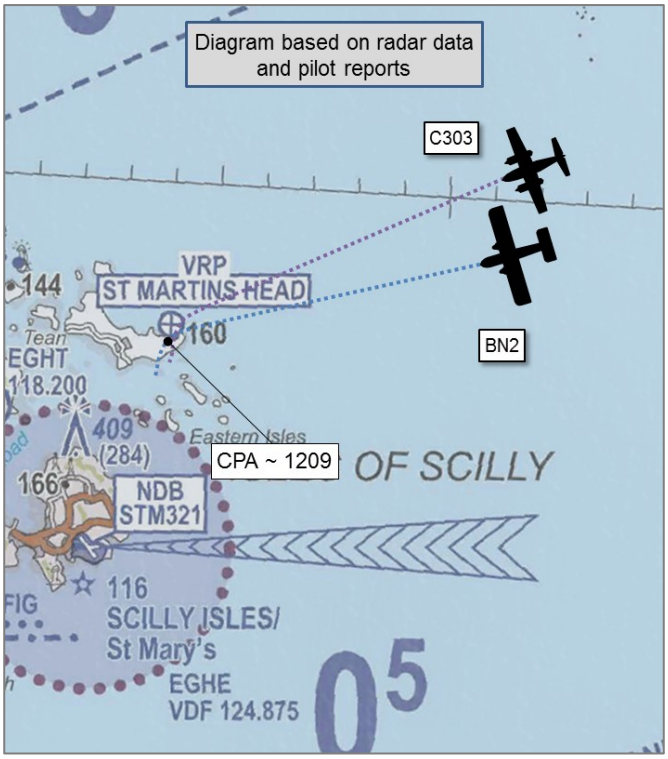
AIRPROX REPORT No 2016184

Date: 27 Aug 2016 Time: 1209Z Position: 4957N 00616W Location: St Mary's Airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	BN2	C303
Operator	CAT	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Scilly Isles	Scilly Isles
Transponder	A,C	A,S
Reported		
Colours	White	White/blue
Lighting	Nav, red strobe, landing	NK
Conditions	VMC	VMC
Visibility	>30km	NK
Altitude/FL	1000ft	1000ft
Altimeter	QNH (1014hPa)	QNH
Heading	240°	NK
Speed	120kt	NK
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/1nm H	NK
Recorded	NK	



THE BRITTEN NORMAN BN2 ISLANDER PILOT reports that from midpoint[1], 10nm to run to the Scilly Isles airport (St Mary's), he received a clearance to "join and report left-base runway 14". 1500ft was maintained until 5nm from the airport. When the C303 pilot subsequently reported 5nm to run to the Scilly Isles airport and was told to report at St Martins Head VRP, he estimated that it would have been approximately 2nm behind his aircraft. In his opinion, there was an excessive amount of radio calls between St Mary's ATC and the C303 pilot to determine what route he would fly around the islands. It was necessary to descend through the C303's level for the approach to RW14, but he was not visual with the traffic. He then saw the C303 in the 5 o'clock position, at the same level, not more than 1nm away; its flight path pointed straight at the BN2 with no deviation. This incident took place at or very close to the boundary of St Mary's ATZ. The approach to RW14 was continued while the C303 pilot followed the south coast of St Mary's at 1000ft crossing the take-off path of RW14. ATC instructed the BN2 pilot that "in case of a go-around do not climb above 500ft".

He assessed the risk of collision as 'Medium'.

THE CESSNA 303 CRUSADER PILOT reports that while en-route to Scilly to fly around the islands without landing the controller reported overtaking traffic on his left; he reported visual and the aircraft passed ahead. He was then asked to report at St Martins VRP. The runway in use was RW14. He had requested a flight around the islands and had expected a counter-clockwise direction due to his current position. He was instructed, however, to fly towards the airfield, keep east of it and then proceed in a clockwise direction. As he was commencing his left-hand turn to proceed over the airfield he could see the BN2 to his right, positioning for a left turn onto final for RW14. He estimated the aircraft to be several hundred meters away, not unduly close or presenting a risk of collision.

He assessed the risk of collision as 'None'.

[1] Midpoint refers to the middle point of the Lands End Transit Corridor that extends from Lands End to the Scilly Isles.

THE ST MARY'S AERODROME/APPROACH CONTROLLER reports that the BN2 and C303 pilots were initially working Lands End and that the order of control and traffic had been given to these flights by Lands End. The BN2 pilot had been handed over by Lands End and was ahead of the C303. The BN2 had already passed Point C (10 DME from the LND) at altitude 1500ft when the C303 pilot was handed over to St Mary's Approach by Lands End (this is always done at point C). The C303 pilot reported that he was at altitude 2000ft and was given the airfield details. The C303 pilot was asked what his intention was for his flight and he replied to fly around the island. He requested descent to 1000ft but was told that due to traffic he was unable to do so (after looking at the situation further he was given descent to 1500ft). The BN2 pilot then reported at midpoint (17 DME from LND) and was instructed to join left base RW14; it was expected that the pilots of these aircraft do not start their decent until they are 25 DME from the LND unless otherwise requested by them. The C303 pilot was asked to report 10nm to run to the islands, of which he replied they were 10nm from the Island. This seemed awfully quick and he was asked what direction he wished to go around the islands. At first he did not understand what he had said but he believed that he heard the words counter-clockwise which he believed was an American term meaning anti-clockwise. Being unsure of what he had heard he said "So you wish to route overhead St Mary's". The C303 pilot's reply was he could if he wanted. After a short discussion, the controller found out he wanted to go anti-clockwise around the island, north of Tresco Island. The C303 pilot was asked to report 5nm to run to the Island and given decent to altitude 1000ft, this was with the thought in mind that on reaching 5nm to run the C303 pilot would go to St Martins VRP, therefore proceeding in a different direction to the BN2 pilot's heading, making a larger distance between both aircraft. Although it was Class G uncontrolled airspace and controllers at St Mary's do not separate VFR from VFR traffic whilst providing a Basic Service, the C303 pilot's descent to 1000ft, he considered, would provide some sort of distance between the C303 and the BN2 from a duty of care aspect. This could be achieved knowing that the BN2 pilot should not start to descend until at least 25 DME. When the C303 pilot reached 5nm to run the added distance in direction would also be applied. The C303 pilot reported level at 1000 ft within one minute of being asked to. A little time later the C303 pilot reported at 5nm to run to the Island and was instructed to report at St Martins VRP which is situated outside St Mary's ATZ. The C303 pilot reported at the 'Day Marker' (St Martins VRP) and the controller again checked his routing. He now said he wanted to route south-bound and then go to St Agnes (St Agnes is south-west of the airfield, if he had gone north of Tresco this would have seen him clear of the ATZ). He looked at St Martins VRP and the C303 was overhead it. At the same time he could see the BN2 turning onto final approach RW14. He had both aircraft in sight and there was adequate distance between them (the VRP is approximately 5.9km from the Visual Control Room, this put the C303 approximately a further 1.1nm away from the ATZ). The C303 pilot was given instruction to route south-bound to remain east of RW14 and he was given Traffic Information about the traffic turning final. The C303 pilot read back the instructions and reported that he had the final-traffic in sight. He joined the upwind position of RW14 (backtracking the downwind leg). The BN2 pilot was cleared to land RW14 and read back the instruction. He considered that there was no reason to doubt that a normal landing would have been achieved but he instructed the BN2 pilot that in the event of a go-around to climb not above 500ft (although the non-IFR visual manoeuvring to the south of RW27/09 is 500ft on the approach plates) against the 1000ft of the C303. At this point no Traffic Information was given to the BN2 pilot as he was on short final and would have enough to think about to initiate a normal landing. Looking at this situation he felt that the aircraft were never in any danger of collision (in his opinion the closest they could have been was that of an aircraft on final and one joining on a base leg). However, with hindsight, he could have kept the C303 at 2000ft and that would have solved any issues with other aircraft and allowed time to find out what the pilot really wanted to do. Although the order of control had been given to all pilots concerned by Lands End, further Traffic Information in some aspects may have helped the overall situation. Finally, being unsure what the C303 pilot wanted to do he could have told him what he required or held him off until the area was clear for him to enter the ATZ.

He assessed the risk of collision as 'None'.

Factual Background

The weather at St Mary's airport was recorded as follows:

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EGHE 271150Z 14007KT CAVOK 19/16 Q1014=
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Analysis and Investigation

CAA ATSI

ATSI had access to a report from both the BN2 and C303 pilots, the Scillies Approach controller and the St Mary's local investigation report. Limitations of area surveillance coverage precluded the use of recorded Swanwick MRT data for the investigation of this Airprox, however, the Newquay Airport Approach Radar recordings were obtained and analysed. One screenshot taken from Newquay's radar is included in this report. Levels indicated are altitudes. All times UTC.

At 1200:52, the BN2 pilot contacted Scillies Approach, the recorded speech transcript relating to this transmission contained some unintelligible data. It would appear however that on first contact with the Scillies Approach controller the BN2 pilot was in the descent to 1500ft. A Basic Service was agreed, and the Scillies Approach controller passed Traffic Information to the pilot on a departing Twin Otter which was climbing to FL050.

At 1203:06, the C303 pilot contacted Scillies Approach, a Basic Service was agreed and the Scillies Approach controller requested his intentions. In response to this the C303 pilot said that they would like *"a couple orbits of the islands"* prior to returning to Newquay. The Scillies Approach controller acknowledged this information and requested that the C303 pilot report with 10nm to run to the islands. The C303 pilot then enquired as to whether they could descend to 1000ft. The Scillies Approach controller refused this request citing *"opposite direction traffic shortly to depart".* The C303 pilot acknowledged this information and reported their level as 2000ft. The Scillies Approach controller then approved a descent to *"one thousand five hundred if you wish at the moment".* The C303 pilot then read back the new level and the Approach controller instructed him to *"report reaching".*

At 1204:26, the BN2 pilot reported passing *"the Midpoint"*. The Scillies Approach controller then cleared the BN2 pilot to join on a left-base for RW14 at St Mary's and reported that he was *"shortly to become number one".*

At 1205:17, the C303 pilot reported maintaining 1500ft, the Scillies Approach controller acknowledged this and once again requested that he report with 10nm to run. The C303 pilot then reported at 10nm. In response, the Approach controller requested another report with 5nm to run.

Between 1205:48 and 1206:31, the following R/T exchanges were recorded between the C303 pilot and the Scillies Approach controller:

C303 - *"Scillies Approach er [C303 C/S] are we okay to do a sort of counter clockwise around the islands out behind Tresco?"*

APP - *"Yeah I've got no problem with that and er at the moment so you'll be routeing over St Mary's initially yeah?"*

C303 – *"Er that's absolutely right we'll head over St Mary's [C303 C/S]".*

APP – *"This er clockwise will be er over St Mary's which way do you wanna go anti-clockwise?"*

C303 – *"Er we- yeah anti-clockwise to begin".*

APP – *"Okay in that case report over St Martin's VRP".*

C303 – *"Report St Martin's VRP [C303 C/S]".*

APP – *"[C303 C/S] and you may descend to altitude one thousand feet".*

C303 – *"Descending to one thousand [C303 C/S]".*

At 1207:08, the C303 pilot reported to Scillies Approach that they were maintaining one thousand feet.

At 1207:39, the C303 pilot reported to Scillies Approach that they had 5nm to run. The Scillies Approach controller then instructed the pilot once again to report at St Martin's VRP which was acknowledged.

Figure 1 shows the position of the two subject aircraft according to the recorded Newquay Radar recordings at 1208:03 immediately prior to the C303 fading from coverage. At this time the C303 was astern of the BN2 on the BN2's right-hand side. The measured lateral and vertical distance at this time was 0.73nm and 500ft.

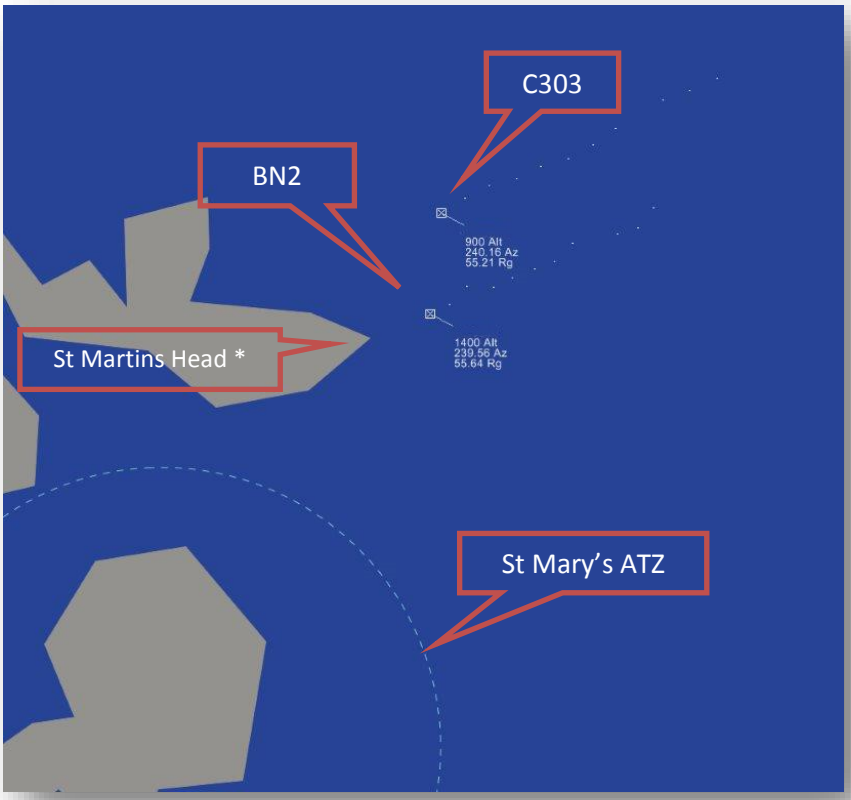


Figure 1 Newquay Radar at 1208:03.
*For illustrative purposes the approximate position of St Martins Head VRP.

Between 1208:34 and 1209:23, the following R/T exchanges were recorded between the C303 and the BN2 pilots and the Scillies Approach controller:

C303 – *"[C303 C/S] just passed the (unintelligible word).*

APP – *"[C303 C/S] roger and what'll be your routeing now?"*

C303 – *"Well if we if we head out er south of the airfield and then er out around er St Agnes and back out round Tresco then we'll er decide then".*

APP – *"Okay so north of the airfield first of all and then round to St Agnes yeah?"*

C303 – *"Okay we were gonna go south but er you like us to go north?"*

APP – *"Okay if go to the south now then I do have one traffic at the moment er it's just about to go onto final runway 14 so if you want to er actually route south now remain to the east of runway 14 initially".*

C303 – *"Remain to the east and then er we'll and then er south of the airfield and we're visual with the traffic [C303 C/S]".*

At 1209:24, the Scillies Approach controller cleared the BN2 pilot to land on RW14 at St Mary's. After the BN2 pilot read back the landing clearance the Scillies Approach controller instructed him that in the event of having to execute a missed approach that they should climb not above 500ft. This instruction was initially misheard by the BN2 pilot causing the Scillies Approach controller to pass the instruction again, however, it was then acknowledged by the BN2 pilot.

At 1209:59, the Scillies Approach controller transmitted the following to the C303 pilot: *"…you may at any time now route across the er final approach track and not below one thousand feet".* The C303 pilot acknowledged this and reported that *"…we're approaching that now".*

It was not possible to calculate CPA due to both subject aircraft being below surveillance coverage when the Airprox occurred. The reporting (BN2) pilot described the minimum horizontal and vertical distance as being 1nm and 0ft.

St Mary's Airport and its associated Aerodrome Traffic Zone (Figure 2) are situated solely within Class G (uncontrolled) airspace. The ATZ is a circle, 2nm radius centred on the longest notified runway (14/32).

Figure 2 – St Mary's ATZ (1:500,000 Aeronautical Chart).

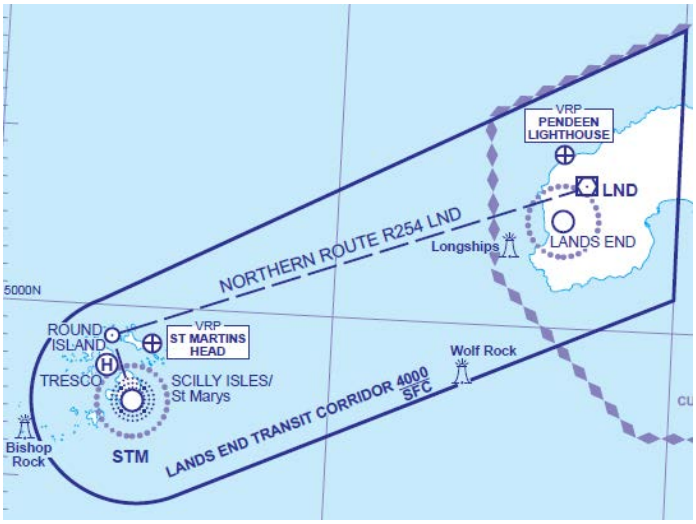


Figure 3 – UK AIP AD 2-EGHE-3-1.

Over 90% of St Mary's traffic are Public Transport flights, the frequency of these flights vary depending on the season but at its peak there can be up to 120 flights per day[2]. They generally operate below 4000ft in a corridor linking Lands End to St Mary's known as the Lands End Transit Corridor (LETC) (Figure 3).

The LETC is approximately 15.5nm wide at its widest point by 40nm long, and its published vertical limits are from the surface to 4000ft. The LETC is situated entirely within Class G (uncontrolled) airspace. Local operators will, when operating VFR in the LETC, use the co-located 'LND' VOR/DME to make the following position reports which are based on a DME arc: (1) CHARLIE – 10 DME southwest 'LND' (2) MID-POINT – 17 DME southwest 'LND' and (3) 25 DME – southwest LND or Eastern Isles.

In order to enhance the level of safety within the confines of the LETC, it was agreed some time ago with the CAA that St Mary's ATC would provide a higher level of Basic Service to participating aircraft than is stipulated within the CAP 774. Generally speaking, Traffic Information is routinely provided to all flights within the LETC which are in receipt of a Basic Service to ensure sufficient situational awareness for all Public Transport and other aircraft operators. It was also agreed with the CAA that, where appropriate, participating flights within the LETC are segregated.

[2] Figures published on web site scilly.gov.uk (Air Traffic Control).

There is an existing Letter of Agreement (LoA) between St Mary's and Lands End ATC, and the scheduled passenger service operator which links the Isles of Scilly to the mainland. Paragraph 5 of the LoA sets out how an expeditious flow of traffic, consistent with safety, is achieved within the LETC. The document states that *"Whenever possible, Land's End and St Mary's ATC will allocate the following levels to participating VFR flights: (i) Land's End to St Mary's flights – generally flown at altitude 1500ft. (ii) St Mary's to Land's End flights – generally flown at altitude 1000ft. (iii) transit flights – generally at altitude 2000ft and above until able to descend".* The LoA states that *"all Scheduled Public Transport flights within the LETC will be conducted under VFR unless precluded by meteorological conditions".*

For traffic in receipt of a Basic Service, agreements may be entered into between Scillies ATC and pilots in respect of their routeing and/or other specific courses of action. Prior Permission is required for General Aviation (GA) flights visiting St Mary's. Part of the general flight procedures within the LETC require that GA VFR traffic will be routed via St Martins Head VRP. The ATSU at St Mary's is not equipped with any surveillance equipment but the unit is able to provide a Procedural Service. At the time of the Airprox, the Scillies Approach controller was fulfilling the duties of Aerodrome and Approach controller combined.

After the Scillies Approach controller first agreed a Basic Service with the C303 pilot, he requested a descent to 1000ft. The Scillies Approach controller denied this request due to departing traffic which was about to depart from St Mary's. At this time, the C303 was in excess of 10nm from St Mary's Airport and although being inside the LETC was still in Class G (uncontrolled) airspace. Shortly afterwards, the Scillies Approach controller then approved a descent to 1500ft. Under the terms of a Basic Service, and operating within Class G airspace, the C303 pilot was free to climb or descend at will, without informing ATC. Although the phraseology used by the controller did not include specific clearances to maintain altitude and then descend, these courses of action were implied and seemed to be delivered in the form of instructions. This may have led the C303 pilot to assume that the Scillies Approach controller was pro-actively de-conflicting them from other traffic.

In attempting to ascertain the routeing of the C303 around the islands, the Scillies Approach controller initially seemed to get confused between the words 'clockwise' and 'counter-clockwise'. The C303 was approaching St Mary's Airport from the north-east and the pilot's initial request was to fly a counter-clockwise route via the island of Tresco. Tresco is to the north-west of St Mary's and is situated outside the St Mary's ATZ. If the C303 had flown the route as the pilot had initially requested, the aircraft should have remained outside the ATZ and an agreement between the Scillies Approach controller and the C303 pilot to route to the north of St Martins Head would have ensured this. There followed a conversation between the Scillies Approach controller and the C303 pilot regarding whether a routeing via the St Mary's overhead was required. The C303 pilot in his written report commented that *"I had requested a flight around the islands and had expected a counter-clockwise direction due to my current position. I was instructed however to fly towards the airfield and keeping east of the airfield and then to proceed in a clockwise direction".* It would therefore appear that some confusion existed between the C303 pilot and the Scillies Approach controller and this may have led to the C303 routeing closer to St Mary's Airport than the pilot had originally intended. In the BN2 pilot's written report he stated that *"I then saw* (the C303) *in my 5 o'clock position, at the same level, not more than 1 mile away and his flight path was pointed straight at me with no deviation. This incident took place at or very close to the boundary of EGHE* [St Mary's] *ATZ".*

In the BN2 pilot's written report he described the flight rules that he was flying under at the time of the Airprox as *"controlled VFR"*. The term controlled VFR is only applicable within Class C airspace. The reporter went on to describe that the BN2 *"…had to descend through* (the C303's) *level for the approach to runway 14, but was not visual with the traffic".* Within Class G (uncontrolled) airspace and when in receipt of a Basic Service (notwithstanding the higher level of service that St Mary's ATC can provide) the BN2 pilot was responsible for his own collision avoidance.

Although not required to provide Traffic Information to aircraft under a 'core' Basic Service, the Scillies Approach controller passed generic Traffic Information to the C303 pilot about the BN2 when the BN2 was about to turn final for RW14 at St Mary's. As previously stated, St Mary's ATC routinely provide Traffic Information to participating flights operating under VFR within the confines of the LETC. The Traffic Information was provided at a relatively late stage and the C303 pilot subsequently reported being visual with the traffic. At this point, it would appear that the Scillies Approach controller became concerned regarding the proximity of the C303 to the BN2 hence the instruction to the BN2 pilot restricting his climb to not above 500ft in the event of a missed-approach. At no point was Traffic Information passed to the BN2 pilot on the C303.

Confusion existed between the Scillies Approach controller and the C303 pilot regarding the specific routeing the C303 pilot wished to fly around the Isles of Scilly, this may have caused the Scillies Approach controller's situational awareness to become degraded. The confusion was compounded by, at times, poor and non-standard R/T phraseology on the part of the Scillies Approach controller, which may have degraded the situational awareness of both the BN2 and the C303 pilots. Although generic Traffic Information was passed, it was at a late stage, and was only passed to the C303 pilot.

Although not directly contributable to the Airprox, during the initial handling of the C303, the Scillies Approach controller appeared to issue control instructions over and above those which would normally be expected of a controller providing a Basic Service. In providing a higher level of Basic Service, ATCOs at St Mary's routinely enter into agreements with participating aircraft within the confines of the LETC. In the case of this Airprox the Scillies Approach controller went beyond what can reasonably be described as an agreement in respect of the C303's vertical profile. CAP 774 – UK Flight Information Services[3] states that:

> *'Agreements can be established between a controller (not a FISO due to Limits of the licence) and a pilot on a short-term tactical basis, such that the operation of an aircraft is laterally or vertically restricted beyond the core terms of the Basic Service or Traffic Service. This is for the purposes of co-ordination and to facilitate the safe use of airspace, particularly those airspace users with more stringent deconfliction requirements. Agreements may be made which restrict aircraft to a specific level, level band, heading, route, or operating area.'*

After reviewing St Mary's Manual of Air Traffic Services Part 2 it was noted that the terms of the higher level of Basic Service applied at St Mary's are not adequately referenced. Whilst the procedures utilised at St Mary's attempt to segregate VFR traffic within what is both, fundamentally, an uncontrolled and, at times, high traffic density environment, the lack of guidance provided to both ATCOs and participating pilots regarding local procedures may cause the boundaries of available Air Traffic Services to become confused. Notwithstanding ATCOs 'duty of care' responsibilities, and any action that ATCOs may take in respect of aircraft in emergency situations, at the present time there is no provision within the CAP 774 – UK Flight Information Services for routinely enhancing the core Basic Service.

The Scillies Approach controller, in attempting to further deconflict the BN2 from the C303 in the event of a possible missed approach, issued what was potentially an unsafe altitude restriction in respect of off-airfield obstructions within the missed approach paths.

The BN2 and the C303 were in receipt of a Basic Service in Class G (uncontrolled) airspace and were therefore equally responsible for collision avoidance. The Basic Service relies on the pilot avoiding other traffic, unaided by controllers/FISOs. It is essential that a pilot receiving this ATS remains alert to the fact that, unlike a Traffic Service and a Deconfliction Service, the provider of a Basic Service is not required to monitor the flight.

The 'Lessons Learned' from this occurrence have been incorporated into the Scillies ATC Unit Training Plan. The ATSU issued a Supplementary Instruction (SI) (2017/001) on the 1st January

[3] Paragraph 1.7.

2017 relating to new procedures and guidelines for VFR operations around the Isles of Scilly. This SI also addressed the issue of missed approaches, specifically stating that aircraft shall not be altitude restricted below 1000ft QNH due to the off-airfield obstructions within the missed approach paths.

Notwithstanding the unit actions already carried out by the ATSU, ATSI recommended that a wider review of local procedures, relating to the handling of VFR traffic in receipt of the Basic Service, be carried out with a view to improving the published guidance to both ATCOs and participating pilots. The review shall clearly define what enhancements over and above the core Basic Service are provided at St Mary's, what the rationale is for doing so, and will set out what ATCOs and pilots are responsible for under the terms of the service. The output of this review shall be incorporated into the St Mary's MATS Part. 2 and all other relevant local documentation including the LoA relating to the LETC.

ATSI also recommended that the information promulgated in the UK AIP, on the relevant aeronautical charts and in the PPR information on the St Mary's Airport website, reflects the above review, in order to give clear guidance to pilots operating within the LETC as to their responsibilities for both collision and terrain avoidance when in receipt of a Basic Service.

UKAB Secretariat

The BN2 and C303 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[4]. 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[5].

Summary

An Airprox was reported when a BN2 and a C303 flew into proximity at 1209 on Saturday 27th August 2016. Both pilots were operating under VFR in VMC and in receipt of a Basic Service from St Mary's. Traffic information was issued to the C303 and both pilots had the other aircraft in sight.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the St Mary's controller, radar recordings and reports from the appropriate ATC and operating authorities.

The Board first discussed the fact that both pilots were operating under VFR in VMC outside CAS, albeit within the Lands End Transit Corridor (LETC). Members were informed that within this corridor, St Mary's ATC provides a higher level of Basic Service to participating aircraft than is stipulated in CAP 774 (UK Flight Information Services); additionally, participating flights can be segregated within the LETC. The ATSU had reported that these LETC procedures had been agreed with the CAA some time ago but the ATSI representative observed that there was no evidence available to support this statement. Neither was there any precedent in CAP 774 for routinely enhancing the core Basic Service, and the terms of this higher level of Basic Service were not adequately referenced in the local MATS Part 2. The ATSI representative also informed the Board that St Mary's controllers routinely provide Traffic Information to all flights in the LETC which are in receipt of a Basic Service.

Turning to the actions of the St Mary's controller, members noted that the BN2 pilot had called first, after transfer from Lands End, reporting descending to 1500ft. This was in accordance with the Letter of Agreement between St Mary's, Lands End and the commercial operator, where westbound flights generally operate at 1500ft and eastbound at 1000ft. A Basic Service was agreed with the pilot. Shortly afterwards, the C303 pilot contacted St Mary's, enroute to St Martins VRP and a Basic Service was agreed. The pilot requested to descend from 2000ft to 1000ft but the controller initially

[4] SERA.3205 Proximity.
[5] SERA.3225 Operation on and in the Vicinity of an Aerodrome.

refused this request because of outbound traffic; subsequently approving descents to 1500ft and then 1000ft. Board members considered that it was not appropriate for a controller providing a Basic Service to refuse a descent clearance requested by a pilot, albeit they understood his intention to introduce a form of procedural separation with the outbound traffic. The Board also noted that it was apparent that some confusion then arose regarding the C303's intentions for routing around the Scilly Isles. The pilot requested to route anti-clockwise but the controller asked if he would be routeing over St Mary's airport. In the end, the C303 pilot was routed to the south to remain east of RW14. The Board considered that, together with the descent restrictions in the LETC, this routeing clearance had resulted in the controller 'over-controlling' the C303, which might have led to a false sense of control by the C303 pilot. The Board considered that confusion had been caused at least in part by over-controlling under a Basic Service, and this was considered to be a contributory factor. Civil ATC members commented that it would have been more appropriate for the controller simply to have passed earlier Traffic Information to both pilots. They could then have used this information to assist them in carrying out their responsibility for collision avoidance in Class G airspace.

The Board noted that Traffic Information had not been issued to the BN2 pilot about the C303, but that he had formed his own mental picture of where the C303 was from the associated radio calls and position reports. Aware that the C303 was behind him and routeing to St Martins Head, the BN2 pilot was nevertheless surprised to see the C303 in his 5 o'clock, at the same level, less than 1nm away and pointing towards. The Board deduced that this occurred when the C303 pilot had turned to the south from St Martins Head and had proceeded to pass behind the BN2 without apparently seeing it. The Board wondered therefore if the C303 pilot had fully assimilated the relative position of the BN2 from listening to the R/T as they both transited along the LETC. The C303 pilot was eventually given late Traffic Information on the BN2 whilst it was turning onto final approach to RW14; although the C303 pilot subsequently reported the aircraft in sight, the Board opined that this visual contact was probably obtained after the aircraft had crossed tracks near to the St Martins Head VRP. This apparent non-sighting of the BN2 by the C303 pilot at CPA was also considered to be a contributory factor.

The Board then looked at the safety barriers that were relevant to this Airprox and decided that the following were key factors:

- **Airspace Design and Procedures** were considered to be **ineffective** because they were not fully published, either to the controllers, or to visiting pilots. As on this occasion, pilots could be confused about the type of service they were being provided with.

- **ATS Conflict Detection and Resolution** was assessed as **ineffective** because the controller did not pass timely Traffic Information to either pilot, which, in the absence of any radar information, was the only available method of assisting them in resolving the situation.

- **Flight Crew Situational Awareness** was assessed as being only **partially effective.** Although both pilots were generally aware of the other aircraft's presence because of the calls being made on the frequency, they did not know their specific routeing because they had not been advised of this by the controller. Additionally, following confusion instigated by the controller, the C303 pilot flew a route that unknowingly positioned him towards the BN2.

- **See and Avoid** was also only **partially effective** because the BN2 pilot saw the C303 late and the C303 pilot did not observe the BN2 until after CPA.

The Board then turned its attention to the cause and risk of the Airprox. The Board noted that the BN2 pilot had unexpectedly seen the C303 at the same level and pointed straight at him 'with no deviation'. He had calculated that the C303 had been further behind him and was therefore understandably concerned about its proximity. The Board agreed that although there had been no risk of a collision given the separation reported by the BN2 pilot, safety had been degraded because the C303 pilot had not seen the BN2 as they crossed. Accordingly, because the BN2 pilot had seen

the C303 as it was about to pass behind him and was able to continue to final approach without taking any avoiding action, the Airprox was assessed as risk Category C.

The Board was heartened to hear that ATSI had recommended that the St Mary's ATSU reviewed the local procedures with regard to the handling of VFR traffic, and that the results of the review would be published locally and within the relevant aeronautical publications.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The BN2 pilot was concerned by the proximity of the C303.

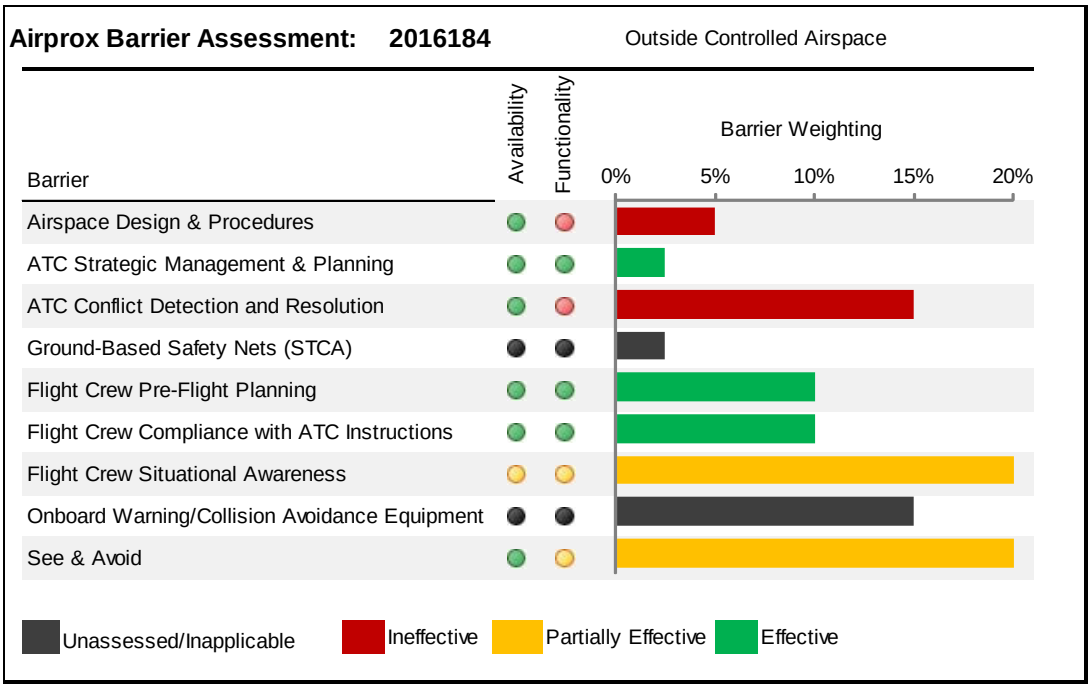
Contributory Factors: 1. The C303 pilots non-sighting of the BN2.

2. Confusion caused at least in part by over controlling under a Basic Service.

Degree of Risk: C.

Barrier Assessment[6]:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).[7] The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessable/Absent). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.



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

[7] Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.