



AERONAUTICAL IMPACT ASSESSMENT

**Westmead Catholic Community
Education Campus**



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Publication Title

Aeronautical Impact Assessment: Westmead Catholic Community Education Campus

Prepared for

Catholic Education Diocese of Parramatta
12 Victoria Rd
Parramatta NSW 2150

Prepared by

Avlaw Pty Ltd, trading as Avlaw Aviation Consulting
Suite 6.13
6 Middlemiss St
Lavender Bay NSW 2060
Australia

Email: info@avlaw.com.au

Project Team

Amin Hamzavian (Project Manager)
Allan Frew (Airport Operations)
Peter Simpson (Helicopter Operations)

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ABOUT **AVLAW PTY LTD**

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The AvLaw team of consultants and auditors are comprised of senior airline executives, airport directors, engineers, planning and operations specialists and safety regulators.

Our subject matter experts each have extensive operational experience across a wide range of disciplines including airport and flight operations, maintenance, engineering, air traffic management, aviation law and regulations, aviation security, aviation economics and drones/RPA.

The image features a large, solid blue circle centered on a background of fine, light blue diagonal lines. A thick black ring is positioned around the blue circle, with a small segment of the ring at the bottom right replaced by a light blue arc. Two thin, curved black lines sweep around the top and bottom of the blue circle, framing it.

Executive Summary

Executive Summary

This Aeronautical Impact Assessment (AIA) has been prepared by Avlaw Pty Ltd, trading as Avlaw Aviation Consulting (Avlaw), on behalf of Catholic Education Diocese of Parramatta (CEDP) to satisfy the NSW Planning and Environment Department Secretary's Environmental Assessment Requirements (SEARs) relating to the State Significant Development Application (SSDA).

Addressing the SEARs is required to support the proposed construction of the Westmead Catholic Community Education Campus, herein also collectively referred to as "the site". Located at 2 Darcy Road Westmead, the site currently houses 3 schools catering for both primary and secondary school students. The proposed development includes a new primary school building, new parish building and refurbishment of an existing early learning centre. This AIA addresses all pertinent aviation related issues which require consideration to ensure the impacts of the proposed buildings and cranes used during construction are identified and assessed to ensure the safety, regularity or efficiency of aircraft operations in close proximity to the site are not compromised or adversely impacted.

The aviation-related SEARs seeks to ensure compliance with the National Airports Safeguarding Framework (NASF), stating that a report must be prepared by a suitably qualified aviation expert that identifies and assesses the potential impacts of the development on the aviation operations of any nearby on shore helicopter landing sites and associated flight paths in accordance with the relevant sections of the NASF. NASF Guideline H - Protecting Strategically Important Helicopter Landing Sites (SHLS) has been identified by Avlaw as being the most relevant to satisfying the SEARs with respect to construction across the site and will be the focus of this AIA.

Although the SEARs refers specifically to the NASF, Avlaw has confirmed that Guideline H does not encapsulate the additional relevant operational airspace considerations contained in the Departure and Approach Procedures (DAP) part of the Aeronautical Information Publication (AIP) and that these have been included in the assessment and report undertaken by Avlaw.

The proposed maximum building height across the site is RL 46.5m, with all plant and ancillary features captured within this envelope. The summary of Avlaw's findings based on this maximum proposed building height against the NASF and AIP DAP are listed below. The findings relate to an assessment against the impact on operations to/from the Westmead Hospital Accident and Emergency (A&E) rooftop helipad:

NASF

- » The proposed Parish does not penetrate airspace protected for operations to/from Westmead Hospital
- » Primary School/K-6 does penetrate the boundary of the airspace as defined by the NASF guidelines for the protection of helicopter operations to/from Westmead Hospital
 - The multi-storey K-6 Primary School does fall within the envelope of the first 500m step of the NASF guideline airspace thereby triggering the need for further detailed assessment

AIP/DAP

In addition to a range of options for flight in Visual Meteorological Conditions (VMC), the Westmead A&E helipad is served by instrument flight procedures for approaches:

- » Three (3) instrument approach procedures are published in AIP DAP for the Westmead Hospital Rooftop Helipad
 - NDB 127;
 - RNAV-Z (GNSS) 052; and
 - RNAV-Z (GNSS) 127.
- » None of the structures proposed at the site fall under the operational airspace protected under any of the published instrument procedures listed above.

In addition to the A&E helipad, there are two other operational helicopter landing sites within the Westmead hospital campus. The impact of the proposed development on flight paths to and from both the Westmead Children's Hospital and the CareFlight base have also been examined and neither will be impacted adversely by the construction of Stage 1 of the Westmead Catholic Community.

In addition to the existing HLS on the Westmead Hospital campus, a rooftop HLS at the new Central Acute Services Building (CASB) will be operational from October 2020 with an elevation of 82m AHD . As this additional HLS is well above any proposed building height across the site, there will be nil impact on helicopter operations to/from that helipad.

The operational airspace for the closest airport to the site (i.e. Bankstown Airport) was also considered and Avlaw's assessment has found that the critical (i.e. lowest) airspace protection surface covering the site is the Outer Horizontal Surface of the Bankstown Airport Obstacle Limitation Surfaces (OLS) at a height of 156m AHD. Therefore, the proposed building and crane heights across the site are well below this surface and therefore controlled activity approvals will not be necessary to facilitate construction.

This AIA concludes:

- » Whilst the criteria contained in NASF Guideline H will be penetrated, it is not a true representation of operational airspace that must remain obstacle free, but instead a trigger for further assessment;
- » Based on the resulting assessment against the criteria of dimensions and slopes of Helicopter Landing Site (HLS) airspace protection surfaces contained in CASA Civil Aviation Advisory Publication CAAP 92-2(2), this report has concluded that none of the buildings proposed at the site penetrate these surfaces, and therefore there is no impact on the safety, efficiency and regularity of emergency helicopter operations to/from any current or future HLS in close proximity to the site.

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1

Introduction

Introduction



This report supports a State Significant Development Application for the Westmead Catholic Community (WCC) at 2 Darcy Road, Westmead.

The WCC project seeks to meet the needs of the growing population within the region by providing upgraded school facilities for Mother Teresa and Sacred Heart Primary Schools, as well as a new Parish church. WCC is a collaboration between Catholic Education Diocese of Parramatta (CEDP), the Diocese of Parramatta (DoP), the Sisters of Mercy and the Marist Brothers Province of Australia.

As the proposal is for the purposes of alterations and additions to an existing school and has a capital investment value in excess of \$20 million, it is State Significant Development (SSD) for the purposes of the *Environmental Planning and Assessment Act 1979* (the Act). The Parish church is also SSD under clause 8(2)(a) of *State Environmental Planning Policy (State and Regional Development) 2011* as it forms part of the proposal which comprises a single, integrated development with significant functional links between the education and church uses.



2

**Description
of proposed
development**

Description of proposed development

The State Significant Development application will seek approval for:

- » A primary school with capacity for approximately 1,680 students, to provide expanded facilities for the existing Mother Teresa Primary School on the site and to replace the existing Sacred Heart Primary School at Ralph Street;
- » A new Parish church;
- » A Catholic early learning centre (fit-out within an existing building);
- » New landscaping.



3

The Site

The site

The subject site is located at 2 Darcy Road, Westmead, approximately 2km to the north-west of the Parramatta CBD and approximately 300m to the west of Westmead Train Station. The site is located within the Parramatta Local Government Area (LGA).

The site has an area of approximately 12ha and a frontage of approximately 430m to Darcy Road. The site consists of two lots, which are legally described as Lot 1 in DP1095407, which is owned by the Trustees of the Roman Catholic Church of Parramatta, and Lot 1 in DP1211982, which is under the ownership of the Trustees of the Marist Brothers.

The site is bound by Darcy Road (to the north), the T1 North Shore & Western / T5 Cumberland train lines (to the south), the Western Sydney University Westmead Campus (to the east) and residential uses (to the west).

To the north of the site, across Darcy Road is the Westmead Health and Education Precinct comprising the Westmead Hospital, Westmead Private Hospital and the Western Sydney University Medical Research Institutes. The locational context of the site is shown at **Figure 1**.

The Westmead Health and Education Precinct, the WCC site and the surrounding residential land collectively form part of the recently nominated Westmead Priority Precinct Area.

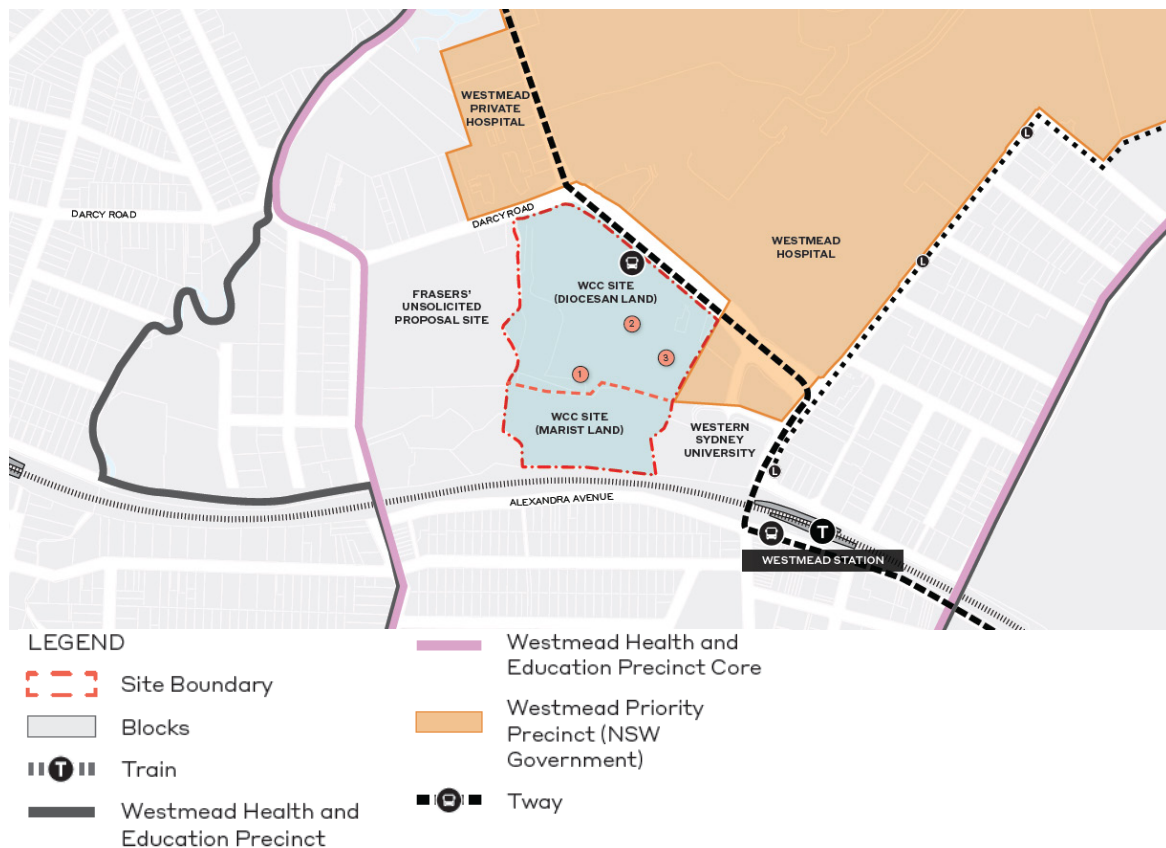


Figure 1: Location Plan

3.1 Existing Development

The site currently contains three separate schools being the Catherine McAuley Westmead (girls high school) which predominantly occupies the northern part of the site, and the Parramatta Marist High School (boys school) which occupies the eastern part of the site. The Mother Teresa Primary School occupies part of the Catherine McAuley school building in the centre of the site. The southern portion of the site contains open sports fields associated with the Parramatta Marist High School.

The existing Brother's residence is located in the north-eastern corner of the site, and an at grade car park occupies the western part of the site, to the north of the sports fields. Collectively, the three schools currently accommodate approximately 2,637 students and 190 staff.

3.2 Proposed Development

3.2.1 Permanent Structures

This SSDA submission will involve the construction of two new structures across the site, with the tallest building across the site reaching a maximum height of RL 46.5m, inclusive of all plant and ancillary features. A new parish is also proposed for the site and it will reach an elevation of RL 35.7m.



Figure 2: Building height indicating maximum height of the K-6 building

3.2.2 Crane Activity

Detailed information regarding crane activity in terms of height and periods of operation are not known at the time of writing. The contractor has confirmed the crane servicing the K-6 building will be positioned as to not penetrate the NASF airspace and therefore there will be no adverse impact on aviation safety.



Figure 3: Indicative movement arc of hammerhead crane in relation to K-6 building and NASF Guideline H assessment trigger



4

**National Airports
Safeguarding
Framework**

National Airports Safeguarding Framework

The National Airports Safeguarding Framework (NASF) is supported by a series of guidelines, each of which relates to varying aspects of land use planning and their interface with aviation activities at airports and other aeronautical infrastructure assets (e.g. Helicopter Landing Sites) across the country. The nine guidelines are each listed below:

- » Guideline A: Measures for Managing Impacts of Aircraft Noise
- » Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports
- » Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports
- » Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
- » Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
- » Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports
- » Guideline G: Protecting Aviation Facilities – Communications, Navigation and Surveillance (CNS)
- » Guideline H: Protecting Strategically Important Helicopter Landing Sites
- » Guideline I: Managing the Risk in Public Safety Areas at the ends of runways

One of the SEARs issued with respect to development at the site relates to aviation, stating that a report should be prepared that identifies and assesses the potential impacts of the development on the aviation operations of any nearby on shore helicopter landing sites and associated flight paths in accordance with the relevant sections of the NASF. Based on the location of the proposed development, Avlaw has identified Guideline H (Protecting Strategically Important Helicopter Landing Sites) as the one of primary importance and most limiting from an aeronautical perspective in terms of its impact on building and crane heights across the site.

[NASF](#) Guideline H was issued to introduce protection of what are being termed Strategically Important Helicopter Landing Sites or SHLS. Under the guideline, hospital helipads would be considered as SHLS and therefore protected from obstacles being erected in close proximity to it. The guideline defines 140m wide rectangular steps in the direction of the approach/take-off area in 500m long stepped increments until reaching 125m above the SHLS which would be protected from obstacles such as buildings and cranes. The steps, rising in 15m increments, are shown in Figure 4 on the following page that has been sourced from Guideline H and illustrates the protection of SHLS and the heights above which further assessment is triggered.

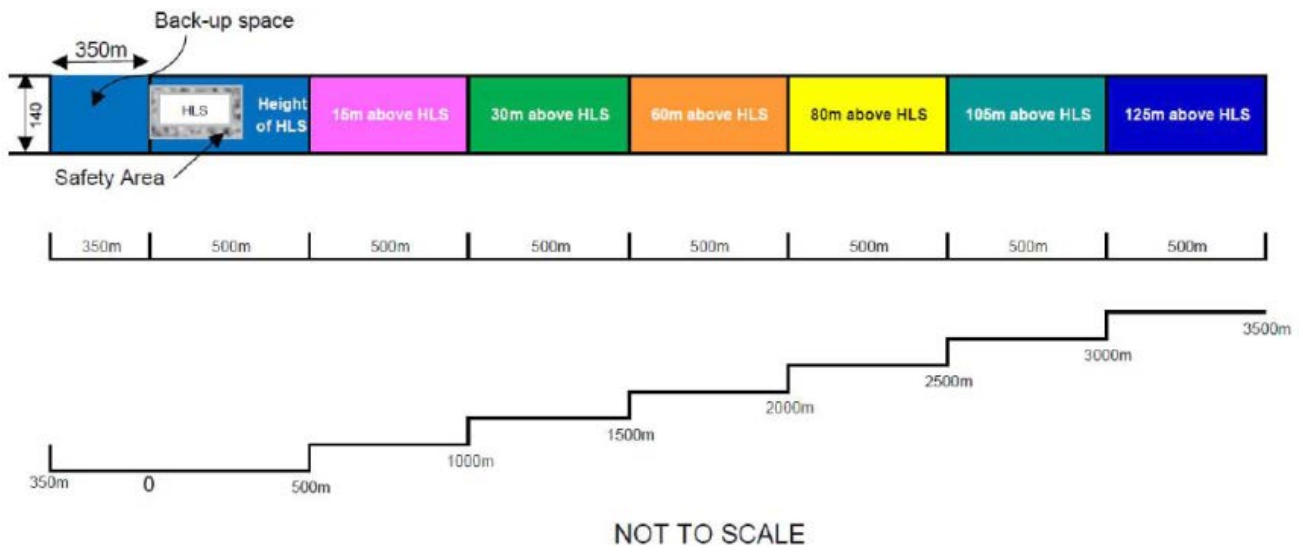


Figure 4: Referral trigger for SHLS

Avlaw has identified a total of three (3) currently operational SHLS within the Westmead Hospital campus and in close proximity to the site:

- » Westmead Hospital (A&E) - located on the roof and closest to the site;
- » Westmead Children's Hospital - located on the roof East of the site; and
- » CareFlight's Westmead Base - located on an oval to the North-East.

Avlaw notes that there will be a fourth HLS in close proximity to the site located on the rooftop of the CASB. At 82m AHD however, this helipad is well above any proposed building height (and likely crane heights) across the site and therefore, with appropriate lighting on the construction cranes, will not have any significant impact on helicopter operations to/from this helipad.

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5

**Airspace
Assessment
Findings**

Airspace Assessment Findings

5.1 Bankstown Airport – Prescribed Airspace

Avlaw’s assessment has found that the critical (i.e. lowest) airspace protection surface associated with flight operations at Bankstown Airport and overlying the site is the Outer Horizontal Surface of the Bankstown Airport Obstacle Limitation Surfaces (OLS) at a height of 156m AHD. Therefore, the proposed building and crane heights across the site are well below this surface and therefore controlled activity approvals will not be necessary to facilitate construction.

5.2 Westmead Hospital

Avlaw has identified a number of published flight path tracks which have been sourced from Airservices Australia and OzRunways. Each of these flight path tracks is illustrated below as per the NASF assessment trigger and CASA helipad operational airspace criteria.

5.2.1 NASF

065M/255M

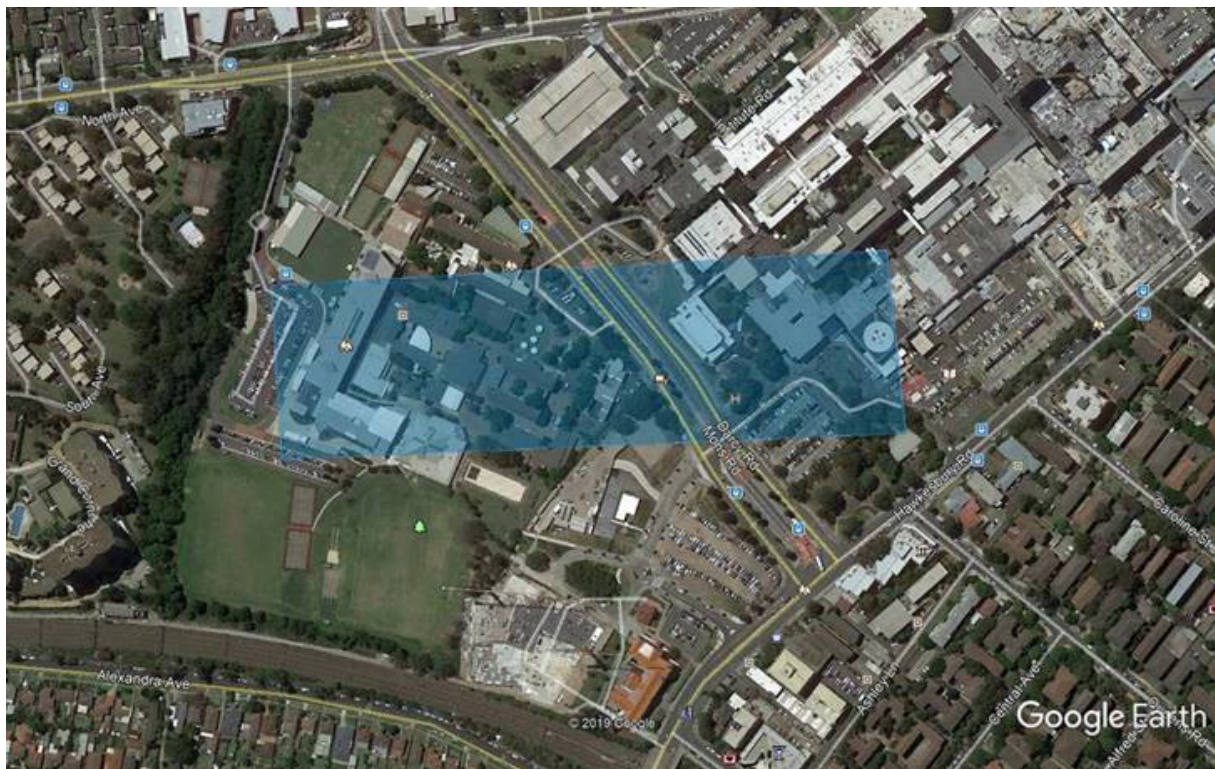


Figure 5: Referral trigger for SHLS as per flight path 065M/255M (Source: [OzRunways](#))



Figure 6: Referral trigger for SHLS as per flight path (instrument procedures) 052M and 127M (Source: [AIP](#))



Figure 7: Figures 5 and 6 combined

5.2.2 CASA airspace criteria

065M/255M



Figure 8: CASA CAAP 92-2(2) helipad operational airspace as per flight path 065M/255M
(Source: [OzRunways](#))

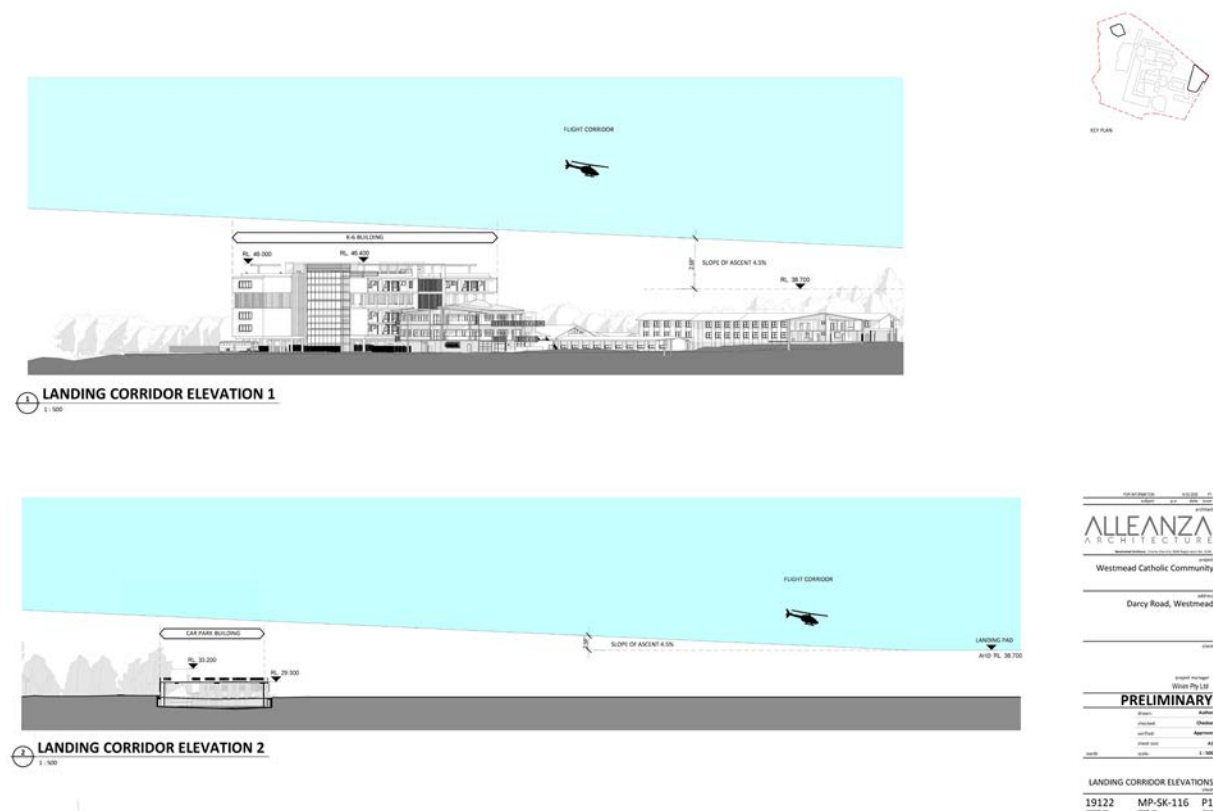


Figure 9: Elevation view of CASA CAAP 92-2(2) helipad operational airspace as per flight path 065M/255M

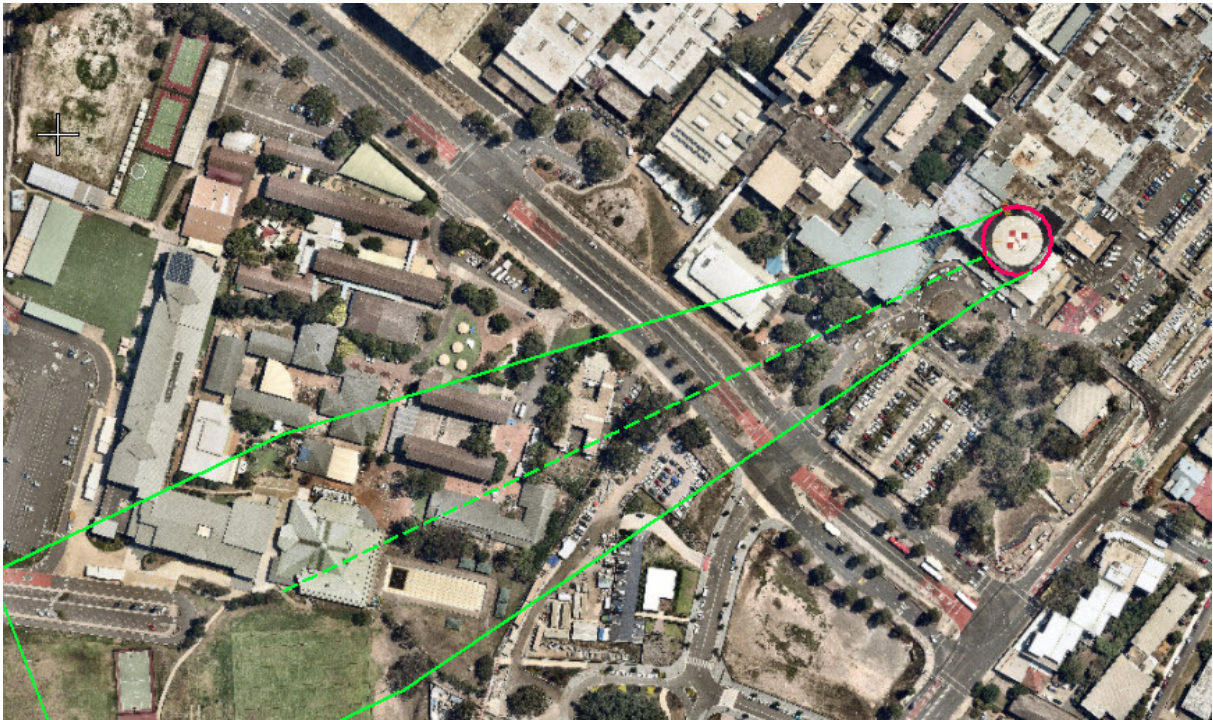


Figure 10: CASA CAAP 92-2(2) helipad operational airspace as per RNAV-Z (GNSS) 052M flight path (Source: [AIP](#))



Figure 11: CASA CAAP 92-2(2) helipad operational airspace as per NDB 127M flight path (Source: [AIP](#))

5.3 Westmead Children's Hospital

Preferred flight paths to/from the helipad on the roof of the car park at Westmead Children's Hospital are indicated by yellow arrows on the helipad itself. These are indicated by yellow arrows on the image below.

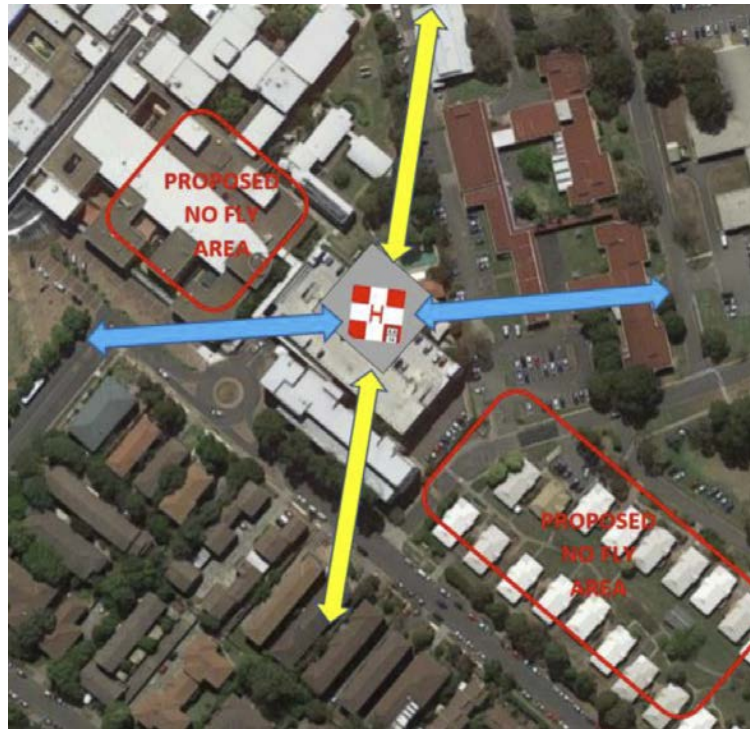


Figure 12: Preferred flight paths marked by yellow arrows
(Source: Helicopter Landing Site Operations Manual)

The Westmead Children's Hospital Helicopter Landing Site Operations Manual indicates that alternative approaches and departures are available to the West, however due to the height of existing buildings (see below), any operations to/from the West will therefore require a curved flight track to remain clear of the existing buildings. This in turn will ensure helicopters operating to/from the Westmead Children's Hospital will not overfly the site.



Figure 13: View to the West from the roof of the Westmead Children's Hospital car park

5.4 Westmead CareFlight base

Limited operational information available on this helicopter landing site which has been sourced from OzRunways, preferred flight paths to/from this ground level helicopter landing site are to the East and West. It may be possible that manoeuvring to/from these preferred tracks could involve overflight of the site. The extent and height of existing building between the site and the HLS would indicate that the aircraft when overflying the site would need to be at an altitude that would be well clear of the proposed developments at the site. Therefore, nil impact has been identified.



Figure 14: Built-up areas between the CareFlight base and the Westmead Hospital

5.5 Central Acute Services Building - Rooftop HLS

A new rooftop HLS will be installed on the rooftop of the CASB which is currently under construction. This HLS will be operational from October 2020 and will be at an elevation of 82m AHD i.e. significantly higher than any proposed structures across the site. There is a 35.5m vertical difference between the elevation of this helipad and the tallest building across the site (i.e. 46.5m AHD), providing a generous buffer for temporary construction cranes.

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Stakeholder Consultation

Stakeholder Consultation



Shortly after being engaged on this project, on Monday 3 February Avlaw commenced stakeholder engagement after the outcomes of its initial findings identified a penetration by the K-6 building of the NASF guideline airspace boundaries. Communication's with the Western Sydney Local Health District (WSLHD) and their representatives have commenced. Discussions with WSLHD and other all other relevant stakeholders will continue as required.



7

**Assessment of
Instrument Flight
Procedures -
Helicopters**

Assessment of Instrument Flight Procedures - Helicopters

A review of all published approach and departure procedures as described in AIP/DAP has been undertaken and confirms that none of the proposed structures across the site (maximum being 46.5m AHD) will impact on any instrument flight procedures in place for helicopter operations at Westmead Hospital. A detailed Construction Management Plan is not available at the time of writing, however, the contractor engaged for development at the site has confirmed the movement arc of the crane to construct the K-6 building will remain outside the lateral extremities of the airspace protected under NASF Guideline H.



8

Conclusions

Conclusions

- » Airspace defined under NASF Guideline H is penetrated, however, the NASF guideline is a trigger for further assessment rather than a detailed representation of operational airspace that must remain obstacle free;
- » Based on further assessment against the criteria of dimensions and slopes of HLS airspace protection surfaces contained in CAAP 92-2(2) has found that none of the buildings proposed as part of this SSDA submission penetrate these surfaces;
- » Instrument approaches to the rooftop helipad at Westmead Hospital are clear of the site;
- » Preferred flight paths to/from the rooftop helipad at the Westmead Children's Hospital are clear of the site, with alternative flight paths also not being compromised by the proposed development;
- » Helicopter operations to/from the CareFlight base are clear of the site;
- » Operations to and from the new helipad at the CASB which will be operational from October 2020 will not be adversely impacted as this helipad is considerably higher than any proposed structures across the site (including construction cranes);
- » Further discussions ongoing with relevant stakeholders;
- » The proposed developments across the site should be assessed favourably by aviation stakeholders involved in the assessment process as there is no impact on the safety, regularity or efficiency of emergency helicopter operations to/from any identified current or future HLS in close proximity to the site.

Based on this AIA, Avlaw concludes the proposed developments at the site do not adversely impact on the safety, efficiency or regularity of aviation operations of any nearby onshore HLS and identified flight paths based on assessment against the NASF Guideline H and CASA advisory publications.



Suite 6.13
6 Middlemiss St
Lavender Bay NSW 2060
Australia

P: (+612) 9980 7717
E: info@avlaw.com.au

www.avlaw.com.au