



Temporary airspace change proposal – Cranfield National Beyond visual line of sight Experimentation Corridor (NBEC)

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NBEC* ACP+ - Briefing Session Agenda

1. Introduction - Temporary Airspace Change Proposal
 - Targeted Engagement Process underway
2. Explain the Purpose and Aims of the NBEC
3. Describe what the NBEC actually is
4. Nature of flights
5. The type of Unmanned Aircraft to be used
- 6. Safety**
7. List of the key dates
8. Online Survey
9. How to make contact (if required beyond the Survey)
10. How feedback will be analysed and acted upon
11. Limited Q & A

*NBEC - National Beyond Visual Line of Sight Corridor

BVLOS - Beyond Visual Line of Sight

+ ACP - Airspace Change Proposal



NBEC ACP - Introduction

1. This is a Briefing Session being conducted as part of an Airspace Change Proposal (ACP) being applied for by Cranfield University.
2. The purpose is to explain what the NBEC is to potentially affected parties (Airspace & Non-Airspace users), such that they can identify what / if any impact there is to them.
3. An online survey will be open for six weeks as a primary means to capture this feedback.
4. Post-survey analysis will be conducted to identify if any changes to the ACP are required, and to capture any other information relevant, such as to operating procedures.

NBEC - National Beyond Visual Line of Sight Corridor

BVLOS - Beyond Visual Line of Sight

ACP - Airspace Change Proposal



NBEC ACP - Purpose and Aims

To develop navigational and operational capability for operating unmanned aerial vehicles (UAVs) when Beyond Visual Line of Sight (BVLOS) of the remote pilot.

- Activity led by Cranfield University from its research airport
- With full support from Civilian Aviation Authority (CAA)
- To safely prove a Detect and Avoid system for UAVs
- **To help show how drones can safely integrate with existing aviation without segregation**
- Results will help inform the CAA on new technology and capability
- To help enable future services such as rapid low-cost aerial medical deliveries and to validate technology and procedures for such use-cases.



NBEC - National Beyond Visual Line of Sight Corridor

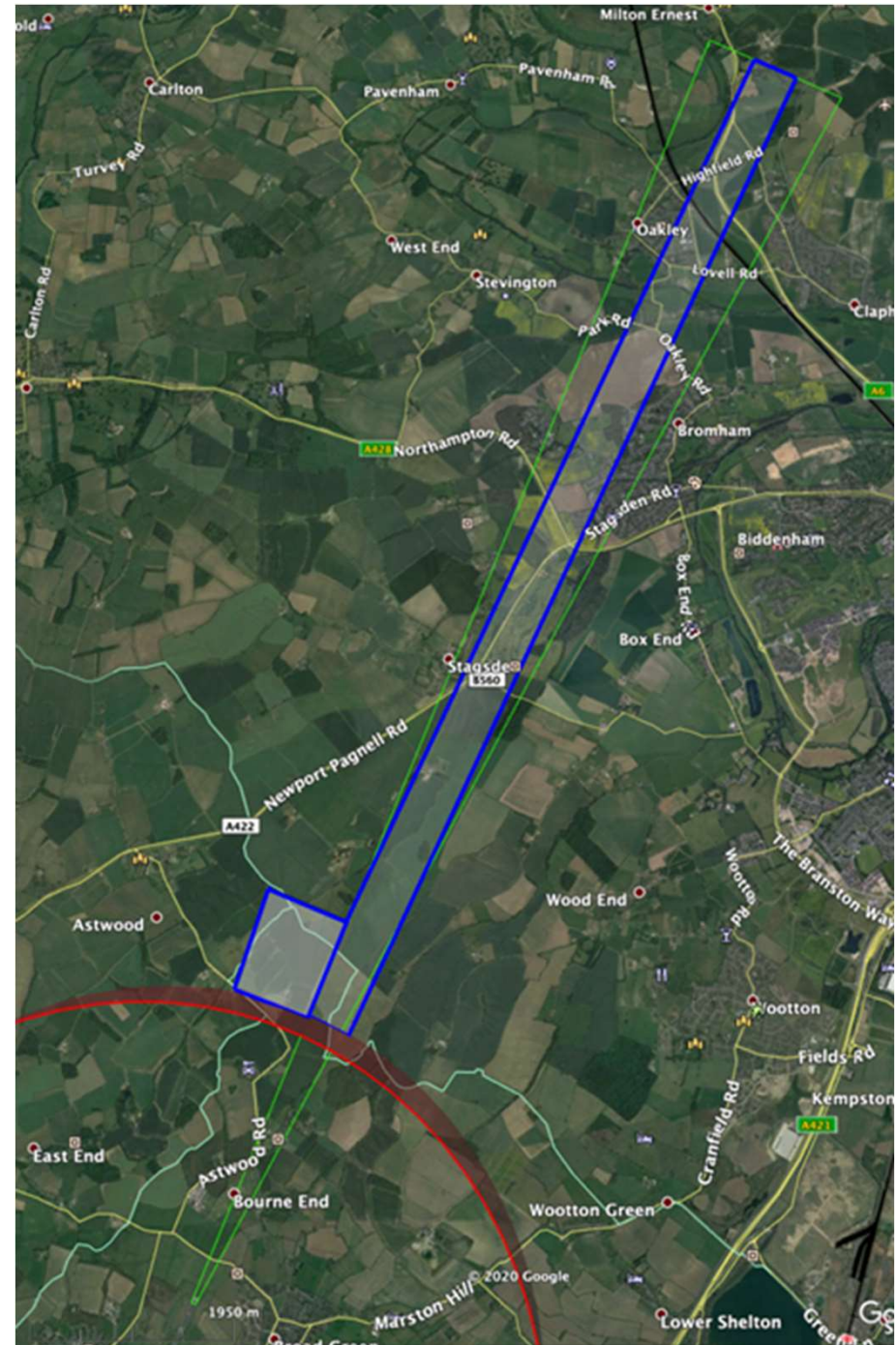
BVLOS - Beyond Visual Line of Sight

ACP - Airspace Change Proposal



NBEC - Description

- A corridor shaped volume of airspace (**Blue**) extending from Cranfield Airport's air traffic zone (**Red**) towards Oakley, Beds
- 16km long, 500 meters wide, 400 feet (120m) high
- Stub (**Blue**) to the South West for UAV holding purposes
- Located under existing airport approach lane (**Green**) and away from congested areas
- Solely for UAV flight - I.e. Segregated from all other airspace users in this area of open (Class G) airspace
- For a one-off temporary period of 90 days (proposed 1 July - 30 September 2021)
- UAV flights planned to normally be at the maximum height of 400 feet above ground level (AGL) – minimum height by exception rarely less than 200 feet





NBEC - Nature of the flights

- For research purposes – primarily related to testing ground and airborne based navigation and location technology and procedures
- Flights are not aimed at collecting visual images or video, and unmanned aircraft may not even carry cameras
- Not for repetitive commercial/logistics, or for military purposes
- Flights will take off and land from Cranfield Airport under the Airport's control
- Corridor will be used on a few occasions a week over the 90-day period, with no more than five flights per occasion expected. Flight durations expected to be 60-120 minutes.
- Operation at night is not planned



NBEC - What type of unmanned aircraft will be flying?

- Most, if not all unmanned aircraft will be of the fixed-wing (aeroplane) type
- Weighing less than 10 kilograms, with wingspans around 3 metres
- Electrically powered, flying at cruising speed of 30 mph and capable of following predefined flight plans
- Monitored real-time throughout by a qualified & experienced Remote Pilot
- Just visible to the naked eye and unlikely to be heard
- Electronic conspicuity (EC) fitted – transmits their position, height and speed to suitably equipped other (manned) aircraft and ATC units.





NBEC ACP - Safety

Safety is of paramount importance to Cranfield University and is the absolute priority

Defining a safe NBEC airspace and associated operational procedures involved the following:

Support from the Regulator

- This project is part of a CAA initiative and has been in planning with the CAA for more than 12 months
- Specific permissions are required for Airspace and Operations such as this, which will be in place

Integration with manned aviation

- Cranfield ATC has been fully involved in the definition and development of unmanned aircraft procedures including testing within the Cranfield Air Traffic Zone.
- All Unmanned aircraft will broadcast their location using systems that manned aviation can receive
- The NBEC has been located in an area already recognised by the General Aviation community to avoid
- Pilots with extensive manned aircraft flying experience have been fully involved throughout

Operational Competency

- Unmanned aircraft will be operated by qualified and experienced Remote Pilots
- Unmanned aircraft are maintained to very high standards
- Operational safety procedures are clear and adhered to

Community Consideration and Engagement

- The NBEC has been located in a rural area away from congested and built up areas
- Airspace and non-airspace users who could be affected have been identified and invited to comment
- Low-level airspace users have been focused on in establishing recipient list

Flights will not be conducted if there are any safety concerns (e.g., bad weather)



NBEC ACP - Key Dates

15 th January 2021	Briefing Invites sent to identified recipients Link to Briefing Sheet included
22 nd January 2021	Press Release posted on Cranfield University Website
29 th January 2021	Online Briefing Session - This session
w/c 1 st February 2021	Online survey opens
w/c 15 th March 2021	Online survey closes
w/c 22 nd March 2021	Analysis of survey feedback data
w/c 29 th March 2021	Engagement process Report Completed containing Results and Conclusions
1 st July 2021	Proposed start date of Airspace
30 th September 2021	Proposed end of temporary Airspace



NBEC ACP - Online Survey

- A simple to complete Online Survey has been developed by Cranfield's Decision Science research group to capture targeted feedback following this Briefing Session, and with reference to the published Briefing Sheet
- Primary means of capturing feedback - Welcome lots of responses!
- Cranfield University operates a strict Research Integrity Policy, and ethics approval for the survey and consultation activities has been granted from the University's Research Ethics Committee. Survey invitation will be sent to all identified parties
- Survey will be open for six weeks, and opens w/c 1st February 2021
- Feedback provided as required and summary report compiled



NBEC ACP - Online Survey Recipient list

Airspace4All
Airfield Operators Group (AOG)
Aircraft Owners and Pilots Association (AOPA)
Airspace Change Organising Group (ACOG)
Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)
Aviation Environment Federation (AEF)
British Balloon and Airship Club
British Business and General Aviation Association (BBGA)
British Gliding Association (BGA)
British Helicopter Association (BHA)
British Hang Gliding and Paragliding Association (BHPA)
British Microlight Aircraft Association (BMAA) / General Aviation Safety Council (GASCo)
British Model Flying Association (BMFA)
British Skydiving
Drone Major
General Aviation Alliance (GAA)
Helicopter Club of Great Britain (HCGB)
Light Aircraft Association (LAA)
Military Aviation Authority (MAA)
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)
NATS
NATS
Navy Command HQ
PPL/IR (Europe)
PPL/IR (Europe)
UK Flight Safety Committee (UKFSC)

Bedfordshire Police
Local Air Ambulance
Luton ATC
Cranfield ATC
All Cranfield's local Operators
Henlow Flying Club
Old Warden Aerodrome
Bedford Aerodrome
Tower Farm
Sackville Farm
Earwig Farm
Kimbolton Airfield
Cardington Danger Area (D206)
Northampton (Sywell) Aerodrome
Military low flying cell
National Police Air Service
Specialist Aviation Services
Babcock Mission Critical Service
PDG Helicopters
Helicentre
Heliair
Ground-based
Bedford Borough Council
Central Bedfordshire Council
Milton Keynes Council
Astwood and Hardmead Parish Council
Pavenham Parish Council
Cranfield Parish Council
Stagsden Parish Council
Oakley Parish Council
Stevington Parish Council



NBEC - Contact us

- Online survey: Link will be sent to all in earlier list early w/c/ 1st Feb
Please complete the survey if you have feedback
- Email: NBEC@cranfield.ac.uk





NBEC - Contact us

Questions?

Note that this session is primarily for Briefing and so there will be limited time for questions.

Please use the survey as a means to provide feedback.

Where this is not appropriate, please use the nbec@cranfield.ac.uk email address. Note this address will remain available throughout the overall process.