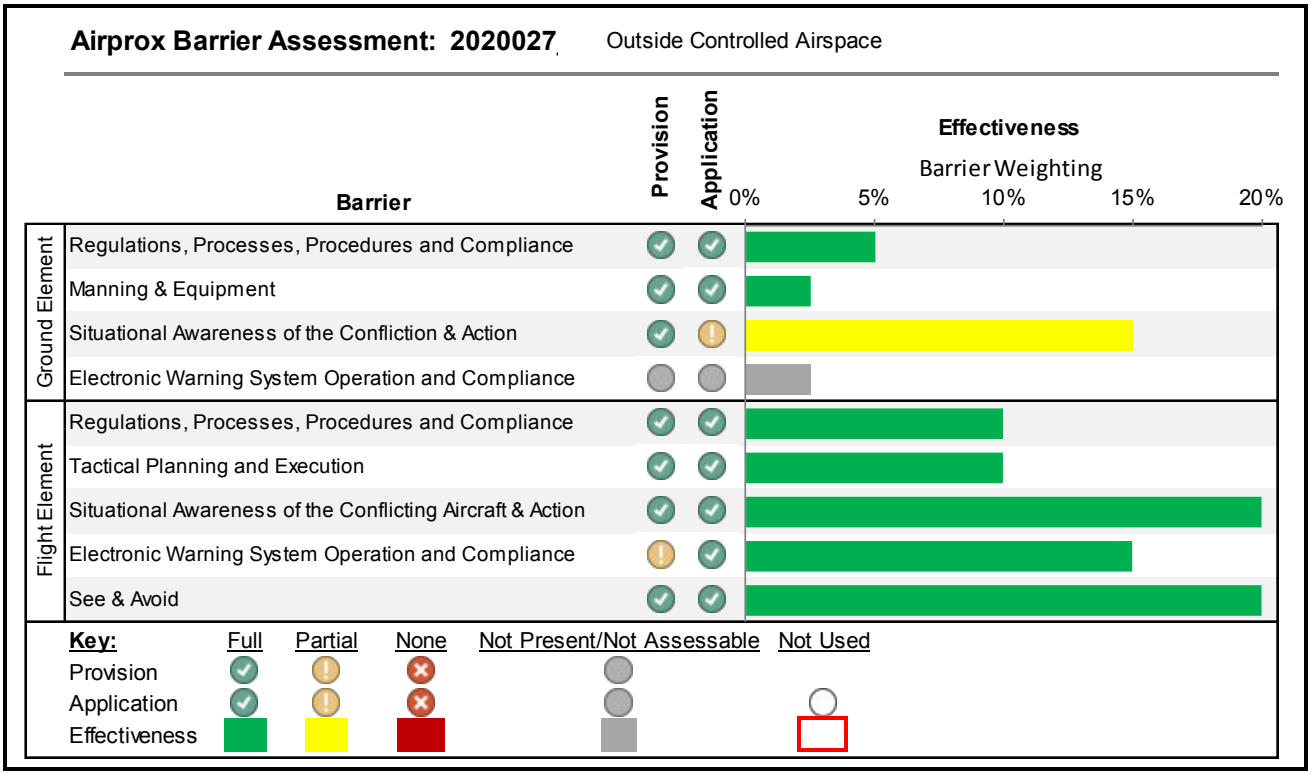
Degree of Risk: C.

Safety Barrier Assessment[3]

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 **partially effective** because workload and the RT loading was such that the controller could not make an earlier Traffic Information call to the Prefect pilot.



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