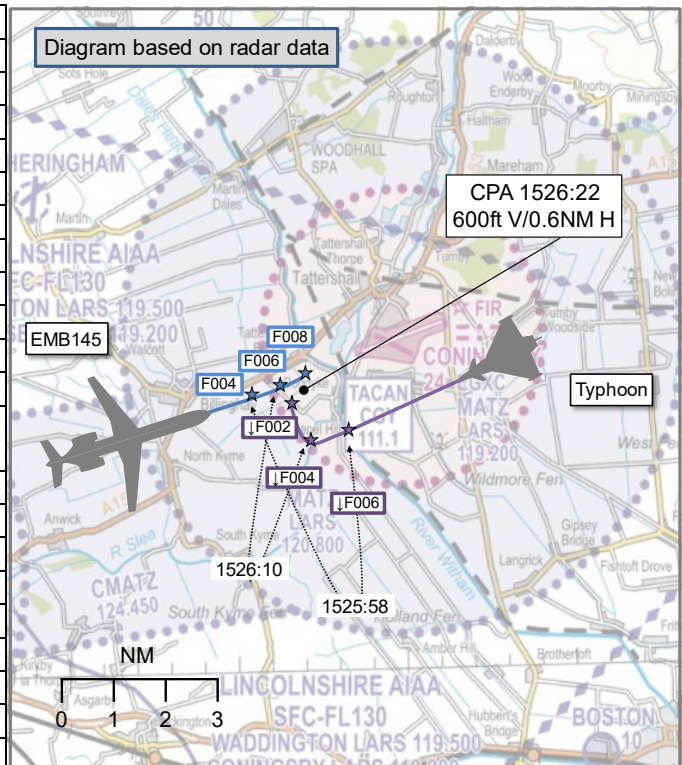


AIRPROX REPORT No 2023055

Date: 17 Apr 2023 Time: 1526Z Position: 5305N 00013W Location: Coningsby

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	EMB145	Typhoon
Operator	Civ Comm	HQ Air (Ops)
Airspace	Coningsby ATZ	Coningsby ATZ
Class	G	G
Rules	VFR	VFR
Service	Traffic	ACS
Provider	Coningsby	Coningsby
Altitude/FL	FL008	FL002
Transponder	A, C, S+	A, C, S
Reported		
Colours	White	Grey
Lighting	Anti-col, Beacon, Taxi	NR
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	700ft	NR
Altimeter	QFE	NK
Heading	072°	NR
Speed	120kt	NR
ACAS/TAS	TCAS II	Unknown
Alert	Information	Unknown
Separation at CPA		
Reported	200ft V/<500m H	NR
Recorded	600ft V/0.6NM H	



THE EMB145 PILOT reports that, descending into the Coningsby area, they were handed over to Coningsby Director who descended them down to 5000ft. They were given avoiding action twice due to pop-up traffic, which was later reported as possible spurious targets. After agreeing to a Traffic Service, they were allowed to proceed towards the field where they were descended to 2500ft, then shortly after told to climb once again as they had been turned directly towards the large mast. They climbed to 3000ft and were visual at all times with the aerial. They then proceeded with vectors to a SRA RW07 even though the weather was good VMC. They established on the procedure and began descending with the talkdown as normal. Approaching 700ft, the controller stated “Discontinue approach priority traffic ahead”. They immediately asked for clarification asking if the controller wanted a go-around straight ahead to 2000ft and were told “go left”. Again they asked for clarification and a heading whilst the FO performed a go-around. At this point, a TCAS traffic popped up -200ft on their immediate right. They were eventually given a heading of 350° and a 2200ft go-around clearance, after which they were vectored back round for another SRA and made a normal landing.

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

THE TYPHOON FLIGHT SAFETY OFFICER reports that they were asked to submit a report after details of an Airprox were received by Station Safety Cell. The pilot's recollection of the event was that nothing of significance had occurred. [Typhoon C/S] was given priority over instrument traffic due to a potential flight safety issue which required them to land, though the pilot had not a declared PAN. [Typhoon C/S] complied with all clearances that were issued by ATC and was not aware that an Airprox had occurred, or felt that separation had become unsafe.

THE CONINGSBY SRA CONTROLLER reports that they were the SRA controller in position when [EMB145 C/S] made their approach to Coningsby. It was a routine SRA until at 4 miles the EMB145

was told to break off the approach, priority aircraft ahead. At this point [EMB145 C/S] was stepped-on during transmission and was told again to break off the approach priority aircraft ahead. To which the pilot replied that they were breaking off the approach and requested to join visually. The pilot was then told 'negative maintain runway track climb to height 2000ft and listen out this frequency for Coningsby Approach'. The height of 2000ft, although not the MAP, would enable the EMB145 to be re-vectored sooner for their next approach and keep them procedurally separated from any visual circuit traffic. The pilot reports having an Airprox with a Typhoon in the visual circuit, which had requested priority to land. Having listened to the RT tapes [Typhoon C/S] confirmed they were visual with [EMB145 C/S] who had already broken off their approach at this time and [the Typhoon] landed without issue. The EMB145 was then vectored to complete an SRA and landed without issue. The controller reported not being told about the Airprox until 10 days after the event.¹

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

THE CONINGSBY ADC CONTROLLER reports that as [EMB145] was approaching 7 miles on radar for an SRA approach, they asked [Typhoon C/S], currently operating in the visual circuit, how much fuel they had left, due to the EMB145 approach requiring single runway occupancy for landing and sufficient time to 180° backtrack off the runway. [Typhoon C/S] confirmed that they would need to land in the next few minutes. As the Typhoon now had priority over the EMB145 due to the lack of fuel, at 4 miles the EMB145 was broken off the approach due to 'fuel priority ahead'. [The Typhoon pilot] stated downwind they were visual with the radar traffic breaking off and completed their landing from the visual circuit with no issues. [EMB145 C/S] was then re-fed into the radar pattern and conducted another SRA approach and landed with no issues.

THE CONINGSBY SUPERVISOR reports that as the EMB145 was on the SRA approach with roughly 5NM until touchdown, the ADC advised them that the only Typhoon in the visual circuit had declared the aircraft needed to be on the ground ASAP. The aircraft was about to run out of hours. In light of the new restrictions and procedures now in place, the EMB145 could not join visually unless the circuit was clear. As a result, they instructed the ADC to issue a break-off to the SRA controller. The EMB145 was broken off for another feed onto the SRA for RW07 and was passed instructions to re-contact the RA controller. The EMB145 landed off the subsequent approach. At no point on frequency was an Airprox declared and they did not receive any communication from the pilots once the aircraft had landed. The runway was made available to the Typhoon in accordance with the runway priority list and the new procedure was followed in order to prevent mixed circuits.

Factual Background

The weather at Coningsby was recorded as follows:

```
METAR EGXC 171520Z 09012KT 9999 FEW020 13/06 Q1029 NOSIG RMK BLU BLU=
```

Analysis and Investigation

Military ATM

An Airprox occurred on 17 Apr 23 at approximately 1520 UTC, on approach to RW07 RAF Coningsby. The EMB145 was conducting a Surveillance Radar Approach in receipt of a Traffic Service from the Coningsby Director controller but under the direct control of the Coningsby Surveillance Radar Approach controller for the non-precision approach. The Typhoon was one of several within the Coningsby visual circuit and in receipt of an Aerodrome Service from the Coningsby Tower controller.

Utilising occurrence reports and information from the local investigation, outlined below are the key events that preceded the Airprox. Where available they are supported by screenshots to indicate the positions of the relevant aircraft at each stage. The screenshots are taken from a combination of replays using both Unit and NATS radars. As NATS radars are not available to the controllers

¹ HQ BM was informed about the Airprox on 20th April.

they may not be entirely representative of the picture available, however the Unit radars provide the exact radar view seen by the controllers.

At 1523:04, the Coningsby Surveillance Radar Approach controller commenced the Surveillance Radar Approach for the EMB145. Typhoon #1 was established downwind within the visual circuit.

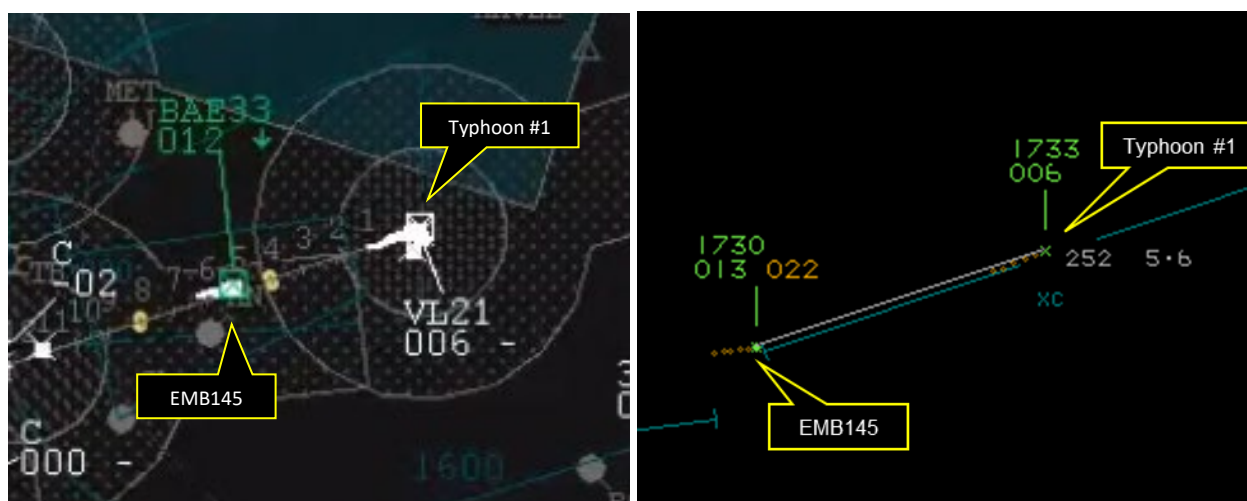


Figure 1 (1523:39). Typhoon #1 [pilot] informed Coningsby Tower of an issue and requested priority to Land from the next approach. (Separation 5.6NM)

At 1523:39, on completion of a go-around, [the pilot of] Typhoon #1 informed Coningsby Tower of an issue and requested priority to land from the next approach due to fuel. Whilst a PAN was not declared, which would have automatically given Typhoon #1 priority over the instrument traffic, the Coningsby Tower controller did prioritise Typhoon #1.



Figure 2 (1425:12). The Coningsby Surveillance Radar Approach controller broke off the EMB145 in accordance with the Coningsby Tower controller instruction. (Separation 6.1NM)

With the EMB145 at 4NM the Coningsby Surveillance Radar Approach controller requested a clearance from the Coningsby Tower controller. With Typhoon #1 having priority, the Coningsby Tower controller instructed the Coningsby Surveillance Radar Approach controller to break off the approach. At 1425:12, this instruction was passed to the EMB145 "*break off the approach, priority aircraft ahead*". The EMB145 pilot requested the clearance to be repeated to which the Coningsby Surveillance Radar Approach controller repeated the break-off instruction again at 1525:22.

At 1525:25, the EMB145 pilot acknowledged the break-off instruction "*breaking-off, callsign*" and then confirmed the break off intentions "*visual pattern right downwind*".

At 1525:31, the Coningsby Surveillance Radar Approach controller corrected the break-off intentions of the EMB145 [pilot] and instructed the EMB145 [pilot] to conduct a Missed Approach procedure “*negative, climb to height 2000ft, maintain runway track, listen out this frequency*”. The EMB145 pilot acknowledged the break-off instruction.

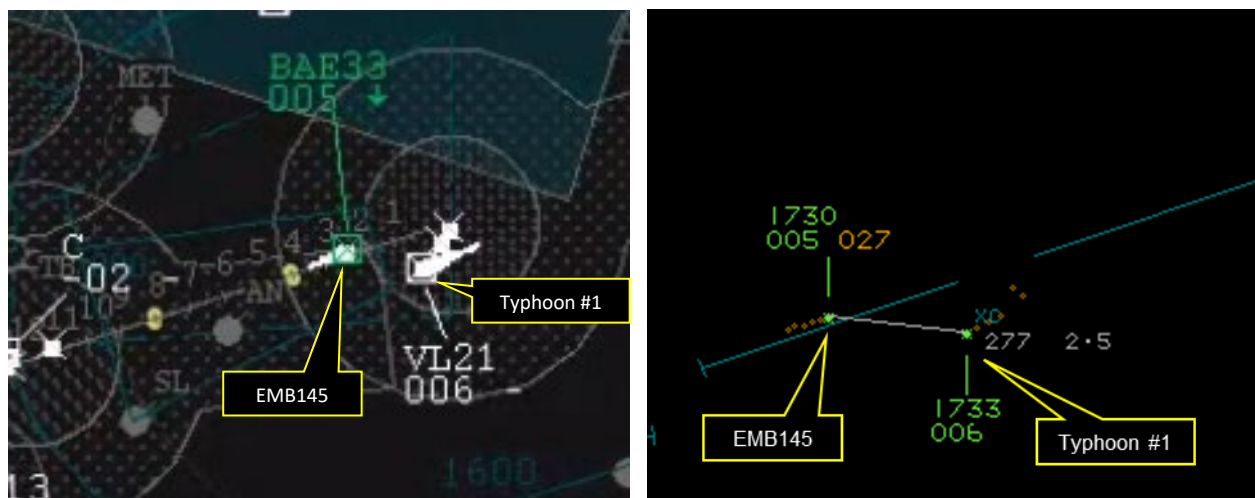


Figure 3 (1425:53). The Coningsby Director controller issued the EMB145 [pilot] with a climb instruction in accordance with the break-off. (Separation 2.5NM)

At 1525:53, the Coningsby Director controller reaffirmed the Traffic Service and issued the EMB145 [pilot] with a further climb “*identified traffic service climb to 2200 feet QFE 1028*” and heading “*on passing 1600ft turn left heading 350 degrees*”. Both instructions were acknowledged by the EMB145 pilot.

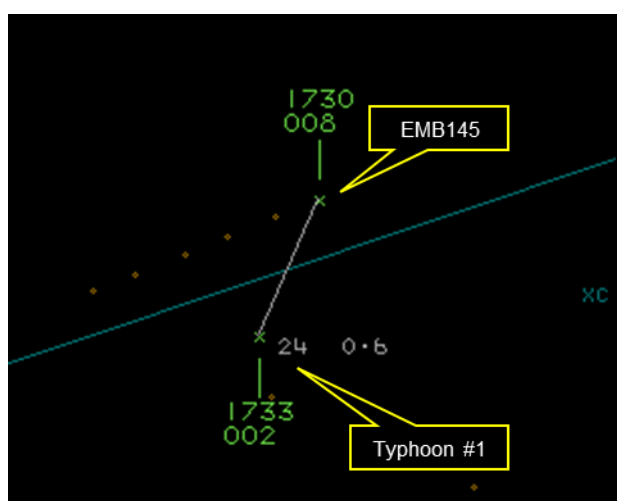


Figure 4 (1526:21): CPA.

CPA was measured at 0.6NM and 600ft separation.

The local investigation conducted by RAF Coningsby identified the cause of the Airprox as a loss of safe separation between non-co-operating aircraft due to a delay in implementation of the break-off by the EMB145 [pilot]. This delay subsequently decreased the anticipated separation between the EMB145 and prioritised Typhoon making the approach. Several BM-related causal/aggravating factors were then identified that were believed to have contributed to the Airprox:

Restriction imposed as a result of Airprox 2023050 on 3 Apr 23, not fully understood by the EMB145 pilot which led to them questioning and subsequently delaying the break-off action.

As a result of the causal factors identified the following mitigation for local action was proposed by RAF Coningsby:

Amendment and re-issuing of the Letter of Agreement between RAF Coningsby and the EMB145 operator, to provide clarity regarding the break-off procedure.

2 Gp BM Analysis

This Airprox occurred 14 days post Airprox 2023050 where the EMB145 had been conducting a visual join and there had been significant confusion during the break-off procedure. In response, RAF Coningsby ATC had introduced a temporary restriction that precluded visual approaches by the EMB145 when the visual circuit was active with Typhoons. This restriction was then to be reviewed further as part of the ongoing Letter of Agreement review.

Although a PAN was not declared by the Typhoon [pilot], it would have not been appropriate for the Coningsby Tower controller to question the pilot further regarding their priority request whilst airborne and therefore providing priority over the EMB145 was a suitable decision. The break-off was passed correctly from the Coningsby Tower controller to the Coningsby Surveillance Radar Approach controller who then provided a clear break-off instruction to the EMB145. Routinely for military break-offs, the Coningsby Surveillance Radar Approach controller would have then questioned if the pilot was visual with the aerodrome, enabling either a visual join/fly through on dead-side if visual or a missed approach break-off if not visual. As the visual join/fly through option was not available following the recent restriction, the Coningsby Surveillance Radar Approach controller did not ask the EMB145 if they were visual but could have been more direct and issued a missed approach break-off immediately. Overall, the correct break-off was issued however the EMB145 pilot's question regarding the profile did delay the initiation of the break-off, decreasing the anticipated separation between the EMB145 and Typhoon. With introduction of the amended and reviewed Letter of Agreement, the break-off procedure and issuing process has been addressed and provides a robust means of preventing such recurrences.

- | |
|--|
| <p>f. In the event of a break off from any approach, the [Company] Embraer 145 AS is to execute the published Missed Approach Procedure:</p> <p>i. RWY07RH. Climb on RWY track to 2700ft QFE then turn left on track 069°</p> <p>ii. RWY25. Climb on RWY track to 2700ft QFE then turn right on track 067°</p> <p>iii. Although not envisaged, any planned deviations from this MAP will be passed to the aircrew as soon as possible.</p> |
|--|

Figure 5: Letter of Agreement amendments.

No further BM-related causal/aggravating factors were identified by 2 Gp BM.

UKAB Secretariat

The EMB145 and Typhoon pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.² An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.³

² (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

³ (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 17.

Comments

HQ Air Command

Following Airprox 2023050 on 3 Apr 23, it would appear the revised procedures identified from this event were still bedding-in. A review of the letter of agreement between operators was conducted prior to this Airprox. Given the Typhoon [pilot] was visual with the EMB145 it does not appear that there was a risk of collision. Typhoon pilots routinely operate to their minimum fuel reserves to maximise circuit training opportunities at the end of a sortie. It would be beneficial for Typhoon pilots operating in such a way to know when traffic is approaching Coningsby at the earliest opportunity so they can plan their landing accordingly and changes have been recommended to ensure this happens. This would avoid late-notice amendments to landing priority and more efficient sequencing of arrivals. Additional training has been provided to all involved parties so improvement should be seen in this regard.

Summary

An Airprox was reported when an EMB145 and a Typhoon flew into proximity in the Coningsby visual circuit at 1526Z on Monday 17th April 2023. Both pilots were operating under VFR in VMC, the EMB145 pilot in receipt of a Traffic Service from Coningsby SRA and the Typhoon pilot in receipt of an ACS from Coningsby Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs, reports from the air traffic controllers 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.

The Board considered the actions of both pilots and those of the controllers. Members noted that at a civilian airfield an IFR aircraft would have had priority over the visual circuit traffic and that an aircraft such as an EMB145 would not be expected to join the visual circuit if broken off, but would expect to conduct a missed approach. Although a recent airprox (2023050) had resulted in a change to the LoA to ensure that controllers did not instruct the EMB145 pilot to join the visual circuit, still the phraseology used by the Coningsby controller, in not being CAP413-compliant, had introduced an ambiguity that had led the EMB145 pilot to question the instruction, thus delaying the go-around. The Board was told by military members that work was on-going to address this discrepancy. Members noted that the Typhoon pilot had requested priority to land ahead of the in-coming EMB145 and wondered whether the pilot could have given ATC more notice of this priority in order to allow them time to sequence the EMB145 accordingly. Members were heartened to hear that Coningsby would be adjusting their procedures to ensure that circuit traffic would be given more notice of inbound traffic requiring extended time on the runway in future. Furthermore, this information will be included in station briefings to allow the squadrons to factor it in at the planning stage, which should alleviate any last minute changes to runway priorities as happened on this occasion. Members also wondered whether, knowing that the EMB145 would be flying through the circuit, the Typhoon pilot could have adjusted their circuit to ensure that they remained clear and avoided unduly concerning the other pilot or alerting the TCAS. They were told that the airspace around Coningsby was tight with the Cranwell CMATZ and noise sensitive areas in close proximity and that the Typhoon pilot probably had had little room to manoeuvre any differently. That being said, members were satisfied that there had been sufficient separation between the aircraft and that, because the Typhoon pilot had been visual throughout, there had been no risk of collision. It was therefore agreed that normal safety parameters had pertained and, as such, the Board assigned Risk Category E to this event. Members agreed that the following factors (detailed in Part C) had contributed to, or were outcomes from, this Airprox:

CF1: The phraseology for the Missed Approach Procedure as laid down in CAP413, Chapter 10 was non-standard (for civilian pilots) and had caused ambiguity when instructing the EMB145 pilot to break off the approach.

CF2: The EMB145 pilot had been concerned by the proximity of the Typhoon.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2023055				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Regulations, Processes, Procedures and Compliance				
1	Organisational	• Aeronautical Information Services	An event involving the provision of Aeronautical Information	The Ground entity's regulations or procedures were inadequate
Flight Elements				
• See and Avoid				
2	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

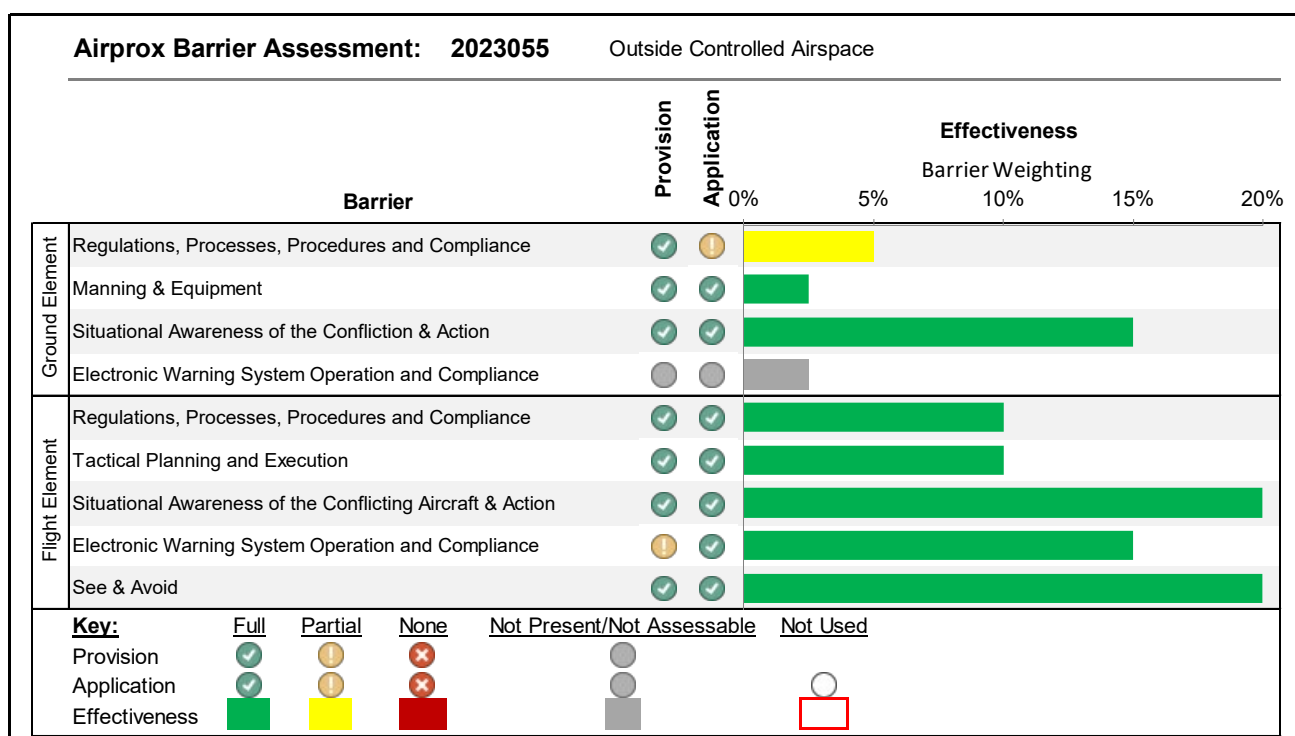
Degree of Risk: E.

Safety Barrier Assessment⁴

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

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the MAP phraseology used by ATC was not in accordance with CAP413 and was ambiguous.



⁴ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).