ACP-2023-075

TRIAL OF AN RNP APPROACH TO RUNWAY 03 AT BIGGIN HILL AIRPORT

Trial Plan

Change History	
Version	Date
V1.0	28 March 2024

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1 Introduction

1.1 Background

After a 10-year process, London Biggin Hill Airport's (LBHA) ACP[1] to implement a Required Navigation Performance (RNP) Approach (APCH) to RWY 03 (previously known as 'RNAV Approach') was unsuccessful owing to failing to satisfy the CAA's statutory duty to maintain a high standard of safety, as set out in CAP2500.

It was successful in all other aspects in that:

- The CAA was satisfied that the most efficient use of airspace would be secured were it safe to implement the proposal
- The CAA was content that the sponsor has considered the environmental requirements under CAP 725 and the Guidance on Environmental Objectives
- The CAA confirmed that the sponsor had looked to mitigate these risks to as low as reasonably practicable by, pending a successful outcome, offering to provide transponders for the gliders at Kenley, Traffic Collision Avoidance Systems (TCAS), Letters of Agreement (LoAs) with adjacent ANSPs, existing procedures, charting and notification, and introduction of Advanced use of the ATM
- The CAA confirmed that the sponsor had looked to mitigate environmental impacts where possible, including redesigning the proposed IAP, and has initiated LoAs with adjacent airfields such as Redhill and Kenley. Gatwick Airport was content that procedures are in place to cater for an aircraft incursion into their CTA should such a scenario occur
- The CAA was satisfied that the interests of other persons have been taken into account
- The CAA was content that the integrated operation of ATS has been facilitated
- The CAA accepted there are no impacts for national security.

However, the CAA's primary statutory duty is to maintain a high standard of safety in the provision of air traffic services, which takes priority over all other duties. In the respect of the Air Navigation Order (2016) Article 187(2)13 'the CAA must not notify or approve an instrument flight procedure unless it is satisfied that the procedure is safe for use by aircraft'. In this, CAP2500[2] explained that "the CAA safety concerns over the complexity and non-standard nature of the proposal, including a non-compliant intermediate segment, remain".

[1] The ACP was performed under CAP725 which has since been replaced by CAP1616.
[2] Para 111

1.2 Purpose of this trial

LBHA believe they have identified a new design solution which addresses many of the issues identified in Para 81 a-i of CAP2500. This includes addressing the non-compliant intermediate segment and reducing complexity of the IAP, including removal of the compliant Step-Down Fix (SDF).

The new procedure, however, requires Radius to Fix (RF) and there are no RNP APCH arrival procedures published in the UK which require RF capability so this would be a first-of-kind in the UK. In addition, the RF leg joins directly onto to the Final Approach Fix positioned just over 3nm from the runway threshold making it a very compact procedure, in terms of final approach and not "The norm for the UK[3]".

LBHA therefore wish to progress an Airspace Trial to test the innovative new design solution through several months of live flight trials in variable, real-life meteorological conditions. Through those extensive, real-life flight trials LBHA can test performance and capture evidence to be shared with industry to inform future Instrument Flight Procedure (IFP) and airspace design.

1.3 Purpose of this document

This document sets out the Trial Plan as required by CAP1616 Ed 4[4]. It contains a description of the airspace before and during the trial, the trial objectives informed through stakeholder engagement, the anticipated timelines for the trial, an overview of the procedures, the safety assessment including details of draft Letters of Agreements with various stakeholders, a record of stakeholder engagement with industry and a noise assessment which will be used by the CAA to determine which stakeholders need to be informed, if CAA grant permission for the trial.

This document, supporting appendices and IFP Submission package aim to provide CAA with the information required to make a 'decision in principle' on the trial. It is not considered proportionate to complete all implementation activities prior to a positive decision from the CAA. Should the CAA determine, in principle, the trial can proceed, the remaining safety assurance and trial initiation activities will be completed ahead of trial commencement.

These include the following activities identified throughout the trial preparation and safety assessment:

- Formal signature and acceptance of LoAs between LBHA and Redhill Aerodrome, RAF Kenley, NATS Gatwick Airport[5] and NATS Farnborough LARS. Drafts are supplied with this trial plan.
- Production of Temporary Operating Procedures for NATS TC Terminal Control and Biggin Hill ATC following their respective safety processes. This will also result in an amendment to the extant LoA between LBHA and NATS Swanwick.
- Completion of Training Needs Analysis (TNA) and subsequent submission and acceptance of ATC training plans for Biggin Hill ATC and NATS TC Terminal control.

[3] CAP2500 Para 81 a) "The norm in the UK for an RNP (Required Navigational Performance) IAP is a T-Bar, Y-BAR or straight-in runway aligned IAP, whereas this IAP is presented as a figure of eight."
[4] CAP1616G was published on 15th February 2024 by which point the majority of work associated with this trial plan had taken place and engagement with industry stakeholders was in motion. CAA confirmed that Edition 4 will apply to this trial.
[5] NATS Gatwick enquired whether Swanwick Terminal Control (TC) should also be signatory

- Ground Validation of the Instrument Flight Procedure. A proposed validation plan has been included with the IFP Submission Package.
- RWY 03 PAPIs adjusted to 3.0˚.
- RNP APCH nominal track added to EGKB's ATM.
- An AIP Supplement for the trial promulgated.
- Notification of the trial and associated noise impacts to relevant community groups.
- Investigation with CAA as to whether:
    - The trial IAP chart can be placed in AD2.24 as well as in the AIP Supplement. This will enable VFR chevron charts to be depicted on Electronic Flight Bags
    - A NOTAM can be promulgated by Biggin Hill and Redhill for a period of 6 months as to the presence of the trial IAP
    - Green Dragons Airsports members will be allowed to transmit their location on their Sky Echo 2s.

2 What the trial involves

2.1 The proposal

The proposal involves the trial of a Required Navigation Performance (RNP) Instrument Approach Procedure (IAP) to Runway 03 at Biggin Hill. The IAP is innovative as there are no RNP APCH arrival procedures published in the UK which require RF capability so this would be a first-of-kind in the UK. In addition, the RF leg joins directly onto to the Final Approach Fix positioned just over 3nm from the runway threshold making it a very compact procedure, in terms of final approach and not the norm for the UK[6].

In terms of the track flown over the ground (the lateral and vertical profile) and the interactions and dependencies with airspace users and adjacent Air Navigation Service Providers (ANSPs), it is very similar to that proposed under ACP-2013-08. This is for two reasons:

- Adjacent key stakeholders (NATS Terminal Control (TC), RAF Kenley, Redhill Aerodrome, London Heathrow Airport, London City Airport and London Gatwick Airport) as well as local community groups were all supportive of the design submitted within the ACP. Extensive operating procedures and Letters of Agreement between LBHA and these airports and ANSPs had been agreed in principle and the design had evolved to mitigate the safety hazards identified throughout the design process.

- The options are heavily constrained owing to the proximity of Biggin Hill's Runway 03 approach path to the Gatwick CTR/CTA[7], the requirement to avoid RAF Kenley's overhead and IFP design requirements.

The design proposed for this trial requires use of Radius-to-Fix (RF) capability which means not all aircraft arriving at Biggin Hill will be able to fly it. This means that some aircraft will still continue with a visual approach to Runway 03 but the more advanced business jets arriving via airways are likely to use the trial IAP, particularly during periods of lower cloud base which would prohibit a visual approach.

LBHA are not proposing any changes to airspace classifications or promulgated CAS boundaries to accommodate this trial.

CAP1616 Ed4 requires the sponsor of the trial to assess whether a non-operational trial, for example the use of simulators, might be more appropriate. As part of LBHA's previous ACP, the proposed IFP was tested in simulators to demonstrate acceptable flyability and pilot workload, but this was not accepted by CAA alongside their concerns with other aspects associated with the construction of the procedure and Class G operations, as set out in CAP2500. LBHA will be required to simulate flyability of the innovative RNP APCH+RF procedure ahead of the commencement of the trial however, this will not necessarily demonstrate such a procedure's suitability in Class G airspace, as per Objectives 2 and 3 below.

CAP670 states that an 'Operational Trial implements an 'unproven' (or partially proven) change to ATS technology or procedures or practices for the purpose of providing operational ATS.

[6] CAP2500 81 a) "The norm in the UK for an RNP (Required Navigational Performance) IAP is a T-Bar, Y-BAR or straight-in runway aligned IAP, whereas this IAP is presented as a figure of eight."

[7] An approach from Down-Wind-Right-Hand to Runway 03 is not possible owing to the existing dimensions of the Gatwick CTA.

Where trials or testing uses and contributes to the operational ATM function during the course of the trial or testing activity, then this trial shall be performed in accordance with the requirements detailed within (CAP670)….The term 'unproven' relates to airspace under UK jurisdiction. Technologies, practices and procedures in use elsewhere in the world are considered unproven in terms of utility within the UK's Air Traffic Management environment.'

Therefore, whilst use of Radius-to-Fix (RF) as part of an RNP APCH procedure is in use in other parts of the world, it is unproven in the UK, hence LBHA are requesting a live trial as per Objective 1 below.

2.2 Trial Objectives

LBHA have set themselves a number of objectives to achieve from the trial and the assessment of those objectives will enable the airport to understand if the trial has been successful. These objectives have been informed by engagement undertaken over the last 5 months of communications with industry stakeholders. Section 7 of this trial plan sets out the evidence that will be collected to understand the extent to which the objective has been met together with trial success criteria.

OBJECTIVE 1: Understand and analyse RNP flyby and RF leg Actual Navigation Performance on arriving traffic to a short final approach.

The trial will provide real-life data on the vertical and lateral actual navigation performance of aircraft flying the RNP APCH + RF procedure. We will be able to accurately assess the distances achieved between any aircraft operating within the Gatwick CTA Class D airspace and Biggin Hill RNP APCH + RF arrivals in Class G uncontrolled airspace. This data will also better inform both Gatwick and Biggin Hill as to the most suitable CAS volume structure in the area in support of their ongoing FASI ACPs.

OBJECTIVE 2: Understand the impact on pilot workload associated with the use of RF to a short final approach, together with its suitability in Class G airspace.

The trial will enable us to understand whether the procedure is understood and flown correctly, log any occurrences of 'procedure breakdown', determine whether the procedure exacerbates the issues of pilot workload compared to the existing circling approach and understand if the RNP APCH + RF procedure increases interactions with other airspace users and/or created conflicts in Class G airspace.

OBJECTIVE 3: Demonstrate safe integration of traffic, where different agencies require the use of multiple, innovative Instrument Approach Procedures (IAPs) in Class G Airspace.

Our engagement identified two ongoing ACPs[8] to implement one or more Point in Space (PinS) Instrument Approach and Departure Procedures in close proximity to LBHA's RNP APCH+RF procedure. These procedures aim to enhance the capability of the blue light services that operate out of Redhill Aerodrome and King's College Hospital, Denmark Hill – namely, Air Ambulance Charity Kent Surrey Sussex (AACKSS) Helicopter Emergency Medical Service (HEMS) and flights in support of police operations that are conducted by the National Police Aviation Service (NPAS). Based on current timescales, the sponsors could see their PinS procedures operational within the timeframe of this trial.

[8] ACP-2023-027 and ACP-2023-077

The ability for LBHA to assess this objective is dependent on the progress of ACP-2023-027 and ACP-2023-077 and assumes the PinS procedures are operational within the timeframes[9] of this trial.

For detail on how we will measure these objectives and success criteria, please refer to Section 7.

[9] See Section 9

3 Airspace Description - before and after

3.1 Current airspace

LBHA is situated in Class G, uncontrolled airspace; the only regulated airspace at LBHA is an Aerodrome Traffic Zone (ATZ) established to protect the airport's operations and all en-route traffic is required to avoid it unless permission has been granted to enter by LBHA. The LBHA ATZ is the airspace extending from the surface to a height of 2,000 ft above the level of the aerodrome within the area bounded by a circle centred on the mid-point of the runway and having a radius of 2.5 nm. Figure 1 below shows the location of LBHA in relation to the current surrounding airspace profile.

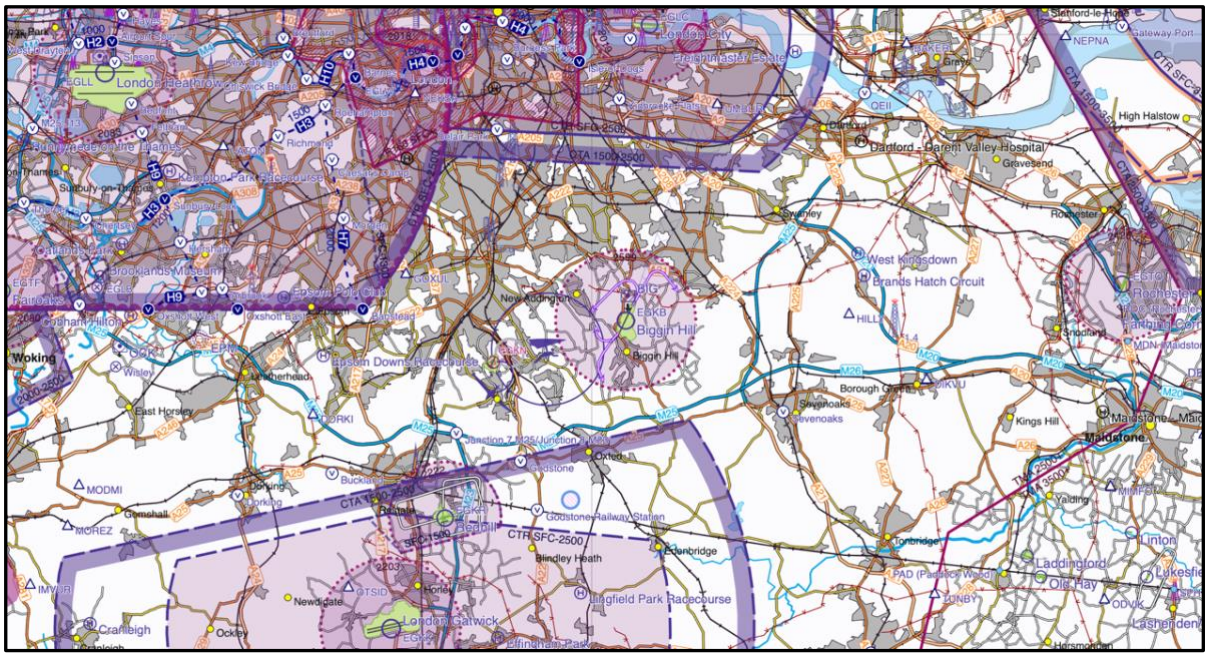


Figure 1: Airspace map

Aerodrome and Approach Control functions are provided at LBHA. Aerodrome Control is responsible for Ground Control, Tower Control, and Clearance Delivery. Aerodrome Control co-ordinates with Approach Control for:

- Departing Instrument Flight Rules (IFR) flights
- Departing Visual Flight Rules (VFR) flights
- Arriving aircraft which make their first call on the Tower frequency (unless they are transferred to Approach Control).

LBHA Approach Control provides the following Air Traffic service (ATS):

- Procedural Service (only available to IFR aircraft)
- Basic Service
- Alerting Service.

LHBA are currently in discussions with their ATS Inspector regarding a change to how the workload responsibilities are split between Aerodrome and Approach Control. LHBA aim to commence a trial of this change to the roles during 2024. There is no dependency between that trial being successful and this RNP APCH+RF trial. However, the Aerodrome/Approach responsibilities will inform the procedures within the eventual Temporary Operating Instruction for the RNP APCH+RF trial.

NATS Terminal Control (TC) Thames Radar, are contracted to provide radar services to Instrument Flight Rules (IFR) flights arriving or departing from LBHA, regardless of the service requested by the pilot. Before any IFR flight departs, or immediately before an inbound or transit IFR flight contacts LBHA Approach, co-ordination must be affected with TC Thames Radar regardless of the type of ATS being provided.

There are no Standard Instrument Departures (SIDs) published for LBHA. Departing aircraft are to follow the procedures published in the Aeronautical Information Publication (AIP), which includes noise abatement procedures for aircraft departing under both IFR and Visual Flight Rules (VFR). There are Standard Departure Routes via the ATS route network published in the AIP. All Standard Departure Routes currently route aircraft to the Detling (DET) Doppler Very High Frequency Omni Range (VOR/DME) ground-based electronic beacon.

Aircraft arriving from the ATS en-route network will either be cleared to follow the RNAV1 Arrival Transition procedure, published in the AIP, or will be radar vectored by Thames Radar prior to transfer to Biggin Hill Approach for the appropriate approach procedure. The baseline operational environment includes the following list of conventional Instrument Approach Procedures (IAP) which are contained in Class G airspace:

- ILS/DME/VOR to Runway 21
- LOC/DME/VOR to Runway 21
- VOR/DME to Runway 21

There is currently an ACP in progress (ACP-2019-86) for the introduction of an RNP IAP to Runway 21. No changes to airspace classifications or promulgated CAS boundaries are anticipated as part of that ACP. There are currently no dependencies between the two ACPs as both proposed procedures begin and end at the same points, using the same holding facility.

Runway 21 is the dominant runway, used approximately 78% of the time, due to aircraft normally taking-off and landing into the prevailing south westerly wind.

There are currently no IAP's for Runway 03. If Runway 03 is in use due to the prevailing wind, the pilot will break off the Runway 21 Instrument Approach at approximately 2nm from the airfield, to position visually for Runway 03. Figure 2 shows several months' worth of Runway 03 arrivals with the typical track illustrated by the arrow.

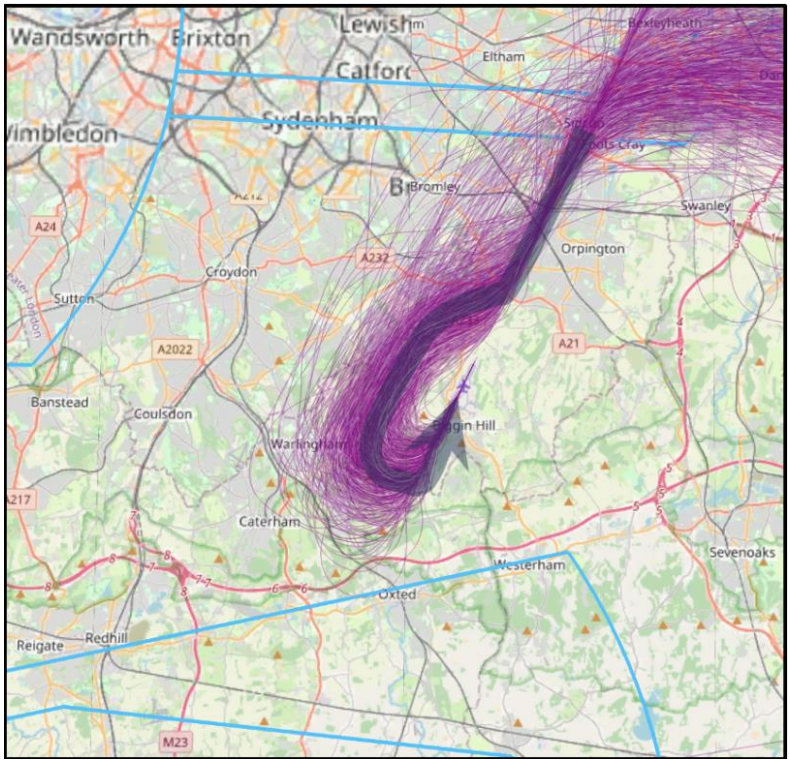


Figure 2: Swathe of arrivals to Runway 03

LBHA handled 40,623 aircraft movements in 2023 all of which were non-commercial operations, comprising Business Jets, Light Aircraft, military aircraft and helicopters. This figure is expected to increase to approximately 43,000 annual movements in 2024 and 46,000 movements in 2025.

After the trial, the airspace will revert to its existing status (subject to the RNP APCH RWY 21 ACP which could be implemented within the timescales of this trial, subject to CAA approval). Should the airport wish to establish a permanent airspace arrangement in this area for an IAP to Runway 03, they are aware they will need to follow the full Airspace Change Process[10]. If LBHA wishes to extend the duration of the trial period, they will first engage with their stakeholders before making a formal request to the CAA.

[10] CAP1616 Paras 324-327

4 Stakeholder Engagement

4.1 CAP1616 requirements

The stakeholder engagement for this trial has been undertaken in accordance with the stakeholder engagement requirements laid out in CAP1616 (Edition 4), Part 1B Airspace Trials[11]

The existing requirements are that, prior to the CAA agreeing to the trial, the sponsor must demonstrate to the CAA that it has carried out targeted engagement with aviation stakeholders (specifically, that is airspace users, air navigation service providers and airports only) to establish that the trial will be safe and operationally viable. Prior to the commencement of the trial, the sponsor must identify and inform the full range of stakeholder groups that the trial will be taking place.

4.2 Our engagement strategy

In the Assessment Meeting for this ACP, the CAA suggested that an Engagement Strategy might be beneficial and that they would be happy to review it, although approval is not required[12].

Biggin Hill drafted an Engagement Strategy and shared the document with the CAA in November 2023 and received a response in December 2023, which suggested only one minor change to the opening paragraph.

The aim of the engagement strategy was to provide more detail on the proposed different phases of engagement to be undertaken with a range of stakeholders, beyond the requirements of CAP1616 (Edition 4). A copy of the Engagement Strategy is available at Annex A.

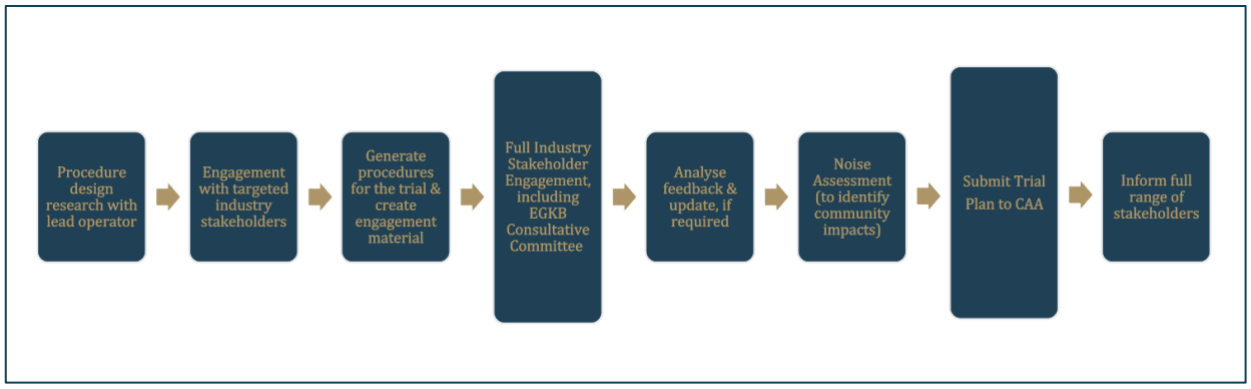


Figure 3: Proposed stakeholder engagement phases

[11] CAP1616 Edition 4, Part 1b Airspace Trials page 92
[12] ACP-2023-075 Assessment Meeting Minutes

4.3 Lead operator

Biggin Hill Airport engaged with a frequent user of the airport, an LJ45/75 pilot who confirmed their aircraft are RF capable, who would be able to provide technical and operational advice during the project.

4.4 Targeted Aviation Industry Engagement

Biggin Hill identified the key industry stakeholders who could be potentially impacted by the trial and engaged with them to identify any potential issues with the design or planned trial.

These stakeholders included certain Biggin Hill operators, local General Aviation airspace users, adjacent airports, and airfields and NATS Terminal Control. This list also included Helicopter Emergency Medical Services (HEMS), NPAS and Air Ambulance Charity Kent Surrey Sussex (AACKSS) operators, who are investigating PinS procedures at Kings College Hospital London and Redhill aerodrome. The following tables are the stakeholder organisations engaged at this stage.

Adjacent Airports and Airfields

RAF Kenley and Surrey Hills Gliding Club	London Gatwick Airport
Heathrow Airport	London City Airport
Redhill Aerodrome	Farnborough LARS

Table 1: Targeted airports & airfields

Other airspace users (including some NATMAC members)

NATS TC	Ministry of Defence (DAATM)
Helicopter Emergency Medical Services (Kings College Hospital & Redhill)	National Police Air Services (NPAS)
Air Ambulance Charity Kent Surrey Sussex (AACKSS)	

Table 2: Targeted other airspace users

Additional Stakeholders

Biggin Hill ATS Inspector	

Table 3: Additional targeted stakeholders

This engagement took place either via face-to-face or online meetings. Biggin Hill provided the targeted stakeholders with the background information, the issues identified in the previous ACP, an overview of the draft procedure and some draft objectives of the trial. The targeted stakeholders were asked the following questions:

Q1 – Do you have any concerns in relation to the trial? If so, what would we need to do to address them?
Q2 – Do you have any feedback on the draft objectives?
Q3 – Are there any other objectives/data collection activities that could benefit your organisation from this trial?

The following table is a summary of the key engagement which took place, including a summary of points raised during the face-to-face/online engagement sessions.

Date	Stakeholder	Summary of Sessions
27 Nov 23	Ministry of Defence (DAATM)	• Email outlining the project & LBHA intention to engage directly with RAF Kenley. • Informed that DAATM would be fully engaged as a member of NATMAC later in the project.
30 Nov 23	Gatwick Airport	• Gatwick requested confirmation that LBHA were liaising with Redhill Aerodrome. • LBHA requested ANOMS data from Gatwick to provide up-to-date data on existing Gatwick RWY08 performance for analysis. Gatwick agreed to provide the data. • LBHA confirmed that they now have advanced use of ATM in the ATC Tower. • Gatwick queried if there were any impacts on Gatwick's FASI-S ACP/LAS deployment. LBHA explained they did not consider any impact for this trial. • Gatwick queried the location that LBHA would locate ADSB receivers, as that could assist Gatwick with infringement data. • Discussion regarding the proposed change, where the turn will be compared to the previous proposal and the absence of a CAA route containment policy for such a procedure outside CAS. • Gatwick supported the trial subject to NATS Terminal Control (TC) also being satisfied.
4 Dec 23	NATS (TC)	• NATS (TC) would like to assess the proposed route and compare them to the previous proposals more closely. • NATS were keen to understand the separation achieved against Gatwick RWY 08 departure performance. • NATS were asked to identify any potential new hazards/mitigations and if they can accommodate the trial. • LBHA agree to share with NATS their identified hazards and associated safety requirements from the last ACP. • NATS were broadly supportive of the trial subject to further work, particularly their own safety assurances.
5 Dec 23	Heathrow Airport	• Heathrow queried the number of aircraft that might utilise the procedure during the trial period. • Asked how this proposal impacts Biggin Hill FASI-S ACP and wider airspace modernisation within the London TMA. LBHA explained that this trial is not expected to impact FASI unless progressed into a permanent ACP although the trial outputs are expected to inform future IFP design and provide actual navigation performance data.
6 Dec 23	Kings College Hospital HEMS	• Discussion on the LBHA & KCH PinS projects and the potential interactions. • It was noted that whilst the draft PinS procedures were outside of the Biggin Hill ATZ, there was still interaction with Biggin's existing and planned IFPs and PinS operations will require co-ordination with Biggin Hill ATC. • Broadly supportive of the trial and saw no reason that the IFPs in close proximity in Class G airspace could not co-exist. Welcomed the proposal of a trial objective around this theme.
12 Dec 23	Biggin Hill operator	• Email outlining the project and requesting technical feedback on aspects of the proposals.

14 Dec 23	Redhill PinS team (& NPAS)	• Discussion on the LBHA & Redhill projects and the potential interactions. Noted the very close proximity of the Redhill procedure to the LBHA RNP APCH RF leg. • No significant concerns raised at this stage. • Broadly supportive of the trial and saw no reason that the IFPs in close proximity in Class G airspace could not co-exist. Welcomed the proposal of a trial objective around this theme.
18 Dec 23	RAF Kenley & Surrey Hills Gliding Club	• RAF Kenley would prefer a visual feature from something large like the M25 and M23 to provide a 'buffer' of airspace between the two operations. Any route to the West of the M23 and South of the M25 would give RAF Kenley based aircraft a marker to avoid (ie RAF Kenley aircraft would remain East of the M23 and North of the M25) to act as some mitigation against MAC. We could articulate this in a LoA. • LBHA agreed to investigate if this can be achieved within the design
20 Dec 23	London City Airport	• Discussed the proposed PinS procedure into KCH. • Suggested whether sterilising a small portion of the Gatwick CTA during the trial would be beneficial. LBHA agreed to discuss this with NATS TC. • No objections at this stage
10 Jan 24	Farnborough ATC	• No significant concerns raised at this stage. • Update to the LOA previously drafted for the earlier proposal will be required.
22 Jan 2024	NATS TC	• A workshop was held with TC Thames and TC Gatwick controllers present to walk through the draft TOI from the previous ACP and identify where updates would be required. It was identified at this point that making YARVU a compulsory reporting point would be required. • NATS advised that further assurance activities by TC won't take place until a positive decision in principle by the CAA had been received. • LBHA presented their analysis of interaction with Gatwick RWY 08 departures and NATS TC shared their similar analysis. • NATS TC agreed to attend a joint TC/LBHA Hazard Analysis in March, ahead of submission of the trial plan in order to review all hazards and mitigations in more detail and see if any new (in addition to those identified in the previous ACP) hazards exist. • NATS advised that a Training Needs Analysis had been requested internally and they would inform LBHA when this has been completed as this could have an impact on the start date of the trial, depending on the scale and nature of training and alignment with other NATS projects. • NATS were still supportive of the trial and saw no barriers at this time.
23 Jan 24	Biggin Hill ATS Inspector	• LBHA outlined the engagement which has taken place to-date and provided an outline for the upcoming engagement, an overview of the safety assurance activities carried out so far and those planned and summarised contents of the trial plan. • Discussion regarding the potential benefits of additional liaison with the CAA IFP team ahead of submitting the trial plan.

		• Discussion on the Redhill PinS approach and the decision to include an objective to the LBHA trial plan.

Table 4: Summary of targeted aviation industry engagement

Biggin Hill Airport also provided an update to the Airport Consultative Committee in January 2024. The Biggin Hill Airport Consultative Committee has an Independent Chairperson, a Deputy Chairperson and a Secretary and is made up of representatives from the following organisations.

London Biggin Hill Airport	London Borough of Bromley
London Borough of Croydon	Tatsfield District Council
Kent County Council	Sevenoaks District Council
Tandridge District Council	Greater London Authority representatives
Resident aerospace businesses	Commercial users of the airport
Flying clubs and private aircraft owners	Bromley Residents Federation
Biggin Hill Residents Association	Metropolitan Police
South London Business	

Table 5: Biggin Hill Airport Consultative Committee Members

Bromley Council as well as some members opposed to the Airport have expressed support for an instrument approach and were supportive of the trial proposal.

4.4.1 Updates to procedure following targeted aviation industry engagement

The initial round of engagement with the targeted aviation industry stakeholders showed general support for the trial.

There were the following key changes to the trial proposals which emerged from the targeted aviation industry engagement.

Stakeholder	Update
RAF Kenley	We were able to move the procedure from YARVU slightly further south to remain south of M25.
Redhill and Kings College Hospital PiNS	Trial objective added, to demonstrate the ability to safely integrate operations, via co-ordination, between Biggin Hill's trial approach and KCH and Redhill's PinS IFPs, noting this is subject to timescales of all 3 ACPs.
NATS (TC)	Added a 5LNC at KBW02 (YARVU) and made it a compulsory reporting point.

Table 6: Summary of updates following targeted engagement

4.5 Wider engagement with all industry stakeholders

This phase of the engagement was to engage with all relevant industry stakeholders, as per the requirements of CAP1616 (Edition 4)[13]. This list of stakeholders includes all those stakeholders who have participated in the earlier engagement (Tables 1-3), but also includes all Biggin Hill operators, members of NATMAC and any other pertinent industry stakeholders who had not yet been engaged.

[13] CAP1616 Edition 4 page 93, paragraph 317

The following tables are the additional stakeholders engaged at this stage; these stakeholders are in addition to those listed in section 4.4 of this document.

Biggin Hill Operators

1 Aviation	Linkinjet
Acropolis Aviation	London Executive Aviation
Alouette Flying Club	Net Jets
Alpha Golf	Oriens Aviation
Avalon Aerojet	RAS Completions
Bombardier	JETEX
Castle Air	Shipping & Airlines
Catreus Ltd	Sovereign Business Jets
Centreline Air Charter	Voluxis
Cirrus Aircraft	MP Flying Club
Heritage Hangar	Zenith Aviation
Interflight Air Charter	Falcon Flying Services

Table 7: Biggin Hill Operators

Other Airspace Users

Battersea Heliport	Lasham Gliding Club
Cloudbase Aviation (Redhill)	Matt Robbins Microlight Instruction (Rochester)
East Sussex Gliding Club	Southdown Gliding Club
Green Dragons Warlingham	Green Dragons Warlingham
East Haxted Microlight site	Rochester Airport
Kent Gliding Centre	

Table 8: Other airspace users

NATMAC Members[14]

Airlines UK	Drone Major
Airport Operators Association	General Aviation Alliance
Airfield Operators Group	Heavy Airlines
Aircraft Owners and Pilots Association	Helicopter Club of Great Britain
Airspace Change Organising Group	Isle of Man CAA
Association of Remotely Pilots Aircraft Systems	Light Aircraft Association
Aviation Environment Federation	Low Fare Airlines
British Airways	Military Aviation Authority
BAe Systems	Ministry of Defence
British Airline Pilots Association	NATS
British Balloon and Airship Club	Navy Command HQ
British Business and General Aviation Association	PPL/IR (Europe)
British Gliding Association	UK Airprox Board

[14] As per list provided by the CAA in November 2023

British Helicopter Association	UK Flight Safety Committee
British Microlight Aircraft Association	United States Air Force Europe
British Skydiving	

Table 9: NATMAC Members

The stakeholders in tables 1-3 and tables 7-9 were emailed a presentation explaining the purpose of the trial, the data to be collected, the approximate timelines and durations and included details on the draft IFP for discussion. A copy of the presentation distributed to stakeholders is available at Annex B.

Stakeholders were provided with an email address and given 6 weeks to provide Biggin Hill with feedback on the proposal and answers to specific questions. This engagement took place between 25 January – 5 March 2024.

These questions were:

Q1 - Do you have any concerns in relation to the trial? If so, what would we need to do to address them?
Q2 - Do you have any feedback on the draft trial objectives?
Q3 - We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?

An additional question was asked of Biggin Hill Operators only, on RF capability and they were asked to fill in a short survey.

The following table contains the feedback received and LHBA's response.

Stakeholder	Question	Stakeholder Feedback	Biggin Hill Response
British Gliding Association	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	Please ensure that you engage effectively with the Surrey Hills Gliding Club at Kenley airfield. The gliding club uses the airfield Mon-Fri, with an MoD Air Cadet Gliding Squadron operating Sat-Sun. Both are airspace stakeholders.	LBHA have engaged directly with the Surrey Hills Gliding Club.
	Q2 Do you have any feedback on the draft trial objectives?	None, thanks.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	Not that we are aware of.	
	Any additional comments/feedback		
Farnborough Airport	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	Farnborough Airport accepts that a trial is a sensible way to gather live data that is meaningful of the real-world conditions, and we would be interested in the results to better understand the art of the possible and to see how this is dealt with by the regulator.	The outcomes of the trial will be documented within a trial report, available 3 months from the end date of the trial.
	Q2 Do you have any feedback on the draft trial objectives?	Within the engagement material LBHA mention discussions with Farnborough LARS. The ATC team here at Farnborough confirm that a Letter of Agreement with LBHA is being drawn up in support of this Trial and that at the moment they do not expect a change in their workload due to this trial. FAL would like to suggest that data gathering analysis for this trial includes: • the impact on Farnborough LARS • the impact on TC due to the procedure starting at 3000'.	We have included Farnborough LARS as a unit to provide monthly feedback on the impact of the trial on their unit. See Trial Objective 2 in Section 7 Any negative impacts on TC owing to the procedure will be included within the trial report.
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we	No	

	need to know that could affect this proposed trial?		
	Any additional comments/feedback	NATS Farnborough: We have reviewed the LoA and do not see any issues as this follows current procedures and does not infer any additional responsibilities over and above the ATSOCAS provision we already provide in the area. My understanding is that NATS corporate have commented centrally on the draft proposal	See NATS(NERL) feedback below
NPAS	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No	
	Q2 Do you have any feedback on the draft trial objectives?	No	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	Not that I am aware of.	
	Any additional comments/feedback		
Falcon Flying Services Limited	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No response.	
	Q2 Do you have any feedback on the draft trial objectives?	No response	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any	No response.	

	other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?		
	Any additional comments/feedback	We have come up with a few points of interest taking into account the other traffic (VFR traffic) operating at Biggin. 1. IFR traffic is potentially going to be descending on top of VFR traffic joining from Sevenoaks and Swanley outside of controlled airspace. VFR traffic is anywhere between 2400ft QNH and 1600ft QNH doing a similar overhead join track at a far slower speed. 2. Wake turbulence can subside onto light aircraft even if vertical separation is kept on the leg crossing overhead the airport, as well as the missed approach route. 3. VFR traffic tracking East bound through the corridor between Gatwick and Heathrow, remaining south of Biggin ATZ and north of the M25 is not always on Biggin frequency and IFR traffic can be descending on top of them between the IF and FAF. 4. The missed approach procedure only going up to 2000ft QNH will create a hazard with VFR traffic joining from the northeast/Swanley direction, which is also around 2000ft in this area. 5. If IFR traffic remains in controlled airspace and on radar frequency rather than Biggin Tower, VFR traffic will be unaware of joining traffic overhead. 6. Risk of increasing noise complaints from the Warlingham NSA as well as creating new potential noise sensitive areas to the northwest of the runway where there previously was no traffic.	1. Inbound descending IFR traffic remains inside CAS until West of the overhead (ITSUM), well clear of Sevenoaks and Swanley. Both VFR and IFR joining traffic will be known to traffic to EGKB Approach. 2. Jet traffic already operates in and out of Biggin Hill. This includes Runway 21 departures passing through the overhead at 2400ft (the proposed RWY 03 arrivals will be at 3000ft). There have been no issues raised with Wake Turbulence. 3. Agree and we are aware this is a busy piece of Class G airspace. The RNP APCH route has been purposefully positioned to the south of the M25 as much as possible, on advice that that VFR traffic tends to stay north of the M25, using it as a visual feature to avoid the Gatwick CTA. Of course the RNP arrival needs to then cross the M25 from the FAF onwards, through areas already experience the runway 03 visual approaches (Runway 03 visual approaches already routinely fly outside of the EGKB ATZ). The maximum speed on the RNP procedure is 160Kts on this stretch, purposefully slow, to provide pilots with as much time as possible to visually acquire each other. We are also investigating if IFP chevrons on VFR maps are allowed to be promulgated for temporary procedures. Please also refer to Annex C for analysis on proximity to GA, taking into account the relatively small numbers of runway 03 RNP arrivals.

			4. The existing Missed approach (MAP) for runway 21 currently climbs to 2000ft towards ALKIN and runway 03 arrivals are expected to pick up the R047 radial to ALKIN, climbing to 2000ft. Usually, Thames Director will provide a climb and radar headings for MAP traffic, as they reposition aircraft for another approach or divert to another airfield. 5. IFR traffic will remain with Thames Director until released to descend out of controlled airspace, with no conflictions present, to contact Biggin Tower, this is the same as today. Should Biggin ATC be providing an Approach Service to aircraft inbound, inside controlled airspace, when approved by Thames Director, they will be on the same frequency as the VFR traffic. 6. The existing Noise Sensitive Areas have been established through negotiation with the London Borough of Bromley, the RNP arrival can be expected to reduce overflight of Warlingham by RF capable runway 03 IFR arrivals. As part of this trial LBHA will collate, monitor and report complaints to the CAA. This will be actioned through Biggin Hill's noise complaint process. In addition, the PBHA Consultative Committee have been briefed and are engaging them as a standing item on their quarterly meetings.
Surrey Hills Gliding Club	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No response	
	Q2 Do you have any feedback on the draft trial objectives?	No response	
	Q3	No response	

	We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?		
	Any additional comments/feedback	At the end of the day we have to abide by whatever the Aerodrome Operator tells us we are allowed to do (or not as the case may be) - ie RAF Kenley. We can't add anything else that would be relevant.	LBHA have engaged directly with RAF Kenley. LHBA also paid for 5 x SE2s for Surrey Hills Gliding Club to aid conspicuity in the region.
RAF Kenley & Surrey Hills Gliding Club	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No response.	
	Q2 Do you have any feedback on the draft trial objectives?	No response.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	No response.	
	Any additional comments/feedback	No objections from RAF Kenley (2 FTS and SHGC). Please remember that this response is only behalf of RAF Kenley and its operators; the formal MOD response will come from DAATM. RAF Kenley updated the draft LoA so that it matches military LoAs. When agreed and in force, we would place this into the Defence Aerodrome Manual (DAM) for RAF Kenley.	See below

MOD DAATM	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	Notwithstanding any ongoing engagement and feedback with [redacted] and RAF Kenley, DAATM & MoD do not have any additional concerns or significant impacts to raise with the proposed trial.	
	Q2 Do you have any feedback on the draft trial objectives?	Nil.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	None known of outside of AACKS HEMS.	
	Any additional comments/feedback		
London Heliport (Battersea)	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No response.	
	Q2 Do you have any feedback on the draft trial objectives?	No response.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	No response.	
	Any additional comments/feedback	In consultation with the Heliport's Head of Air Traffic Services and Senior Air Traffic Control Officer in relation to ACP-2023-075, we have no objections or concerns from a London Heliport perspective	
	Q1	No response.	

London City Airport	Do you have any concerns in relation to the trial? If so, what would we need to do to address them?		
	Q2 Do you have any feedback on the draft trial objectives?	No response.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	No response.	
	Any additional comments/feedback	From a London City Airport perspective, we do not think this impacts our operations and if it does this would become apparent in the trial so could be addressed later. We support this initiative as it helps facilitate the use of Radius to Fix (RF) turns in the UK and this is likely to be useful for airspace modernisation, which is vital to the aviation industry and wider UK economy.	
Solarius Aviation	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No response.	
	Q2 Do you have any feedback on the draft trial objectives?	No response.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	No response.	

	Any additional comments/feedback	We are a G450 that frequents EGKB. We find Biggin Hill an excellent London airport for our visits. Frequently we fly the ILS R21 and circle to R03. As pilots we enjoy the challenge of doing a very hands-on circle to land but after 8 hours in the air, in marginal weather having some additional guidance keeps us much safer and reduces pilot workload at this critical part of the flight. We regularly fly RNP approaches to many airports, including RNP AR and guided visual procedures and find them to be very helpful especially when conditions are not perfect. The safety benefit of published approach guidance to R03 cannot be overstated. We hope this process is successful.	
Heathrow Airport	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No response.	
	Q2 Do you have any feedback on the draft trial objectives?	No response.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	No response	
	Any additional comments/feedback	Heathrow welcomes the engagement from London Biggin Hill for this trial and we remain supportive of its aims and objectives. Before any trial commences, Heathrow considers it pertinent that the sponsor provides more up to date information than 2019 evidence presented, this is to include but not limited to: 1. A refreshed safety assessment to cover a suggested summer 2023 period of Heathrow operations, to specifically include departures from 09L and 09R in the DET direction. 2. A suggested summer 2023 period of Heathrow operations to support the sponsors data driven assessments, which will cover our most recent operators, their destinations and associated	1&2 - Heathrow provided LBHA with the relevant DET 09L/09R ANOMS data from Summer 2023. Analysis of the data showed that 22 of 3,167 departures were below 4000ft (they were all between 3501-3950ft) 5nm before ITSUM. 12 of the 22 were between 3819-3950ft. This data has been shared with Heathrow and TC. 3 - CAP1385 is not applicable with regards separation from Heathrow's DET SIDs which are conventional procedures. CAP1385 is based on PBN separation

		fleet mixes, as well as incorporating inclement meteorological considerations. 3. The trial sponsors assessment / mitigation proposed against CAP1385 edition 2 – published Dec 2022, which is post Heathrow's 2019 assessment response. 4. Continued engagement and updates on any LoA or procedural changes that could impact Heathrow operations. HAL Noise & ATM Response 5. From memory, LBHA's original plans would have required an increase in climb gradient for our DET SIDs and they were closely following our steeper departure trial back in 2018. From looking through the folder, I assume that this is no longer the case. Heathrow ATC Response 6. I have reviewed the attached and am fairly satisfied that, from our point of view, there is no issue to think that this will cause us any problems (or incur any additional procedures). Our easterly DET SIDs have a 5A minimum at DET20, which is around 3nm from the proposed KB hold (which is at 3A). We have extant procedures that would capture any occasions whereby an aircraft could not comply with this gradient, which would then prompt TC to interact with Thames in circumstances that an inbound was using the procedure. In the event that an aircraft became airborne and then could not climb as anticipated then this would be down to TC to resolve and not really our risk.	standards. However, were Heathrow's DET 09L/R DET SIDs PBN SIDs, they would not be laterally separated from the proposed trial RNP APCH leg between KBE01 and ITSUM, based on CAP1385 standards. Vertical separation is therefore required and such a separation standard is not published. LBHA would suggest that replacing the DET D29 3000+ restriction with a 4000ft+ restriction DET D30 would ensure separation. However, LBHA understand this is not supported by Heathrow at this time and therefore mitigation will be put in place by Thames Radar along the same lines as proposed for the previous ACP (see NATS Haz-03)). We will ensure this mitigation is communicated to and agreed with Heathrow prior to the trial. 4 Of course. 5 - Correct, mitigation will be put in place by Thames Radar as above. 6 – Please note that the ALKIN hold already exists and is not a new proposal for this trial.
NATS (NERL)	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	We are aware that NATS Swanwick have been directly engaged by Biggin Hill and we have no concerns in relation to the trial other than the target of Q4 2024 might be challenging, if it is deemed that TC Thames controllers require formal training. A Training Needs Analysis (TNA) is to be conducted internally which will determine whether or not this will be the case – this is likely to be concluded by the end of June.	LBHA note that the trial timescales are dependent on outcomes of the TNA.
	Q2 Do you have any feedback on the draft trial objectives?	1. Understand and analyse RNP flyby and RF leg Actual Navigation Performance on arriving traffic to a short final approach.	LHBA are not aware of any other RNP APCH +RF trials or live procedures in the UK. Stansted have RF SIDs and Gatwick have an ongoing trial to investigate

		Does this need to be conducted at Biggin Hill, resulting in flights in close proximity to the Gatwick CTA or is there evidence available from use elsewhere? Is there something unique about RWY03 at Biggin Hill? 2. Understand the impact on pilot workload associated with the use of RF to a short final approach, together with its suitability in Class G airspace. Response as per 1. 3. Demonstrate safe integration of traffic, where different agencies require the use of multiple, innovative Instrument Approach Procedures (IAPs) in Class G Airspace Response as per 1, however in addition, acknowledge that the proposed area of the RNP approach is a complex and a busy Class G environment with at least three ANSPs providing services, therefore provides suitable environment to measure this objective.	use of RF transitions to ILS (not RNP APCH) and with 'standard' final approach joining points. LHBA are unlikely to sponsor a trial at a location other than their own airport.
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	We are not aware of any however NATS advise that confirmation on this is sought from the CAA.	
	Any additional comments/feedback	No response.	
AAKSS	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	We have no concerns in relation to the trial.	
	Q2 Do you have any feedback on the draft trial objectives?	Thank you for including co-ordination with our proposals for Redhill as a draft trial objective.	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change	With regard to other activities, although I know you have a full awareness of our PinS application (ACP-2023-027) for Kings College Hospital (Denmark Hill, London) I thought I would mention it again as it is not specifically referenced in this document.	Thank you, ACP-2023-027 referenced within our trial plan, including Objective 3.

	proposals or anything at all that we need to know that could affect this proposed trial?		
	Any additional comments/feedback	We look forward to continuing our joint discussions on how best to manage these interactions as we develop our SOPs and frame a Letter of Agreement between all the relevant agencies.	
Green Dragons Airsports (GDA)	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	GDA would like to raise multiple concerns with the proposal of mixing fast jet traffic with GDA based (and other) light aviation / VFR traffic: 1. The proposed track crosses over the Limpsfield Road at about 1200ft - 1600ft AMSL close to the Southern edge of our flying school (Warren Barn Farm) where paragliders and paramotors maybe operating. 2. Any GDA traffic leaving GDA and travelling South would cross the trial approach track within the same vertical window. 3. The Southern apex of the final turn point appears to be over the valley which is a busy corridor with light aviation. Both paramotors and small microlights originating from GDA and all other VFR traffic travelling along this busy Class G East-West corridor between the Gatwick CTA and Biggin ATZ would lose the current vertically separation from jet traffic operating above 2500ft in the London TMA. 4. Safety is our key concern as an aviation school, these concerns must be addressed with zero commercial impact on our business.	LHBA arranged a follow up meeting with Green Dragons. LBHA shared data to highlight that many runway 03 visual approaches already currently overfly Green Dragons sites. LBHA explained that the proposed RNP APCH design is the only viable option in order to meet IFP design rules and avoid RAF Kenley and Controlled Airspace and that LBHA are keen to avoid regulated airspace in the area to avoid segregation of airspace users. Green Dragons expressed concern about an increase in numbers of Biggin Hill (EGKB) 03 arrivals operating south of the ATZ, within their main operating area and also with the RF leg being in the busy GA valley, just south of the M25 and north of the EGKK CTA boundary. Green Dragons explained that, due to prevailing winds and EGKB opting to operate RWY 21 until greater than, typically, a 10Kt tail wind forces RWY 03 operations, they (Green Dragons) are predominantly operating when EGKB are operating Runway 21. They shared a concern that introduction of a RWY03 RNP APCH would increase the amount of time EGKB spent operating 03. EGKB explained this was not the intention of the procedure and that RWY 21 will still be the preferred runway. Owing to the reduced track miles for airways arrivals and also due to the longer Landing Distance Available for RWY 21, introduction of a RWY 03 RNP procedure is not
	Q2 Do you have any feedback on the draft trial objectives?	The trial only appears to address the safety concerns specific to the complexity of the previously rejected track documented in CAP2500, it does not address any of the other safety concerns around traffic raised in that rejection and with which GDA is still concerned. Specifically, CAP2500 “Decision Rationale” paragraph 6: “The cumulative impact of the non-standard and complex design (complexity in part created by the environment the airport finds itself located in as described above) coupled with the airspace constraints and busy General Aviation (GA) activity operating in the same proposed location is a significant factor in the CAA’s conclusion that the proposed design does not maintain a high standard of safety and the CAA decision not to approve the proposal.”	

			expected to increase the length of time spent operating RWY 03. Green Dragons explained some of their users operate a Sky Echo but only on Receive (ADSB-in) as they are not allowed to transmit their position owing to lack of a HexCode and the requirement to have a Flight Radiotelephony Operator's License (FRTOL) to transmit. LHBA advised they were aware of the use of ADSB Beacons which may be useful for the club to pursue. LBHA explained that in terms of numbers of arrivals on the trial RNP procedure, they expect an average of 1-2 arrivals per day across the 6-month period. Individual days with higher numbers may be expected. After a conversation about the relative low numbers of RNP03 arrivals and also the low speed restriction (160Kt) of the EGKB arrivals, Green Dragons suggested that if their operators observed the EGKB arrival passing the EGKB overhead (at 3000ft) on ADSB-in, they would have c.5mins to be able move away from the final approach (KB03F) area. However, Green Dragons explained that not all their operators have SE2 and asked whether LBHA would be willing to fund more SE2 for the Green Dragons club so they could have a pool available to be able to receive ADSB-in transmission from the EGKB airways arrivals. POST MEETING: LHBA agreed to fund 4 x Sky Echo 2 for Green Dragons LBHA also advised of their ATIS frequency (135.680) where Green Dragons can be informed, in real time, of the runway in use at EGKB. LHBA advised that the trial plan aims to address all issues raised within CAP2500.

			Green Dragons also suggested that when we advise community stakeholders of the trial (if CAA agree to the trial) we should include the Botley Hill Pub in the list of stakeholders to advise. They have a garden looking out over the landscape where the RNP02 final approach would overfly.
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	Nothing to add.	
	Any additional comments/feedback	No response.	
Gatwick Airport	Q1 Do you have any concerns in relation to the trial? If so, what would we need to do to address them?	No response.	
	Q2 Do you have any feedback on the draft trial objectives?	No response	
	Q3 We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) & London City. Are there any other airspace activities, change proposals or anything at all that we need to know that could affect this proposed trial?	No response	
	Any additional comments/feedback	The following comments were received from NATS Gatwick ATC: It will be an interesting trial as it is a 3D transition in effect, and the procedure is in Class G, including RF turns, passing close to the edge of CAS.	LHBA responded to Gatwick and advised there is a "level at 2000ft" by KB03I. LHBA also shared the analysis which is in Section 6.4 of this trial plan.

		So, from a London Airspace South (LAS) perspective, I don't see any direct impacts, and it may actually indirectly inform parts of the LAS implementation. I could be mis-reading the draft chart (been a while since I've needed to look at an approach chart in this detail) but there doesn't seem to be a level constraint at KB03I. Normally this would be marked as per YARVU (with a bar above and/or below the level) and I'd expect there to be a 'not above' element to a fix this close (both laterally and vertically) to an airspace boundary. I wouldn't expect an aircraft flying the procedural route to conflict with an Gatwick IMVUR departure however I'd like to know the minimum separation the design criteria allows between published routes inside and outside CAS. Regarding the LOA, page 2 is incorrect insofar as (2) should say 'NATS (Services) Limited'. I would also question whether NERL should also be a signatory as this would align with the Redhill LOA. Further, I would question if an LOA is sufficient to cover a trial of this nature; I am interested in the CAA take on this and what mitigations BHAL have put in place to not increase the risk of CAS infringements.	LHBA are happy for NERL to also be a signatory and have queried this with TC. However, TC will have their own LoA with LHBA. LHBA provided NATS Gatwick with the contact at TC who is the procedures lead for the trial who will be able to brief on the safety work/procedures associated with the trial. There has been extensive work with NATS TC on this procedure with both the previous ACP attempt and also this trial. This includes consideration of risk of CAS infringement and review and development of draft procedures (TOIs) for Terminal Control and Biggin Hill. Gatwick were invited to attend the HAZID scheduled between Biggin Hill and TC on 22nd March and advised that TOIs and LOAs will only be finalised if CAA give permission in principle for the trial. Following provision of this information, Gatwick responded: Our colleagues at NERL appear to have been in the loop from an early stage. I note that aircraft using this procedure will be 'known' traffic to Gatwick Approach, in which case a mitigation of separation against an IMVUR departures is there immediately. I have experienced RNP/RNAV procedures OCAS in a previous life and am still slightly sceptical however I see no reason to raise any challenges at this stage. Gatwick airport advised they are happy for the trial to proceed if NATS (TC and Gatwick) are happy.

Table 10: Aviation industry stakeholder feedback received

This round of wider engagement with industry stakeholders resulted in the following actions:

- Refreshed analysis of Heathrow DET09L/R climb performance
- Inclusion of Farnborough LARS in a monthly questionnaire to inform Objective 2
- Potential inclusion of NERL in the LoA between LHBA and Gatwick (TBC)
- Investigation into whether chevrons can be promulgated on VFR charts/EFBs if only a temporary procedure[15].
- If CAA give permission in principle for the trial, LHBA will engage with CAA to understand whether there is a mechanism that allows Green Dragons airspace users to transmit their location on their SE2 rather than receive only, in the same way drone operators who also lack a FRTOL have been able to transmit their presence in other airspace trials.
- Addition of The Botley Hill Pub to the community stakeholders to be informed of the trial
- Provision of 5 x Sky Echo 2s to Surrey Hills Gliding Club
- Provision of 4 x Sky Echo 2s to Green Dragons

LBHA appreciate that Heathrow, Gatwick and NATS TC, who are integral to the safe operation of the RNP APCH+RF procedure, support the trial but they cannot fully agree until further internal safety assurances and ATCO training requirements are satisfied. They will commit resource to those activities if CAA give permission in principle for the trial to proceed.

[15] Sky Demon advised that they are automatically included for any IAP charts within AD2.24 and would not be picked up from an AIP Supplement. If CAA give permission in principle for the trial, LHBA will engage with CAA to understand if the trial RNP APCH+RF procedure can be incorporated into AD2.24 for the duration of the trial for this purpose.

5 The RNP APCH procedure for trial

Figure 4 shows the draft IFP chart and Figure 5 the draft IFP Coding Table for the proposed RNP APCH+RF (RNP RWY 03) procedure to be trialled. An IFP design Package has been submitted separately to the IFP regulator.

Note that all 5LNCs, with the exception of CRAIG which is a working name, have been reserved within ICARD and CAA.

Please refer to Section 10 for an illustration of overflight of the IAP against ground features.

Subject to a positive decision in principle by the CAA for the trial to take place, full ATC Temporary Operating Instructions will be finalised and shared with the regulator which address the relevant Safety Requirements. Such procedures include requirements for various priority lines to be fully serviceable, co-ordination requirements between Thames Radar, SVFR, TC Gatwick, TC South and EGKB Approach, procedures for non-conformance to the RNP APCH IAP (including CAS infringement), maximum inbound spacing requirements and procedures in the event of a Missed Approach.

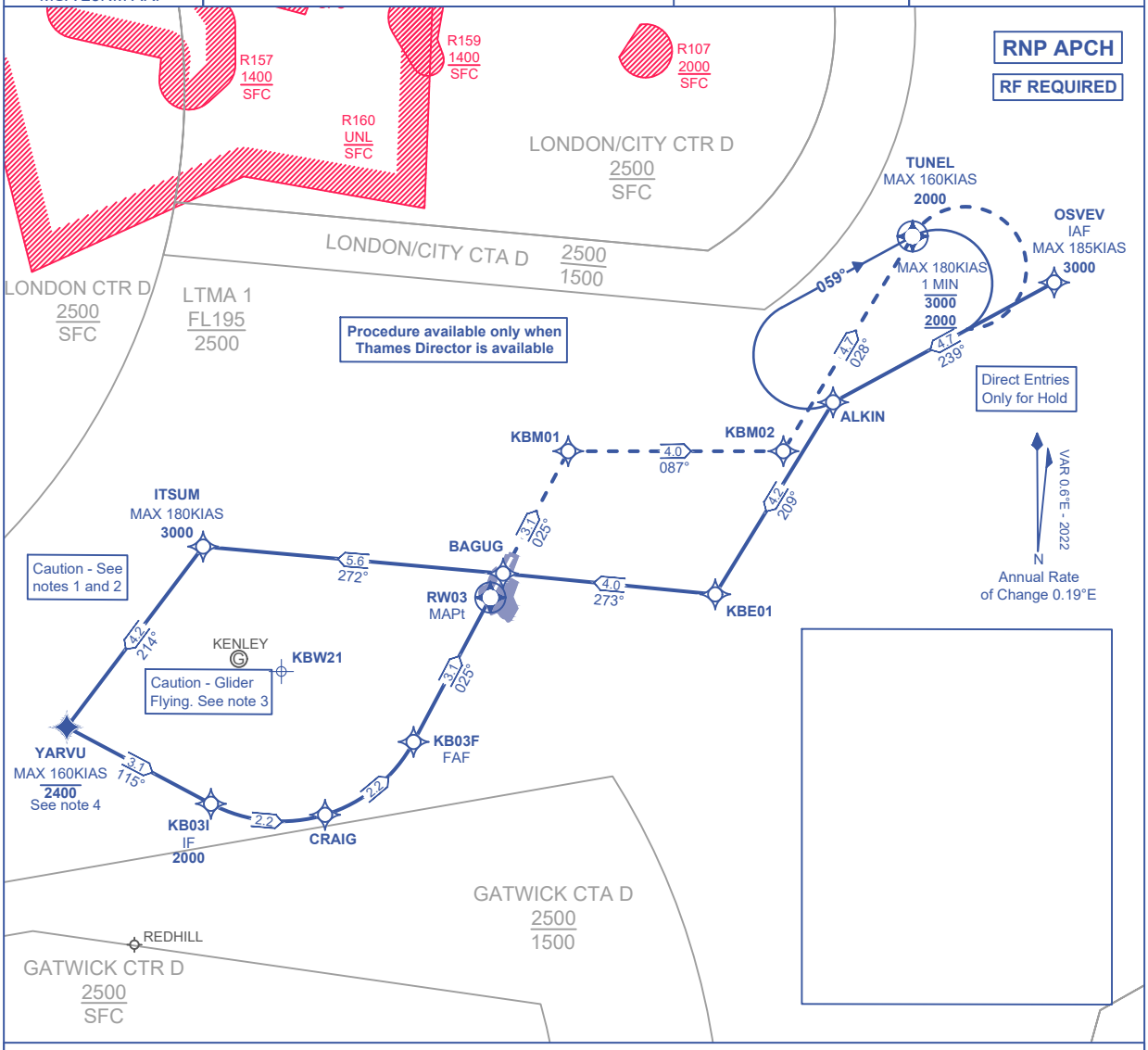
INSTRUMENT APPROACH CHART - ICAO

BIGGIN HILL
RNP
RWY 03
(ACFT CAT A, B, C)

2₃ MSA 25NM ARP	APP 129.405	BIGGIN APPROACH	AD ELEVATION 584
	TWR 134.805	BIGGIN TOWER	THR ELEVATION 577
	RAD 132.700, 133.455, 128.025	THAMES DIRECTOR	OBSTACLE ELEVATION 1305 AMSL (788) (ABOVE THR)
			BEARINGS ARE MAGNETIC

MIN TEMP -10°C

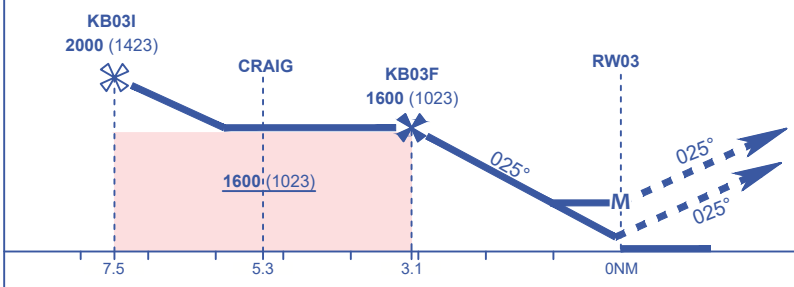
TRANSITION ALTITUDE 6000



RECOMMENDED PROFILE VNAV - VERTICAL PATH ANGLE 3.0° (LNAV 5.24%), 318FT /NM

NM to RW03	3	2	1
ALT (HGT)	**1580** (1003)	**1260** (683)	**950** (373)

TCH 50



MAPt (LNAV): RW03

Continuous climb to **2000**. Initially climb straight ahead to **KBM01**, right to **KBM02**, left to **TUNEL**, then turn right to intercept a course of 239° to **ALKIN** to hold or as directed.

Aircraft Category		A	B	C
OCA (OCH)	LNAV/VNAV	**900** (323)	**910** (333)	**920** (343)
	LNAV	**1270** (693)		
VM(C)OCA (OCH AAL)	Total Area	**1150** (566)	**1350** (766)	**1450** (866)

Rate of descent	G/S KT	160	140	120	100	80
	FT/MIN	850	740	640	530	420

NOTE

1. Below 2500ft ALT this procedure lies outside controlled airspace. Pilots should keep a good lookout for light aricraft, including microlights and gliders, operating under VFR. Some GA aircraft use the M25 motorway as a visual navigation feature.
2. Remain clear of EGKK CTA at all times. In the event of GNSS Integrity or route conformance issue inform ATC immediately.
3. Winch-launched gliding activity takes place in the vicinity of Kenley up to TMA base in VMC.
4. Compulsory reporting point at YARVU.

Airport	Biggin Hill - EGKB
Procedure	RNP RWY 03
Version	1.0
Version Date	04/03/2024
Mag Var	0.6 °E
Mag Var Date	2022

Designator	Sequence Number	Path Terminator	Waypoint Name	Waypoint Co-ordinates	Arc Centre Name	Arc Centre Co-ordinates	Fly-over	Course / Track °M (°T)	Turn Direction	Level Constraint	Speed Constraint	Remarks and Distance to MAPt
R03L	001	IF	OSVEV		-	-	N	-	-	3000	185	IAF
R03L	002	TF	ALKIN		-	-	N	239° (239.4°)	LEFT	-	-	-
R03L	003	TF	KBE01		-	-	N	209° (209.4°)	RIGHT	-	-	-
R03L	004	TF	BAGUG		-	-	N	273° (273.3°)	-	-	-	-
R03L	005	TF	ITSUM		-	-	N	272° (272.8°)	LEFT	3000	180	-
R03L	006	TF	YARVU		-	-	N	214° (214.6°)	LEFT	$\overline{2400}$	160	-
R03L	007	TF	KB03I		-	-	N	115° (115.5°)	-	2000	-	IF / 7.5NM
R03L	008	RF	CRAIG		KBW21		N	-	LEFT	-	-	-
R03L	009	RF	KB03F		KBW21		N	-	LEFT	1600	-	FAF / 3.1NM
R03L	010	TF	RW03		-	-	Y	025° (025.7°)	-	-	-	MAPt
R03L	011	CF	KBM01		-	-	N	025° (025.7°)	RIGHT	-	-	-
R03L	012	TF	KBM02		-	-	N	087° (087.7°)	LEFT	-	-	-
R03L	013	TF	TUNEL		-	-	Y	028° (028.8°)	RIGHT	2000	160	-
R03L	014	CF	ALKIN		-	-	Y	239° (239.3°)	-	2000	180	HOLD

NOT FOR OPERATIONAL USE

6 Safety Assessment

Section Redacted

7 Data to be collected and trial success criteria

Alongside defining trial objectives, CAP1616 Ed4 requires sponsors to state what data and outcomes they need from the trial in order to prove or otherwise that the trial has been a success.

The tables below sets out each objective, the data and/or evidence that will be collected from the trial and establishes a target in order to prove or otherwise that the trial has been a success.

Objective 1
Understand and analyse RNP flyby and RF leg Actual Navigation Performance on arriving traffic to a short final approach.
Data and/or Evidence to be collected
To meet this objective, LBHA have installed an ADSB receiver which will complement Mode S ATM data to understand precise lateral and vertical actual navigation performance by RNP APCH+RF arrivals. ADSB provides a much greater granularity of data, compared to Mode S radar data.
Success criteria
By the end of the trial we will be able to report on the lateral and vertical actual navigation performance by RNP APCH+RF arrivals by at least 180 arrivals. (In the 6 months Jan-Apr and Nov-Dec 2023 there were 333 IFR arrivals to Runway 03. Assuming 50% of these are RF capable and fly the RNP APCH gives approximately 180 flights, one per day on average). Note we may revise this success criteria should the trial take place over a different 6 month period than anticipated at this time.

Objective 2
Understand the impact on pilot workload associated with the use of RF to a short final approach, together with its suitability in Class G airspace.
Data and/or Evidence to be collected
To meet this objective, we will: - Determine whether the procedure is 'understood and flown correctly' by pilots. ATC will log instances of the procedure not being understood or being flown incorrectly. Examples include, aircraft not making level restrictions, not reporting at YARVU or excessive questioning of ATC with regards the procedure. Each month we will ask LHBA's operators to complete a short survey[27] to report on issues with procedure misunderstanding, procedure breakdown or flyability and general workload associated with the RNP APCH+RF procedure. - Log any occurrences of 'procedure breakdown' or issues with flyability as these could be expected to cause a sudden increase in pilot workload. We propose that a procedure breakdown occurs when a Flight Management Computer (FMC) Disconnect takes place resulting in the aircraft not making a turn at a waypoint and instead flying 'wings level' through that waypoint.

[27] See Annex G

Excessive ballooning around a waypoint, over and above that which could be expected by an aircraft established on an RNP APCH procedure will be logged as a flyability issue.
An unstable approach caused by excessive speed and/or rate of descent above that defined by the IFP is not considered to be a breakdown of the procedure. ATC or the pilot purposefully breaking an aircraft off the procedure is not considered to be a breakdown of the procedure.

A procedure breakdown or flyability issue will either be raised by NATS Terminal Control, Biggin Hill ATC or pilot. In the event of a single procedure breakdown or a single flyability issue occurring, LHBA will engage with the operator to understand the reason. Multiple occurrences (more than 1) by the same aircraft or operator may, depending on the location and severity or the issue, lead to ATC stopping the aircraft or operator being cleared on the IAP, until the issue has been addressed.

Multiple occurrences of procedure breakdown or flyability issues across multiple operators or FMC manufacturer or aircraft types may, depending on the location and severity or the issue, lead to suspension of the trial until the fault has been identified and corrected through either operational procedures or a change to the IFP.
Each month we will ask LHBA's operators to complete a short survey to report on issues with procedure misunderstanding, procedure breakdown or flyability and general workload associated with the RNP APCH+RF procedure.

- Determine whether the procedure 'exacerbated the issues of pilot workload' compared to the existing circling approach.
Each month we will ask LHBA's operators to complete a short survey[28] to report on issues with procedure misunderstanding, procedure breakdown or flyability and general workload associated with the RNP APCH+RF procedure.

- Understand if the RNP APCH + RF procedure increased interactions with other airspace users and/or created conflicts in Class G airspace, through:

>Analysis of the length of time spent in Class G compared to when making a visual approach. We will analyse ADSB and Mode S data from the RNP APCH arrivals to calculate time spent outside CAS on the procedure and compare to the time spent outside CAS by the traffic making a visual approach to RWY03 during the trial period. ADSB receivers have been installed at Biggin Hill to enhance this analysis.

>Glass G airspace User feedback including Redhill Aerodrome, Farnborough LARS, and Surrey Hills Gliding Club, RAF Kenley. Each month we will ask RAF Kenley, Surrey Hills Gliding Club, Farnborough LARS, Redhill Aerodrome and Green Dragons to complete a short survey[26] to report on any pilot feedback they have received, associated with the impact of the RNP APCH+RF procedure on their normal operations and whether they felt it contributed to increased interactions in Class G airspace.

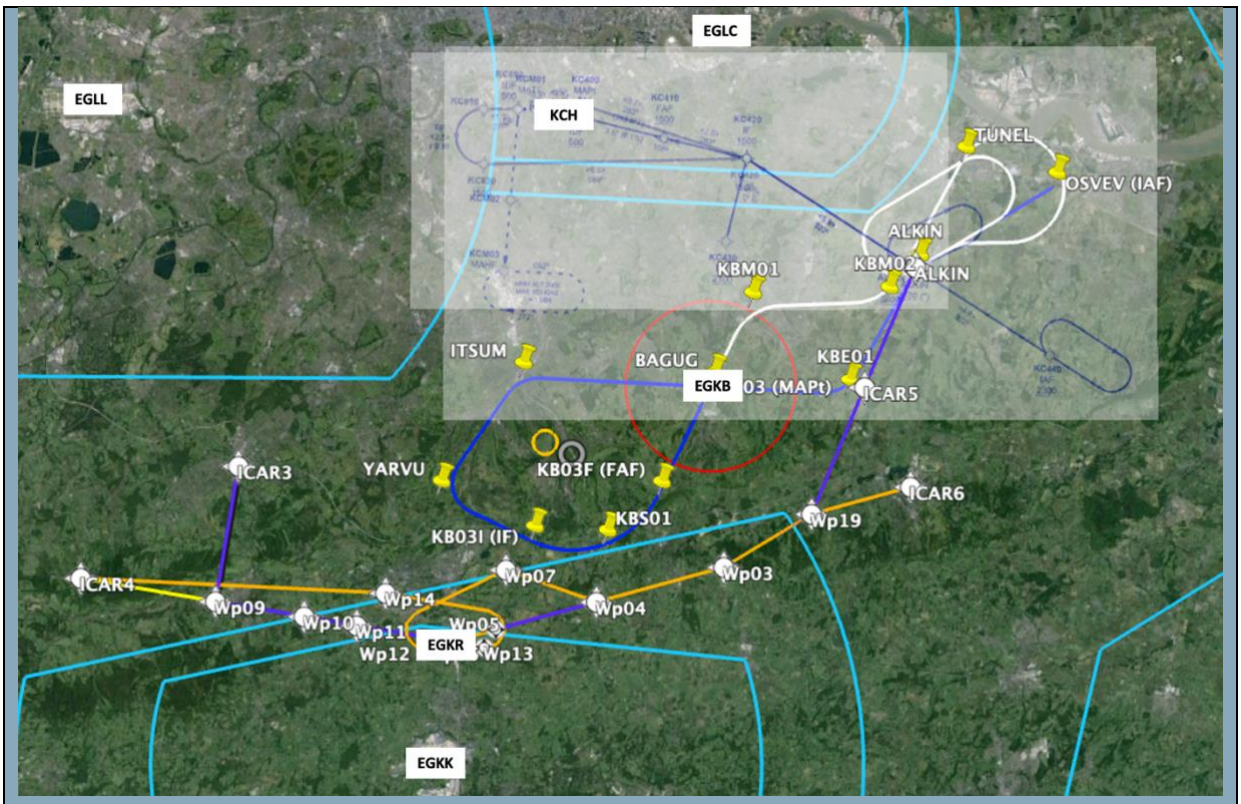
>Analysis of conspicuous (Mode S, ADSB, FLARM, PAW) GA traffic in the area. Compare the proximity encounter rates of conspicuous GA operations in the volume of Class G around the RNP APCH+RF procedure. ADSB, FLARM and PilotAware receivers have been installed at Biggin Hill to enhance the pre-trial analysis.

Success criteria
By the end of the trial: - We will have seen at least 180 arrivals fly the RNP APCH+RF procedure

[28] See Annex G

- Experienced no instances of procedure breakdown or flyability by more than one aircraft type/operator/FMC manufacturer on the leg between YARVU and the runway, since any issues were rectified
- The majority of pilot feedback, in the last 3 months of the trial, is positive with regards to their workload compared to the existing circling approach
- Traffic on the RNP APCH+RF procedure will, on average, spend less time outside CAS compared to traffic making a visual approach to RWY 03 during the trial period.
- We will be able to quantify the % of approaches flying the RNP APCH that were in close proximity to other, conspicuous traffic in Class G airspace. For the purpose of the analysis, we have defined 'close proximity' as within 1.0nm laterally and 500ft vertically. This can be compared to the % of visual approaches that were considered in close proximity to other conspicuous traffic, outside of the ATZ during the trial period, as well in relation to the proximity encounter rates between GA-GA aircraft. If considered a suitable methodology, it could then be used by other sponsors wishing to pursue implementation of IFPs or other structures in Class G airspace.

Objective 3
Demonstrate safe integration of traffic, where different agencies require the use of multiple, innovative Instrument Approach Procedures (IAPs) in Class G Airspace.
Data and/or Evidence to be collected
This objective is entirely dependent on the progress of ACP-2023-027 and/or ACP-2023-077 and assumes the PinS procedure is operational within the timeframes of this trial. The sponsors of ACP-2023-027 and/or ACP-2023-077 will be developing LoAs with Biggin Hill in a time frame relevant to their ACP submission/implementations. If one or more PinS procedures are implemented in the timeframe of this trial, we will be able to demonstrate the procedures within the LoAs enabling both PinS and RNP APCH 03 IFPs to co-exist. The figures below illustrate the proximity of the proposed EGKB RNP APCH+RF procedure and the PinS procedures proposed into Kings College Hospital and Redhill Aerodrome. Note these are the latest version of the PinS procedures as of March 2024 and their characteristics may change in the time between now and their implementation.



Success criteria
Subject to ACP-2023-027 and/or ACP-2023-077 timescales, by the end of the trial we will have been able to demonstrate how co-ordination between multiple agencies (Redhill, LCY, Thames Radar, Biggin Hill, Gatwick Approach and operators) enables the safe co-existence of multiple IFPs across Class A (LTMA), Class D (LCY/EGKK CTA) and Class G airspace boundaries.

8 Actions to be taken in the event of short notice failure of the trial

In the event of a short notice failure of the trial, for example a flyability issue, issue with ATC operating procedures or a failure of the ATM, the trial can be immediately suspended by Thames Radar stopping issuing clearance for the RNP RWY 03 procedure until the issue is rectified.

As articulated in the trial objectives, it may not be necessary to suspend the trial in all events. For example, it may be appropriate to suspend a particular operator or aircraft type from participating in the trial until such a time as the causal issues have been identified and resolved.

9 Anticipated start and end dates

9.1 Dates

Dates are subject to change as we are dependent on CAA's acceptance of the IFP design package prior to validation of the IFP, acceptance of that evidence and the outcomes of NERL's Training Needs Analysis. However, we are targeting Thursday 14th Nov 2024 as the start date of the trial. This requires AIS submission of the AIP Supplement by 4th Oct 2024. Based on that start date, the trial will run for 6 months to Weds 14th May 2025.

10 Noise impacts and considerations

10.1 CAA Requirement

CAP1616 Ed4 Appendix B requires sponsors to explain how the sponsor has considered and assessed the likely noise impact of its proposal. In addition, for trials longer than 90 days, that affect traffic distribution below 7,000 feet, the following information must be prepared by the change sponsor and used to engage with those affected:

a) For noise from daytime flights (0700 to 2300), 65 dB L_{Amax} footprints that illustrate the loudest and most frequent types of aircraft that will be participating in the trial.
b) For noise from night-time flights (2300 to 0700), 60 dB L_{Amax} footprints that illustrate the loudest and most frequent types of aircraft that will be participating in the trial.
c) Equivalent footprints that illustrate where the trial traffic would otherwise have flown (this assumes that any aircraft that partakes in a trial would have flown on an alternate route that reflects current operations).
d) Information on the expected frequency (both absolute and as a percentage of total traffic during the trial period) and timing of flights participating in the trial.
e) Operational diagrams that illustrate the estimated overflight swathe of trial traffic, up to 7,000 feet.

10.2 Biggin Hill's existing Noise Monitoring requirements

Calibrated Noise Monitors are located approximately 1 KM from the threshold of each runway and lie directly under the approach and departure path. There is no change to arrival or departure flight paths within this region as a result of this trial.

10.3 Estimated number and types of arrivals to fly the RNP APCH+RF procedure

The procedure requires aircraft to have RF capability, that is the aircraft is required to be certified and the operator has an operational approval to fly procedures that utilise them.

When determining fleet PBN equipage and capability, it is best to interrogate historical flight plans through Eurocontrol's communication, navigation and surveillance (CNS) and performance-based navigation (PBN) information dashboard. However, RF capability is not a piece of information that exists within it. Therefore, LBHA requested that all frequent operators as well as NATMAC representatives complete a short survey to provide information on their capabilities.

Only 8 responses were received. When applying those responses to LBHA's busiest IFR arrival month of 2023 (May), a definite 23% of the arrivals would have been RF capable, with a definite 17% being uncapable. The remaining 60% of arrivals are unknown.

Table 13 sets out the number of IFR airways arrivals during 2023. It shows how many of those were RWY 03 arrivals together with an average monthly figure in addition to the highest number of RWY 03 IFR arrivals on a single day. The green shaded boxes provide an estimate, assuming an optimistic 50% RF capability of those daily average and peak numbers.

	2023											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
IFR Airways Arrivals	723	842	749	864	1029	1187	1274	1050	1069	945	688	821
RWY 03 IFR Airways Arrivals	28	91	47	134	444	441	1	26	61	38	24	9
Average RWY 03 Airways Arrivals per day	1	3	2	4	14	15	<1	<1	2	1	1	<1
Average RNP+RF RWY 03 Airways Arrivals per day (Assumes 50% capability)	<1	2	1	2	7	7	<1	<1	1	<1	<1	<1
Peak RWY 03 Airways Arrivals per day	13	21	14	22	65	46	<1	12	16	15	15	6
Peak RNP+RF RWY 03 Airways Arrivals per day (Assumes 50% capability)	7	11	7	11	33	23	<1	6	8	8	8	3

Table 13: Number of IFR airways arrivals in 2023

Based on an assumed 50% RF capability and a trial between November and April, there would have been an average of 1-2 RNP APCH+RF arrivals per day with a peak of 11 arrivals in a single day. This could be compared to a trial in the summer period which would have seen an average of 4-5 RNP APCH+RF arrivals per day with a peak of 33 arrivals in a single day.

This estimate assumes that all RF capable runway 03 IFR arrivals elect to fly the RNP APCH+RF procedure. In reality, we expect some capable aircraft will still elect a visual approach, owing to reduced track miles, therefore this is considered an over-estimate.

10.4 Noise assessment

This section provides the information required by CAA as per section 9.1 above.

10.4.1 Equivalent footprints that illustrate where the trial traffic would otherwise have flown

Figure 14 shows the paths currently taken by EGKB IFR Airways arrivals to Runway 03.

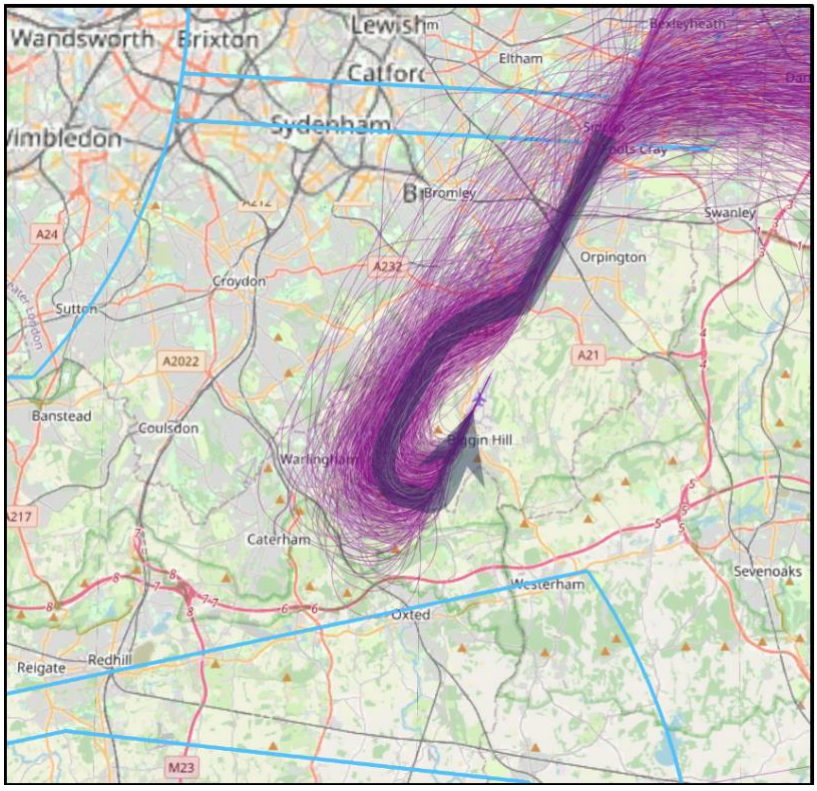


Figure 14: Swathe of arrivals to Runway 03

The traffic patterns shown in Figure 14 will still be present throughout the trial. A proportion[29] of these arrivals are expected to fly the trial RNP APCH+RF procedure.

Figure 15 shows a computer generated single, average arrival track from all the arrivals shown in Figure 14.

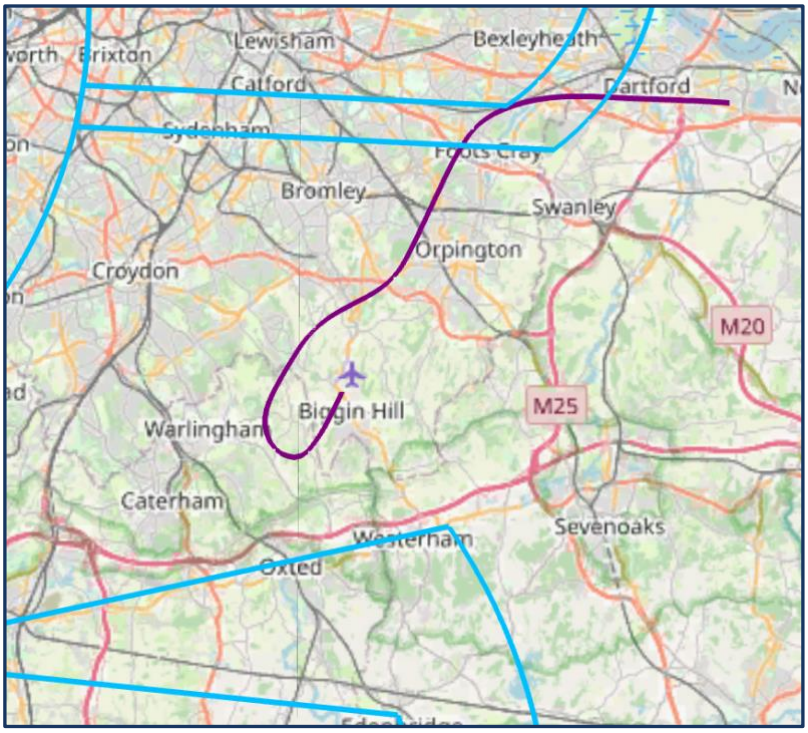


Figure 15: Computer generated single average track

10.4.2 Operational diagrams that illustrate the estimated overflight swathe of trial traffic, up to 7,000 feet.

Figure 16 shows the overflight[30] cones beginning only from OSVEV at 3000ft. Overflight above 3000ft is not within the control of LHBA, in a location much further west of LBHA's area of responsibility and will not change as a result of this trial. The overflight cone of the existing, typical average RWY 03 arrival is shown in orange with the overflight cone of the RNP APCH+RF procedure in purple.

[29] See 10.3

[30] Based on CAA Definition of overflight CAP1498 "An aircraft in flight passing an observer at an elevation angle that is greater than 48.5° and at an altitude below 7,000 ft."

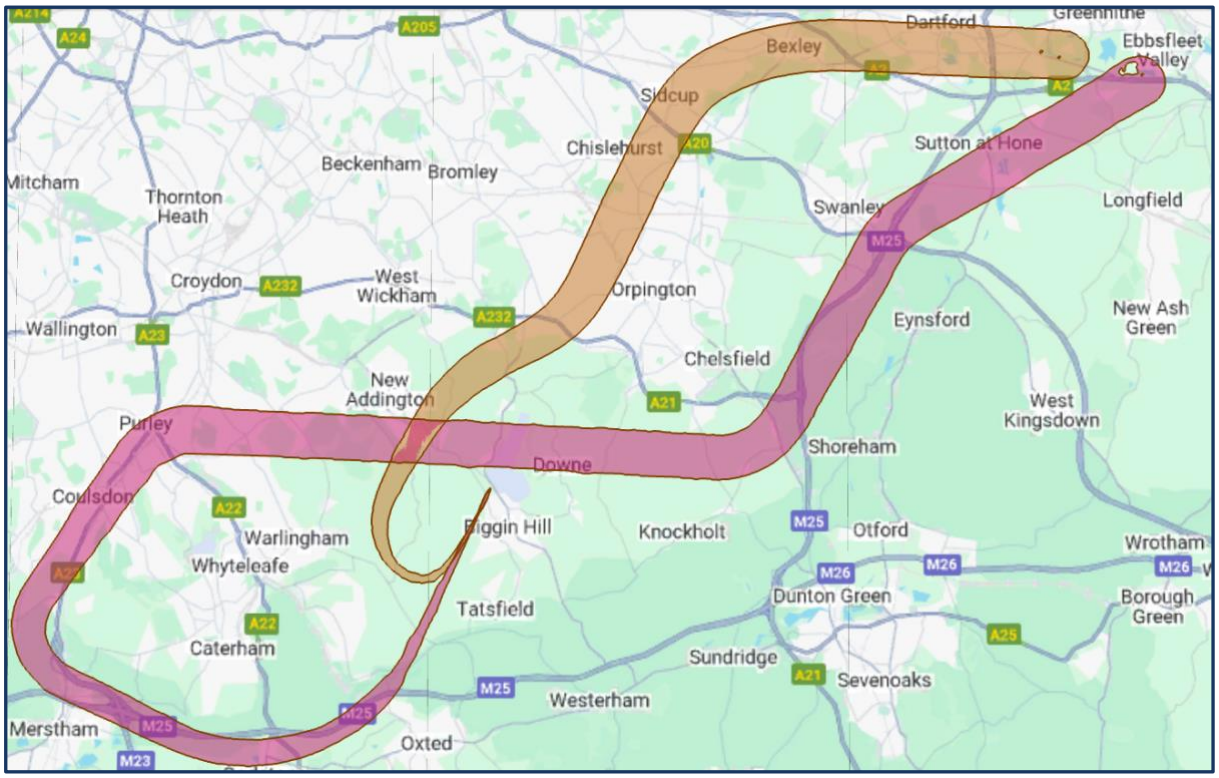


Figure 16: Overflight cones 0-3000ft of a typical RWY 03 arrival (orange) versus the proposed RNP arrival (purple).

10.4.3 60dB and 65 dB LAmax footprints that illustrate the loudest and most frequent types of aircraft that will be participating in the trial.

60dB L_{Amax} footprints are provided in Figure 17 for the proposed RNP APCH+RF track together with the existing, average arrival track for aircraft making a visual approach, which will still be present during the trial period. Global Express (GLEX), LearJet 75 (LJ75) and Boeing 737 (B737) are the aircraft types chosen and they can be expected to have RF capability.

The B737 is a very infrequent aircraft type, with usually only 1 arrival per month, but represents the loudest aircraft that could fly the RNP APCH+RF procedure. The GLEX is the most common and loudest type expected to fly the procedure, with an average 32 IFR arrivals per month[31]. The LJ75, also with an average 32 IFR arrivals per month, is chosen to show the how the L_{Amax} footprints can vary between the smaller and larger business jets.

[31] Jan-Apr and Nov-Dec 2023

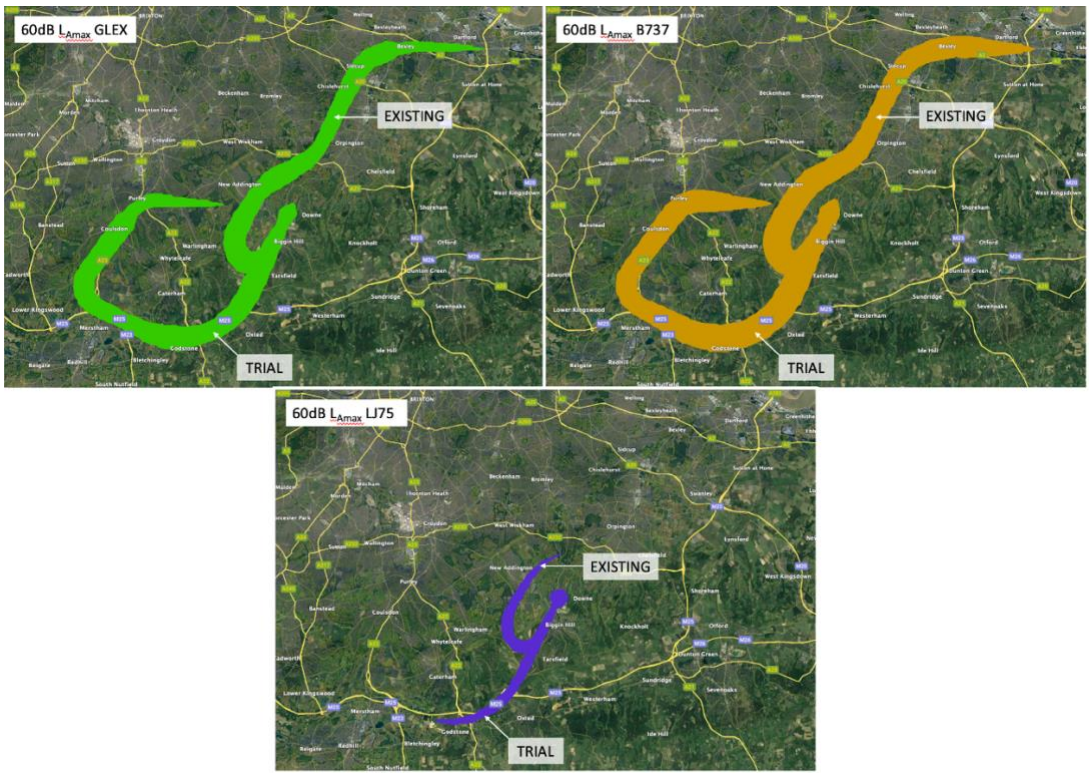


Figure 17: 60dB L_{Amax} footprints for GLEX, B737 & LJ75

Figure 18 shows the differences between the 65 dB L_{Amax} footprints for GLEX, B737 and LJ75 aircraft types on both the proposed RNP APCH+RF procedure and the average, typical track for aircraft making a visual approach.

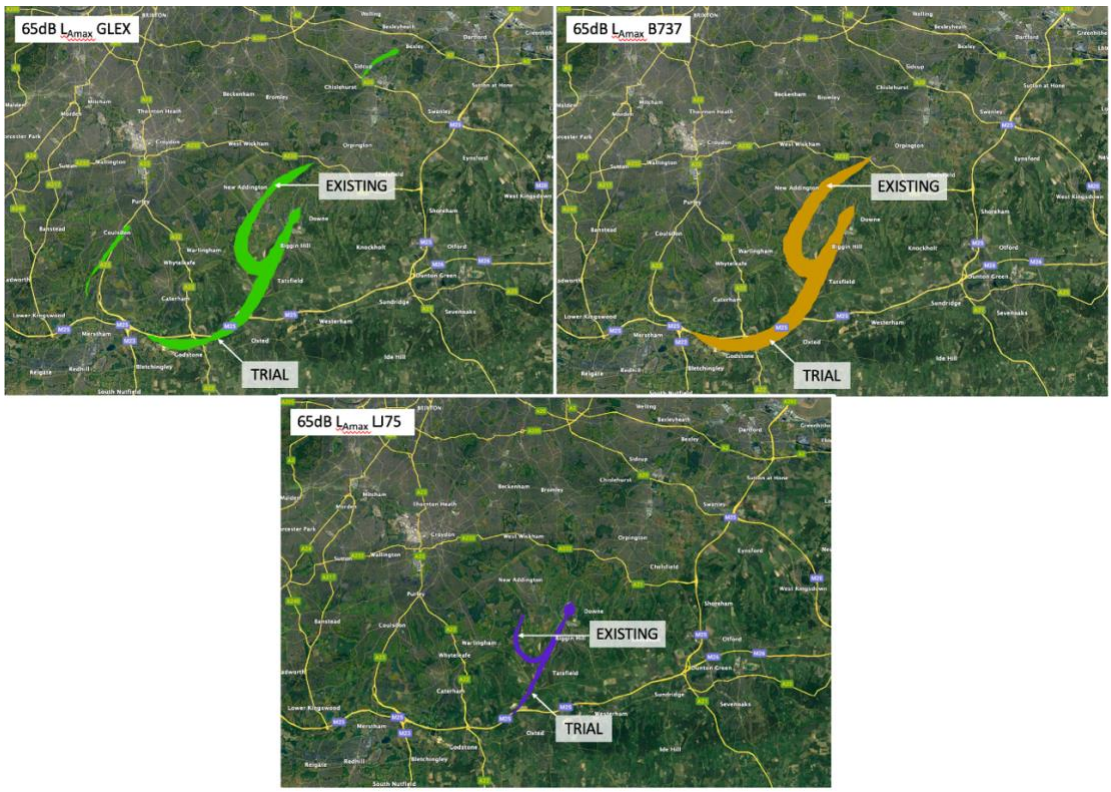


Figure 18: 65dB L_{Amax} footprints for GLEX, B737 & LJ75

10.4.4 The expected frequency (both absolute and as a percentage of total traffic during the trial period) and timing of flights participating in the trial

Section 10.3 provides the anticipated number of IFR arrivals expected to fly the RNP APCH+RF procedure.

In 2023, LBHA had 40,623 Air traffic Movements. 3% (1,344) of these movements were runway 03 IFR arrivals. Assuming 50% of arrivals are RF capable and all of those arrivals elect to fly the RNP APCH procedure rather than the visual approach, we could expect in the region of 670 arrivals across a 12-month period. However, in the autumn-spring 6-month trial period proposed, this number is likely to be in the region of 170. As per our trial objectives, we have a target to observe 180 RNP APCH arrivals in the trial period i.e. An average of 1 arrival per day.

The busiest number of runway 03 IFR arrivals in 2023 in a single hour was 8. In theory all 8 of these could have been RF capable and elected to fly the procedure but based on the actual data, 2 of these aircraft were likely to have flown the procedure.

These movements could occur weekdays between the hours of 0630 – 2300 (local) and between 0800-2200 (local) weekends and Public Holidays.

10.5 Next steps

CAP1616 Ed 4: If a live operational trial is permitted by the CAA, the trial sponsor must next identify and inform the full range of stakeholder groups that the trial will be taking place. The level of information about the trial which it must provide will be influenced by the noise assessment carried out when designing the trial. The scope of this exercise needs to be proportionate. The CAA will make an assessment and advise the trial sponsor what is needed. But in line with Government guidance, particular emphasis should be given to taking reasonable steps to inform communities and their representatives before any trial commences where the trial might affect the routes flown by aircraft below 7,000 feet.

11 Engagement during the trial and monitoring of complaints

11.1 Engagement during the trial

As determined appropriate by CAA, throughout the trial LBHA will undertake regular engagement with stakeholders to ensure that there is awareness of the trial, its progress and timelines as well as the associated complaints procedure within CAP1616. LBHA will provide all stakeholders with a dedicated email address where they can contact us with any questions or concerns that arise during the trial.

11.2 Trial complaints

As part of this engagement activity, LBHA will make clear that complaints must meet the criteria set out by the CAA, in order for the CAA to consider whether to investigate.

LBHA will collate, monitor and report complaints to the CAA. This will be actioned through Biggin Hill's noise complaint process. In addition, we have briefed Biggin Hill's Consultative Committee and are engaging them as a standing item on their quarterly meetings.

LBHA will immediately assess and action any complaints raised regarding safety.

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ACP-2023-075

TRIAL OF AN RNP APPROACH TO RUNWAY 03 AT BIGGIN HILL AIRPORT

Annex A - Stakeholder Engagement Plan

Table of Contents

1 Engagement Plan Overview

1.1 Introduction

This document aims to provide information on the planned stakeholder engagement that will take place as part of ACP-2023-075, the Trial of an RNP Approach to Runway 03 at Biggin Hill Airport. This document focuses on the early phases of industry stakeholder engagement, prior to the submission of the formal Trial Plan, which is due to be submitted to the CAA by the end of March 2024.

1.2 Existing CAP1616 Requirements

The stakeholder engagement requirements for a trial are currently laid out in CAP1616 (edition 4), Part 1b Airspace trial[1].

The existing requirements are that, prior to the CAA agreeing to the trial, the sponsor must demonstrate to the CAA that it has carried out targeted engagement with aviation stakeholders (specifically, that is airspace users, air navigation service providers and airports only) to establish that the trial will be safe and operationally viable. Prior to the commencement of the trial, the sponsor must identify and inform the full range of stakeholder groups that the trial will be taking place.

1.3 Proposed Stakeholder Engagement

To successfully design and carry out this trial, Biggin Hill airport is proposing to undertake different phases of engagement with a range of stakeholders.

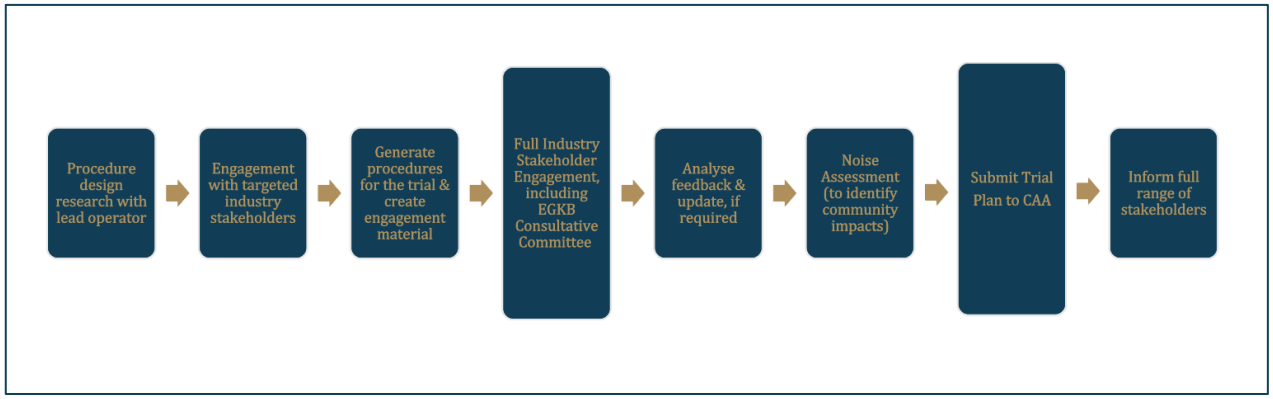


Figure 1: Proposed stakeholder engagement phases

[1] Edition 5 of CAP1616 was published on Monday 30 October 2023, however at the time of writing this document, the new guidance for Airspace Trials has not been released.

2 Lead Operator Engagement

2.1 Lead Operator Identification

Biggin Hill Airport carried out an assessment of the most frequent operators from the airport, to ascertain which are best suited to assist with the trial as a Lead Operator. Biggin Hill identified an LJ45/75 pilot who confirmed their aircraft are RF capable.

2.2 Lead Operator Role

It is intended that the lead operator will provide technical and operational advice during the early phases of the project. This collaboration will help to identify and tackle issues that could impact the success of the trial.

2.3 Method of Engagement

Biggin Hill will conduct this engagement in face-to-face/online meetings with the lead operator.

2.4 Proposed Timeframe

This phase of engagement is due to take place from November 2023.

3 Targeted Industry Stakeholder Engagement

3.1 Targeted Engagement Aims

The next phase of the engagement plan is to engage with a targeted set of industry stakeholders. Biggin Hill have identified the key industry stakeholders who could potentially be impacted by the trial, and the aim of this engagement is to identify any potential issues with the design or planned trial, prior to the final design being proposed to the CAA.

In accordance with CAP1616, community engagement is not required, however, Biggin Hill will also engage at this stage with the Biggin Hill Airport Consultative Committee.

3.2 Targeted Stakeholders

Biggin Hill intends to engage with their operators, local General Aviation airspace users, adjacent airports, and airfields and NATS Terminal Control. This includes sponsors of ACPs to implement PiNS procedures at Kings College Hospital London and Redhill Aerodrome. The following is the list of stakeholder organisations to be engaged at this stage.

Adjacent Airports and Airfields

RAF Kenley and Surrey Hills Gliding Club	London Gatwick Airport
Heathrow Airport	London City Airport
Redhill Aerodrome	Farnborough LARS

Other airspace users (including some NATMAC members)

NATS TC	Ministry of Defence (DAATM)
Helicopter Emergency Medical Services (Kings College Hospital & Redhill)	National Police Air Services

Additional Stakeholders

Biggin Hill ATS Inspector	ACP-2023-027 Specialist Aviation Services Limited, Future Airspace Limited and Air Ambulance Charity Kent Surrey Sussex (AACKSS)
ACP-2023-077 Redhill Aerodrome, Future Airspace Limited and Air Ambulance Charity Kent Surrey Sussex (AACKSS)	

Biggin Hill will also brief the Biggin Hill Airport Consultative Committee at the next scheduled meeting, in January 2024.

Biggin Hill Airport Consultative Committee Members

London Biggin Hill Airport	Resident aerospace businesses
London Borough of Bromley	Commercial users of the airport
London Borough of Croydon	Flying clubs and private aircraft owners
Tatsfield District Council	Bromley Residents Federation
Kent County Council	Biggin Hill Residents Association
Sevenoaks District Council	Metropolitan Police
Tandridge District Council	South London Business
Greater London Authority Representatives	

3.3. Method of Engagement

Biggin Hill intends to conduct this targeted engagement via face to face or online workshop forums.

This engagement will explain the purpose of the trial and the data to be collected, the approximate timelines and durations, include details on a draft IFP for discussion and request feedback on any concerns or operational implications.

3.4 Proposed Timeframe

Biggin Hill intends to hold this engagement in December 2023.

4 Full Industry Stakeholder Engagement

4.1 Industry Stakeholder Identification

At this phase of the engagement plan, Biggin Hill intends to engage with all relevant industry stakeholders, as per the requirements of CAP1616 Edition 4.

This list will include all those stakeholders who have participated in the earlier engagement (see section 3.2), but also include all Biggin Hill operators, members of NATMAC and any other pertinent industry stakeholders who have not yet been engaged.

Biggin Hill will continue to engage at this stage with the Biggin Hill Airport Consultative Committee.

The following tables are the **additional** stakeholders who will be engaged at this stage, these stakeholders are in addition to those listed at sections 2.1 and 3.2 of this document.

Biggin Hill Operators

1 Aviation	Linkinjet
Acropolis Aviation	London Executive Aviation
Alouette Flying Club	Net Jets
Alpha Golf	Oriens Aviation
Avalon Aerojet	RAS Completions
Bombardier	JETEX
Castle Air	Shipping & Airlines
Catreus Ltd	Sovereign Business Jets
Centreline Air Charter	Textron
Cirrus Aircraft	Voluxis
Heritage Hangar	MP Flying Club
Interflight Air Charter	Zenith Aviation
JT Air Ltd	Falcon Flying Services

Other Airspace Users

Battersea Heliport	Kent Gliding Centre
Cloudbase Aviation (Redhill)	Lasham Gliding Club
East Sussex Gliding Club	Matt Robbins Microlight Instruction (Rochester)
Green Dragons Warlingham	Southdown Gliding Club
East Haxted Microlight site	Green Dragons Warlingham
Hurley Lodge helicopter site	Rochester Airport

NATMAC Members

Airlines UK	Drone Major
Airport Operators Association	General Aviation Alliance
Airfield Operators Group	Heavy Airlines
Aircraft Owners and Pilots Association	Helicopter Club of Great Britain
Airspace Change Organising Group	Isle of Man CAA
Association of Remotely Pilots Aircraft Systems	Light Aircraft Association
Aviation Environment Federation	Low Fare Airlines
British Airways	Military Aviation Authority
BAe Systems	Ministry of Defence
British Airline Pilots Association	NATS
British Balloon and Airship Club	Navy Command HQ
British Business and General Aviation Association	PPL/IR (Europe)
British Gliding Association	UK Airprox Board
British Helicopter Association	UK Flight Safety Committee
British Microlight Aircraft Association	United States Air Force Europe
British Skydiving	

4.2 Method of Engagement

Engagement material will be prepared for this engagement and will be distributed to stakeholders via email. The engagement material will explain the purpose of the trial and the data to be collected, the approximate timelines and durations and include details on the draft IFP for discussion.

Biggin Hill will request feedback from all stakeholders on any aspects of the trial, including any concerns and/or mitigations required from the stakeholders' perspective.

Stakeholders will be provided with a bespoke email address and be given 6 weeks to provide Biggin Hill with feedback on the proposal.

4.3 Proposed Timeframes

Biggin Hill intends to hold this engagement between 15 Jan– 29 Feb 2024[2].

[2] This engagement took place from 25 January – 6 March 2024.

5 Next Steps

5.1 Feedback Analysis

Biggin Hill will then conduct analysis of the feedback received by the industry stakeholders and the Biggin Hill Airport Consultative Committee and assess whether any changes need to be made to either the design, operational procedures or the trial plan being prepared.

5.2 Noise Assessment

Biggin Hill will then carry out a Noise Assessment in line with the requirements in CAP1616 Ed 4, this will allow the airport to assess any impacts of the proposal on local communities and identify which areas will need to be informed of the trial.

5.3 Submission of Trial Plan

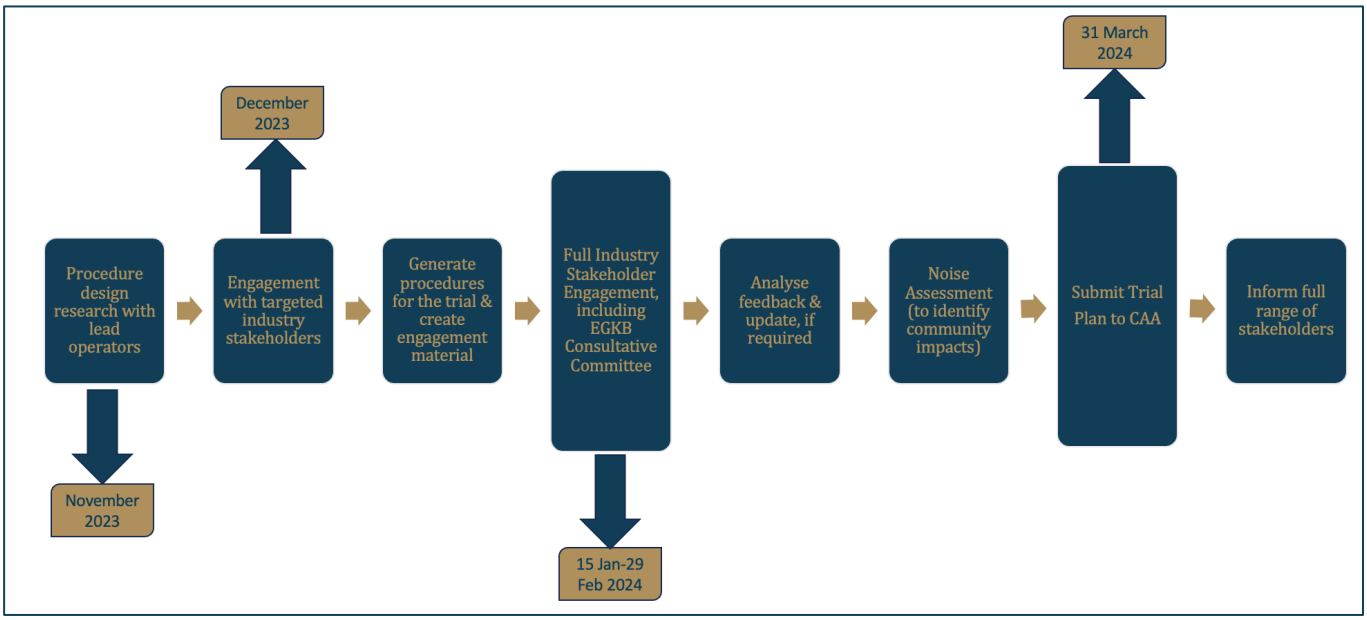
Following the completion of the noise assessment, Biggin Hill will then submit the Trial Plan to the CAA. Alongside the requirements set out in CAP1616 Ed4, the Trial Plan will include evidence of the option development, this document, all the stakeholder engagement which has taken place to date, including all correspondence, engagement material and feedback received.

The Trial Plan will include the Noise Assessment and the evaluation of any impacts on local communities. Biggin Hill will also provide information of the local communities, such as local authorities, parish councils, local community groups, Areas of Outstanding Natural Beauty, and any other local stakeholders who will need to be informed of the trial, in accordance with Ed4 of CAP1616.

5.4 Proposed Timeframe

Biggin Hill proposes to submit the Trial Plan to the CAA at the end of March 2024.

5.5 Overall Timeline


Procedure design research with lead operators
November 2023
Engagement with targeted industry stakeholders
December 2023
Generate procedures for the trial & create engagement material
Full Industry Stakeholder Engagement, including EGKB Consultative Committee
15 Jan-29 Feb 2024
Analyse feedback & update, if required
Noise Assessment (to identify community impacts)
Submit Trial Plan to CAA
31 March 2024
Inform full range of stakeholders

Trial of an RNP Approach to RWY 03 at Biggin Hill Airport

Annex B

Engagement with aviation stakeholders

ACP-2023-075

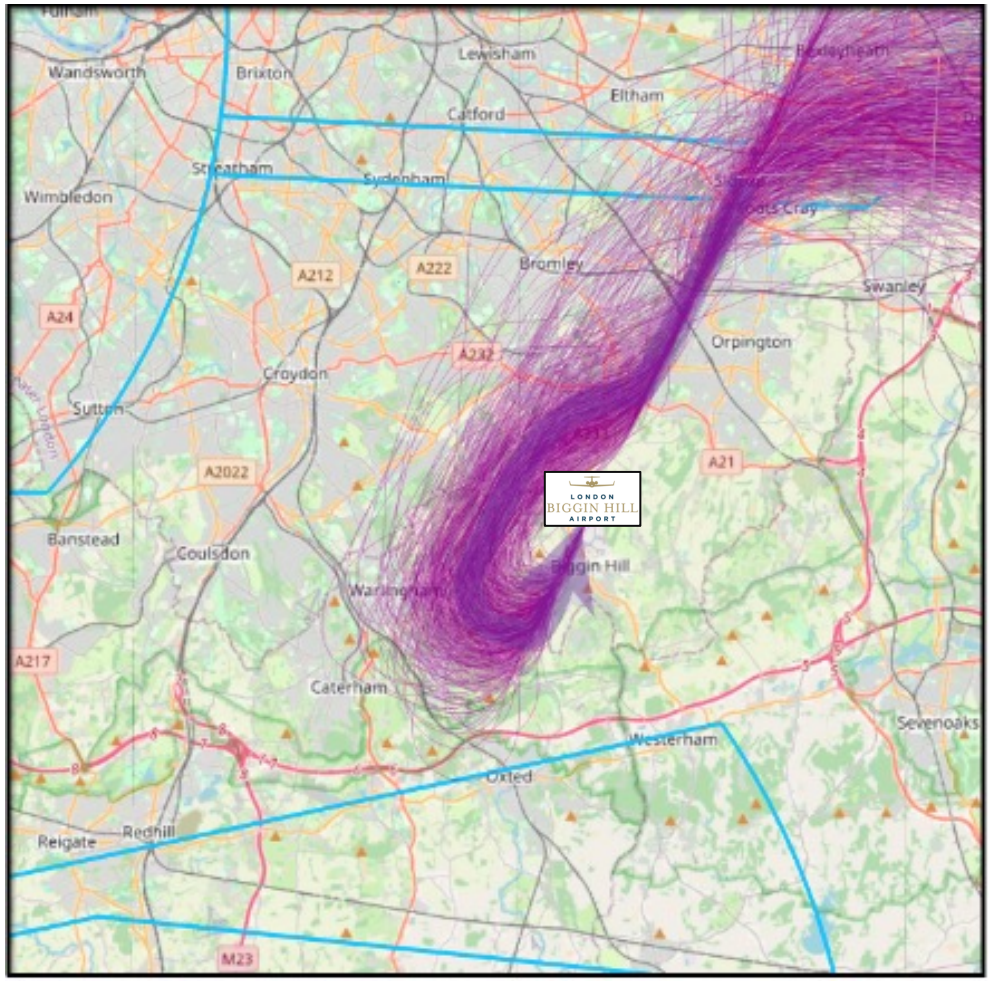
Background

Biggin Hill (EGKB) have Instrument Approach procedures to RWY 21 but none to RWY 03.

Arrivals to RWY 03 currently have to approach visually.

In poorer weather conditions, arrivals may make an ILS approach to RWY 21 until visual and then perform a Visual Circling Manoeuvre to RWY 03. This image shows the existing typical tracks flown today by aircraft arriving, via airways, to Runway 03 at EGKB.

After a 10-year project duration, the last Airspace Change Process (ACP) to introduce an Instrument Approach Procedure to Runway 03 was unsuccessful.



Background

- The ACP was *successful* in a number of aspects:
  - It was in accordance with the AMS
  - The most efficient use of airspace would be secured
  - It considered the environmental requirements under CAP 725 and the Guidance on Environmental Objectives (2014).
  - It satisfied the requirements of operators and owners of all classes of aircraft
  - The interests of other persons has been taken into account.
  - The integrated operation of ATS has been facilitated
  - There were no impacts for national security
  - There was no impact on International obligations
- However, the ACP was *unsuccessful* due to failing to satisfy the CAA's statutory duty to maintain a high standard of safety. Issues raised by the CAA on the previous ACP are available at CAP2500, para 81, a-i.

Moving forward

EGKB believe they have identified a new, innovative and PANS OPS compliant design solution using Radius-to-Fix (RF) to address IFP Design issues identified.

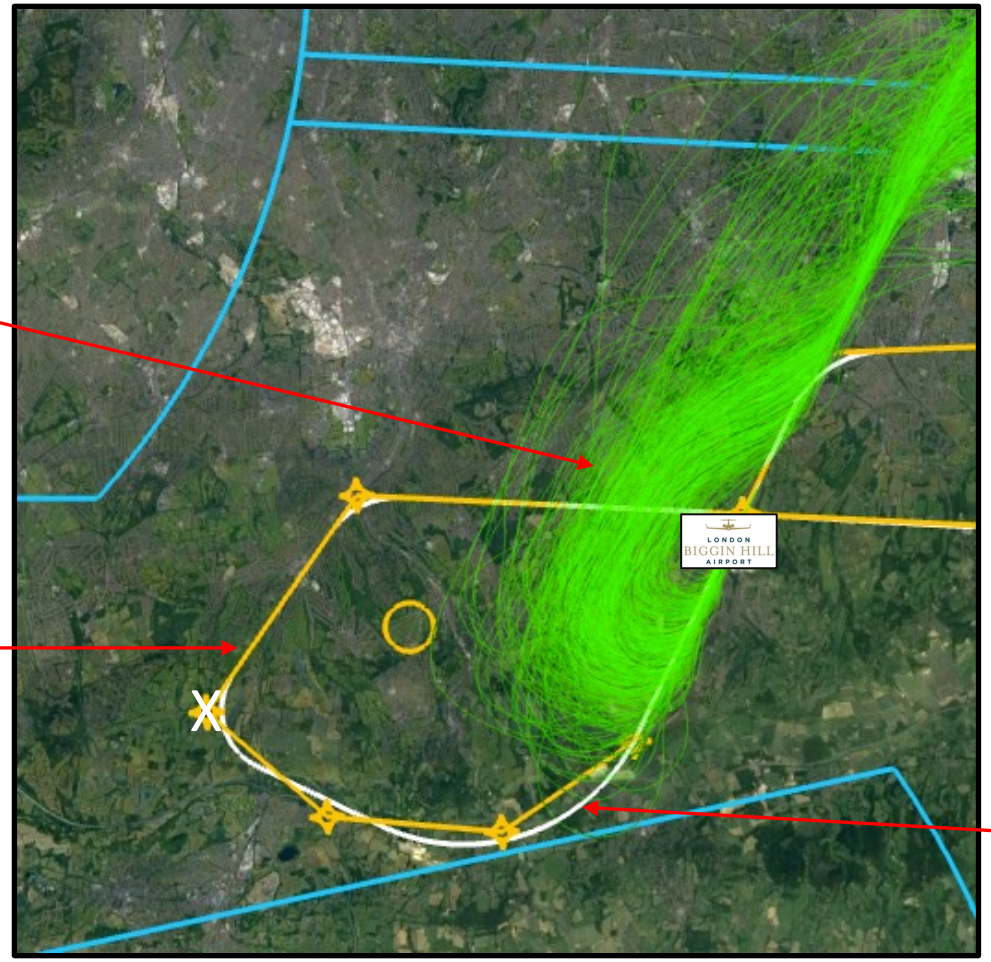
There are however no RNP Approach (APCH) arrival procedures published in the UK which require RF capability therefore, this would be a first-of-kind in the UK. In addition, the proposed RF turn, joins directly onto the Final Approach Fix positioned just 3nm from the runway. This is necessary owing to airspace constraints (the Gatwick CTA) to the south.

EGKB considered commencing a new ACP for a permanent change but are concerned that they may be unable to provide sufficient evidence to demonstrate that all the design issues raised by CAA in CAP2500 have been addressed, without more extensive, real-life operational testing of such an arrival procedure utilising RF to a short final approach.

We therefore wish to progress an Airspace Trial to test the innovative new design solution through several months of live flight trials in variable, real-life meteorological conditions. Through those extensive, real-life flight trials we can test performance and capture evidence to be shared with industry to inform future IFP Design.

The Statement of Need and Assessment meeting minutes for the ACP can be found on the CAA Portal, here.

Procedure (draft) Overview



Existing RWY 03 Arrival Tracks

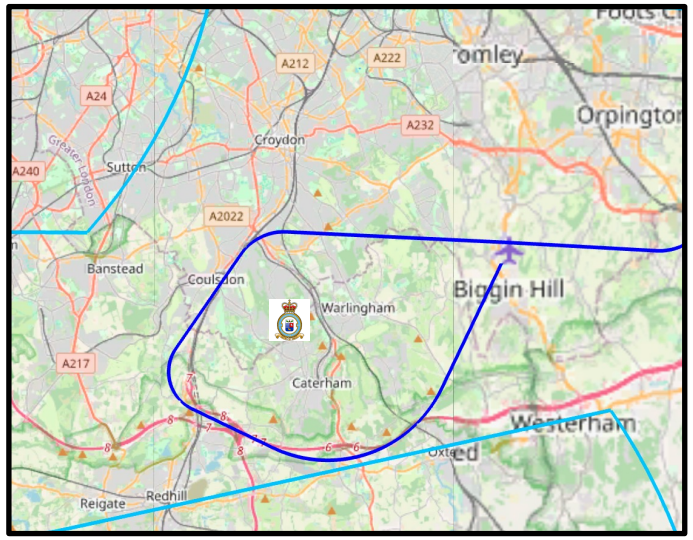
Previous (unsuccessful) IAP on which we consulted with you previously, shown in amber

Proposed (draft) IAP using RF, different from previous design only from Point X to address IFP Design non-compliance and reduce procedure complexity, shown in white

The procedure is very similar to the design proposed in the previous ACP, but with the use of Radius-to-Fix (RF) in the Intermediate Segment to ensure a PANS-OPS compliant design.

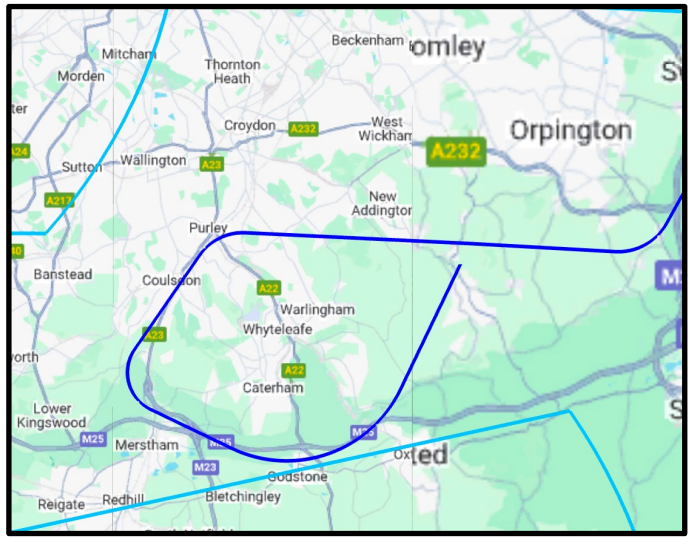
Addition of an LNAV/VNAV line of minima allows us to remove the Step-Down-Fix (SDF) in the Final Approach Segment, reducing procedure complexity.

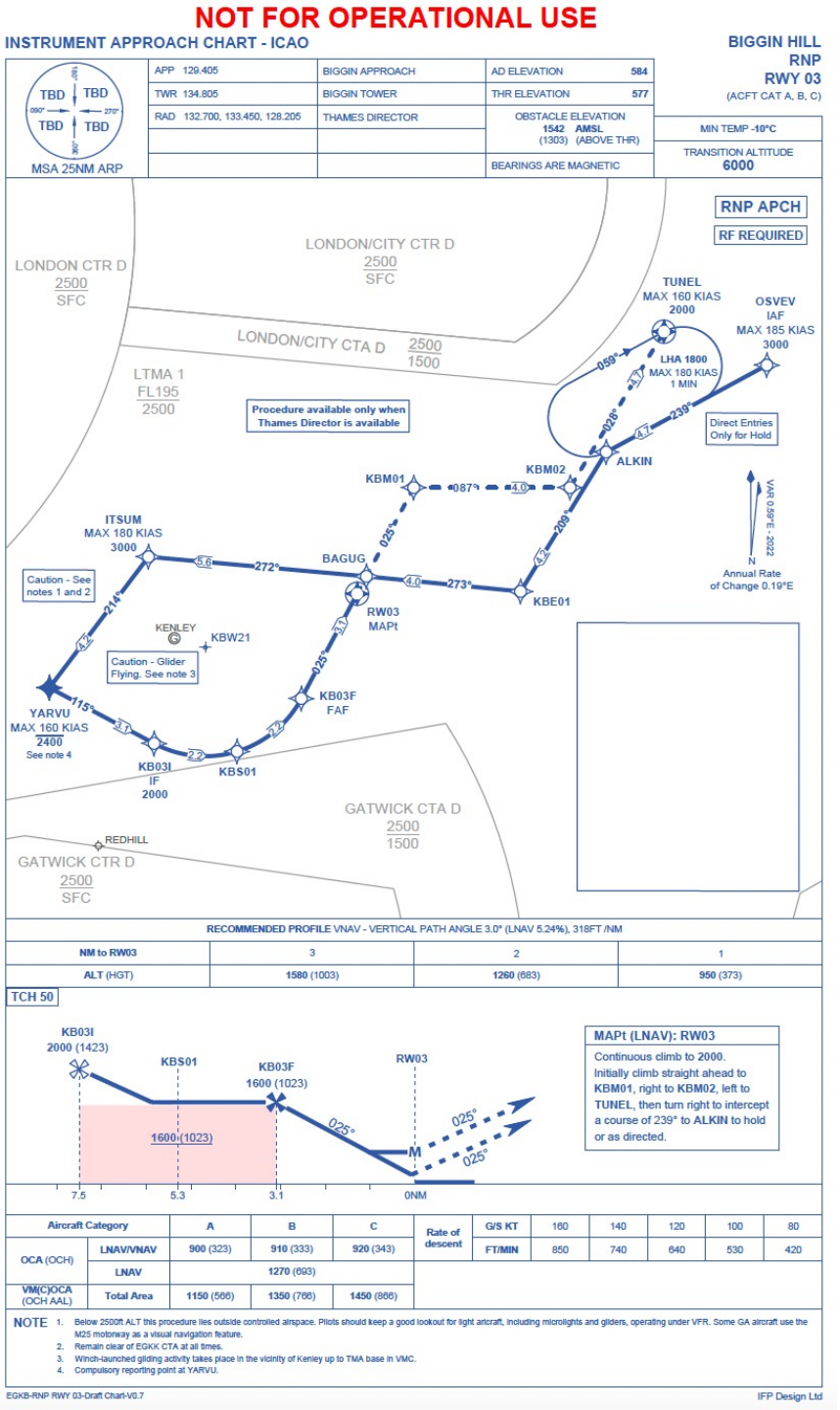
Procedure (draft) Overview



The procedure meets previous stakeholder requirements to mitigate hazards by avoiding the Kenley Gliding area and routing over/south of the M23/M25 junction used for visual reference by the gliders. We have already adjusted the procedure slightly based on feedback from RAF Kenley to address this requirement.

A tighter radius of turn to stay east of Kenley, within the EGKB ATZ and closer to today's arrival swathe is not technically achievable within PANS-OPS.





Draft chart and coding tables

Designator	Sequence Number	Path Terminator	Waypoint Name	Waypoint Co-ordinates	Arc Centre Name	Arc Centre Co-ordinates	Fly-over	Course / Track °M (°T)	Path length (NM)	Turn Direction	Level Constraint	Speed Constraint	Remarks and Distance to MAPt
R03L	001	IF	OSVEV		-	-	-	-	-	-	3000	185	IAF
R03L	002	TF	ALKIN		-	-	-	239° (239.4°)	4.7	LEFT	-	-	-
R03L	003	TF	KBE01		-	-	-	209° (209.4°)	4.2	RIGHT	-	-	-
R03L	004	TF	BAGUG		-	-	-	273° (273.3°)	4	-	-	-	-
R03L	005	TF	ITSUM		-	-	-	272° (272.8°)	5.6	LEFT	3000	180	-
R03L	006	TF	YARVU		-	-	-	214° (214.6°)	4.2	LEFT	2400	160	-
R03L	007	TF	KB03I		-	-	-	115° (115.5°)	3.1	-	2000	-	IF / 7.5 NM
R03L	008	RF	KBS01		KBW21		-	-	2.2	LEFT	-	-	-
R03L	009	RF	KB03F		KBW21		-	-	2.2	LEFT	1600	-	FAF / 3.1 NM
R03L	010	TF	RW03		-	-	Y	025° (025.7°)	3.1	-	-	-	MAPt
R03L	011	CF	KBM01		-	-	-	025° (025.7°)	-	RIGHT	-	-	-
R03L	012	TF	KBM02		-	-	-	087° (087.7°)	4	LEFT	-	-	-
R03L	013	TF	TUNEL		-	-	Y	028° (028.8°)	4.7	RIGHT	2000	160	-
R03L	014	CF	ALKIN		-	-	Y	239° (239.4°)	-	-	2000	180	HOLD

Co-ordinates not shown at this stage of the process due to CAA requirements.

Provisional core trial objectives

1. **Understand and analyse RNP flyby and RF leg Actual Navigation Performance on arriving traffic to a short final approach.**

2. **Understand the impact on pilot workload associated with the use of RF to a short final approach, together with its suitability in Class G airspace.**

3. **Demonstrate safe integration of traffic, where different agencies require the use of multiple, innovative Instrument Approach Procedures (IAPs) in Class G Airspace.**

   (Following engagement with Air Ambulance Charity Kent Surrey Sussex (AACKSS) Helicopter Emergency Medical Service (HEMS), we also identified the value of adding another objective regarding their proposals to pursue a Point-in-Space (PinS) procedure into Redhill. See ACP-2023-077 for more details on their proposals. Based on current timescales, HEMS could see their PinS procedure operational within the timeframe of this trial.)

Operating Principles

- We are in the process of firming up detailed procedures with adjacent units including RAF Kenley & Surrey Hills Gliding Club, NATS TC, Gatwick Airport, Heathrow Airport, Redhill Aerodrome, Farnborough LARS and HEMS/NPAS PinS operators. These procedures will be formalised via Letter of Agreement ahead of the trial, if the trial is approved in principle by the CAA.
- Only operators that are capable and approved to fly RF procedures will be able to fly the procedures therefore there will still be visual approaches available and flown to RWY 03.
- The procedure will commence from above 3000ft, inside Controlled Airspace. Therefore, it will only be available for airways arrivals. Estimates on the numbers of arrivals expected to fly the trial procedure are presented on the next slide.
- EGKB already operate a PPR policy for all aircraft movements although the filing of a Flight Plan complies with the requirement to obtain PPR. EGKB's operators will be provided with a brief on use of the procedure and the trial procedures will be promulgated via AIC.
- It will only be available when Thames Radar are available whose operating hours are coincident with Biggin Hill's opening hours: Mon-Fri 0630-2300 (0530-2200); Sat, Sun and PH 0800-2200 (0700-2100).
- **We are not proposing any changes to airspace classifications or CAS boundaries to accommodate this trial.**
- This trial is not directly related to Biggin Hill's ACP-2019-086 to introduce an RNP APCH to RWY 21 on a permanent basis.

Estimated number of arrivals

This table provides an indication of the number of aircraft that might use the trial RNP APCH procedure. This assumes that 50% of IFR arrivals are RF capable, based on 2023 actuals.

	2023							
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
IFR Airways Arrivals	864	1029	1187	1274	1050	1069	945	688
RWY 03 IFR Airways Arrivals	134	444	441	1	26	61	38	24
Average RWY 03 Airways Arrivals per day	4	14	15	<1	<1	2	1	1
Peak RWY 03 Airways Arrivals per day	22	65	46	<1	12	16	15	15
Average RNP+RF RWY 03 Airways Arrivals per day (Assumes 50% capability)	2	7	7	<1	<1	1	<1	<1
Peak RNP+RF RWY 03 Airways Arrivals per day (Assumes 50% capability)	11	33	23	<1	6	8	8	8

We estimate that, on average, 2-3 arrivals per day will fly the approach

Though on a single day of RWY03 operations, we could expect this number of arrivals

Draft timescales for the trial

- We would like your feedback (see next slide) on this proposal for a trial by **Tuesday 5th March 2024.**
- This is with a view to submitting the trial plan and IFP submission package to the CAA by end of March 2024.
- Should the trial be approved by the CAA in principle, we will then need to validate the IFP and finalise operating procedures and Letters of Agreement with adjacent ATS units.
- Trial dates are subject to change, but we are targeting commencement of the trial in Q4 2024 for a period of 6 months.

Your feedback

We welcome all feedback on the proposed trial.

Question 1.

Do you have any concerns in relation to the trial? If so, what would we need to do to address them?

Question 2.

Do you have any feedback on the draft trial objectives?

Question 3

We are aware of ongoing ACPs in the area from Heathrow, Gatwick, Redhill (HEMS) and London City. Are there any other airspace activities, change proposals or anything at all that we need to know about that could affect this proposed trial?

Question 4 – Operators only

Please can you fill in this very short survey (1 question) on RF capability?

Please send all feedback on this presentation or any questions relevant to the trial to EGKB03Trial@traxinternational.co.uk by Tuesday 5th March 2024.

Trial of an RNP Approach to RWY 03 at Biggin Hill Airport

Annex C - GA Traffic Proximity Assessment

REDACTED

Trial of an RNP Approach to RWY 03 at Biggin Hill Airport

Annex D - Risk Assessment

REDACTED

Trial of an RNP Approach to RWY 03 at Biggin Hill Airport

Annex E - Safety Requirements

REDACTED

Trial of an RNP Approach to RWY 03 at Biggin Hill Airport

Annex F - Draft LoA's

REDACTED

Trial of an RNP Approach to RWY 03 at Biggin Hill Airport

Annex G - Questionnaires

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Trial of an RNP APCH to RWY 03 at EGKB

Airspace User Questionnaire

Organisation name:

Contact email address:

Today's Date:

Have you or your members reported any interactions/conflictions with EGKB Runway 03 arrivals on the RNP RWY 03 procedure? If yes, please give as much information as possible including date and time of the occurrence together with altitude information whether any avoidance manoeuvres were taken. If any EC devices were used by your members, please provide type and, where possible, ICAO 24-bit address:

Further Feedback

Do you have any further feedback on the RNP RWY 03 trial?

Thank you for completing this questionnaire.

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Trial of an RNP APCH to RWY 03 at EGKB

ANSP Questionnaire

ANSP name:

Contact email address:

Today's Date:

Have any of the aircraft under receipt of your FIS reported increased interactions/conflictions with other airspace users as a result of the RNP RWY 03 procedure? If yes please give as much information as possible including date and time of the occurrence together with whether any avoidance manoeuvres were provided (subject to FIS) or reported by the crews:

Further Feedback

Do you have any further feedback on the RNP RWY 03 trial?

Thank you for completing this questionnaire.

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Trial of an RNP APCH to RWY 03 at EGKB

EGKB Operator Questionnaire

Organisation name:

Contact email address:

Today's Date:

1. Have your crews experienced any issues with misunderstanding the RNP RWY 03 procedure?

2. Have your crews experienced any issues with the flyability of the RNP RWY 03 procedure or any FMC disconnects?

3. How do your crews rate the workload associated with flying the RNP RWY 03 procedure compared to when flying a visual approach?

   Lower workload / Similar workload / Higher workload

   Reasons:

4. Have your crews reported increased interactions/conflictions with other airspace users as a result of the RNP RWY 03 procedure? If yes please give as much information as possible including date and time of the occurrence together with whether any avoidance manoeuvres were required by your crew.

Further Feedback

Do you have any further feedback on the RNP RWY 03 trial?

Thank you for completing this questionnaire.