Helicopter Flight Path Assessment

associated with

Proposed Redevelopment of the Bethany College, Kogarah

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Prepared for: Greengate Care

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1. Background and Purpose

Aviation Professional Services Pty. Ltd. (AviPro) has been engaged by Greengate Care to undertake an assessment of the St George Hospital emergency services elevated helicopter landing site (HLS) and its VFR approach and departure paths, in relation to the proposed redevelopment of the Bethany College site in Kogarah (the Site).

The Bethany College redevelopment involves the demolition of all existing buildings on the site and the construction of a new integrated aged care village consisting of residential aged care and retirement living units.

The Site is located adjacent to the St George Hospital which is a major referral hospital in the South East Sydney and Illawarra Health Service region. Within 200m of the Site is the St George Hospital emergency services HLS located above an existing multi-level car park.

In February 2013, AviPro conducted an inspection of the Site and the St George HLS. It is also understood preliminary consultation with the CASA has been undertaken. Details and observations of the inspections and consultation are provided later in this report.

Additional considerations forming part of this assessment are the long term redevelopment plans for the Hospital as outlined in the recently released development control plan (DCP) for the Hospital and the recently approved development application for a new Emergency Department.

The following assessment is structured as follows:

- A brief description of the locality
- Outline of the Bethany College project proposal
- Overview of the Hospital DCP and New Emergency Department proposal
- Existing aviation considerations
- Helicopter flight path assessment of the proposal
- Conclusion

2. Location

The Site is located within the Kogarah Town Centre and is adjacent to the main entry to the St George Hospital. Also within the locality is the St Patrick's Catholic Primary School, St Patrick's Catholic Church, the St George Private Hospital (operated by Ramsay Healthcare) and an assortment of residential flat buildings.

Fig 1- Location plan. Site (red); Hospital (black)

The Site covers an area of 5,500sqm. It has an 80m frontage to Chapel Street and also backs onto the Princes Highway. It is bounded by the Primary school to the north and residential buildings to the south. The site has a cross fall of almost six meters with the highpoint located on Chapel Street at RL 23.0 and the low point in the south east corner at approximately RL. 17.0.

The HLS is located on the top level of a four level car parking structure at the corner of Gray and Short Street. It is connected to the primary clinical services building by an enclosed aerial walkway. The existing level of the HLS is RL. 37.70m.

Currently structures surrounding the helipad are:

- To the north and west are existing hospital buildings in the order of 70.0m AHD
- To the east mainly residential buildings up to RL 33.0m
- To the south residential buildings in the order of 30.0m

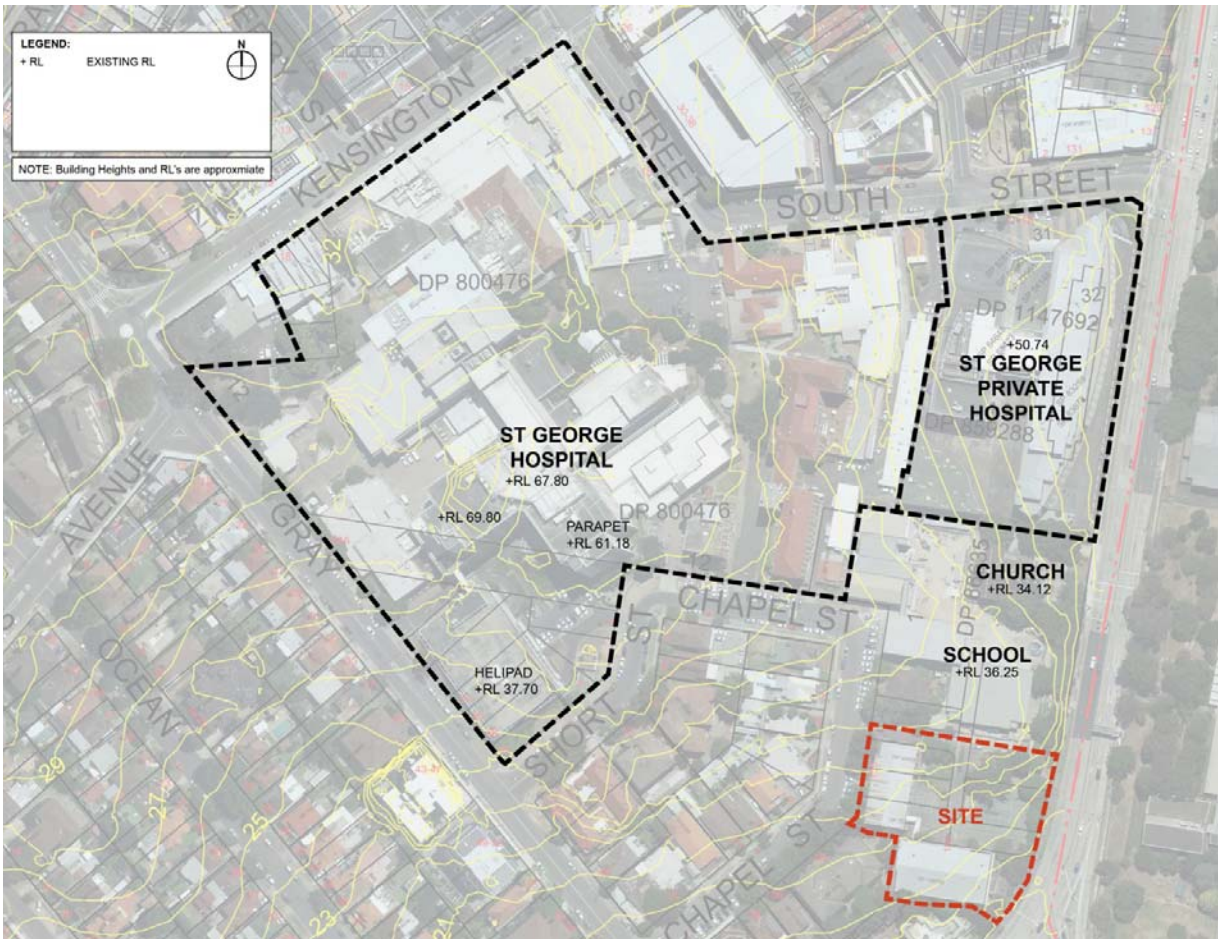


Fig. 2- Aerial showing the building height levels and relationship of the site to the helipad

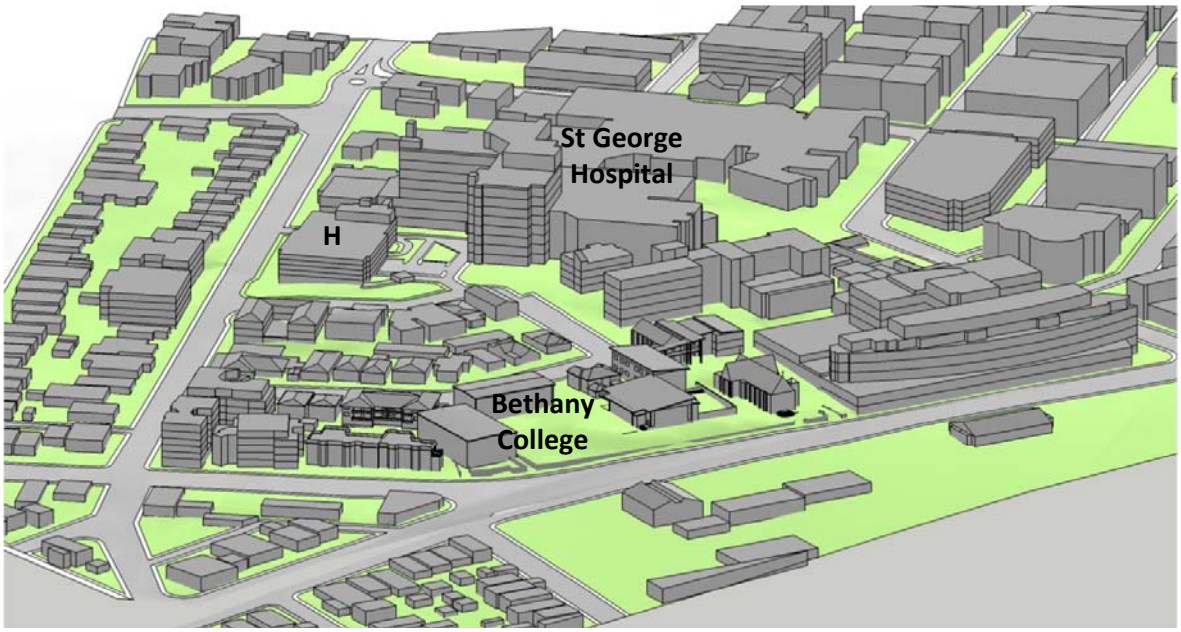


Fig. 3- Three dimensional model of the existing Bethany College (Site) and St George Hospital

3. Proposed Hospital Redevelopment

In January 2012, the St George Hospital released its Development Control Plan (DCP) outlining the short, medium and long term development proposals for the Campus. The first stage of the plan involves the relocation of the Emergency Department from Kensington Street to Gray Street. The DA for this Emergency Department was approved by the NSW Planning in January 2013 and construction is now under way.

The Hospital DCP is an important consideration in the context of the helicopter flight path assessment. Importantly, the DCP and initial consultation with the Hospital confirms there are no proposals to relocate the existing HLS location.

Relevant features of the Hospital DCP are as follows;

- A doubling of the total gross floor area;
- Developing tower blocks above podiums on Gray Street and Kensington Street;
- A new Mental Health Building;
- Redeveloping the eastern zone adjacent to the Site; and
- Long term redevelopment of the land between Short and Chapel Street which is only partially owned by the Hospital.

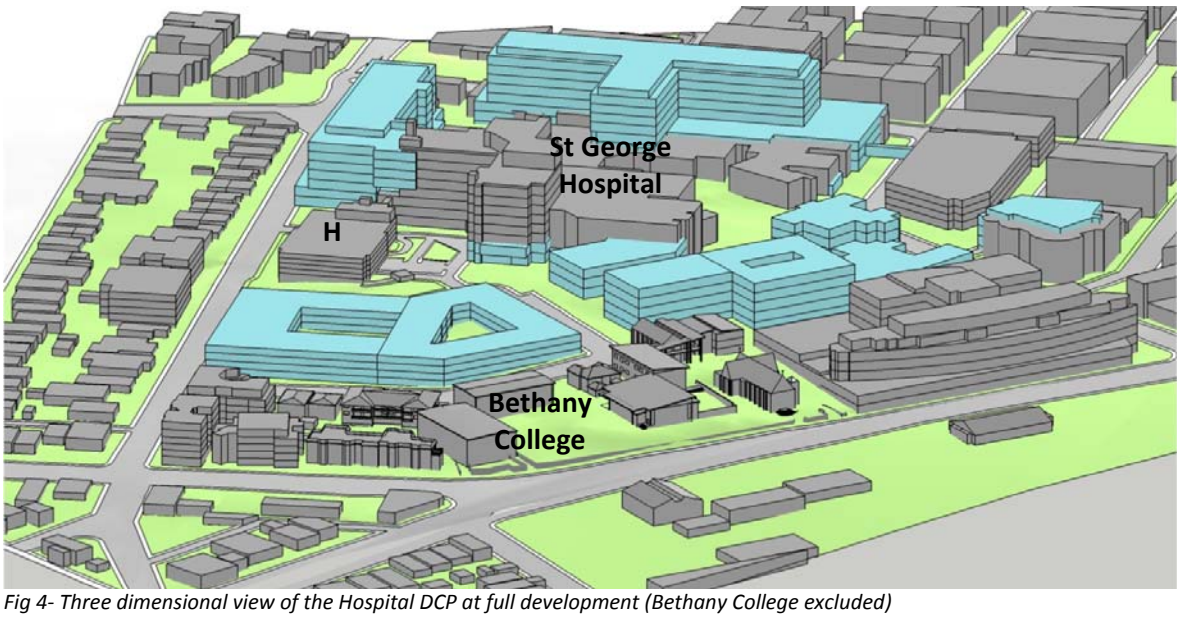


Fig 4- Three dimensional view of the Hospital DCP at full development (Bethany College excluded)

Construction of the new emergency department has commenced. The drawings below show the proposed new facility. It is noteworthy that the airspace above the new Emergency Department (shown in light below) is planned to be built out in the future to the same height as the existing Clinical Services Building

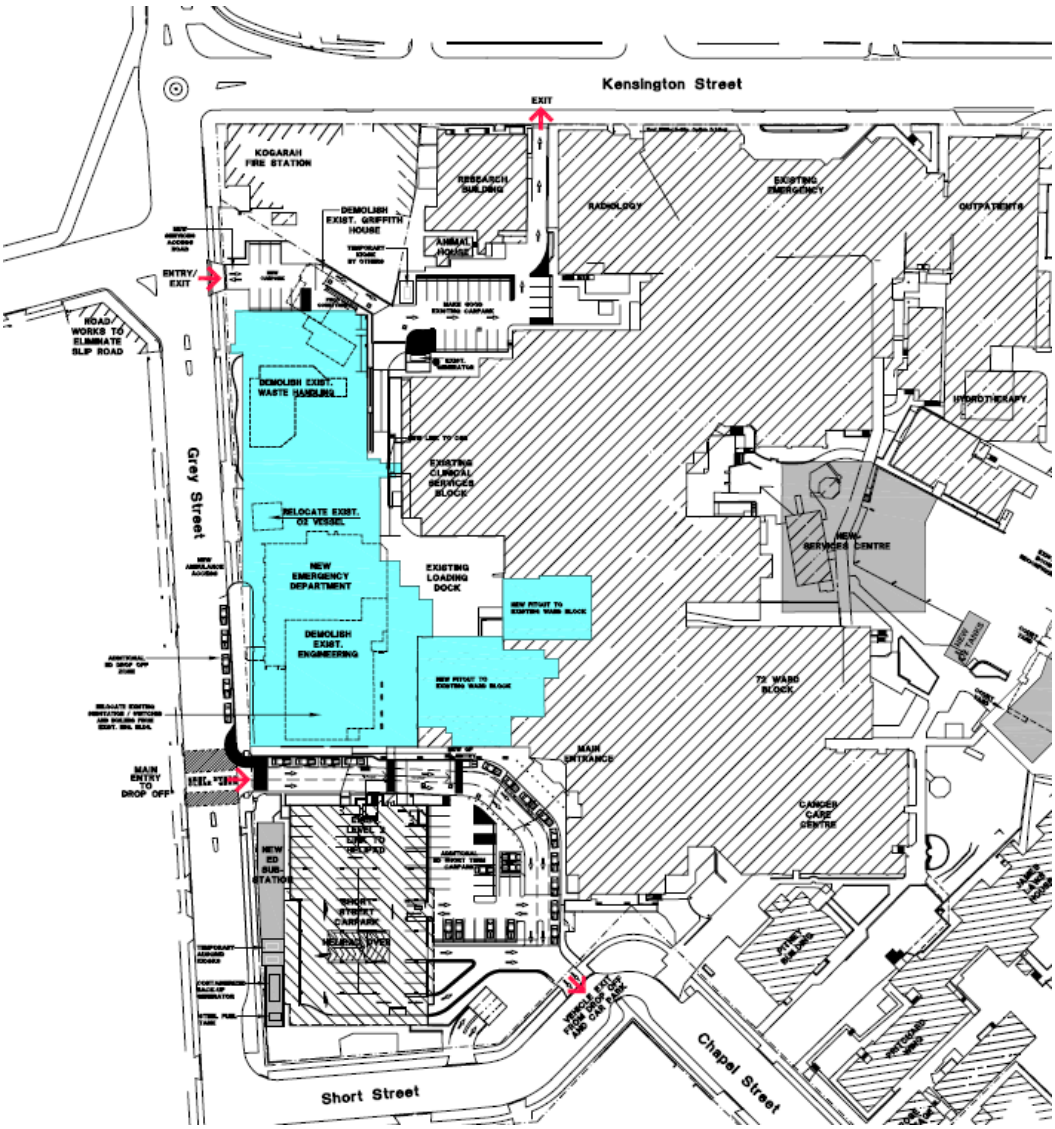
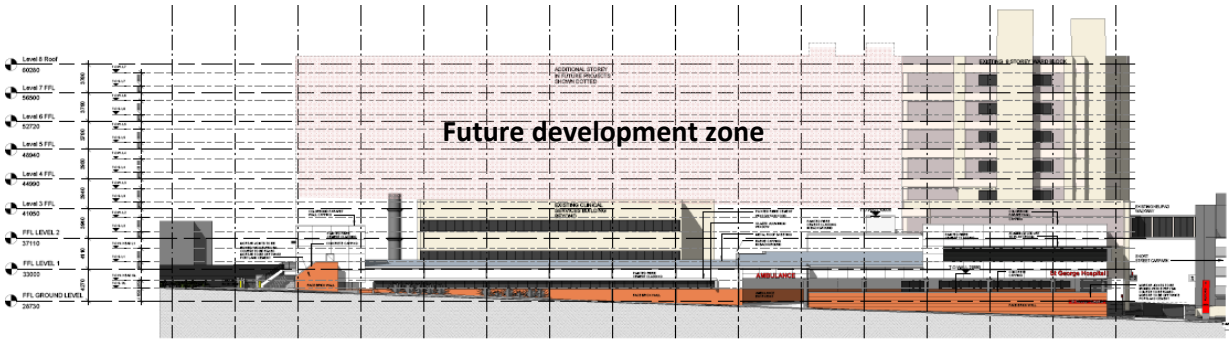
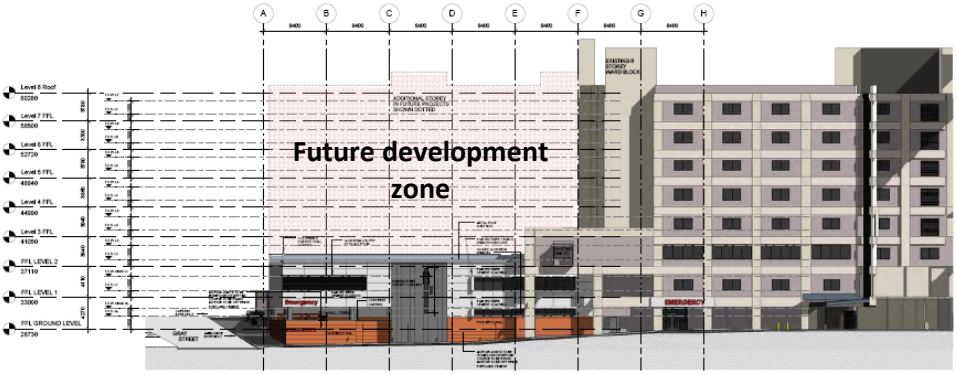


Fig 5- New Emergency Department shown in blue (drawings prepared HPI for DA)



WEST ELEVATION FROM GRAY STREET



SOUTH ELEVATION FROM DRIVEWAY BELOW HELIPAD WALKWAY

Fig 6- New Emergency Department Elevations. Shaded in pink is the future development zone (drawings prepared HPI for DA)

4. The Project Proposal

The proposals for the Bethany College site are for a new aged care and retirement facility comprising approximately 60 beds and 120 independent living units.

A draft masterplan for the Site has been prepared by urban designers Olsson and Associates. The relevant principles of the masterplan to consider in terms of helicopter flight paths are:

- A maximum building height plane of six stories along the Princes Highway frontage. The height plane reflects the built form other existing buildings such as the Private Hospital. See diagram below;

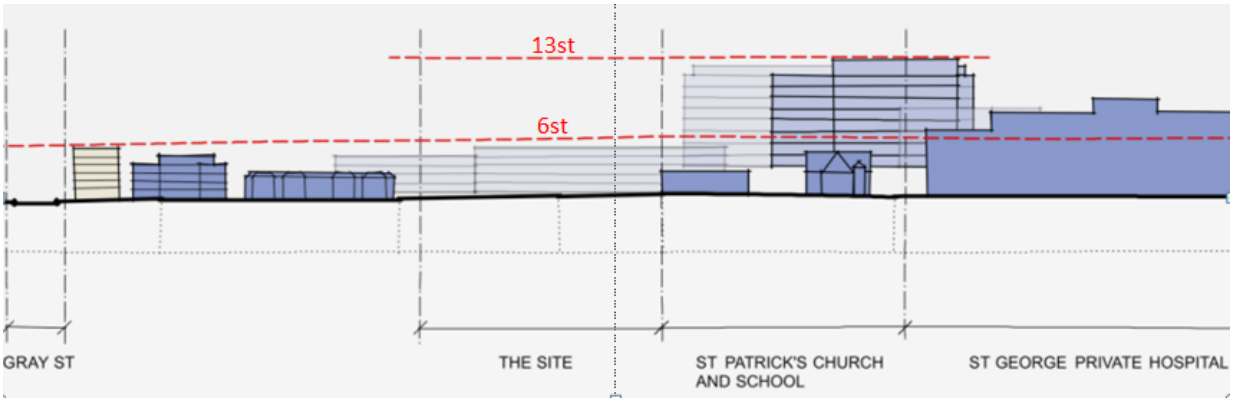


Fig 7- Princes Highway Height Plane

- A maximum building height plane of four stories addressing Chapel Street. A set back building height plan of 13 stories on the site reflects the height of the hospital buildings as well as established town centre development control that no buildings are to be higher than the hospital.

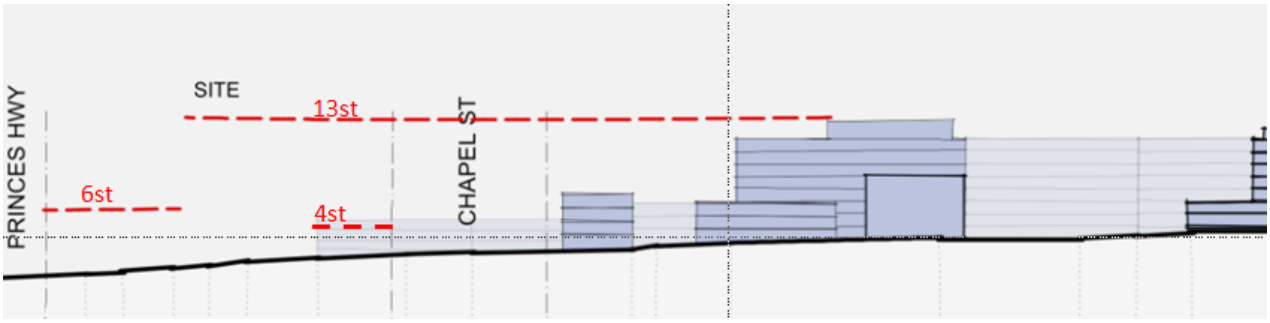


Fig 8- Chapel Street Height Plane

A site plan and a three dimensional massing drawing of the proposed aged care and retirement development is shown below.

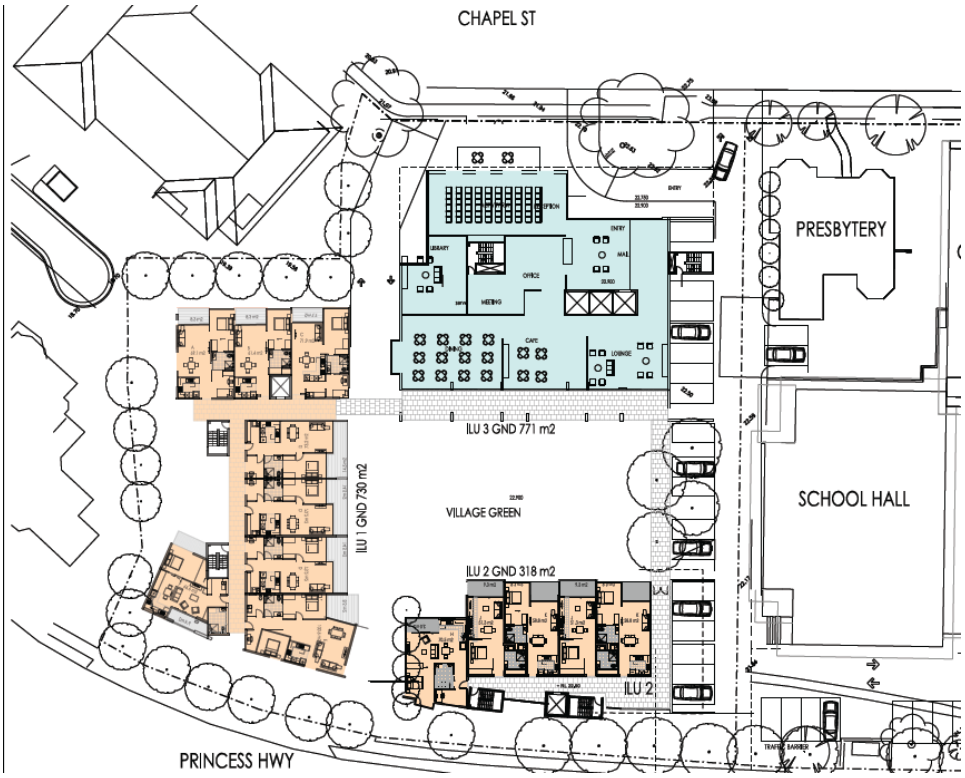


Fig 9- Bethany College-Concept Masterplan

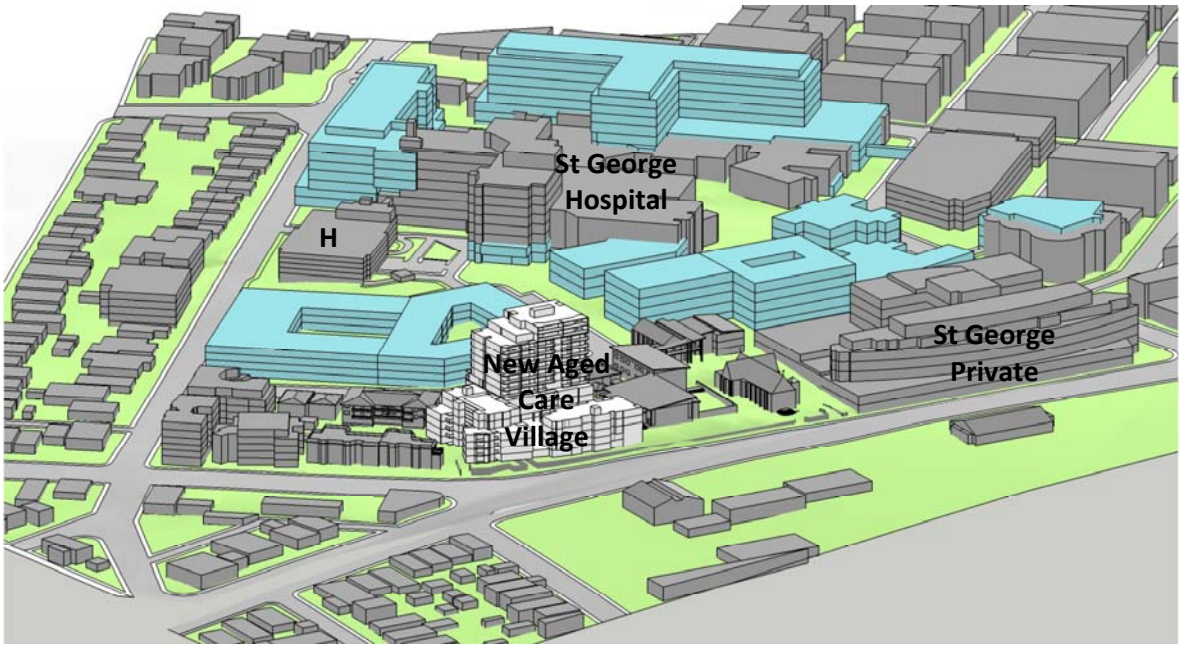


Fig 10- Three dimensional view of the proposed Bethany College Masterplan

5. Aviation Considerations

Sydney Airport Corporation Limited

Initial consultation with the Airfield Design Manager at Sydney Airport Corporation Limited (SACL) has confirmed:

- The Civil Aviation Safety Authority (CASA) Building Control Regulations (BCR) over the Site is 15.24m above ground level;
- The Site lies within the inner horizontal surface of the Obstacle Limitation Surface (OLS) for Sydney Airport;
- The height of the OLS at the Site is RL 51.0m AHD;
- If the heights of the proposal exceed the OLS or the BCR both CASA and Airservices Australia assessments are required prior to determination from the Department of Transport & Infrastructure;
- Currently there are structures within the hospital that exceed 51.0m AHD benchmark. There are also other planned structures that exceed the OLS.
- Given that current structures in the locality exceed the OLS, should the proposed development also exceed the OLS but be below the RL of current structures, SACL have indicated that the existing structures would most likely shield the proposed building.
- As the proposed building at the Site exceeds both the BCR and the OLS, an application for assessment is required to be submitted via SACL.
- Based on the advice to date, SACL has indicated a positive response following the submission of an application.

Helicopter Landing Site Observations

AviPro inspected the Site and the St George Hospital HLS in January 2013. To assist with the inspection and assessment Greengate Care prepared three dimensional models of the local area including the aged care facility, hospital masterplan, and Visual Flight Rules (VFR) Approach and Departure Paths based on the HLS Final Approach and Takeoff Area (FATO) at the HLS.

General observations surrounding the existing HLS are:

- The aim at each HLS is to have a minimum of two VFR Approach and Departure Paths at least 150° apart. This aim is currently met with two paths 180° apart, with preferred approach/departure paths designated as 082°/262° and 262°/082°;
- Additionally, prior to the Bethany College development, there is appropriate access to the east, south and west, clockwise through an arc of ~060° to ~296°;
- The northern arc clockwise through ~296° to ~060° is unavailable due to existing hospital structures;
- The proposed hospital redevelopment may further increase the unusable northern arc for VFR approach and departure purposes marginally.
- The proposed Bethany College redevelopment will remove a currently available VFR approach and departure arc encompassing ~087° clockwise through ~127°, however this will have no effect on the two designated preferred VFR Approach and Departure paths.

Fig. 11- View from HLS looking north toward the Hospital clinical services building

Fig. 12. View from HLS looking east towards Botany Bay

Fig. 13 View from HLS looking west along Gray Street (site of the new Emergency Department)

Fig. 14 View from HLS looking south over Gray Street

6. Helicopter Flight Path Assessment

An assessment of the helicopter flight paths in relation to the proposal for the Bethany College site and the Hospital has been undertaken by AviPro based upon the current NSW MoH Hospital HLS Policy Guidelines Rev.06b, using three dimensional modeling prepared by Greengate Care, together with a physical site inspection. Detailed diagrams of the VFR Approach and Departure Paths and Transitional Surfaces are provided in Attachment A.

The two diagrams following show the St George Hospital emergency services HLS VFR Approach and Departure Paths and Transitional Surfaces and available arcs, based on:

- The St George Hospital HLS at RL 37.7m;
- The St George Hospital HLS coordinates of E 33° 58’ 05.12”, S 151° 8’ 01.27”
- A 25m diameter FATO at the HLS;
- Two VFR Approach and Departure Paths 180° apart, of 082°/262° and 262°/082°, each extending out to a distance of 1,250m. at 1:8 or 7.5°. The width of the path at 1,250 m. is 150m; and the height above the HLS elevation is ~ 500 feet;
- An essentially obstacle free Transitional Surface at the HLS extending out from the edge of the VFR Approach and Departure Path at a 45°incline to 75m. either side of the Approach/Departure Path centre line.

Fig. 15-Helicopter VFR Approach and Departure Paths and Transitional Surfaces based upon two Paths 180° Apart

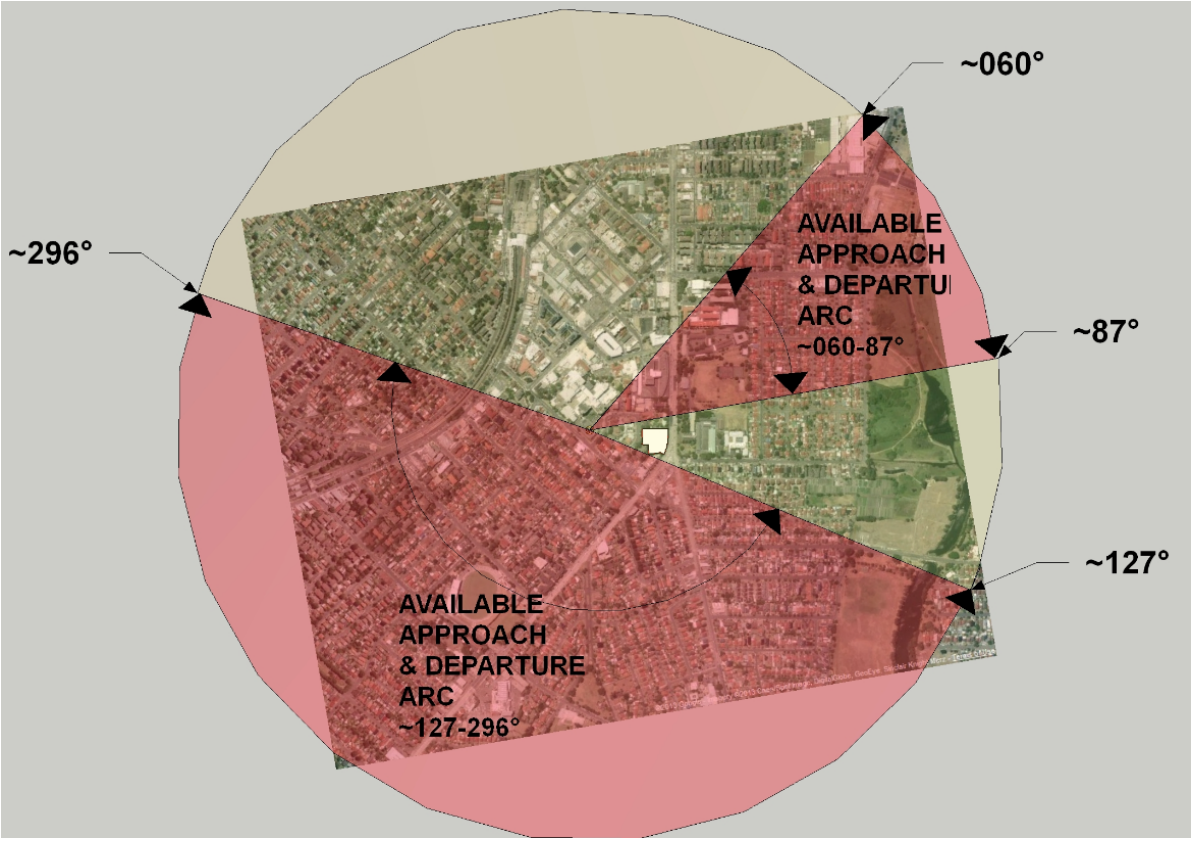


Fig. 16-Helicopter VFR Approach and Departure Available Arcs ~060°through ~087° and ~127° through ~296°

Under most circumstances, the two primary VFR Approach and Departure Paths will be used. If however weather circumstances dictate, obstacle free arcs of ~060° through ~087° and ~127° through ~296° are available.

In summary, the two primary VFR Approach and Departure Paths, which are separated by 180°, can be maintained with the implementation of the proposed development on the Bethany College site and the implementation of the Hospital DCP.

This report should be used to assist with any additional aviation approvals required from and agency or department.

7. Conclusion

The proposed redevelopment of the Bethany College site in Kogarah for aged care and retirement includes built form up to 40m in height (64.0m AHD).

The St George Hospital has released a Development Control Plan outlining proposals for its long term redevelopment. It includes built form up to 69.8m AHD similar to the height of the existing clinical services building.

The locality around the St George Hospital HLS has been modeled in three dimensions. The modeling incorporates the new buildings proposed on the Bethany College, the long term Hospital development and NSW MoH/ASNSW requirements for VFR Approach and Departure Paths and Transitional Surfaces to ensure obstacle free approached and departures.

In order to assess any helicopter flight path impacts AviPro have undertaken:

- A Site inspection;
- Review of project proposals;
- St George Hospital Helicopter Landing Site inspection including surroundings; and
- Interrogation of the three dimensional modeling.

Following the assessment of the proposals put forward for both the Bethany College and the Hospital DCP, we confirm that appropriate helicopter VFR Approach and Departure and Transitional Surfaces can be achieved without obstacle interference, in line with the requirements of the NSW Ministry of Health Hospital HLS Policy Guidelines rev.06a and thus best industry practice, and the proposed development will create no unacceptable impacts on aviation safety.

As a safety enhancement, AviPro recommends red obstacle lights positioned on each of the four corners of the tallest structures on the Bethany College Site and on the existing St George Hospital buildings adjacent to the HLS.

This report should be used to assist with any additional approvals required from government agencies and departments including:

- Sydney Airport Corporation Limited (SACL);
- Civil Aviation Safety Authority (CASA);
- Airservices Australia;
- Department of Infrastructure and Transport;
- NSW Ministry of Health; and
- Ambulance Service of NSW (ASNSW) as managers of Medical Retrieval Services in NSW.

Attachment A- VFR Approach and Departure Paths and Transitional Surfaces

Fig. 15-Helicopter VFR Approach and Departure Paths and Transitional Surfaces based upon two Paths 180° Apart

Fig. 16-Helicopter VFR Approach and Departure Available Arcs ~060°through ~087° and ~127° through ~296°

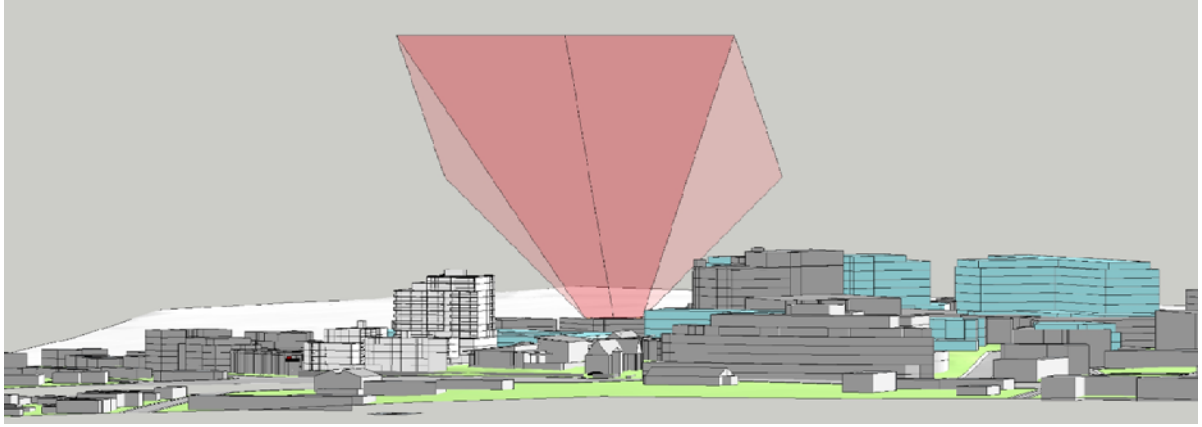


Fig. 17- Three dimensional diagram showing that the transitional surfaces (inclined at 45 degrees do not impinge on the Bethany College proposals or the Hospital

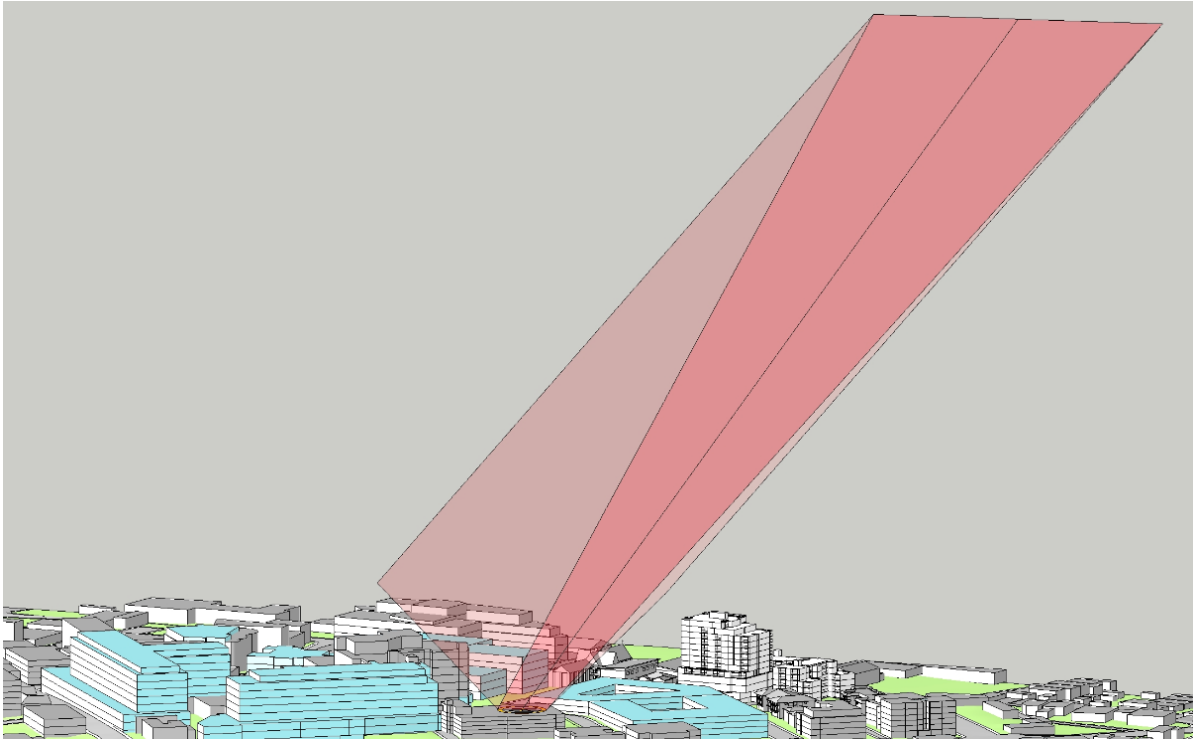


Fig. 18- Three dimensional diagram showing that the transitional surfaces (inclined at 45 degrees do not impinge on the Bethany College proposals or the Hospital

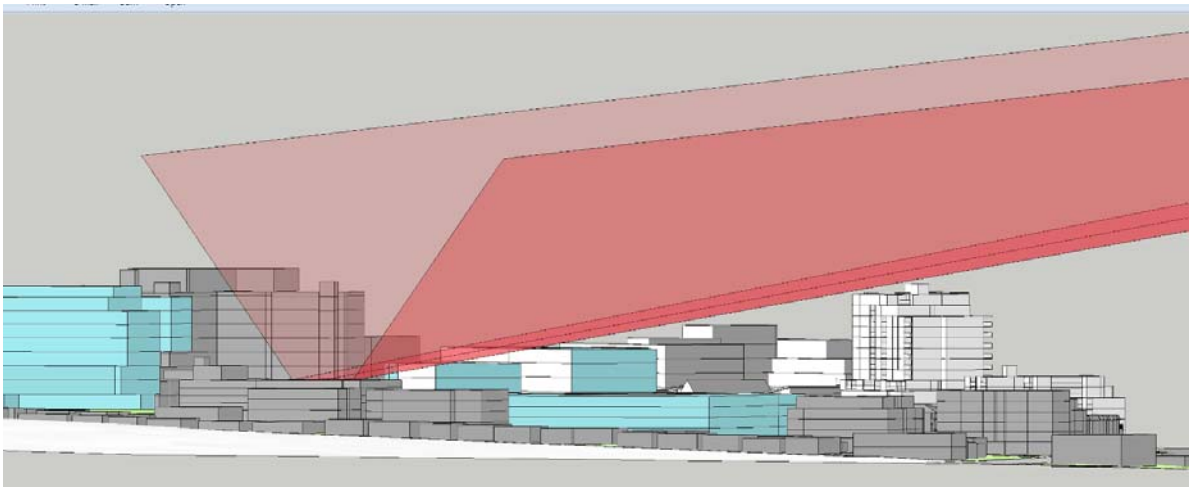


Fig. 19- Three dimensional diagram showing that the transitional surfaces (inclined at 45 degrees do not impinge on the Bethany College proposals or the Hospital