

Proposed changes to general aviation operations in the Sydney basin in support of the new Western Sydney International (Nancy-Bird Walton) Airport

Industry briefing paper

December 2023

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1.0 Purpose

- 1.1 To consult the general aviation (GA) community on proposed changes to GA operations in the Sydney basin, in support of the proposed changes to airspace and flight paths for the new Western Sydney International (Nancy-Bird Walton) Airport (WSI/YSWS).

2.0 Introduction

- 2.1 The Australian Government has released the draft environmental impact statement (EIS) assessing the proposed flight paths and changes to controlled airspace in the Sydney basin for the new Western Sydney International (Nancy-Bird Walton) Airport (WSI/YSWS):

<https://www.wsiflightpaths.gov.au/digital-draft-eis/>
- 2.2 The introduction of the YSWS flight paths and airspace requires changes to, and the introduction of, instrument flight procedures (IFP) for Bankstown Airport (YSBK) and Camden Airport (YSCN), as well as Westmead Hospital (YWST). New visual flight rules (VFR) routes will also be introduced.
- 2.3 The program of activities to develop these changes is being led by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (the department) with subject matter expertise provided by Airservices Australia, the Civil Aviation Safety Authority (CASA), Department of Defence and supporting consultants.
- 2.4 The introduction of the YSWS airspace and flight paths into the current airspace structure in the Sydney Basin would significantly impact the airspace risk profile. To safely manage these changes to flight paths, a change of airspace classification to Class D, with a flight planning and a transponder requirement, is proposed to an airspace volume in close proximity to YSWS, YSBK, YSCN and YWST. The proposal also includes an increase in the lateral dimensions of the YSBK control zone (CTR).
- 2.5 The proposed changes are intended to provide continued safe and equitable access for both IFR and VFR operators to the Sydney Basin after the implementation of YSWS airspace and flight paths.

- 3.5** In order to comply with MOS Part 173, new and amended IFP routes have been developed for use by aircraft arriving and departing both YSCN and YSBK.
- 3.6** The newly designed IFP to YSBK are segregated from YSWs operations but overlap VFR flight paths. A safety assessment workshop has identified that the proposed IFP require additional safety controls to manage the proximity of VFR aircraft.

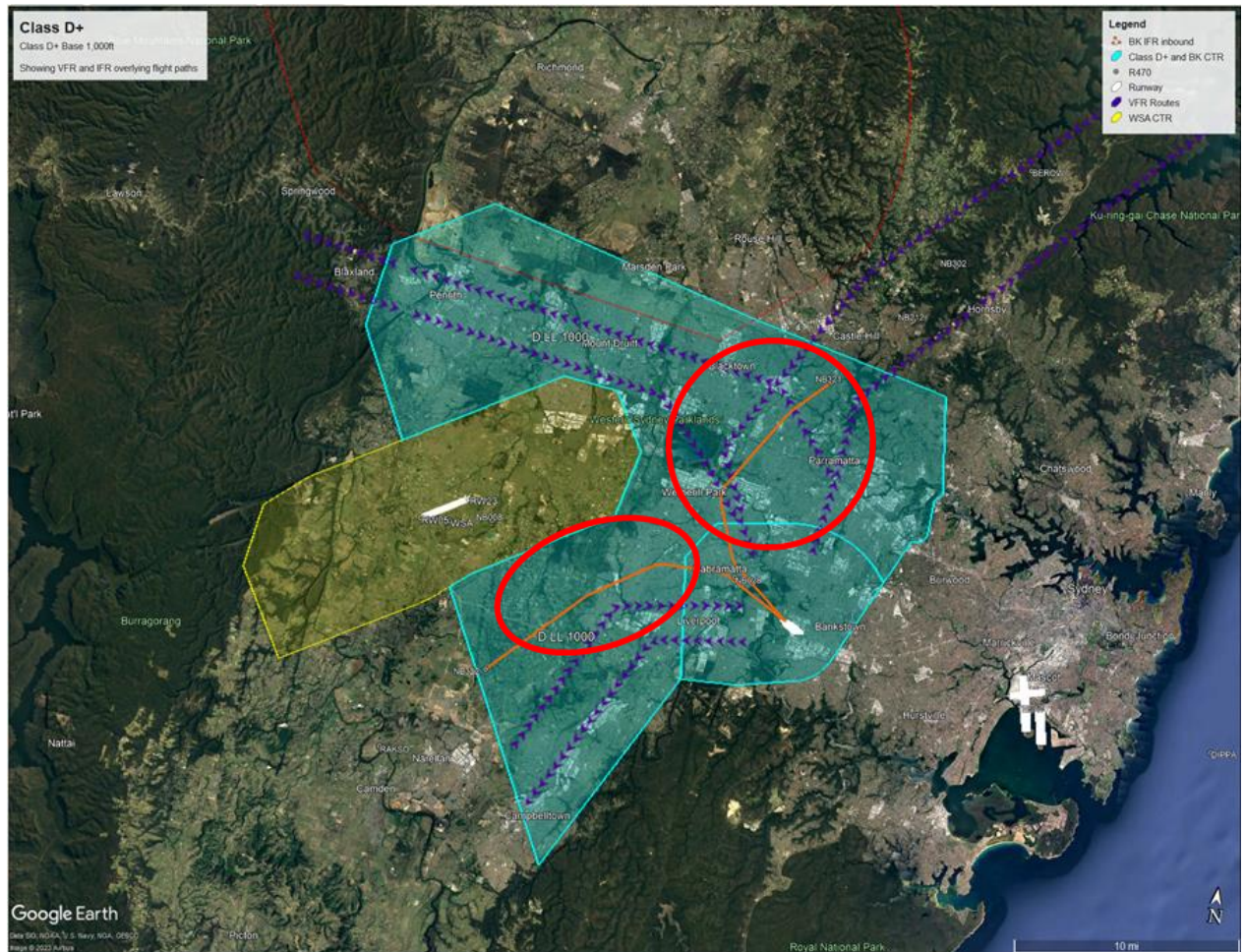


Figure 2 – VFR and IFR flight paths with conflict areas highlighted

4.0 Risk assessment and consultation

- 4.1** In order to determine the most appropriate classification for the airspace volume in question, the planning team responsible for developing the YSWs flight paths and airspace undertook risk assessment and consultation activities, including a two-day risk assessment workshop and a consultation session at Bankstown Airport.
- 4.2** The risk assessment workshop used CASA's Safety Risk Management Framework (SRMF) and was attended by representatives from Airservices Australia, CASA, the Department, and representatives from various IFR and VFR GA operators active in the Sydney Basin.
- 4.3** This workshop was carried out in two stages:
- Stage 1 consisted of assessing potential conflicts between the proposed YSWs airspace and flight paths and current YSBK and YWST IFP. The purpose of Stage 1 was to identify whether changes to IFP and VFR flight paths were required as a result of the introduction of YSWs.
 - Stage 2 assessed potential conflicts between the proposed YSWs airspace and flight paths and the proposed YSBK and YWST IFP and VFR flight paths.
- 4.4** The Stage 1 risk assessment found that the current IFP are incompatible with the proposed YSWs airspace due to overlapping procedures and a lack of separation between aircraft on the existing IFP and aircraft accessing YSWs.
- 4.5** The Stage 2 risk assessment found that the proposed IFP could be safely implemented alongside the proposed WSI airspace design, but additional controls were required to manage risk associated with the proximity of VFR and IFR aircraft.
- 4.6** Based on these risk assessments, a preferred airspace model for the Sydney Basin was identified. This model introduces a controlled airspace volume to the existing Class G airspace west of YSBK as the most effective safety control. The model seeks to balance the equity of access to the Sydney Basin with the need for an airspace that is safe for all users.
- 4.7** Following the risk assessment, over 100 general aviation operators active in the Sydney Basin were invited to a consultation session. At this session, the proposed IFP and VFR routes for YSBK, YSCN and YWST, and the airspace volume that this proposal affects, were discussed. The airspace classification proposal and its safety justification were presented to the group, as well as the practical procedures that users of the airspace could expect to follow. Following this presentation, in-person feedback from the group was gathered, as well as written feedback through the use of a dedicated email address. The feedback received was documented and has been considered in refining the proposal.

5.0 Objective

- 5.1** The objective of the proposed airspace classification change discussed in this proposal is to maintain current levels of safety in the Sydney Basin following the introduction of YSWs, while ensuring that the greatest number of users are able to access the surrounding airspace. This approach requires a balance between being able to maintain IFPs from the north and west as well as allowing VFR aircraft to continue to safely use the airspace.

6.0 Options considered

- 6.1** The airspace models considered as safety controls to mitigate the risks identified were Class G (current classification), Class D and Class E. In this proposal, Class D controlled airspace would be supplemented with a flight planning requirement and the requirement for carriage of a transponder. This model of Class D airspace is referred to in this proposal as Class D+.
- 6.2** In the safety assessment, the Class G option did not meet safety criteria. Expected VFR congestion would not be addressed and the proposed IFP to YSBK from the northeast would be precluded due to non-compliance with CASA MOS Part 173. This meant that IFR aircraft approaching from the northeast in Instrument Meteorological Conditions (IMC) or at night would be required to fly approximately 80 additional track miles around both RAAF Base Richmond (YSRI) and YSWs airspace and approach YSBK from the southwest. As a result of this, the primary controls considered to maintain safety of the airspace in the Sydney Basin were Class E and Class D.
- 6.3** Class D was selected as the preferred option as it has the following advantages over Class E:
- Class D has a less onerous weather requirement for VFR, permitting aircraft to operate within 600M horizontal from cloud, 1000ft above and 500ft below cloud. As opposed to Class E where the operational weather criteria is similar, but requires 1000ft above and below cloud
 - Special VFR (an ATC authorization for a VFR aircraft to operate in weather that is less than the basic VFR minima) is permitted in Class D, not in Class E.
 - Operations in Class D provide the most accurate traffic picture to both pilots and Air Traffic Control (ATC) by allowing the operations of all aircraft to be clearly planned through the issuance of airways clearances.
- 6.4** In order to fully realise the benefits of Class D airspace, it was recommended that the inclusion of a mandatory transponder zone be created as a safety requirement. This inclusion helps to avoid a more restrictive classification of airspace as well as permitting ATC to provide accurate traffic information and surveillance control services. It also mitigates airspace infringement risks. It was also recommended that a flight planning requirement be implemented as it expedites ATC ability to issue clearances. The inclusion of a transponder requirement and the submission of flight plans is why the airspace is described in this paper as Class D+.

6.5 Table 1 below outlines the pros and cons of the three airspace classification options considered.

Airspace Classification Options					
Class G Extant		Class E Include larger YSBK CTR		Class D+ Include transponder and larger YSBK CTR	
Pro	Con	Pro	Con	Pro	Con
No change to current procedures	Highest risk rating	Increased safety rating over Class G	Potential delay to IFR operations	Increased safety rating over Class E	Potential delay to IFR operations
Less restrictive weather criteria	IFR required to self-initiate avoiding action	Separation provided IFR to IFR	Weather criteria more restrictive for VFR operations	Separation provided IFR to IFR and Special VFR	Transponder cost for VFR
	MOS173 non-compliant – not contained	Traffic information provided to IFR on known VFR	Transponder cost for VFR	Traffic information provided to IFR on all VFR	Increased airspace complexity
	MOS173 non-compliant – overlapping procedures	No MOS173 containment issues	Special VFR not available	No MOS173 containment issues	Additional ATS staff and infrastructure required
	No separation service between IFR and IFR/Special VFR	No MOS173 overlapping issues	Increased airspace complexity	No MOS173 overlapping issues	VFR will be required to submit a FPL
		Enhanced see and avoid	Additional ATS staff and infrastructure required	Enhanced see and avoid	
				Less restrictive weather criteria for VFR operations compared to Class E	

Table 1 – Airspace classification options

6.6 Airservices has conducted preliminary simulation of the proposed Class D+ airspace model. This simulation has confirmed that Class D+ operations allow safe and efficient traffic flows within the constrained airspace volumes created by the introduction of YSWS. To manage workload, the Class D+ volume would be operated on a different frequency to the surrounding Class G airspace during busy periods.

6.7 The expected direct financial costs for airspace users under this airspace classification model would be due to the cost of a transponder and the additional control of a flight planning requirement. The cost of the

transponder could be offset by the Automatic Dependent Surveillance Broadcast (ADS-B) Rebate Program administered by the department. However, individual operators would be responsible for ensuring that the ADS-B installed in their aircraft conforms to the requirements of the airspace they are operating in. The cost of the flight planning requirement is associated with the time spent having to file flight plans, which is not a requirement in Class G airspace. Pilots of VFR flights intending to operate in controlled airspace (except for VFR flights in Class E airspace) must submit a flight plan (AIP ENR 1.10).

- 6.8** Airspace users should consider how the requirement to carry a transponder in the proposed Class D+ airspace impacts their operations and provide feedback. CASA has advised that if the Class D+ proposal is approved, regulatory changes will be necessary to implement the requirement to carry a transponder.

7.0 The proposal

7.1 To resolve the issue identified, the following changes are proposed.

- Lateral expansion of the YSBK CTR and
- Reclassify a volume of airspace north and south of YSWs and between YSWs and YSBK from Class G to Class D with flight planning requirements and a mandatory transponder zone (Class D+).

7.2 In order to contain the proposed Bankstown IFP in controlled airspace, complying with CASA regulatory requirements, the YSBK CTR would be laterally increased to the west and north by approximately 2nm. No vertical increase to the YSBK CTR is proposed.

7.3 Figure 3 shows the existing YSBK CTR (in yellow) and proposed lateral expansion (in blue) as well as VFR routes in and out of the CTR (purple arrows).



Figure 3 – Current and proposed YSBK CTR and VFR routes

7.4 Figure 4 shows the proposed YSBK CTR and the proposed YSWs CTR with VFR routes.

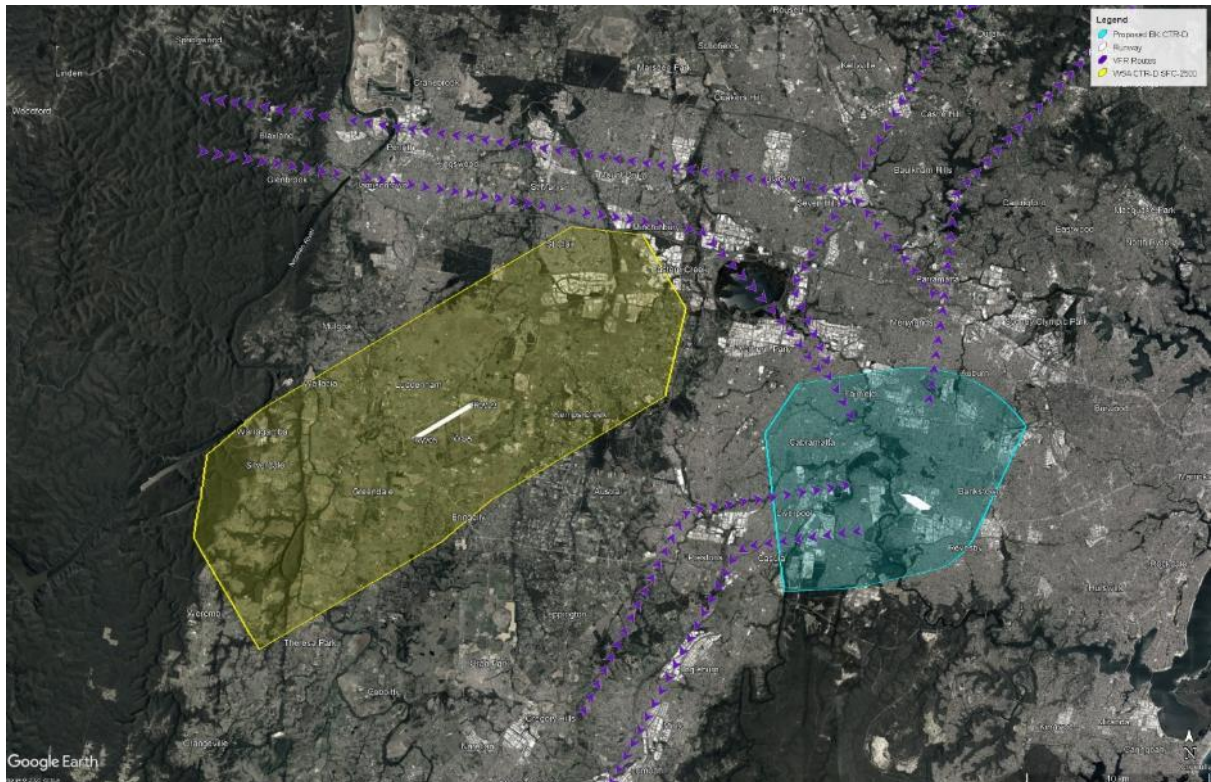


Figure 4 – Proposed YSBK CTR with proposed YSWs CTR and VFR routes

7.5 It is proposed that a volume of current Class G airspace in the Sydney Basin be reclassified to Class D+. The lateral and vertical limits of the airspace volume have been designed to align with current Class C steps for Sydney Airport as well as the volume proposed for Class C for YSWs operations. The lower vertical limit within this volume would be 1000ft AMSL with the upper limit being between 1500ft-2500ft AMSL.

7.6 The Class D volume (shown in Figure 5) extends from the new lateral limits of the BK CTR to the north at Cheltenham, then west to Wanamatta and the Sydney White Water Course before turning south to Mulgoa. It will remain outside the YSWs CTR shown in yellow, before extending from Bringelly to Leumah, then transiting up along the western boundary of Holsworthy to join the new BK CTR near Glenfield.

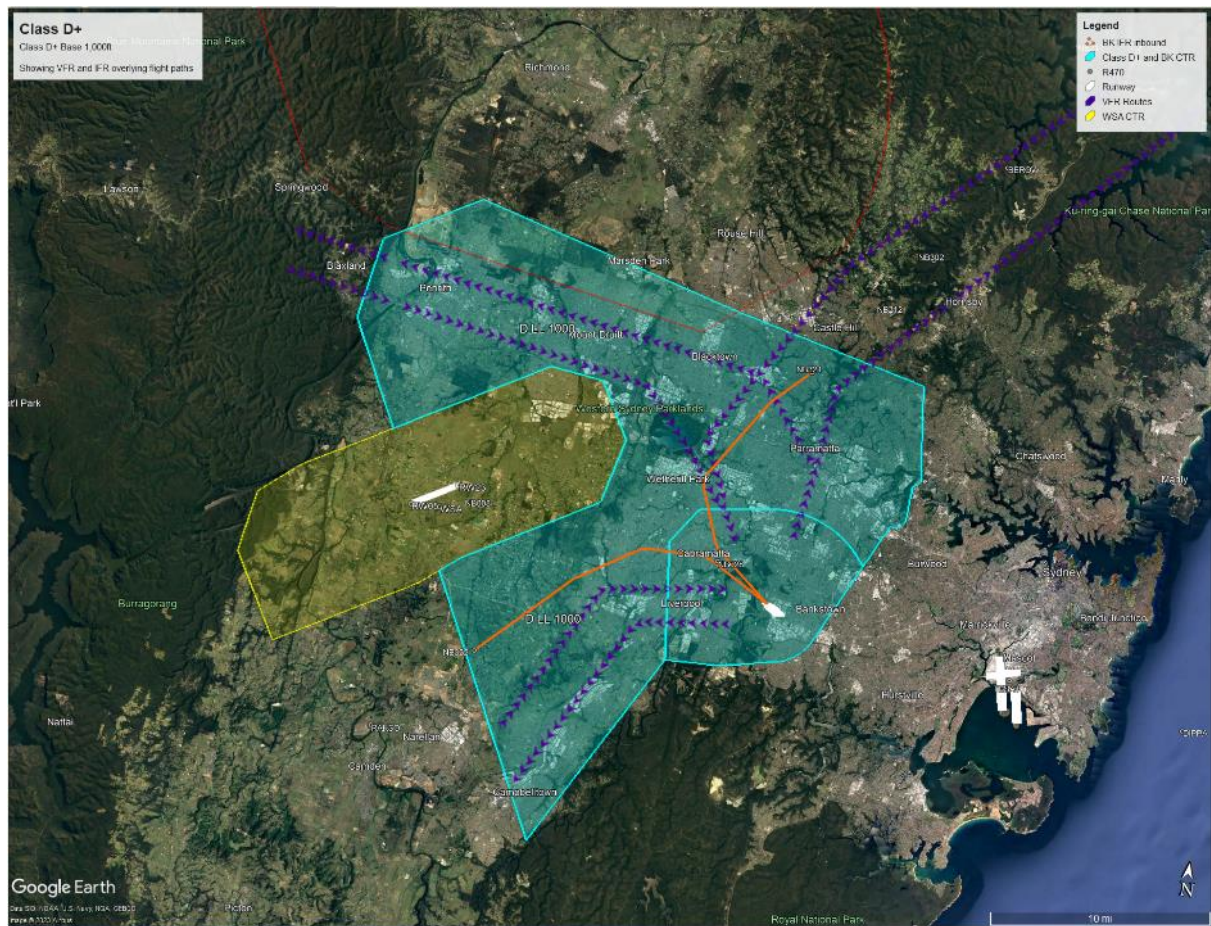


Figure 5 - YSWC CTR, proposed lass D+ volume, YSBK CTR, VFR and IFR routes

8.0 VFR operations

- 8.1** Due to the implementation of WSI airspace, some VFR routes are proposed to be added or changed within the Sydney Basin. These VFR routes are not the subject of this proposal and have been assessed in the draft EIS. Submissions regarding these routes should be made through the appropriate channels. However, their inclusion into this proposal, in addition to sample flight threads describing the operations of aircraft operating on these routes in the proposed Class D+ airspace, is intended to provide airspace users with context to understand the proposed changes.
- 8.2** The following section describes the routes that VFR aircraft would mainly fly after the implementation of WSI airspace. These routes are not intended to be a comprehensive list of all available clearances in the Sydney Basin. Other clearances may be available on an as needed basis.
- 8.3** VFR aircraft operating on published VFR routes in the proposed Class D+ airspace can expect a coded clearance which will be published in the Aeronautical Information Publication (AIP). In order to reduce pilot and ATC workload, these coded clearances reduce a long form of instructions to a shorter, more usable, instruction. See Section 9.0 for examples.
- 8.4** Clearances will be delivered by either Sydney or Bankstown ATC.
- 8.5** VFR aircraft operating to the north of YSBK could expect to operate on similar routes to the ones currently in use if they are continuing to the north.

VFR aircraft operating to the west and northwest of YSBK would operate on new routes that transit clear of YSWs operations. The proposed VFR routes for western departures follow the current northern departure route before turning west to track north of the Great Western Highway. Aircraft arriving from the west will track inbound to YSBK south of the Great Western Highway and north of the M4 to join other arriving aircraft at Prospect Reservoir (PSP). The proposed VFR routes are shown below in Figure 6 and Figure 7.

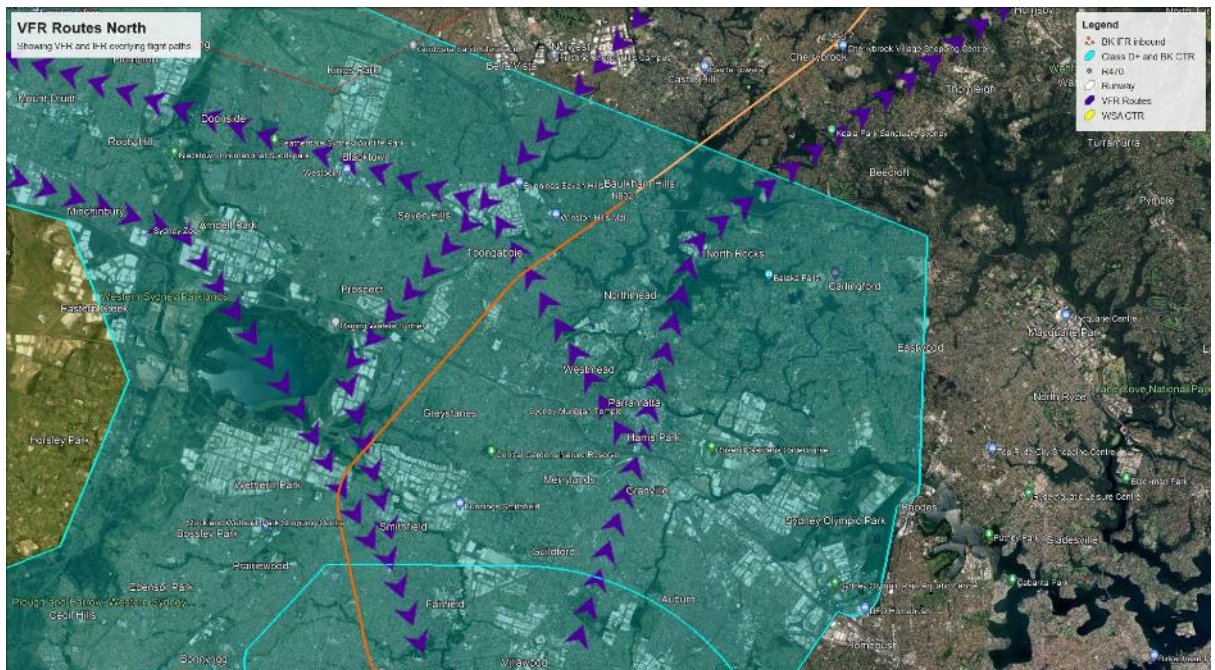


Figure 6 – VFR routes north

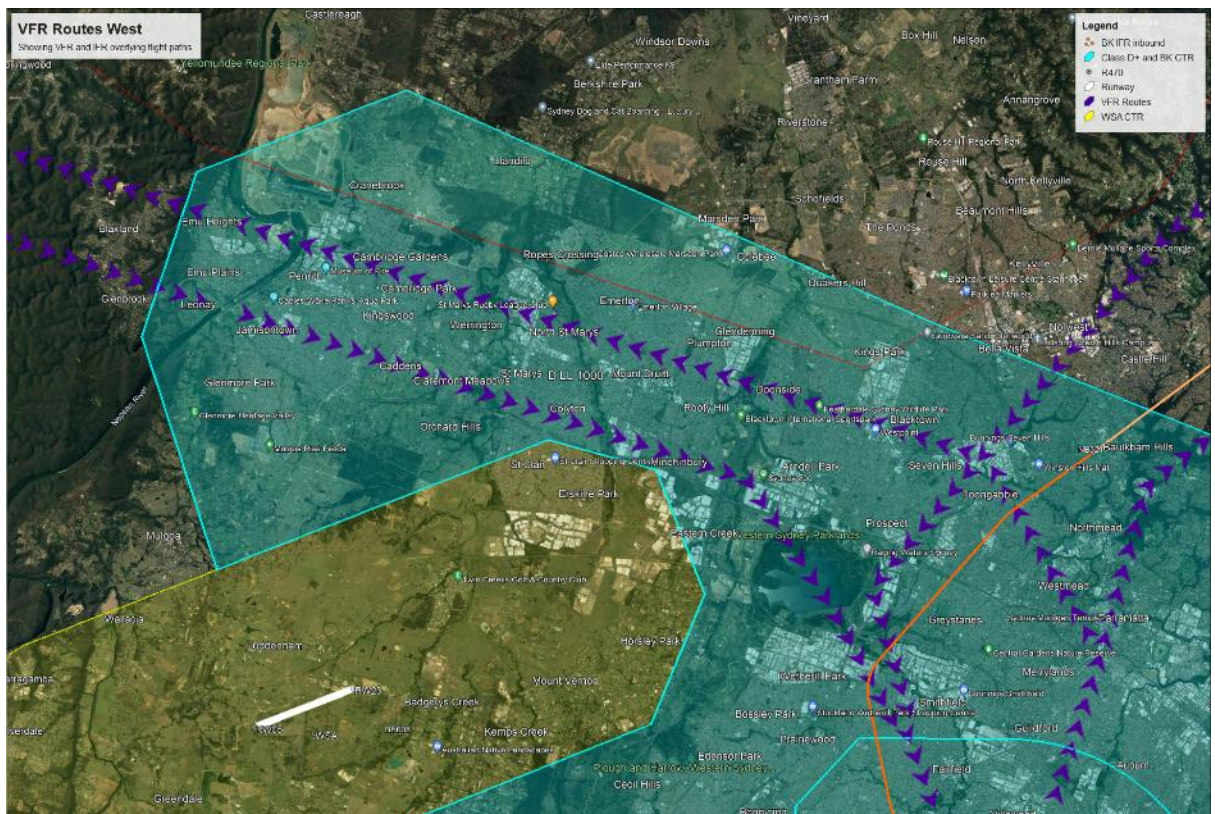


Figure 7 – VFR routes west

- 8.6** VFR aircraft operating to the southwest of YSBK would operate on new routes that keep them segregated from other traffic. These routes would keep VFR and IFR arrivals closer together allowing for improved sequencing outcomes. The proposed VFR routes follow similar routes to those currently followed, but reverse the direction of each route.

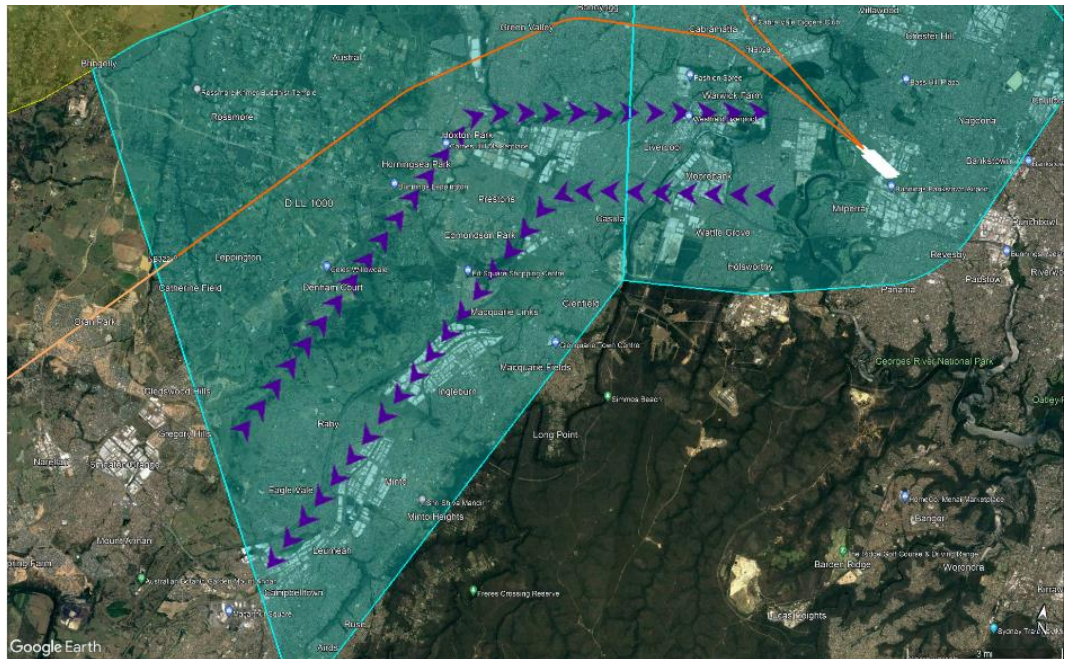


Figure 8 – VFR routes south and YSBK arrivals

- 8.7** VFR aircraft transiting the Basin north/south could expect to receive a clearance inbound on one of the promulgated VFR routes, overfly Bankstown Airport and continue on one of the outbound VFR routes as shown below in Figure 9.

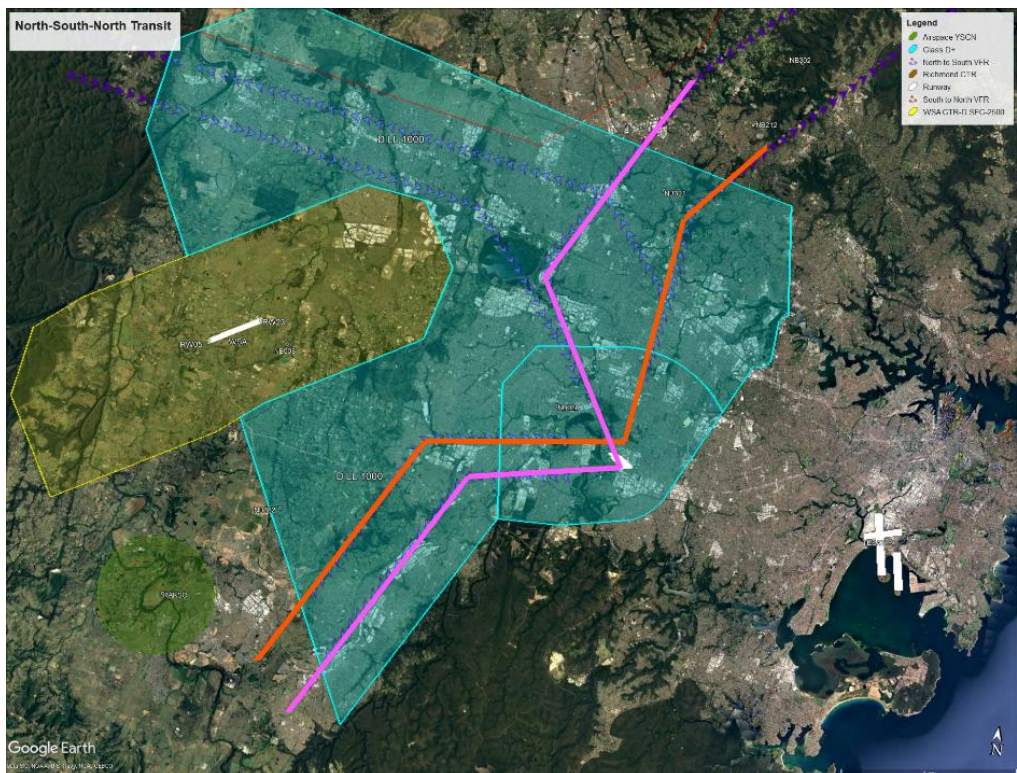


Figure 9 – VFR north-south-north transits

9.0 Example flight threads

- 9.1** The following section provides some examples of flight threads, including clearances and instructions, that VFR aircraft will receive when using the airspace either departing Bankstown Airport, arriving Bankstown Airport or transiting the overhead VFR route over Bankstown Airport.
- 9.2** The following is an example of a VFR aircraft departing Bankstown for the northwest and the instructions they could expect to receive from ATC.

VFR departure from BK to the West

VICTORIA BRIDGE ONE

(RWY 29) TURN RIGHT, CLIMB TO 1000FT TRACKING DIRECT TO VILLAWOOD.

(RWY 11) TURN LEFT, CLIMB TO 1000FT TRACKING DIRECT TO VILLAWOOD.

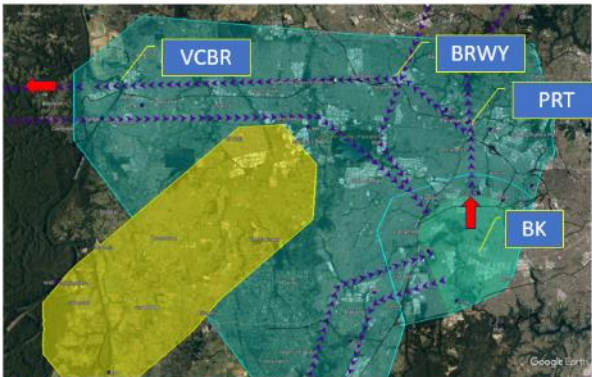
Circuit departure instructions subject to variation by BK TWR.

AT VILLAWOOD CLIMB TO 1500FT TRACK DIRECT PARRAMATTA AND CONTACT SY CEN 124.55.

AT PARRAMATTA TURN LEFT DIRECT BLACKTOWN RWY THEN TURN LEFT DIRECT VICTORIA BR REMAINING NORTH OF GREAT WESTERN HWY.

WHEN LEAVING CLASS DELTA AIRSPACE SQUAWK 1200 AND MONITOR SY CEN 125.8 - IDENTIFICATION AND CTRL SVC TERMINATED

Follow railway line from Blacktown to the Nepean River to aid navigation clear of Richmond military restricted airspace.



"Bankstown Ground, XYZ taxiing for departure via Victoria Bridge."

"XYZ squawk 1234 cleared Victoria Bridge One, report ready to Tower on 132.8."

"Code 1234, Victoria Bridge One, 132.8, XYZ."

Figure 10 – VFR departure west example flight thread with ATC

Note: Based on consultation feedback received to date, *BRWY* and *VCBR* are expected to be changed to more appropriate names/locations, yet to be determined.

- 9.3 The following is an example of a VFR aircraft arriving Bankstown from the northwest and the instructions they could expect to receive from ATC.

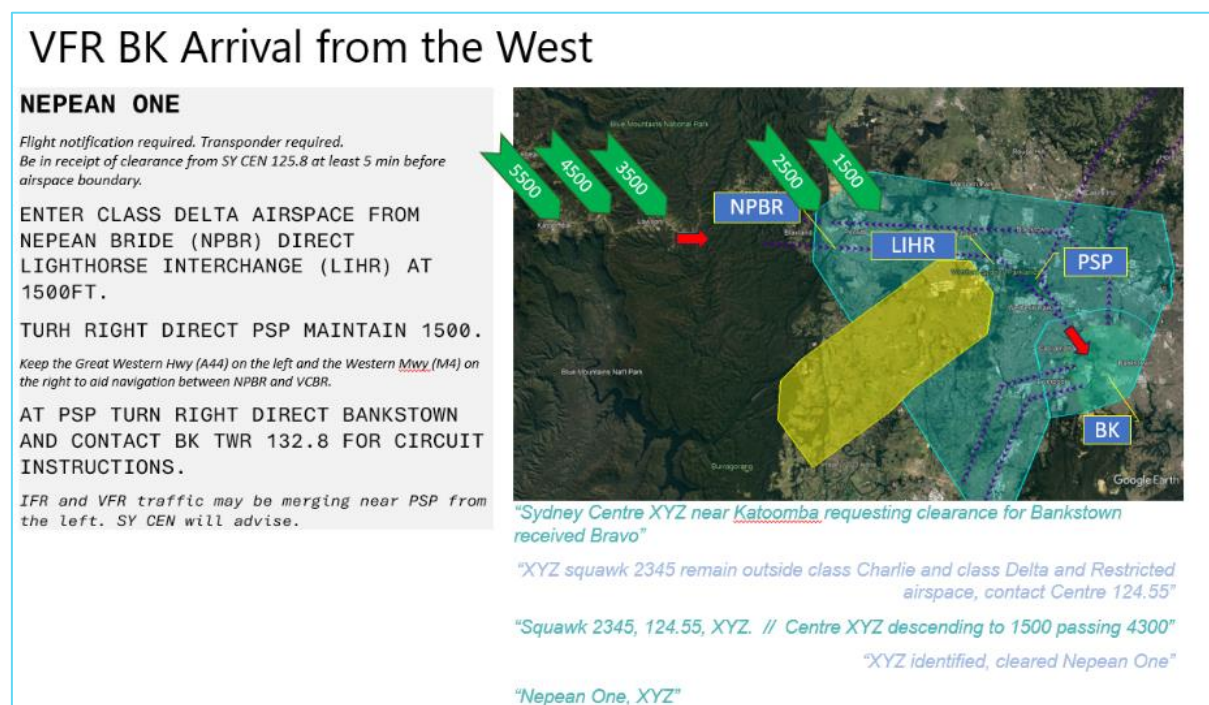


Figure 11 – VFR arrival west example flight thread with ATC

- 9.4 The following is an example of a VFR aircraft transiting the Basin overhead Bankstown from the north and the instructions they could expect to receive from ATC.
- 9.5 Figure 12 describes an example of the track to be planned. A similar process will be employed for aircraft tracking South to North.
- 9.6 Transits overhead YSBK using VFR arrival and departure routes at 1500 FT can be flight planned. YSBK TWR may give amended routings in the YSBK CTR to re-join the departure route.

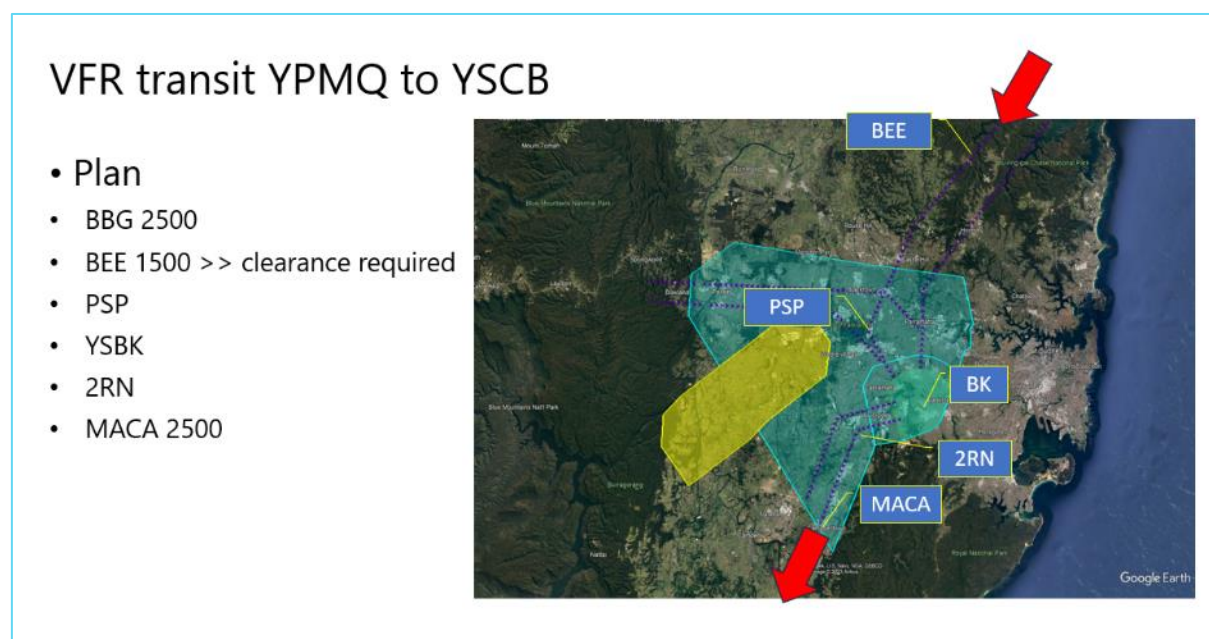


Figure 12 – VFR transit north to south example flight plan

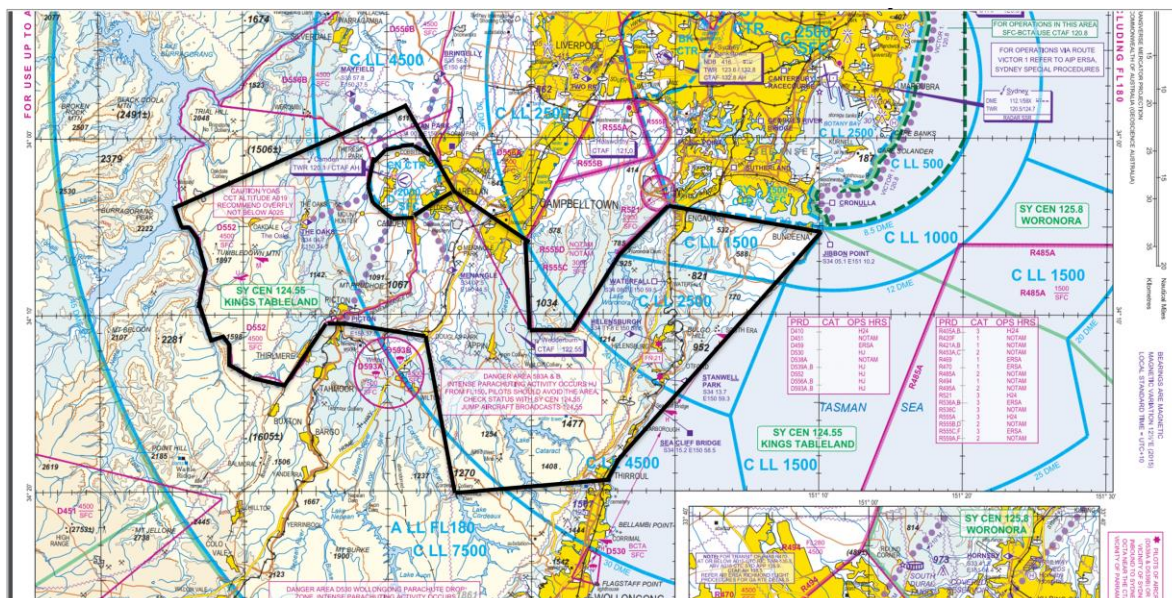


Figure 14 – Proposed training area south expanded to Engadine Corridor and now includes residual flying training area near Camden.

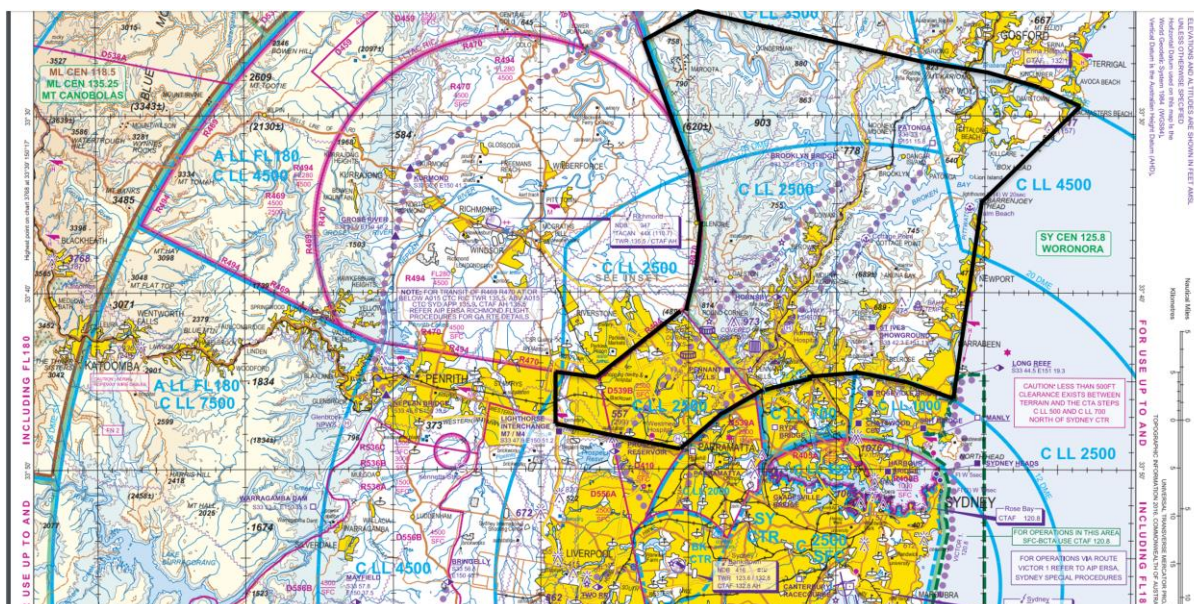


Figure 15 – Proposed training area north expanded to coast line

- 10.7 Airservices has reviewed Sydney (SY) CTR and the adjacent Controlled Airspace (CTA) steps to accommodate the Engadine Corridor (see 10.2 – 10.4), simplify boundaries, and identify further opportunities to improve class G access. Figure 16 depicts proposed amendments (C1A unchanged).
- 10.8 C2A would maintain a 1000ft lower limit to provide containment of YSSY RWY 34L & RWY 34R visual approaches. Its volume is reduced to the east as the same containment is not required for RWY 25.
- 10.9 C2B would provide a continuous 1000ft step over Sydney Harbour and the Paramatta River. The southern boundary of this step provides containment for YSSY IFR flight procedures and would consist of a series of straight lines, rather than the geographically defined borders currently in use. R405A and R405B would need complementary changes.

- 10.10** C3A would provide a continuous 1500ft step north and east to contain YSSY runways 16R, 16L, and 25 approaches. It replaces existing areas of 700ft and 1000ft CTA, removing the requirement for VFR aircraft to obtain clearances in those areas at 1500ft.
- 10.11** C3B extends a 1500ft step from overhead BK CTR to the south to accommodate the Engadine Corridor. It is expected the VFR approach point would be located south of Woronora Cemetery at a suitable location, subject to feedback.

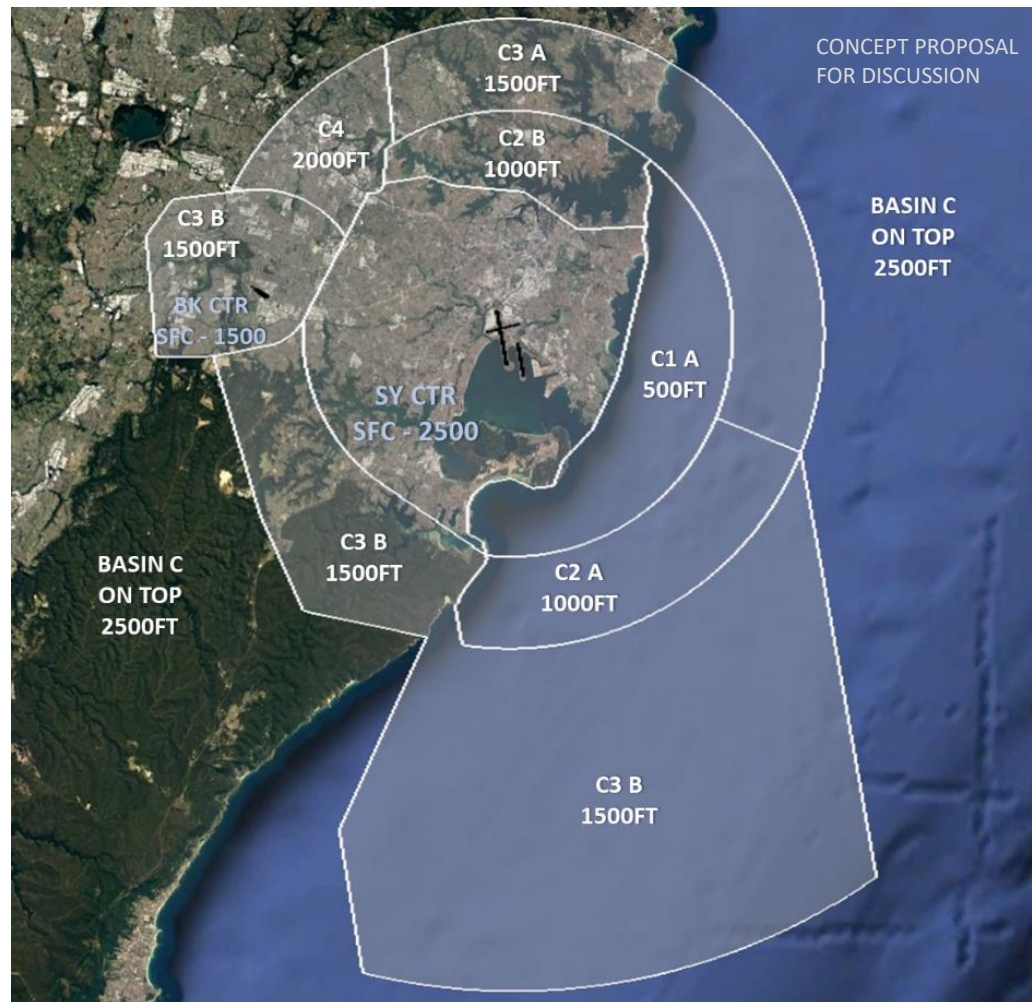


Figure 16 – Proposed amendments to SY CTA (altitudes in white are Class C LL)