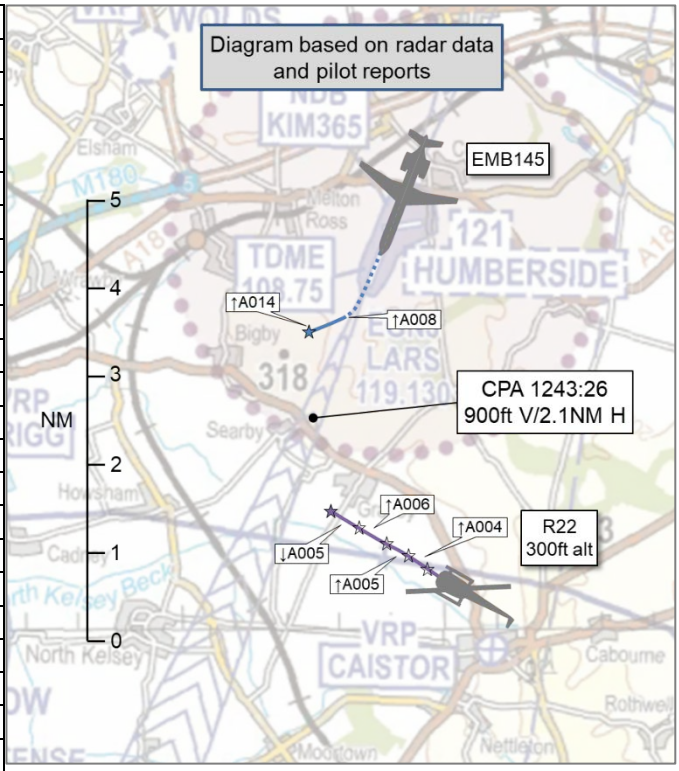
AIRPROX REPORT No 2021033

Date: 19 Apr 2021 Time: 1243Z Position: 5332N 00022W Location: Humberside Airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Embraer 145	R22
Operator	CAT	Civ Helo
Airspace	Humberside ATZ	London FIR
Class	G	G
Rules	IFR	VFR
Service	ACS	None[1]
Provider	Humberside Twr	N/A
Altitude/FL	F012	F003
Transponder	A, C, S	A, C
Reported		
Colours	White	Silver/blue
Lighting	'Yes'	'Standard for type'
Conditions	VMC	VMC
Visibility	5-10km	>10km
Altitude/FL	600ft	1000ft
Altimeter	QNH (1022hPa)	QNH (1021hPa)
Heading	203°	'NW'
Speed	170kt	70kt
ACAS/TAS	TCAS II	Not fitted
Alert	None	N/A
Separation		
Reported	Not Seen	1000ft V/2.5NM H
Recorded	900ft V/2.1NM H	



THE HUMBERSIDE APPROACH CONTROLLER reports that the Aerodrome (ADI) controller called them (APS) with clearance for the [EMB145] and requested release. They read back the clearance and issued release with a right turn direct GOLES. The ADI controller then issued take-off clearance to the [EMB145] pilot. A 7000 squawk then appeared 2.5 miles to the south of the airfield heading north-west to cross the climb-out lane of RW20 as they heard the [EMB145] roll down the RW. They immediately used the intercom facility to instruct the ADI controller to pass Traffic information on the 7000 squawk to the south of the airfield. A few seconds later, [the R22 pilot] made their initial call on [the Approach frequency]. The APS controller passed Traffic Information immediately to [the R22 pilot] on the EMB145 departing from RW20. Approximately 30sec later, [the R22 pilot] reported visual with the departing aircraft. Both aircraft appeared to be at the same level with approximately 2NM separation.

THE EMBRAER 145 PILOT reports that, on departure RW20 during the climb-out as they turned towards GOLES, ATC informed them of pop-up traffic on the RW climb-out. This was observed on TCAS and indicated as proximate traffic. ATC informed them that this could have been a helicopter departing from private land south of the airfield. During their discussions in the cruise about the information from ATC, they concluded that they had turned towards GOLES within the ATZ which usually extends 2 miles. On return to Humberside, their Operations department had been informed by Humberside ATC that they had filed an Airprox.

THE R22 PILOT reports that they had just lifted from a private landing site just north of Caistor VRP, having booked-in for training at Humberside. Whilst following the valley floor north-west-bound and (they believe) outside the Humberside ATZ, and whilst trying to make two-way with Humberside Radar, they heard Radar communicating with the Embraer 145. They were, in fact, visual with [the EMB145] just after that moment and the sighting was confirmed with their student at the time. [The EMB145]'s bearing must have been 60-70° right of their nose, in the climb out of RW20. They did not consider this

[1] The pilot was in the process of contacting Humberside Radar.

to be a risk, but they appreciate that they had not, at that point, become two-way with Radar, despite having been made aware of the other aircraft's position through listening-out prior to transmitting.

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

Factual Background

The weather at Humberside was recorded as follows:

```
METAR EGNJ 191250Z 07004KT 010V140 8000 FEW036 15/08 Q1021=
```

Analysis and Investigation

Humberside ATC

[The EMB145] was departing IFR RW20 with a right turn-out for GOLES, climbing to FL110 and was released by the APS controller and cleared for take-off by the ADI. As [the E145] departed, the APS controller sighted a pop-up 7000 squawk 3 miles south of the airfield slowly heading NW to cross the climb-out lane from RW20. Traffic Information was passed as soon as practicable to both pilots by the respective ATCOs and the R22 pilot reported visual with the departing EMB145 shortly after.

[The R22 pilot] had booked in over the telephone earlier, to arrive at the airport after a local sortie, ETA 1300Z to carry out a hover detail with some visual circuits.

At **1241** [the Aerodrome controller] (ADI) called the Approach controller (APS) with the airways joining clearance for [the EMB145], and passed GOLES climbing FL110, squawk 6333, frequency 133.8MHz and requested release. The APS controller read back the clearance and issued a release with a right turn direct GOLES. Both controllers assessed their workload as low at this stage.
At **1242** The ADI ATCO issued take-off clearance to [the EMB145].
At **1242:33** a 7000 squawk appeared 3 miles south-east of the airfield heading north-west to cross the climb-out of RW20 (outside the ATZ) as the APS ATCO heard [the EMB145] roll down the RW.
At **1242:40** [the R22 pilot] made an initial call on 119.130MHz [the Approach frequency]. The APS ATCO used the intercom to instruct the ADI controller to pass Traffic Information on the 7000 squawk to the south of the airfield, using local knowledge in lieu of formal identification once [the R22 pilot] had made contact.
The APS controller passed Traffic Information immediately to the pilot of the aircraft assumed to be [the R22] on the departing EMB145 from RW20 who replied that they would be maintaining not above 500ft. Similarly, the ADI controller passed Traffic Information to the pilot of [the EMB145] on [the R22], which the pilot acknowledged, informing the ADI controller that they were in the right turn.
At **1243:10** [the R22 pilot] reported visual with the departing aircraft and APS relayed this information to ADI via intercom, who then passed it to [the EMB145 pilot].
The first SSR return on [the EMB145] was displayed shortly thereafter, Mode C indicating A009. At this point there was approximately 2.2NM lateral separation between the returns and 400ft vertical separation, with [the EMB145] in the right turn. Neither pilot reported any form of TCAS alert.

[The EMB145 pilot] was not being provided with a surveillance-based service when the incident occurred; however, it is standard practice for APS to provide scheduled aircraft with a Deconfliction Service. Due to the separation being less than the prescribed minima for a Deconfliction Service, and the location of the incident, the controller considered the incident to fall under the definition of an Airprox. The APS controller had been on duty from **0700** and had returned from their last break at **1218**.

The ADI and APS controllers provided Traffic Information at the earliest opportunity, which was acknowledged by both pilots; the pilot of the free-call aircraft opted to restrict climb until visual with the outbound aircraft which had protection from the ATZ during the initial climb. In order to limit the possibility of a similar incident in the future, if this site is to be used on a regular basis, then a suitable formal agreement should be considered between the operator of the private site and Humberside

ATC. The terrain to the south of the airfield does not lend itself to good radio coverage at low level; therefore, any agreement should take this into account. Agreed routings/height restrictions should be considered as part of any formal agreement.

UKAB Secretariat

The Embraer 145 and R22 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] If the incident geometry is considered as converging then the R22 pilot was required to give way to the Embraer 145.[3]

Summary

An Airprox was reported when an Embraer 145 and an R22 flew into proximity near Humberside Airport at 1243Z on Monday 19th April 2021. The Embraer 145 pilot was operating under IFR in VMC and in receipt of an Aerodrome Control Service from Humberside Tower; the R22 pilot was operating under VFR in VMC and in the process of agreeing an Air Traffic Service with Humberside Radar.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

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 a combination of written contributions and dial-in/VTC comments.

The Board first considered the actions of the Humberside controllers involved in this event. Controller members highlighted to the Board that this event took place in Class G airspace and, although the Approach controller had been acting as though the Embraer 145 pilot had been under the terms of a Deconfliction Service – and therefore had been attempting to maintain separation[4] from the pop-up traffic outside the ATZ – this would have been almost impossible to achieve with an ATZ of 2½NM radius and pop-up traffic within 2NM of the ATZ boundary. Furthermore, the Embraer pilot had, technically, still been in receipt of an Aerodrome Control Service from the Humberside Aerodrome controller. That said, the Board considered it entirely appropriate for the Approach controller – who had clearly been concerned by the proximity of the pop-up traffic on the Embraer's projected flightpath (**CF1**) – to have warned the Aerodrome controller of the pop-up traffic and request that Traffic Information be passed to the Embraer 145 pilot, albeit the Embraer pilot had already gained situational awareness on the traffic from their TCAS II equipment.

Turning to the actions of the Embraer 145 pilot, the Board quickly agreed that there was little that they could have done to prevent this Airprox, not having known about the traffic until during the take-off sequence. That said, members considered that the Embraer 145 pilot had gained generic situational awareness of the presence of the R22 through the Traffic Information passed to them by the Aerodrome controller and also from their TCAS II (**CF2**) and that the most appropriate course of action had been to continue on their planned departure clearance which had been turning them away from, and climbing them above, the R22.

The Board then considered the actions of the R22 pilot and noted that the helicopter operation had recently moved from being at Humberside airport to a private site south of the ATZ. Some members wondered if the Humberside controllers had been used to having full visibility of the helicopter's operation and that this new-found lack of transparency had led to them becoming more concerned by it's presence than that might otherwise have been the case. Some members considered that the

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging.
[4] CAP 774 – UK Flight Information Services, 3rd Edition, Ch 4, para 4.10.

helicopter pilot could have called Humberside shortly before lifting to provide a more accurate departure time, whilst others felt that this had not been necessary as the pop-up traffic on the Humberside Approach controller's radar could just as easily have been transitory traffic; some members also questioned whether the Embraer's release would have been dependant on that information or if the Embraer pilot's departure would have been tactically managed according to what was on the radar screen at the time. In the event, the Board considered that the actions of the R22 pilot had been entirely appropriate for VFR operations in Class G airspace and was heartened by the fact that the R22 pilot had planned to call Humberside at the earliest opportunity after lifting. This had led them to hearing of the departure of the Embraer on the radio, giving them sufficient situational awareness (**CF2**) to be able to sight the departing Embraer whilst it was still within the Humberside ATZ.

Finally, the Board considered the risk involved in this event. Members referred to the NATS radar recording which had shown that the minimum lateral separation between the 2 aircraft had been 2.1NM, with the Embraer within the Humberside ATZ and the R22 approximately ¾NM outside it. Coupled to this was a recorded vertical separation of 900ft, leading the Board to conclude that normal safety standards and parameters had pertained and that there had been no risk of collision. Accordingly, the Board assigned a Risk Category E to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021033			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• Expectation/Assumption	Events involving an individual or a crew/ team acting on the basis of expectation or assumptions of a situation that is different from the reality	Concerned by the proximity of the aircraft
	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 or only generic, Situational Awareness

Degree of Risk: E

Safety Barrier Assessment[5]

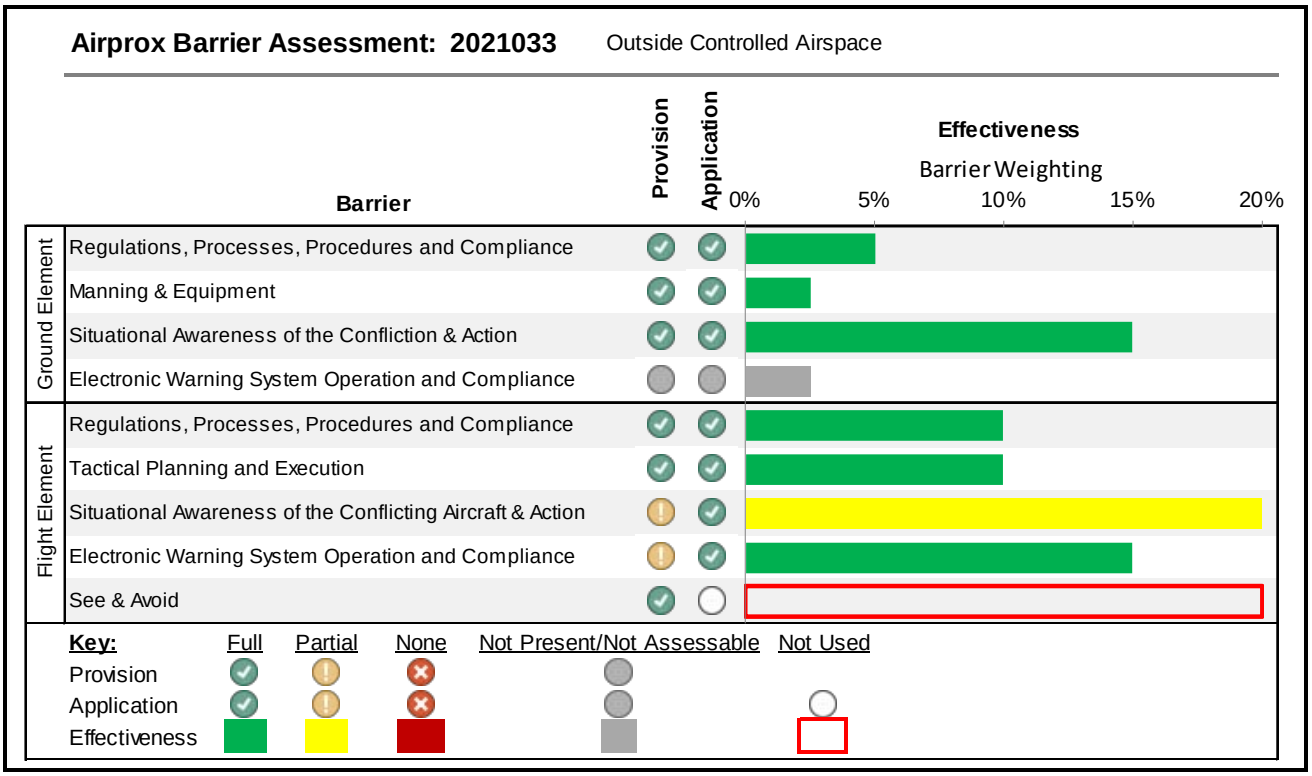
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the R22 pilot had gained generic situational awareness of the departing EMB145 from listening-out on the Humberside Approach frequency, and the EMB145 pilot received TCAS indications of the presence of the R22.

See and Avoid were assessed as **not used** because the barrier was not germane to this event.

[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: 2021033
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