

FINAL AIRSPACE CHANGE PROPOSAL: REMOVAL OF ILS/DME/NDB(L) APPROACH RUNWAY 21

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Amendments

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					Document Author	Accountable Manager
1.0		Initial issue	SATCO	MANS	SATCO	AD
2.0	02/02/24	Clarification of some points following CAA meeting.	SATCO	MANS	SATCO	AD

1.0 Preliminary Information

1.1 Airspace Change Reference

ACP-2023-084: Removal of INSTRUMENT APPROACH CHART ILS/DME/NDB(L) RWY 21 (CAT A,B,C).

1.2 Authorship and Revision History

This document has been produced by Cranfield Airport Operations Limited to address the airspace change proposal required for the removal of the ILS approach to runway 21 at Cranfield Airport. The initial issue document is issued as version 1, with subsequent amendments to update the version number as 1.1, 1.2, and so on. Changes will be detailed in the Amendments table.

A meeting was held with the CAA on 1st February 2024 to clarify some areas of the proposal as presented in version 1 of this document. Following that meeting, some amendments have been made in this version; these amendments are highlighted for ease of location.

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2.0 Introduction

This document has been produced by Cranfield Airport Operation Ltd (CAOL) to address the requirements of CAP1616 for the removal of the ILS approach to runway 21 at Cranfield Airport. This Final Airspace Change Proposal meets the requirements of CAP1616 and associated Appendices, to outline the reasons for the proposal and the various impacts of the removal of the ILS approach, including stakeholder feedback, changes to airspace design, and environmental assessment.

3.0 Executive Summary

3.1 The Drivers for Change

The failure of the glidepath to runway 21 has resulted in a requirement for total replacement of the equipment, which is beyond its intended operational lifespan. The Airport Authority has therefore concluded that it shall be removed from service and the associated ILS approach is to be withdrawn.

3.2 Statement of Need

Following flight calibration of the runway 21 ILS in June 2023, it was found that the glidepath was out of tolerance and it was removed from service. Following this, it was determined that the fault rendered the glidepath beyond economic repair and the Airport Authority made the decision to remove it from service permanently. Cranfield has RNP, NDB and Localiser approaches remaining to runway 21, in addition to RNP and NDB approaches to runway 03. The intention of Cranfield Airport is to keep the LOC/DME/NDB(L) approach to runway 21.

Removal of the ILS Approach is not inconsistent with the delivery of the airspace modernisation strategy.

3.3 Aims of the Proposal

The aim of this proposal is to demonstrate that the removal of the ILS approach to runway 21 at Cranfield has limited impact on the airspace design and operation and airspace users, whilst upholding the safety standards currently observed by the airport and ANSP. It will be shown that these aims will be achieved by the final design option being proposed.

3.4 Assumptions and Constraints

It was identified by the airport at the early stages of the proposal that the modernisation of aircraft systems at all levels of operators that utilise the airport facilities, has already seen a vast change in the type of instrument approaches which are undertaken. This will be discussed in more detail in Section 4.0.

The glidepath was initially promulgated as unserviceable via NOTAM, but it was identified that permanent ongoing declaration of an unserviceability via NOTAM is not in line with current ICAO SARPs, which recommends the length of NOTAMs does not exceed 90 days. Once the Airport Authority determined that the glidepath would not be replaced and the ILS approach would be withdrawn, a SUP was requested to align with best practise.

3.5 Summary Description of the Current Airspace and Operation

Cranfield Airport is a commercial and GA airport situated between Bedford and the City of Milton Keynes, which handles approximately 30,000 movements per annum. The airport operates in Class G airspace, which sits under controlled airspace- the LTMA- with the Luton CTA and CTR to the south-east.



Cranfield currently has NDB(L) and RNP approaches to both runways, and ILS and Localiser approaches to runway 21. There is a holding area which is based on the CIT NDB(L) 3.68NM north-east of the airport.

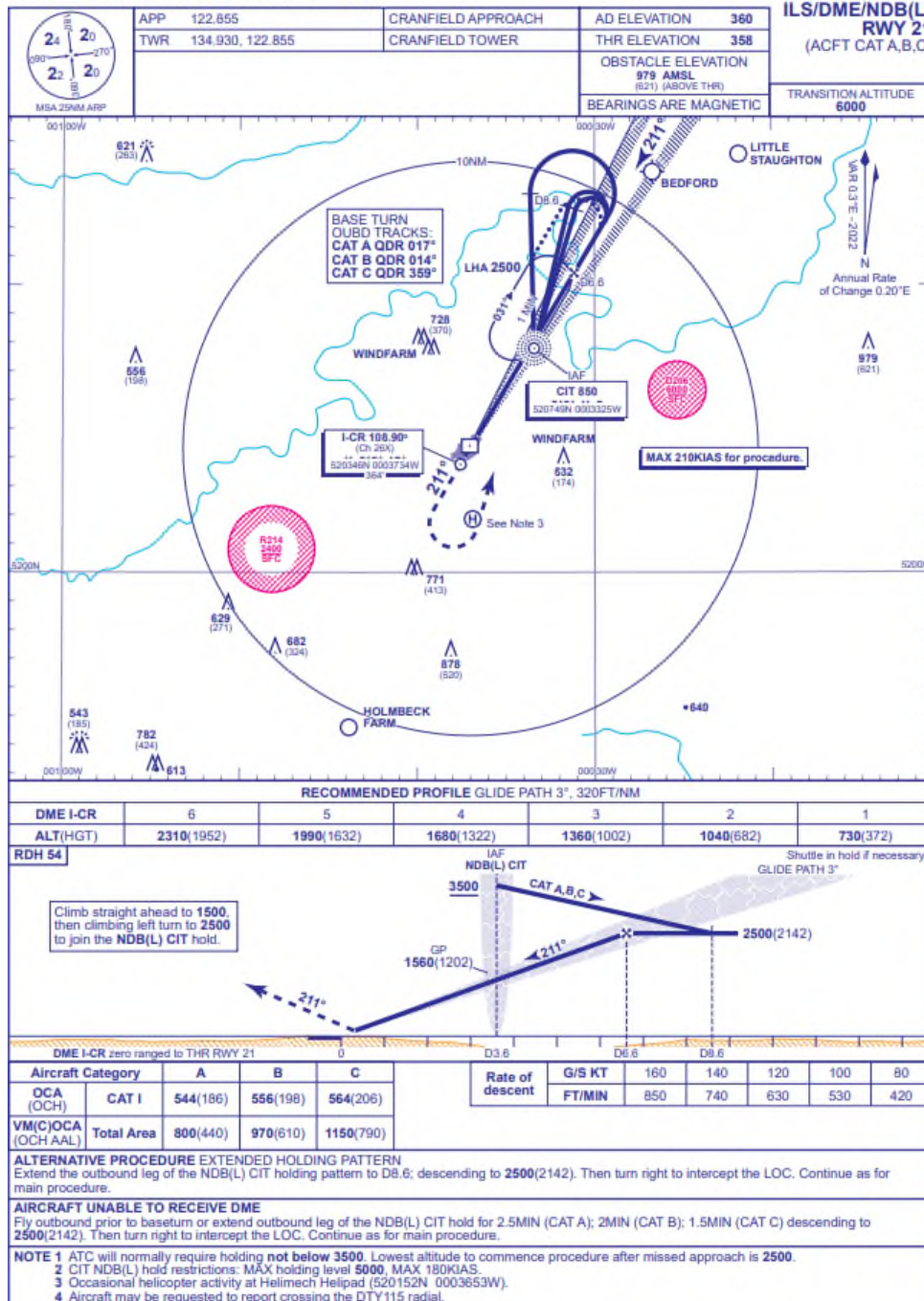
Cranfield has no surveillance provision, and therefore routinely provides a Procedural Service to aircraft departing IFR into the airways and aircraft using the instrument approaches for training or arrivals. It also provides a Basic Service to locally based aircraft in the local flying area and aircraft transits, which number between 6,000 and 7,000 per annum on average.

3.6 Summary Description of the Changes to Airspace Design and Operation

The removal of the ILS approach to runway 21 will result in the removal of the IFP chart which is promulgated in section AD 2-EGTC-8-3 of the UK Aeronautical Information Publication, and can be seen below:

INSTRUMENT APPROACH CHART - ICAO

CRANFIELD ILS/DME/NDB(L) RWY 21
(ACFT CAT A,B,C)



Although this specific procedure will be withdrawn, the LOC/DME/NDB(L) and NDB(L)/DME approaches to runway 21 have the same flight profile, and the RNP approach to runway 21 utilises the same final approach track. Therefore, it is anticipated that there will be limited change to the operation of the airspace to the north-east of the airport, and no change anticipated to the other airspace surrounding Cranfield.

3.7 Summary of Options Analysis

The table below illustrates a summary of how each option available to the Airport meets the mandatory design principles as laid out in CAP1616.

Design Principle/ Option	Purchase and installation of a new glidepath for runway 21	Continued withdrawal of the glidepath and associated ILS approach to runway 21 by NOTAM	Permanent withdrawal of the ILS approach via ACP
Safety	Meets the design principle of maintaining a high standard of safety.	Meets the design principle of maintaining a high standard of safety.	Meets the design principle of maintaining a high standard of safety.
Policy	Proposal is consistent with relevant legislation, CAA airspace modernization strategy, and Secretary of State policy and guidance.	Proposal is consistent with relevant legislation, CAA airspace modernization strategy, and Secretary of State policy and guidance.	Proposal is consistent with relevant legislation, CAA airspace modernization strategy, and Secretary of State policy and guidance.
Environment	All three options deliver the Government's key environmental objectives with respect to air navigation as set out in the Government's Air Navigation Guidance 2017, in that there are no anticipated impacts on noise, greenhouse gas emissions, local air quality, tranquility, or biodiversity.		
Economic	Would not contribute to economic growth, development and/or improved productivity amongst businesses, individuals, government or third sector organisations, whilst being financially unviable for the airport.	Does not contribute to economic growth, development and/or improved productivity amongst businesses, individuals, government or third sector organisations.	Does not contribute to economic growth, development and/or improved productivity amongst businesses, individuals, government or third sector organisations.

Purchase and installation of a new glidepath is not financially viable for Cranfield Airport at this time, although modernization of all airport systems does sit within the airport masterplan. However, with the intention of major works required under extant planning, replacement of the ILS system ahead of other projects would require further amendments to the ILS within a 3 to 5 year timescale.

Permanent removal of the glidepath and ILS approach via NOTAM is not in line with ICAO SARPs, and it is recognised that deviation from the published AIP entry could have a detrimental impact on safety.

Therefore, it is deemed by the airport that the safest option to undertake, which will have limited impact on airspace design and operation, is permanent removal of the ILS approach from the Cranfield AIP entry.

3.8 Summary of Engagement and Consultation

Airport Operators were consulted by SATCO at the Airside Safety Committee, which took place on the 18th January 2024. Other regular operators were consulted by SATCO via email for feedback.

The summary of feedback is outlined below:

Operator 1:

Withdrawal of the ILS at Cranfield is one of those things that probably won't make that much difference on a routine basis, but when it does make a difference it will be material. There is a significant difference in the minima and the required RVR which, looking over our records, would have severely impacted us on occasion from our historic operations at the airport. This is especially relevant given the unfortunate (and unjustifiable, in our view) withdrawal of LPV approaches across the UK. From a safety perspective, withdrawal of the ILS and the aforementioned increases in minima and required RVR are likely to increase the risk of go-arounds, diversions, more complicated fuel planning scenarios etc.

Operator 2:

I think it will have an occasional operational impact for us on days when the weather is below the current RNP procedural minima, but better than the minima required to land from an ILS approach. This will cause weather diversions which may not have been the case with the ILS still in operation. A weather diversion to [another airport] costs our aircraft owners around £4000 in the Phenom 300 allowing for flight time, parking, fuel, landing and handling fees and extra crew days and transport. I don't anticipate a safety impact as we would operate to the higher minima requirements of the approach being flown.

No other feedback was received.

The Airport Authority and ANSP acknowledge there may be an increased risk of go arounds and diversions due to poor weather if the ILS approach is removed, as the minima is approx. 130ft lower than that on the RNP approach. However, given the statistics outlined in 4.2, these are expected to be small in number and do not bring an increased risk to the operation, thus does not offset the economic unviability of replacing the glidepath. The Airport Authority response to operators via email was as below:

We have, of course, taken your concerns on board during the decision making process but unfortunately it is not economically viable to replace this equipment when we will be in the position

of removing and replacing it again for the airport upgrade works in the near future. We have also taken into account, therefore, the environmental impact of making new equipment obsolete within such a short time frame. Interestingly, our evidence shows RNP approaches are not only now the statistical 'norm' for aircraft using Cranfield, but a more sustainable approach going in to the future.

3.9 Summary of Anticipated Impacts

The anticipated impacts can be summarised as follows:

- A slight decrease in training approaches conducted at Cranfield due to requirement for precision approaches during Instrument Rating Training
- An increase in the possibility of go arounds and diversions during poor weather conditions, which may increase ATCO workload

3.10 Assessment of criteria for the Secretary of State for Transport's Call-in Process

As per the CAP1616 process.

3.11 Timeline for implementation

Initial timescales agreed between the CAA and change sponsor were to target AIRAC cycle 6 for the change. This requires a change request submission by 15th March 2024, with an effective date of 13th June 2024. The Final Change Proposal is required to be submitted to the CAA 28 days prior to the change request submission.

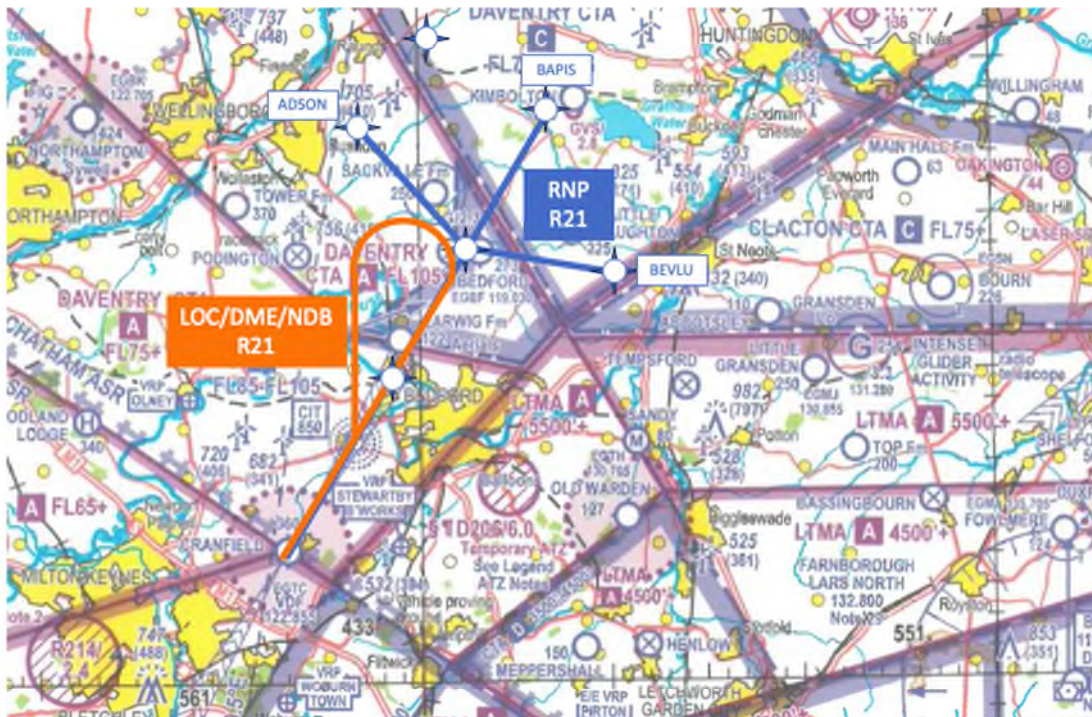
4.0 Detailed Description of the Proposal and Impacts

4.1 Detailed Description of the Current Airspace and Operations

Cranfield Airport has a 2NM radius Aerodrome Traffic Zone which is situated in Class G airspace and is capped by controlled airspace which is based at between 5500ft and Flight Level 105. To the east and south of the airport Luton Airport's Control Area and Control Zone, the base of which commences at 4500ft and reduces to the surface.



Cranfield has a holding area to the north-east of the airport, which is based on the CIT NDB(L) 3.68NM to the north-east of the airport. The airport currently has RNP, NDB, ILS and localizer approaches to runway 21, the approximate flight paths of which can be seen below:

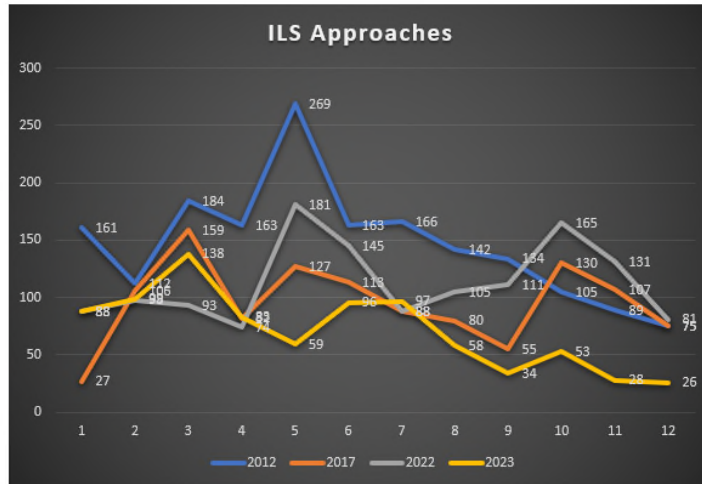


Cranfield Approach also provides a service to approximately 6-7,000 transit aircraft per year, which do not use the airport facilities. It should be noted that an unknown number of aircraft utilise the airspace who do not receive a service from Cranfield ATC, in accordance with normal Class G rules of the air.

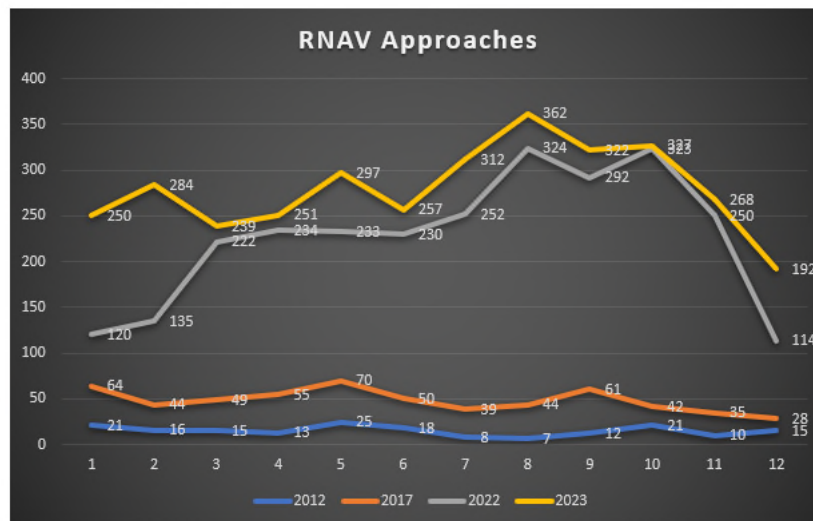
4.2 Detailed Description of the Changes to Airspace Design and Operation

The proposal to withdraw the ILS approach, whilst a technical change to airspace design, is not anticipated to have a measurable impact on the operation of the airspace due to the availability of other approach types at Cranfield, and specifically for runway 21: the intention is to keep the localizer, NDB and RNP approaches.

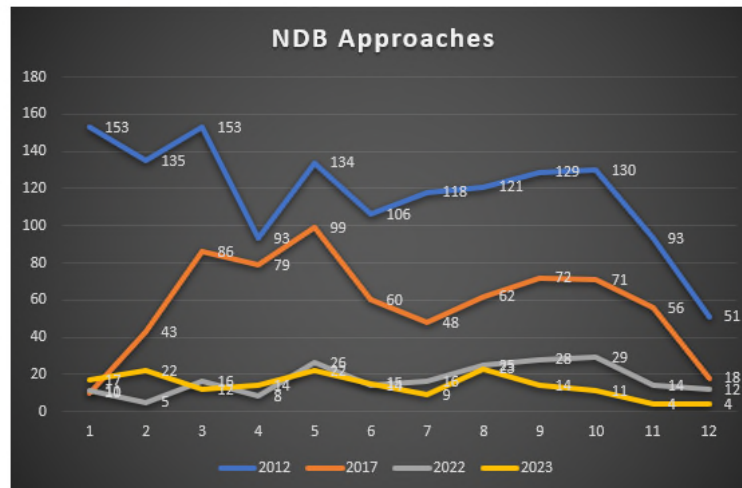
The data below shows instrument approach types utilised at Cranfield during 2012, 2017, 2022, and 2023.



	January	February	March	April	May	June	July	August	September	October	November	December	
2012	161	112	184	163	269	163	166	142	134	105	89	75	1763
2017	27	106	159	82	127	113	88	80	55	130	107	75	1149
2022	88	98	93	74	181	145	88	105	111	165	131	81	1360
2023	88	99	138	83	59	96	97	58	34	53	28	26	859
	1048	1006	1293	1144	1406	1178	1184	1123	1013	1194	1085	890	



	January	February	March	April	May	June	July	August	September	October	November	December	
2012	21	16	15	13	25	18	8	7	12	21	10	15	181
2017	64	44	49	55	70	50	39	44	61	42	35	28	581
2022	120	135	222	234	233	230	252	324	292	323	250	114	2729
2023	250	284	239	251	297	257	312	362	322	327	268	192	3361
	838	998	1116	1047	1131	1070	1244	1331	1289	1364	1144	657	



	January	February	March	April	May	June	July	August	September	October	November	December	
2012	153	135	153	93	134	106	118	121	129	130	93	51	1416
2017	10	43	86	79	99	60	48	62	72	71	56	18	704
2022	11	5	16	8	26	14	16	25	28	29	14	12	204
2023	17	22	12	14	22	15	9	23	14	11	4	4	167
	565	612	820	750	829	725	757	719	743	699	530	319	

It can be seen from the data that general movement numbers at Cranfield have increased since 2012 to the end of 2023. However, the most notable trend that can be seen from the data is the shift in the type of approaches being conducted away from the traditional ILS and NDB approaches to the newer RNP approaches. In 2012 ILS and RNP approaches constituted 52% and 5% of instrument approach movements respectively; by 2023, ILS and RNP approaches constituted 20% and 77%.

It can also be seen that there is a noticeable decrease in the number of ILS approaches conducted since June 2023, when the glidepath was removed from service- those counted as ILS approaches since that time are localiser only approaches. However, there is no real corresponding increase in RNP or NDB approaches which indicates that they are not being substituted, rather it is more likely that non-based training organisations are simply conducting ILS approaches elsewhere.

Given that it is recognised that operations in poor weather may be impacted, a review was conducted of movements during low visibility operations (LVO's), the results of which can be seen below:

Period	November 2022-June2023	July 2023-January 2024
Total movements	15340	13510
LVO (minutes)	5178	2686
Operating hours in LVOs (%)	3	2
Total Movements in LVOs	19	20
Movements in LVOs (% of total movements)	0.12	0.15
Departures	8	8
Arrivals	11	12

ILS Approaches	8	0
RNP Approaches	3	12
NDB Approaches	0	0

It can be seen from the data that the removal of the glidepath from operation use (June 2023) has not demonstrably impacted movement numbers during low visibility operations. This is likely due to the fact that the majority of traffic operating from Cranfield is for training and therefore does not operate at these minima.

4.3 Detailed Description of Anticipated Operational Impacts

In addition to those described above in Section 4.2, the following operational impacts have been considered by the airport:

- Poor weather operations
- Airspace/airport capacity
- Complexity and workload
- Flow of IFR traffic

These were considered in a safety assessment, where the risk score was determined as minor, mostly due to the type of traffic which utilises Cranfield and the current traffic numbers.

The airport and ANSP acknowledges stakeholder feedback regarding the possibility of increased go arounds and diversions in poor weather, and the associated costs and complexity to those operators. However, the number of movements Cranfield operates during poor weather and the negligible safety impact due to operator SOPs does not justify the cost of replacing the glidepath purely on that basis.

4.4 Supporting Infrastructure and Resilience

PAPIs are in place on runway 21, and there are no plans by the airport to remove them from service when the ILS approach is withdrawn. It is noted that in accordance with CAP168, Chapter 6 the PAPIs are only a requirement of a precision approach; however, they are considered to be operationally desirable for non-precision approaches and are utilised by flight crews during visual approaches.

4.5 Regulations, Policies and Harmonisation

The Cranfield Airport ATS Inspector (Ops) was consulted regarding the process, specifically with oversight of the change management process, which included safety assessment by the ANS department.

4.6 Safety

A safety assessment was conducted by the ANSP to consider all hazards and associated risks with the removal of the ILS approach. These included:

- Continued use of PAPIs on runway 21
- ATCO workload
- Promulgation of information

There was found to be no detrimental impact on the safety of the operation.

4.7 Environmental Assessment

The Habitats Regulations Assessment – Early Screening Criteria was undertaken by the Airport, with the following results:

1. Are there any changes to air traffic patterns or number of movements expected below 3,000 feet due to the airspace change proposal? **Yes**
2. (A) Are there any European sites within a radius of 18 km of each runway end? **No**
(B) Are any European sites identified in Q2A overflown (i.e. plane passing directly overhead or within 2,655 feet of the boundary of a European site at 3,000 feet or below) by proposed flight routes? **No**

In accordance with CAP1616i, no further screening is required.

There are no anticipated impacts on any of the following:

- Noise
- Greenhouse gas emissions
- Local air quality
- Tranquility
- Biodiversity

4.8 Final Options Appraisal

Purchase and installation of a new glidepath is not financially viable for Cranfield Airport at this time, although modernization of all airport systems does sit within the airport masterplan. It can be seen that this is not expected to have an impact on airspace users or safety, and that the permanent withdrawal of the ILS approach meets the mandatory design principles of safety, policy and environment.

4.9 List of Supplementary Documents

Safety Assessment ATC-RA-TMP-29
Assessment Meeting Minutes

5.0 Summary

The removal of the glidepath and the associated ILS approach is the safest option for the airport in terms of promulgated information in the long term, in that the AIP should reflect the availability of airport facilities; albeit a SUP has been released in the interim. The effect on airspace usage and other airspace users is likely to be negligible and the safety impact of the change has been rated as low risk.