

Specialist Aviation Services (SAS)

Airspace change targeted engagement

ACP-2023-027 Kings College Hospital (KCH) –
Provision of PinS Instrument Approach and Departure Procedures



Introduction

This document requests your feedback on a proposed change to airspace

Helicopter operations to Kings College Hospital

Kings College Hospital, London (KCH) is the primary Major Trauma Centre for the Air Ambulance Charity Kent Surrey Sussex (AACKSS).

AACKSS serves a population of 4.8 million and its helicopter service is operated by Specialist Aviation Services Ltd (SAS), the sponsor of this Airspace Change Procedure (ACP).

KCH is near Denmark Hill in South London and lies in the London City CTR.

The change

The purpose of this ACP is to gain approval for the design and introduction of Instrument Approach and Departure Procedures using Helicopter Point-in-Space (PinS) criteria. PinS is a procedure to allow a pilot to fly a helicopter on instruments safely down through cloud to a point where they are below cloud and can continue their operation visually.

It will allow an estimated 100 additional patients a year to be conveyed by helicopter rather than land ambulance, which can reduce potential delays to emergency treatment and improve patient outcomes.

The PinS procedure will supplement the existing Visual Flight Rule (VFR) procedures, which will remain the primary means of approach.

The process for Airspace Change Proposals (ACPs)

The Statement of Need for this ACP was submitted to the Civil Aviation Authority (CAA) on 21 April 2023 (Reference DAP1916v2-723).

An assessment meeting was held on 15 June 2023 and the CAA confirmed that the ACP is being progressed under Part 1C of CAP1616 (Airspace Change Process for RNP Instrument Approach Procedures (IAPs) without an Approach Control Service).

More details on the ACP can be found on the CAA airspace change website here:

[ACP-2023-027, PinS Instrument Procedures, Kings College Hospital](#)

Engagement timescales

The engagement commences on 15 Jan 2024 and will close on 26 Feb 2024.

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Proposed change – The new PinS Instrument Procedure



Operational details

The new PinS instrument procedure is expected to be used about 100 times a year.

Frequency of use

From 1 April 2022 to 31 March 2023 there were 365 patient transfers to KCH, 121 of which were in the hours of darkness. It is anticipated that having PinS procedures in place could enable an additional 70-80 direct AACKSS HEMS patient transfers per year due to the enhanced utility of the aircraft based on analysis of weather data.

KCH is also used by other HEMS and SAR operators:

- Essex and Herts AA & Dorset and Somerset AA likely to total a few extra movements per year.
- London AA, who might expect to make an additional 20 landings per year.
- The Children's Air Ambulance
- His Majesty's Coast Guard

It is therefore estimated that there could be approximately an additional 100 landings per year to the KCH based on all the potential users.

Operation in controlled airspace

The PinS procedure is largely in controlled airspace (CAS). As today, operations in CAS will be under the ATC separation service provided by NATS.

Entry into the procedure and exit will be in Class G and mostly likely under IFR.

Use of the procedure

Only operators approved by the CAA will be able to use the procedure.

Deconfliction of the use of the procedure will be coordinated through the existing regional HEMS desk procedures. All emergency service operators also share situation awareness using the 'TETRA' communications network and use this to ensure deconfliction of helipad movements.

Coordination with local airports

It is expected that Letters of Agreement will be required with at least London City and NERL, Biggin Hill, and London (Battersea) Heliport.

Charting

The procedure will be published in the Aeronautical Information Publication (AIP), although the coding will only be available to the approved operators.

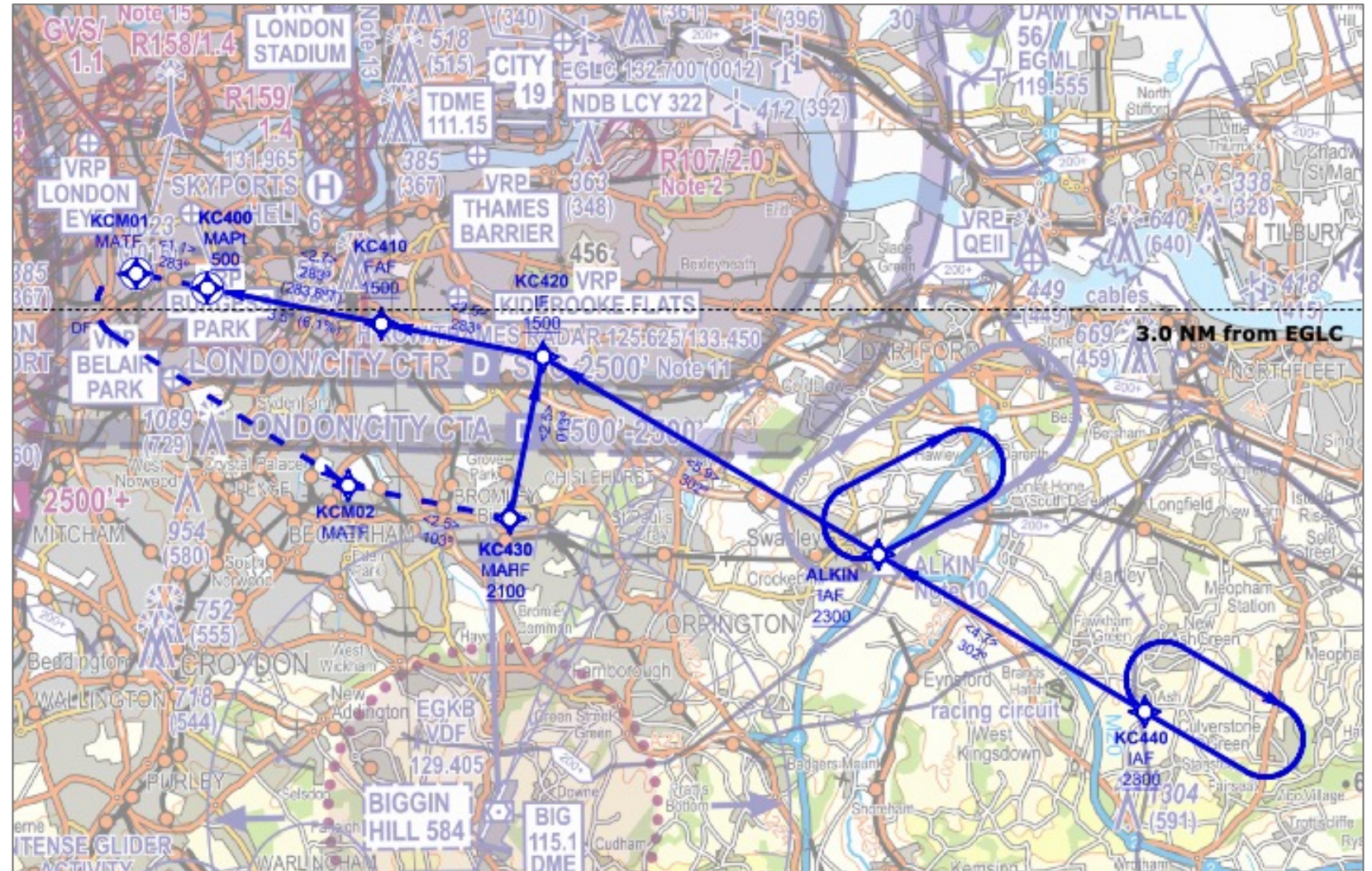
Overview

The procedure is shown opposite with Missed Approach option B, (see next slide for option A).

There are three potential IAFs, one is co-located with the ALKIN hold and one (shown as KC430) allows joins from the south.

The third one (with a combined hold) is approximately 12nm to the east of the IF (shown as KC440). This hold was not in the stage 2 submission but was added following engagement with Biggin Hill. It was felt that routing from the east via ALKIN might affect their operations. This extra IAF would also help Biggin co-ordinate their inbound as we would be following another defined route to the IF. It also allows one aircraft to hold there while another departs Kings via ALKIN en route to join the procedure for an approach into Redhill.

The IAFs are in Class G and the aircraft transits to CAS by the IF.



Missed approach option B shown

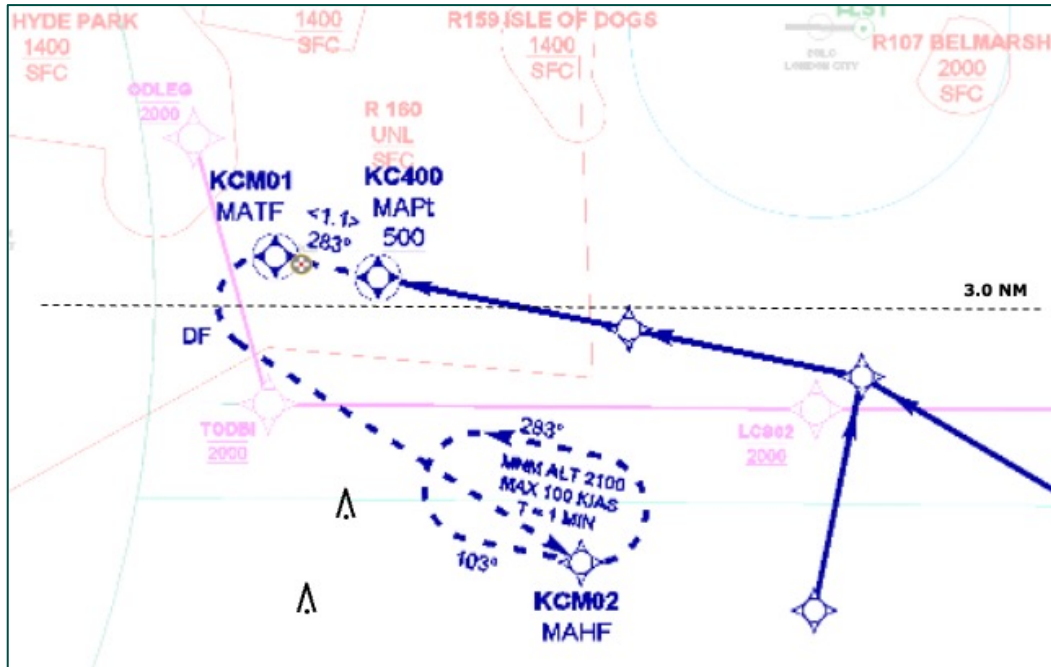
Missed approach options

The missed approach has two options as shown on this page.

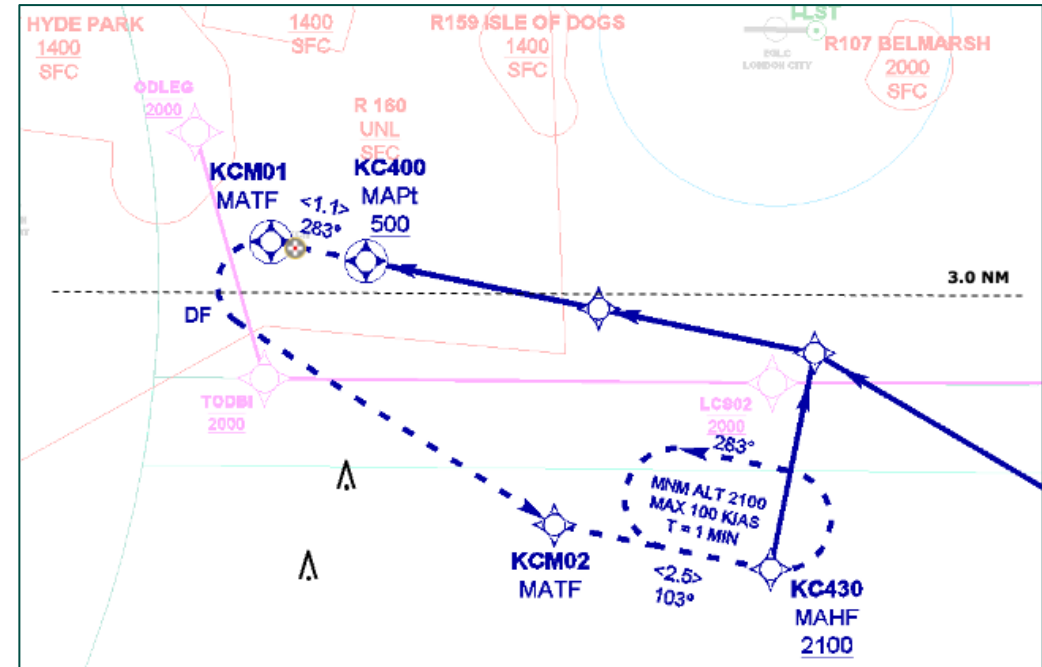
Note the MATF is the same in both options, so the visual segment/initial missed approach will not change.

At the moment, option A is preferred - this would take the aircraft to MAHF KCM02 from where it would be straightforward to exit the hold and go into another approach. The hold in Missed Approach Option A also gives a greater degree of separation from aircraft on the Runway 21 approach to Biggin Hill.

Missed Approach Option A



Missed Approach Option B



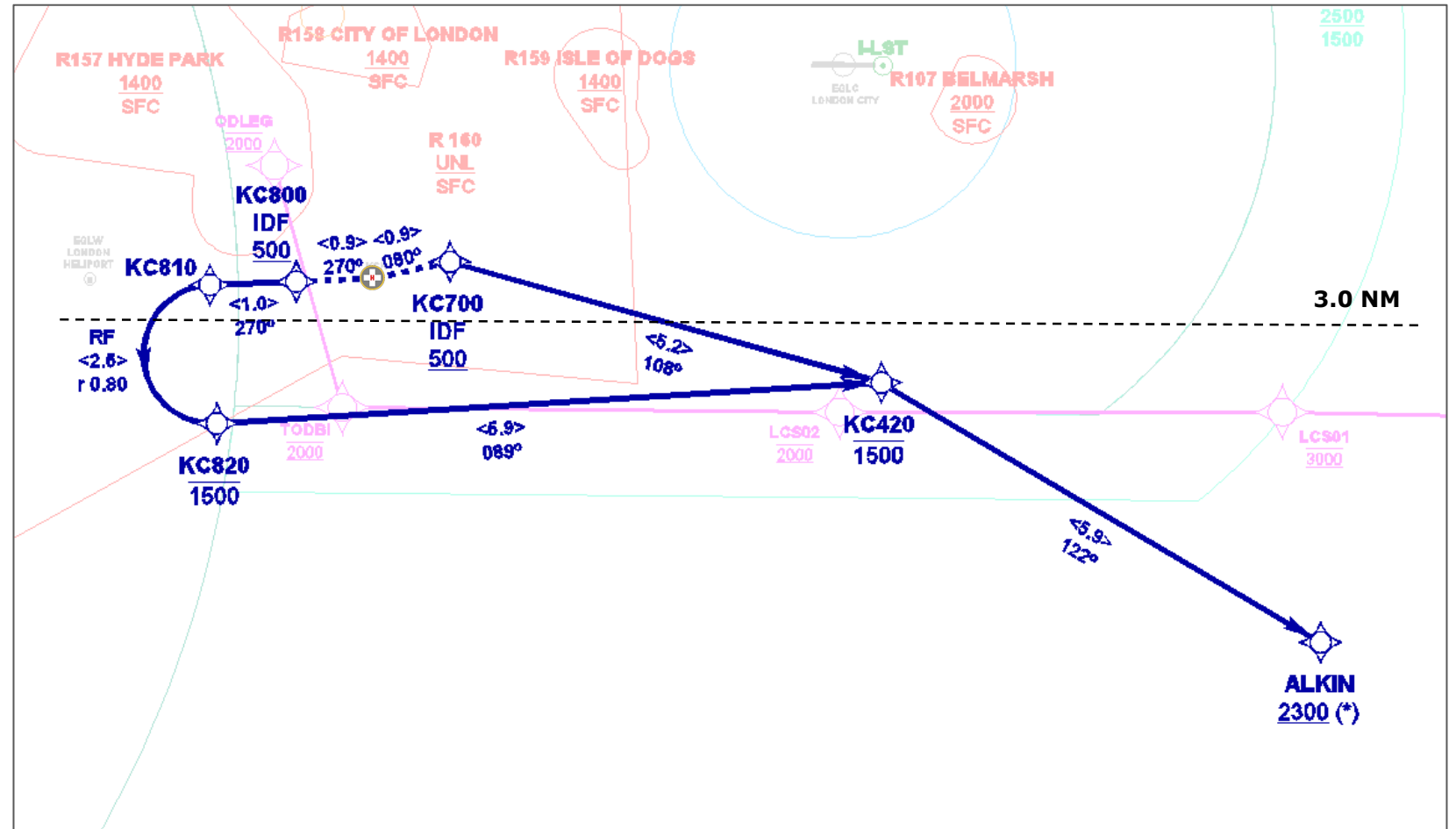
All altitudes are above mean sea level (amsl) and subject to confirmation following obstacle assessments.
Procedure shown relative to key airspace features (not to scale in diagram).

Departure procedure

There are two departure procedures proposed to be implemented to provide for different MET conditions.

The first turn of the westerly departure enters the London CTR and London (Battersea) Heliport Local Flying Area but this cannot be avoided. Coordination will be required with the Heliport.

The indicative designs are shown opposite.



All altitudes are above mean sea level (amsl) and subject to confirmation following obstacle assessments.
Procedure shown relative to key airspace features (not to scale in diagram).

Visual segment

The visual segment will initially be a “proceed VFR” procedure.

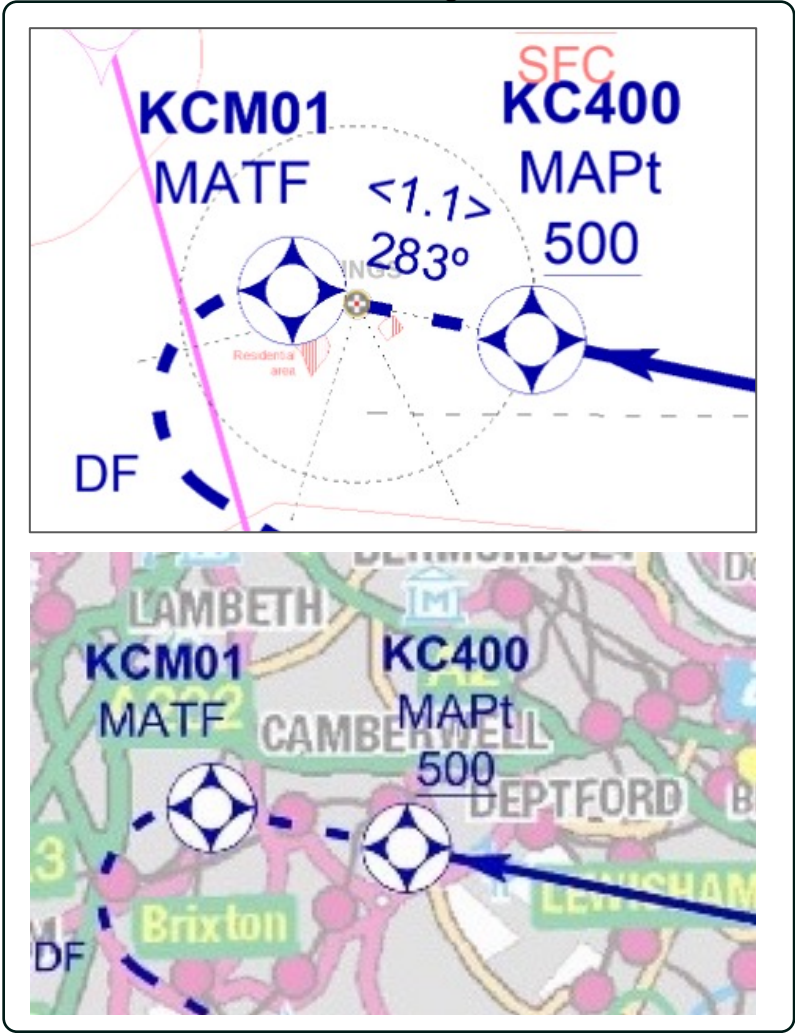
The visual approach segment is shown to the hospital landing site with the aircraft being manoeuvred as required.

The visual departure segment is shown to one of two Initial Departure Fixes (IDFs), depending on the departure direction used.

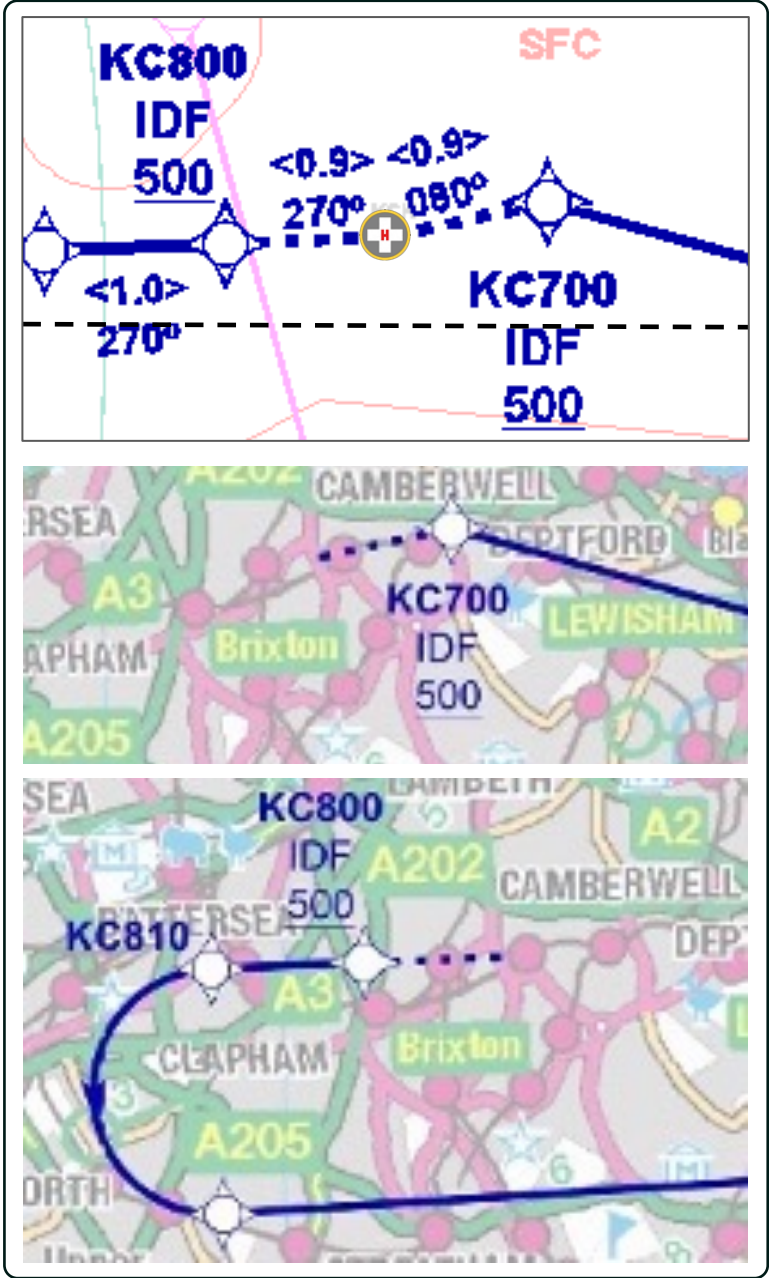
Please note that depending on the wind / local conditions, these tracks may change slightly to accommodate the specific circumstances at the time of the approach.

The visual segment will initially be operated as “Proceed VFR”. In the future, it may be changed to “Proceed Visually” but this is not currently permitted in the UK.

Arrival visual segment



Departure visual segments



All altitudes are above mean sea level (amsl) and subject to confirmation following obstacle assessments.
Procedure shown relative to key airspace features and on OS 1:250 000 Scale Colour Raster (not to scale in diagram).

Other options considered but not progressed

Early engagement with NATS helped identify key constraints on the PinS procedure:

- The procedure should be inside the Controlled Airspace (CAS) as much as possible to benefit from an ATC separation service.
- However, it should as much as possible stay more than 3nm away from LCY traffic as this is the radar separation minima in this airspace. LCY will not be able to operate independently if the PinS procedure is within 3nm and this will increase ATC workload and disrupt LCY operations.
- The procedure should stay out of the London CTR (shown on the left), or if required to enter the London CTR should do so to the minimum practical extent and remain beneath 1500ft to prevent interference with Heathrow traffic.
- The procedure should minimise impact on other nearby facilities (Biggin Hill and London Heliport) as far as possible.

Several options were considered and discounted:

- An approach directly from the East (ie 270° straight to KCH), discounted because it would be within 3nm of all LCY operations.
- An approach from the South or South East, discarded because it would only be in CAS for a short period of the approach. (Approaches from South East would also impact with Biggin Hill)
- Any approaches from the West discarded because of the proximity to LHR and entry into the London CTR.



Google earth map showing local airspace and airports (not to scale in diagram).

The figure shows the airspace around KCH and 3nm separation line from the London City extended centreline. The only option to maintain flight in CAS as long as possible but also maintain 3nm from LCY is for a westerly approach along the southern side of the London City CTR, below the white line shown, until west of the Isle of Dogs. This is the option proposed.

Impact on other airspace users



Impact on other airspace users

London City and London (Battersea) Heliport are the nearest aerodromes.

The figure opposite shows the location of KCH in the London City CTR and adjacent to London CTR. South of KCH the nearest aerodromes are Biggin Hill Airport and Kenley Aerodrome, both of which are outside CAS.

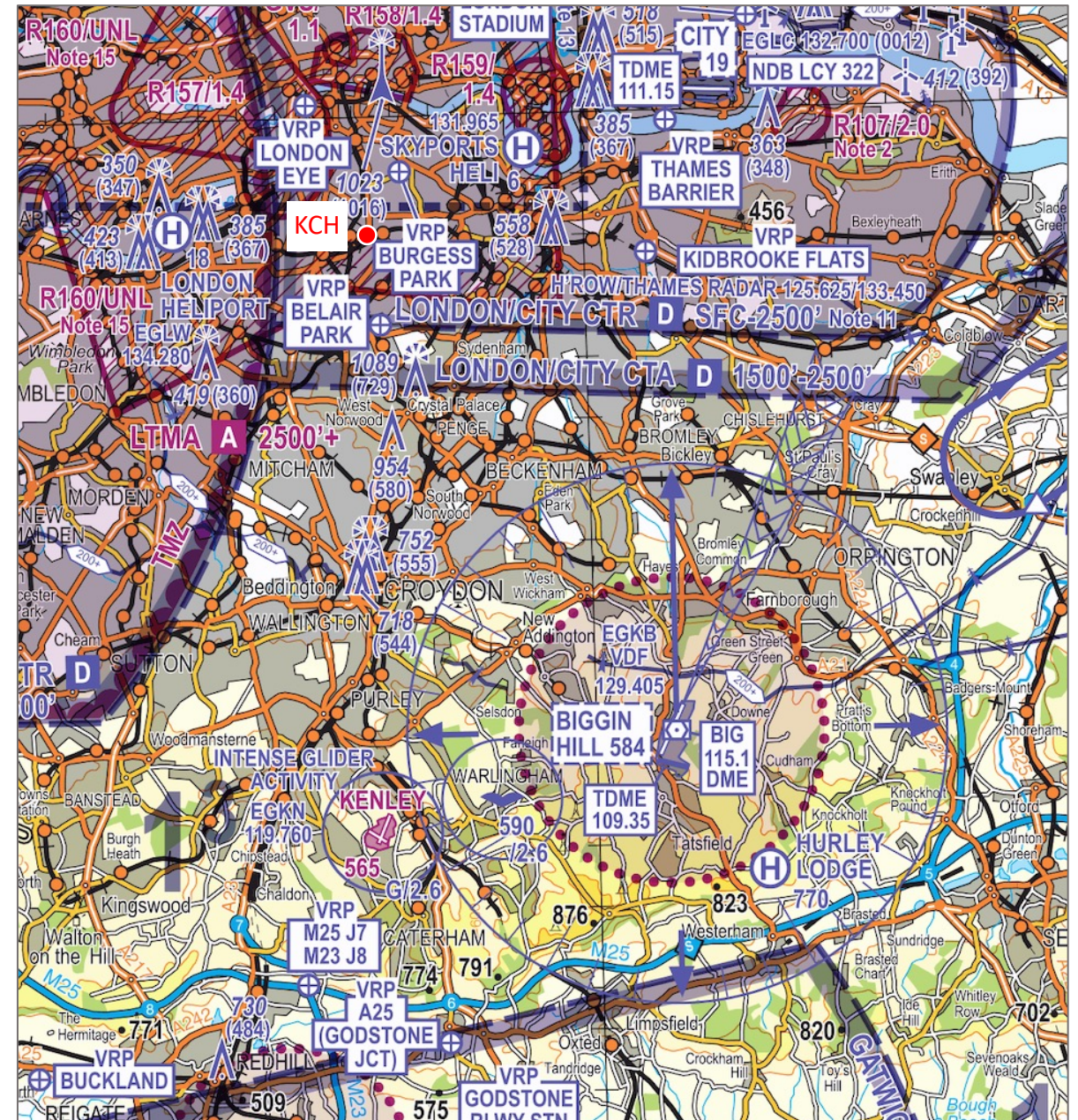
The proposed procedure will have a direct impact on operations at London City, Battersea and Biggin Hill as it passes close to these and coordination is expected to be required. It will also have an impact on other traffic passing through the London City CTR and London CTR which will be coordinated by NATS.

Aside from these impacts, the procedure should have only a small impact on other airspace users and it should not restrict any other operations.

There is one nearby gliding site, Kenley, and the impact on this is expected to be minimal since it is for use in poor weather, there should very little 'local area' VFR traffic present.

There has been some early engagement with Biggin Hill Airport, especially in regard to their ACP-2019-86 RNAV (GNSS) Runway 21, as the PinS procedures for Kings College Hospital will be utilised most effectively through considered co-ordination with Biggin Hill. It is anticipated that there will be a robust Letter of Agreement between all of the associated airspace ATS providers.

It is also likely that ACP-2023-075 03 RNP Airspace Trial will alter the traffic environment around Biggin Hill and this has been taken into consideration too.



CAA VFR 1:250000 chart showing relevant airspace and airports/airfields (not to scale in diagram).

Design principle evaluation and environmental and economic impacts



Design principle evaluation

The proposal has been evaluated against four design principles (DPs).

In accordance with CAP1616, design principles were defined for the new ACP. The DPs chosen are from CAP1616 supplemented by two to reflect the unusual location of this ACP (inside a major CTR):

- DP1: The proposal must maintain a high level of safety
- DP2: The proposal should avoid overflight of densely populated areas where possible
- DP3: The proposal should minimise impact on other airspace users
- DP4: The proposal should support, where possible, a transition to future more advanced concepts of PinS

The proposal is considered to meet these DPs (as far as can be assessed at this stage) and the explanation is given below.

DP1: The proposal must maintain a high level of safety

The proposed option will be subject to a full safety assessment as part of the ACP submission. One of the purposes of this engagement is to make sure that all issues that could impact safety (eg other airspace user activities) are well understood and taken into account.

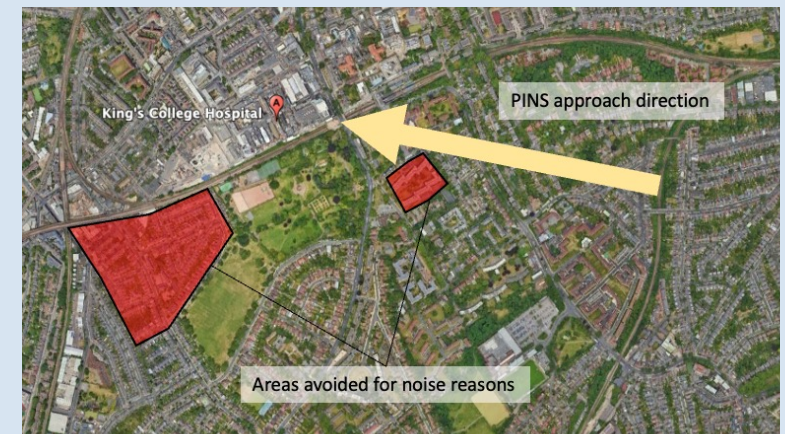
The proposal maintains a high level of safety because:

- It is in controlled airspace for as much as possible, so it benefits from an ATC separation service to the greatest extent.
- It provides aircrew with an Instrument Procedure in place of a Visual one.
- The use of a pre-published and known procedure should reduce ATC workload.
- It is expected the design will be PANS OPS compliant and takes account of all other airspace and local constraints.
- It maintains a track away from London City and other airports in the London CTR, and from Biggin Hill as much as possible.

At present, it is expected that an acceptable solution will be found to all safety risks and therefore the final submission is expected to meet the DP.

DP2: The proposal should avoid overflight of densely populated areas where possible

It is not possible to entirely avoid overflight of densely populated areas in this proposal since the hospital is in London. However, the proposal aims to avoid the two areas near the hospital that are already avoided for noise reasons, as shown below.



Design principle evaluation – Continued

The proposal has been evaluated against four design principles (DPs).

DP3: The proposal should minimise impact on other airspace users

Impacts on other airspace users cannot be avoided in this airspace as it is so close to other airports. Nevertheless, the proposal minimises impact on other airspace users as follows:

- The PinS approach and missed approach tracks exceed radar separation requirements (3nm) from LCY aircraft tracks as far as possible.
 - For Westerly LCY operations, the PinS approach is further than 3nm from the final approach and departure tracks. LCY missed approaches can be vectored to the North so will also have more than 3nm separation from an aircraft on the PinS approach. This means LCY Westerly operations should be entirely independent of the PinS procedures.
 - For Easterly LCY approaches, it is not possible to maintain radar separation from PinS. The LCY easterly approach arrives south of KCH and passes over the ODLEG waypoint, which is within 1nm from KCH, at 2000ft. In this case, the two procedures cannot be independent and ATC coordination will be required for both PinS arrival and departure procedures.
- The procedure maintains the required separation from Heathrow traffic.
- The procedure is outside of the London (Battersea) Heliport Local Flying Area except for the initial segment and turn of the Westerly departure. A coordination procedure will be established with the Heliport.
- The procedure crosses the Biggin Hill Approach procedure but remains well clear of the Biggin Hill ATZ. A coordination procedure will be established with the airport.

DP4: The proposal should support, where possible, a transition to future more advanced concepts of PinS

The proposal is based on “proceed VFR” operation for both the approach and departure visual segments. In the future, this element may be developed into a “proceed visually” operation which will have lower weather minima and therefore will allow operations in lower visibility or cloud base.

“Proceed visually” PinS operations are not yet approved in the UK, but the procedure can be designed with approach and departure tracks that are compliant with both of the “visual segment” requirements. This will ease the transition from “proceed VFR” to “proceed visually”.

It should be noted that there are other requirements that will need to be fulfilled for this change to happen, although they should not alter the track over the ground.

Environmental and economic impact

Environmental impact

The introduction of PinS procedures is expected to result in about 100 additional HEMS flights to the hospital per year.

These missions will be undertaken by the same aircraft which are currently AW169 helicopters.

Aircraft will generally fly at similar altitudes or slightly higher under the PinS procedure than today under VFR. At present, clearances into the London City CTR are generally at 1300ft - 1500ft. The PinS procedure starts at 2100ft or 2300ft (depending on where the approach is joined) and has a final approach fix at 1500ft.

Economic impact

The new PinS procedures will allow more patient lives to be saved by the AACKSS which will have a positive economic impact.

In addition, the economic effects are as follows:

- **Fuel burn:** There will be increase fuel use as there will be more HEMS missions flown, although there is less fuel used by road ambulance (which is the alternative method of patient transfer in poor weather).
- **Greenhouse gases:** There will be additional greenhouse gases (eg CO2) caused by the additional fuel burn, although there is less fuel used by road ambulance.
- **Operator training costs:** There will be additional operator training required to introduce the new PinS procedure. However, longer term, the procedure will be used to maintain IFR currency which will reduce transits to other IFR training aerodromes.
- **Heliport infrastructure costs:** There may be additional costs on heliport infrastructure, e.g. if changes to the meteorological system or lighting are required.

It is not expected there will be any impact on General Aviation access to airspace.

Engagement stakeholders



Engagement stakeholders

The following aviation stakeholders have been sent the engagement material.

Relevant members of NATMAC (the National Air Traffic Management Advisory Committee)	
Dorset and Somerset Air Ambulance	London (Battersea) Heliport
Essex and Herts Air Ambulance	London Gatwick Airport
Biggin Hill Airport	Kenley Gliding Site
Heathrow Airport	London Air Ambulance
His Majesty’s Coast Guard	National Police Air Service (NPAS)
Kings College Hospital	Redhill Aerodrome
London City Airport	The Children’s Air Ambulance

Give your feedback



Responding and next steps

RESPONDING

Please respond by completing the online form found here:

<https://form.jotform.com/240135653606351>

The online form will ask for

- Your name, contact details and whether you represent an organisation.
- Whether you are in favour or not (or have no comment or no objection)
- Your reasons for supporting or not
- Whether you have specific safety concerns or any other comments
- Some information on aircraft that you operate or operate from your site if you are a local operator

This engagement closes on 26 February 2024.

CLARIFICATIONS

If you have a query or want any clarifications regarding the information presented in this presentation, then please email us at ACP-KCH@specialist-aviation.com.

We will respond as quickly as possible.

MEETINGS

If you would like a call or virtual meeting to discuss the proposal, please respond by email and we will set one up with you.

NEXT STEPS

Following the engagement an Engagement Summary Report will be produced that will summarise the feedback received, the responses to the feedback and changes (if any) to the final design as a result.

Should it be necessary to make any major changes then we will discuss with the CAA if an additional engagement is required.

Once the PinS procedure design is finalised, we will then compile it into a submission document for the CAA. The CAA will decide if the proposal has been approved or not. The decision will be published on the CAA airspace change website.

If the CAA approves the change, there will then be an implementation period which will include training and promulgation in the aeronautical information publications.

CONTACTING THE CAA

Stakeholders wishing to contact the CAA directly about any ongoing airspace change proposal should use online form [FCS 1521: Use of UK Airspace Report](#).

You can also email airspace.policy@caa.co.uk or write to: Civil Aviation Authority, Aviation House, Beehive Ring Road, Crawley, West Sussex, RH6 0YR.

Respond by completing the online form found here: <https://form.jotform.com/240135653606351>

Send clarifications or questions to: ACP-KCH@specialist-aviation.com.

This engagement closes on 26 February 2024.



Acronyms

AA	Air Ambulance
AACKSS	Air Ambulance Charity Kent Surrey Sussex
ACP	Airspace Change Proposal
AIP	Aeronautical Information Publication
AGL	Above Ground Level
AMSL	Above Mean Sea Level
CAA	Civil Aviation Authority
DP	Design Principle
HEMS	Helicopter Emergency Medical Services
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
KCH	Kings College Hospital
LoA	Letter of Agreement
PinS	Point-in-Space
SAR	Search and Rescue
SAS	Specialist Aviation Services Ltd
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions