

CENTRAL COAST QUARTER – NORTHERN TOWER 26-32 MANN STREET, GOSFORD



19 Aug 2021

Prepared for

AVIATION IMPACT ASSESSMENT

SH Gosford Residential Pty Ltd

Version 1.5

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AVIATION IMPACT ASSESSMENT REPORT 26-32 MANN STREET GOSFORD

References:

- A. Development Consent SSD 10114 dated 24 Aug 2020
- B. Central Coast LHD Letter CD19/95234 dated 11 Nov 2019
- C. CASA CAAP 92-2(2) Guidelines for the establishment and operation of onshore HLS
- D. National Airports Safeguarding Framework Guideline H – Protecting Strategically Important Helicopter Sites
- E. NSW Health GL2020_014 Guidelines for Hospital HLS in NSW
- F. Gosford Local Environment Plan (2014)
- G. CASA Manual of Standards 139 Section 8:10 Obstacle Markings

The Secretary's Environmental Assessment Requirements (SEARs) for State Significant Development (**SSD**)-**23588910** (Central Coast Quarter – Northern Tower) states at **Key Issue 9 (Aviation Impacts)**: "Provide an Aviation Impact Assessment (AIS) as required by the Future Environmental Assessment Requirements SSD Concept Approval **SSD-10114** [Reference A]." The Central Coast Quarter development at 26-32 Mann St, Gosford is being developed under the "umbrella" of Reference A. The location of the development is slightly over one kilometre the Gosford Hospital Helicopter Landing Site (HLS) as depicted in Image 1 below. The surveyed approach and departure paths for Gosford Hospital are illustrated by the yellow arrows (these are painted onto the HLS).

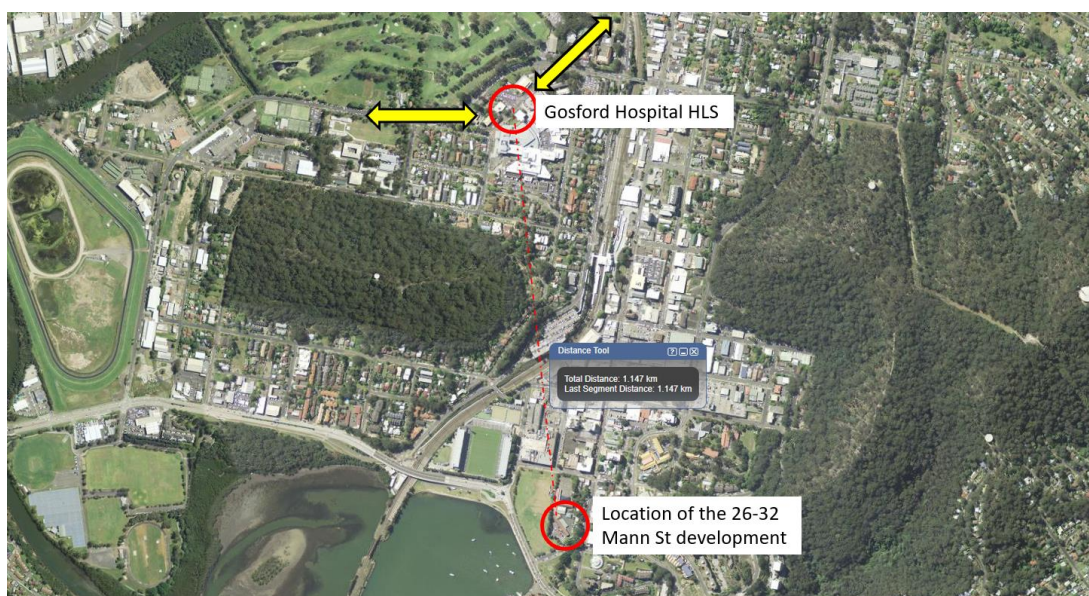


Image 1

Reference A states at Condition A 11 that “Prior to the lodgement of any future development applications(s) the Applicant shall prepare an Aviation Impact Assessment (AIA) to assess the potential impact of building height(s) and construction crane height(s) on helicopter flight paths including management and mitigation measures where necessary. The AIA shall be prepared in consultation with NSW Central Coast Health”. This assessment acknowledges Condition A 11 and also the requirement of Reference B which states specifically that “assessment on the impact on helicopter flight paths to and from Gosford Hospital will be required.” Consultation with the Central Coast Local Health District (CCLHD) has occurred. Appendix 1 includes feedback from the Gosford Hospital. Details of feedback from NSW Ambulance and Toll Helicopters is included in Appendix 2 and is discussed later in this report. This report supports the DA for the “Northern Tower”.

In assessing the aviation impact of the Northern Tower, References C-E have been reviewed and their relevant requirements, principles and best practices have been applied. Additionally, some NSW Councils apply an “airspace operations” Clause in their Local Environment Plan (e.g. Liverpool – see Clause 7.17). There are, however, no such similar provisions in Reference F.

The Gosford Hospital HLS has been surveyed in accordance with Reference E Sections 3.14.4 and 3.14.5. Section 3.14.4 Visual Flight Rules (VFR) Approach and Departure Path and Transitional Surface Survey requires compliance with Figure 11 of Reference E. Figure 11 is reproduced here as Figure 1 below:

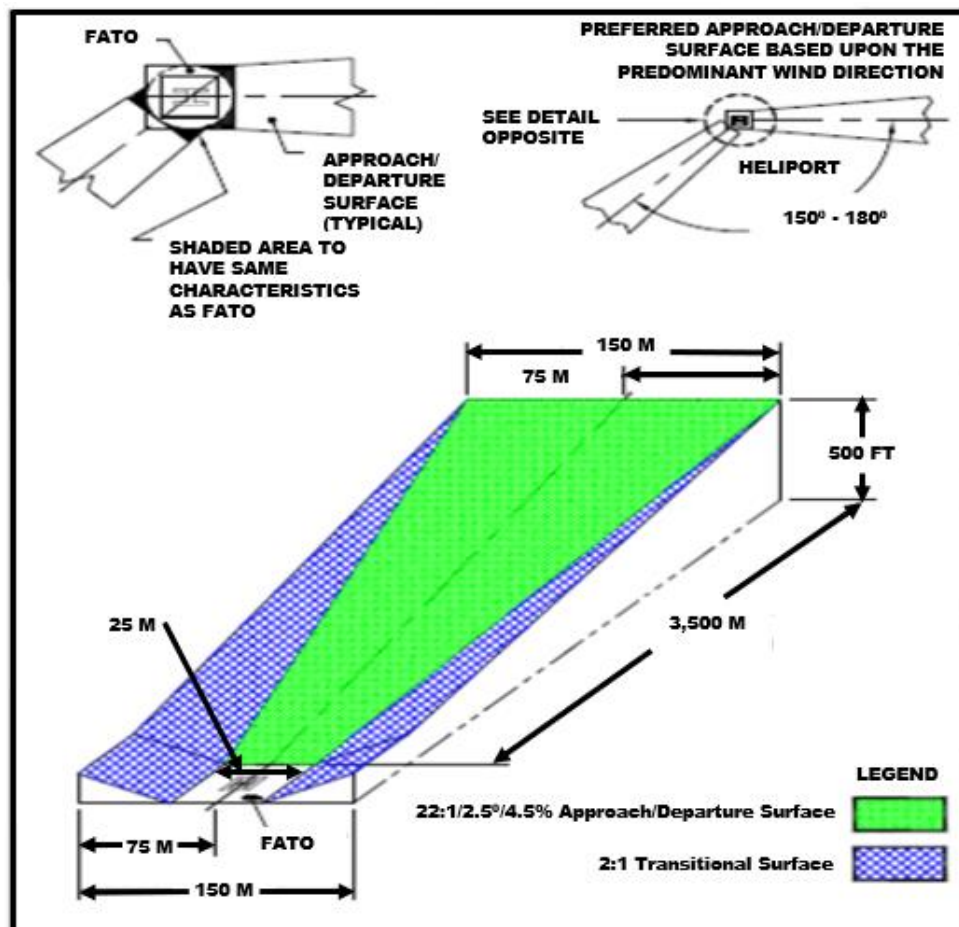


Figure 1

The Design and Development Overlay (DDO) is a survey of an area 30 m below the VFR Approach and Departure Path and Transitional Surface. The surface 30 m below the VFR Approach and Departure Path and Transitional Surface is known as the Object Identification Surface (OIS). There should be no penetration of the OIS, however there may be exceptions and where deemed tolerable, such obstructions must be lit. The DDO requirement is depicted in Figure 10 of Reference E, and this figure is reproduced below as Figure 2.

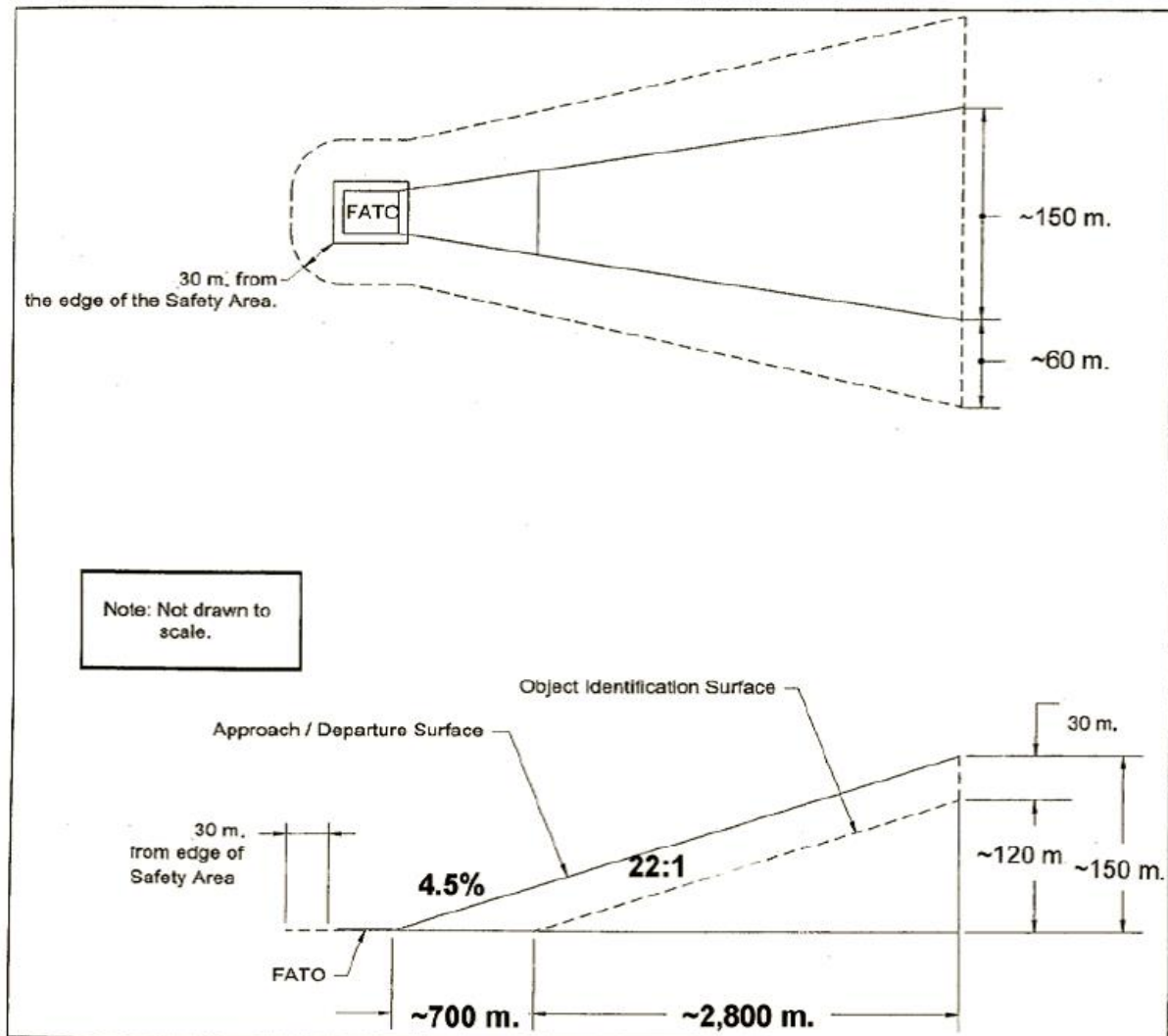


Figure 2

The combined VFR approach and departure path and transitional surfaces and DDO survey results for the Gosford Hospital HLS are depicted on Image 2 below. Also included is the location of the 26-32 Mann St development.

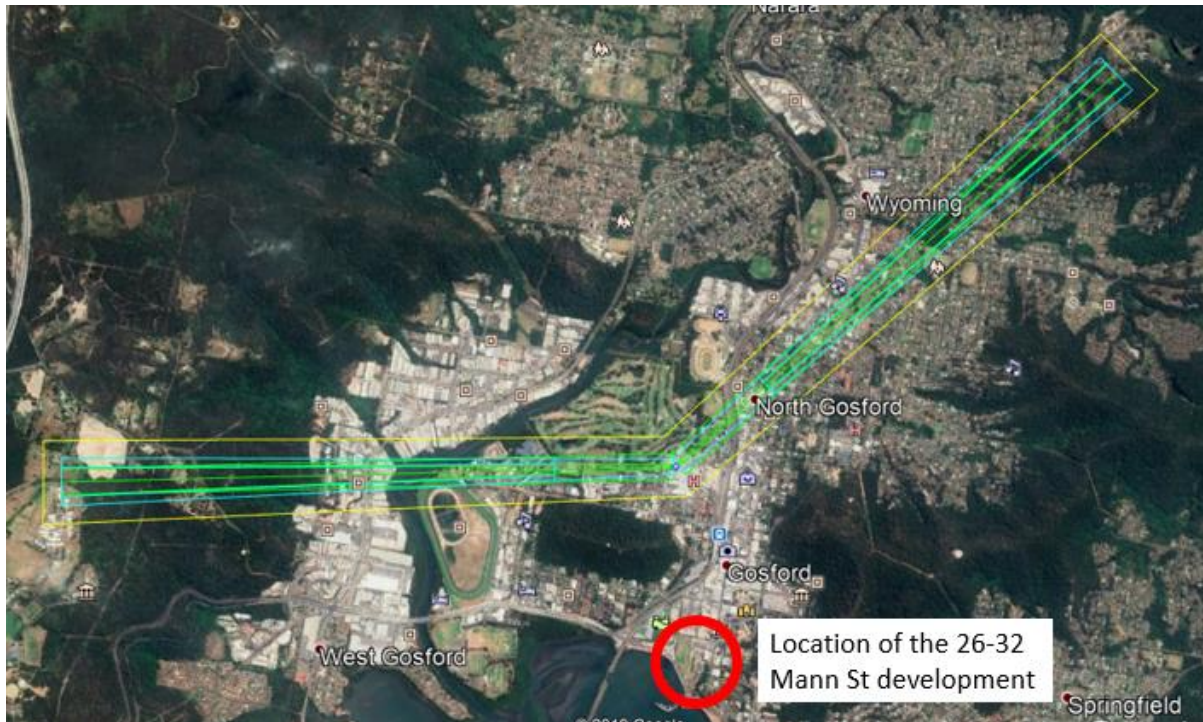


Image 2

The 26-32 Mann St development has a maximum elevation of RL81.4, and potentially up to approximately RL95 with a construction crane included. There is high terrain at RL102, being the northern end of President's Hill between the development and the Gosford Hospital HLS. There would be no reason why a Helicopter Emergency Medical Service (HEMS) helicopter would be below approximately RL100 in the vicinity of 26-32 Mann St development in visual flight conditions. For this reason, visual approaches and departures would not be restricted by the buildings, even during periods of low cloud bases, notwithstanding HEMS operational advice is that "when returning to Bankstown VFR but with lower cloud bases, the development sits directly on our departure track".

The Gosford Hospital HLS has an instrument approach titled the RNAV (GNSS) 340. In this instance RNAV is an abbreviation for Area Navigation and GNSS is an abbreviation for Global Navigation Satellite System based upon the better-known Global Positioning System (GPS). The 340 stands for the direction of approach, in degrees magnetic. The approach is approved by the Civil Aviation Safety Authority (CASA) for approved operators only. These approvals are mainly restricted to Helicopter Emergency Medical Services (HEMS) operators. For Gosford Hospital, the approach requires the pilot to track on a bearing of 340° towards the HLS descending to 1040 ft above mean sea level at a point approximately 2500 metres from the hospital. This position corresponds roughly with half-way along the eastern side of Point Frederick. This position is known as the Missed Approach Point (MAPt) and if the pilot is not in "visual" conditions with at least five kilometres visibility and clear of cloud, must execute a missed approach (this requires an immediate climb and a turn onto a track of 013°). If visual, the pilot then continues, determining the best way to approach the HLS based upon the prevailing conditions. The RNAV (GNSS) 340 instrument approach is shown in Figure 3 below:

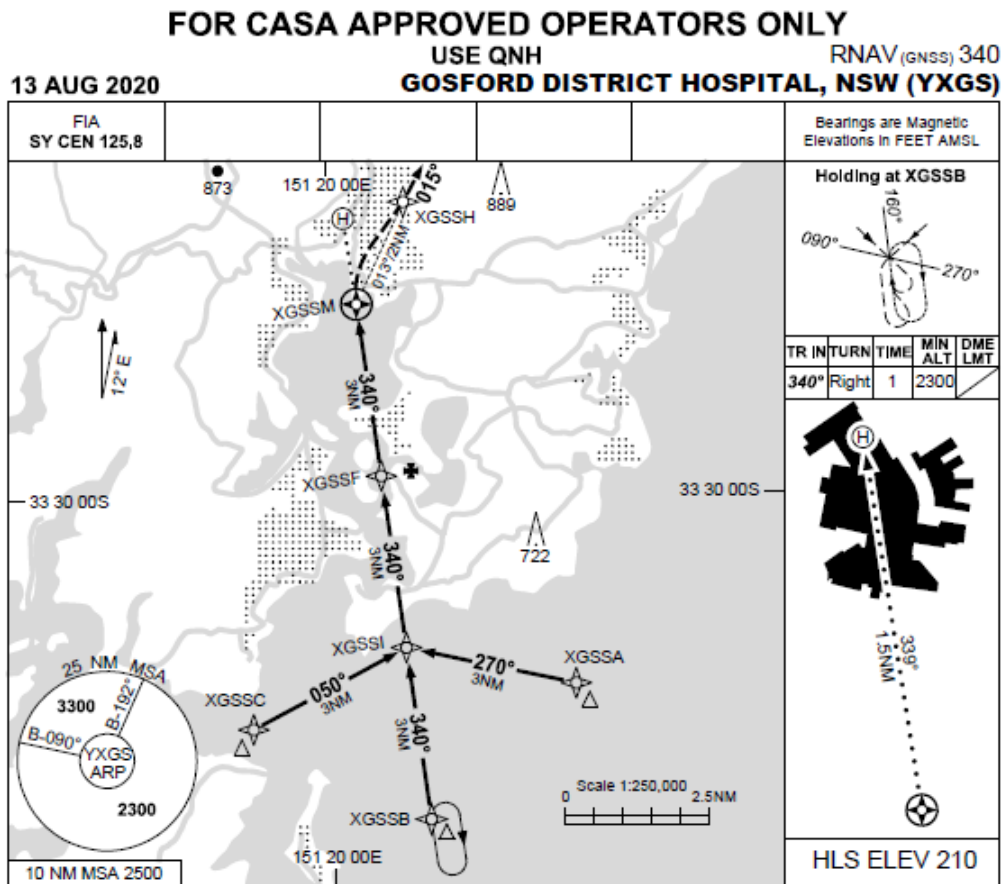


Figure 3

The visual segment (the dashed line in Figure 3 from fly-over waypoint XGSSM and the Gosford Hospital HLS) allows the pilot to fly in any way considered safe and expeditious in order to arrive in the vicinity of the HLS in the best possible situation to land in the preferred or chosen direction. Significant factors for the pilot's consideration are:

- The pilot sits in the right-hand seat and will mostly prefer to circle to the right in order to bring the HLS clearly into view and keep it there,
- Overflight of built-up and populous areas will be avoided to the maximum extent possible,
- Overflight of known noise-sensitive areas and areas of environmental interest such as bird and bat colonies will be avoided to the maximum extent possible,
- Known obstacles such as high terrain, high power lines and cranes will be avoided to the maximum extent possible, and
- Landings into a significant headwind component will be flown to the maximum extent possible.

The 26-32 Mann St development is roughly half-way along a direct track from the MAPt to the HLS. At a maximum elevation of RL81.4 (and potentially up to approximately RL95 with a crane included, is below the height of the highest terrain between the MAPt and the HLS. This high terrain is RL102, being the northern end of President's Hill.

This portion of the report was adjusted following feedback from NSW Ambulance and Toll Helicopters (see Appendix 2).

Considering the points above, in the majority of cases the pilot will either (only in good weather) continue tracking directly towards the hospital with all obstacles in sight; or track to the west around President's Hill (the high terrain directly between the MAPt and the hospital) mostly over the racecourse, tennis courts, the golf course and Narara Creek. Local "on the ground advice" from Gosford Hospital is that helicopters do not come into the hospital from the "town side" which is consistent with good airmanship principles. This track, between President's Hill and the high terrain of Rumbalara Reserve places the HLS to the pilot's left making it difficult to keep in sight and transits over a significantly built-up area. It may be necessary to fly this track on occasions but it would mostly be avoided. A depiction of the most usual path of the visual segment is demonstrated in Image 3 below (adjusted on advice from Toll Helicopters):

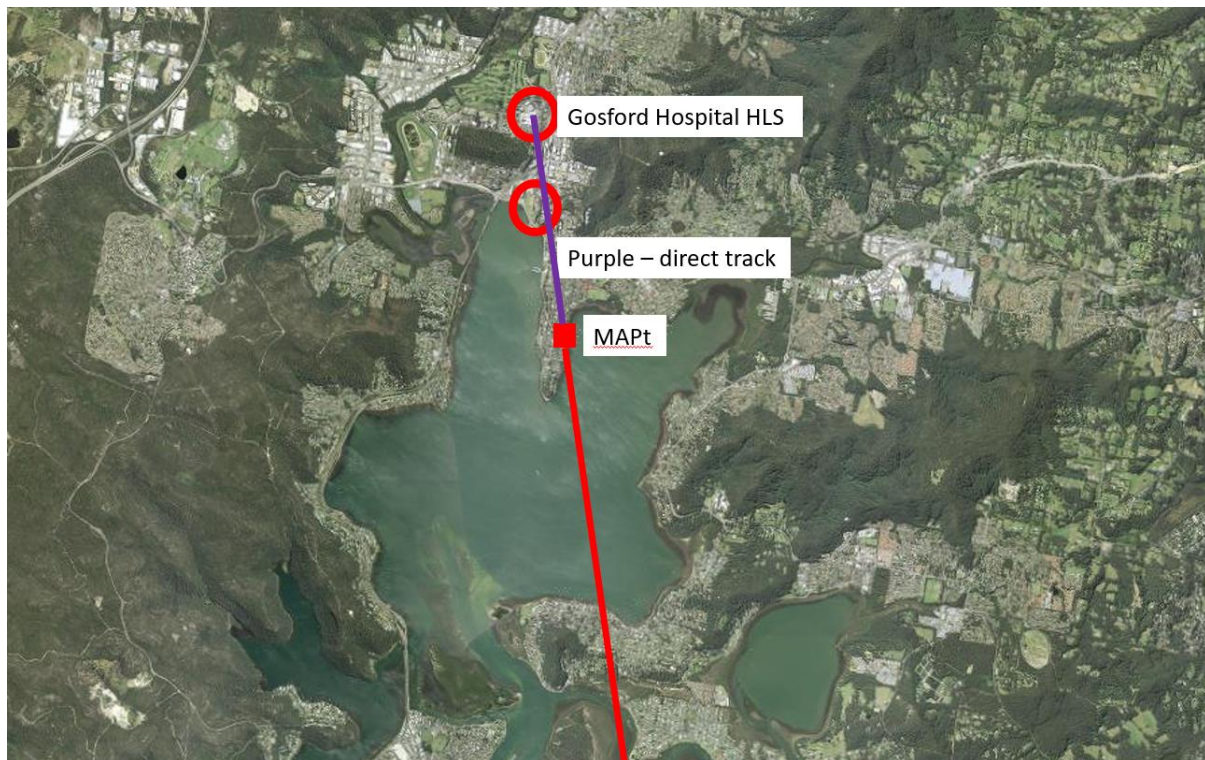


Image 3

The direct track is safe in light of the 26-32 Mann St development given that the development (at an approximate maximum elevation of RL95 including cranes) is well below the approved Minimum Descent Altitude of 1040ft (RL317) for the RNAV (GNSS) 340 instrument approach. The 26-32 Mann St development will be highly visible and may only be overflowed in appropriate visual conditions (at least five kilometres visibility and clear of cloud).

An alternative method of approaching the HLS is to track to the left around President's Hill and approach using a right turn onto the final approach leg, particularly if using one of the surveyed approach and departure paths (see Image 2).

The alternative visual segment for the RNAV (GNSS) 340 instrument approach is depicted in Image 4 below:

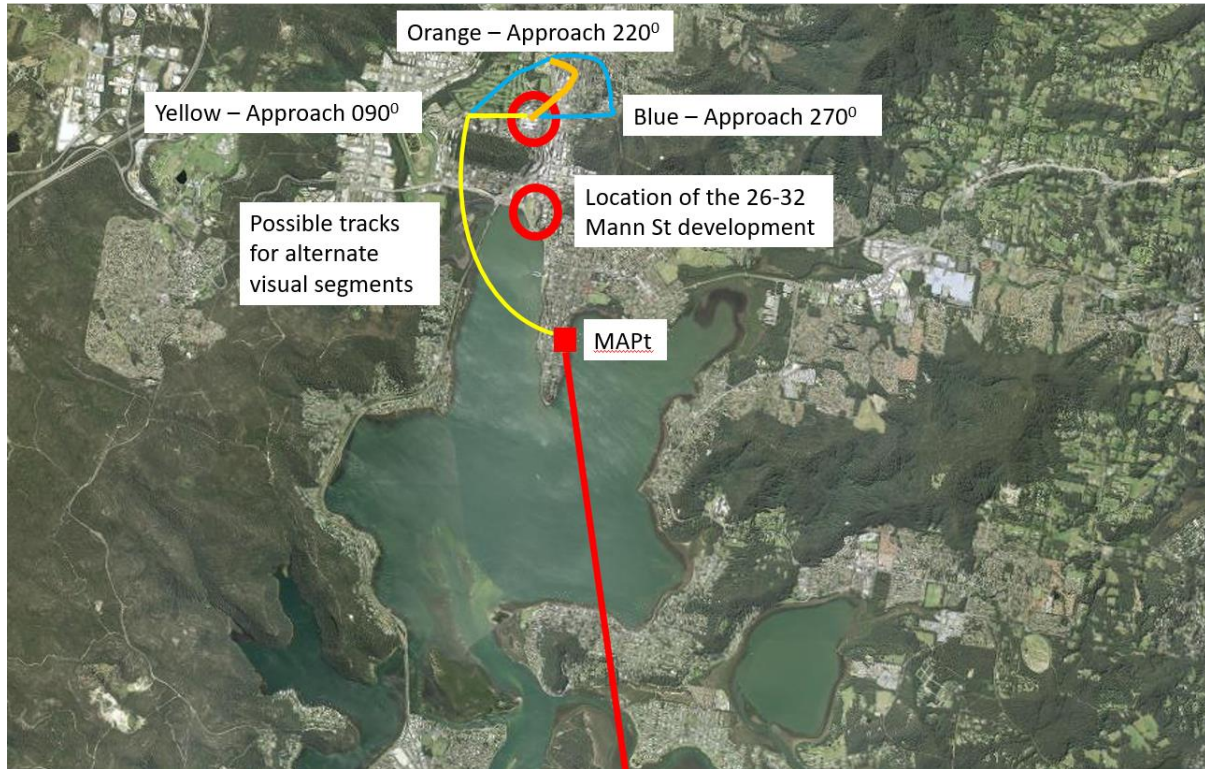


Image 4

The resulting analysis of how a pilot would fly the visual segment of the RNAV (GNSS) 340 approach leads to the conclusion that overflight of the development at 26-32 Mann St is possible in suitable weather conditions that allow the building (and cranes during development) to be seen clearly.

The development at 26-32 Mann St, Gosford is, however, also of consequence to the missed approach procedure. In the event that the helicopter does not become visual at the MAPt (GXSSM) it will execute a missed approach by turning onto a track of 013° and fly for two nautical miles to the fly-by waypoint GXSSH from whence it will adjust track to 015° and climb to the minimum safe altitude of 2300 feet above mean sea level. Refer to Figure 3. Image 5 below demonstrates the missed approach tracking arrangement in relation to the Gosford Hospital and the development site. It is vitally important that the helicopter turns inside the high terrain of Rumbalara Reserve which acts to shield it from any potential collision with buildings close to the CBD. It is therefore very safe to conclude that the missed approach procedure will not be adversely impacted by the development at 26-32 Mann St, Gosford.

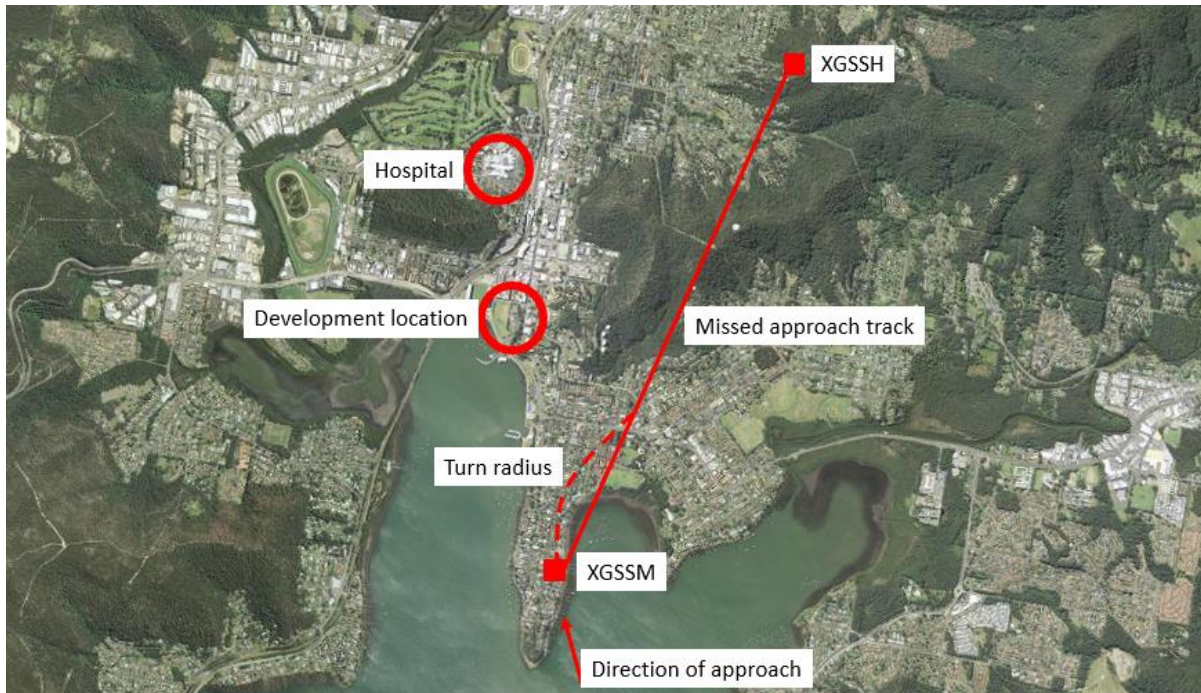


Image 5

The conclusion from reviewing survey data and instrument approach for the Gosford Hospital HLS is that the development at 26-32 Mann St, Gosford will have no adverse impact on the approach and departure paths to and from the HLS, including the RNAV (GNSS) 340 instrument approach and its missed approach procedure.

This does not, however, completely address the matter. Reference G requires that “a structure must be marked when more than 150 m higher than the surrounding terrain. Surrounding terrain means the area within 400 m of the structure. Structures above 90 m may need to be marked, and inconspicuous structures 75 m above ground level should also be marked.” This development is higher than 75 m above ground level but not higher than 90 m. It is, however not “inconspicuous”, a term that is reserved for radio transmission towers and the like. It therefore does not require any specific aviation obstruction lighting. This does not, however, preclude such a light being fitted at the developer’s discretion.

AviPro notes, further, that although the developed buildings at 26-32 Mann St, Gosford will not be inconspicuous, the crane(s) which will be used to build them will be. The construction crane(s) will need to be lit to a suitable aviation standard. This is a new requirement contained in the most recent version of Reference E, and states the following:

“The illumination requirements for cranes in the vicinity of a Hospital HLS are detailed below.

As a minimum for all tower cranes:

- top of crane A frame or cabin: medium intensity flashing red obstruction light
- both ends of Jib: medium intensity flashing red obstruction light
- along Jib: line of white LED or fluoro on a PE cell along the full length of the jib, and
- tower section: stairway lights or spot lights attached to the top of the tower pointing down and onto the tower (not up into pilot eyes).

As a minimum for all luffing cranes:

- top of crane A-frame or cabin: medium intensity red obstruction light
- end of Jib: medium intensity red obstruction light
- along Jib: line of white LED or fluoro on a PE cell along the full length of the jib
- tower section: stairway lights or spot lights attached to the top of the tower pointing down and onto the tower (not up into pilot eyes)

The jib lights are to be weather proof emergency LED strip lights or fluoros controlled via a PE cell with a minimum 90 minute battery back-up."

It is noted in the CCLHD's letter of 15 April 2020 in response to AviPro's Aviation Due Diligence Report of 28 February 2020 (in support of SSDA 10114), the following statement: "The report did, however, acknowledge the need for lighting of cranes during construction. It is the expectation of Ambulance NSW and the District that this advice will be followed."

In summary, AviPro advises that:

- a. the development at 26-32 Mann St, Gosford will have no adverse impact on the approach and departure paths to and from the Gosford Hospital HLS, including the RNAV (GNSS) 340 instrument approach and its missed approach procedure;**
- b. no management or mitigation measures are required to ensure aviation safety;**
- c. aviation obstruction lighting is not required on this building once developed, and**
- d. aviation lighting in accordance with NSW Health GL2020_014 Guidelines for Hospital HLS in NSW will be required on cranes during construction.**

Sincerely,

A handwritten signature in blue ink, appearing to read "Steve".

Steve Graham

Managing Director

AviPro

Aviation Management and Safety Advisors

Tel: 0401 520048

Email: s.graham@avipro.com.au

APPENDICES

1. Email feedback from Gosford Hospital
2. Email feedback from NSW Ambulance and Toll Helicopters

j.stark@avipro.com.au

APPENDIX 1

Subject: AVIATION IMPACT ASSESSMENT for Proposed Development at 26-32 Mann St Gosford

From: Kym Scanlon (Central Coast LHD) <Kym.Scanlon@health.nsw.gov.au>
Sent: Friday, 5 March 2021 4:01 PM
To: j.stark@avipro.com.au
Cc: Chad Corsiatto (Central Coast LHD) <Chad.Corsiatto@health.nsw.gov.au>
Subject: FW: AVIATION IMPACT ASSESSMENT for Proposed Development at 26-32 Mann St Gosford

Dear Jeff

Following on from our conversation please find below (two responses received and both saying similar things).

Just letting you know that unfortunately Andrew Ryan from NSW Ambulance is on leave returning mid-next week. If he comes back with a different response I will let you know.

Kind regards
Kym

Kym Scanlon
Manager Health Planning | Healthcare Improvement, Quality, Strategy and Improvement Directorate
37 William St, Gosford NSW 2250
Mobile 0411 259 932 | Email kym.scanlon@health.nsw.gov.au
www.cclhd.health.nsw.gov.au | [CentralCoastHealth](#) | [@CCoastHealth](#)



I respectfully acknowledge the Traditional Custodians of the land on which I live, learn and work, and recognise their connection to land, water and community. I pay respect to Elders past, present and emerging. The District is committed to closing the gap in Aboriginal Health.



From: Chris Thomas (Central Coast LHD)
Sent: Friday, 5 March 2021 1:04 PM
To: Kym Scanlon (Central Coast LHD); Frank Bazik (Central Coast LHD); Chad Corsiatto (Central Coast LHD); Andrew Ryan (NSW Ambulance)
Subject: RE: AVIATION IMPACT ASSESSMENT for Proposed Development at 26-32 Mann St Gosford

Hi Kym

On review of the AviPro report, I have no added concerns other than monitoring the required lighting during construction phase.

Thank you

regards

Chris Thomas

Security Policy & Compliance Manager | **Asset Management, Finance and Procurement Services Directorate**
Fleet Services Building, Holden St, Gosford NSW 2250
Tel (02) 4320 2444 | Mob 0414 192 989 | chris.thomas@health.nsw.gov.au
www.health.nsw.gov.au



Visit the [NSW Health website](https://www.health.nsw.gov.au) for the latest information on COVID-19.



From: Kym Scanlon (Central Coast LHD)
Sent: Friday, 5 March 2021 12:06 PM
To: Frank Bazik (Central Coast LHD); Chad Corsiatto (Central Coast LHD); Chris Thomas (Central Coast LHD); Andrew Ryan (NSW Ambulance)
Subject: AVIATION IMPACT ASSESSMENT for Proposed Development at 26-32 Mann St Gosford

Dear Frank, Chad, Chris and Andrew

A significant development proposal is undergoing planning approval, the Central Coast Quarter at 26-32 Mann St Gosford. The Development comprises 3 towers.

Due to the height of the towers, CCLHD had raised concerns about the impact on helicopter flight paths to/ from Gosford Hospital.

In response, the Department of Planning have set a clause that an Aviation Impact Statement is required for each of the 3 Towers of the Development.

AviPro have advised that they have completed an Aviation Impact Assessment for the Northern Tower (refer attached).

In summary, the AviPro report advises that:

- a. the development at 26-32 Mann St, Gosford will have no impact on the approach and departure paths to and from the HLS, including the RNAV (GNSS) 340 instrument approach and its missed approach procedure;
- b. no management or mitigation measures are required to ensure aviation safety;
- c. aviation obstruction lighting is not required on this building once developed, and
- d. aviation lighting in accordance with NSW Health GL2020_014 Guidelines for Hospital HLS in NSW will be required on cranes during construction.

Please advise by **Monday 8 March** if there are any concerns. Apologies for the short timeframes, but as advised to meet Department of Planning timeframes.

Kind regards
Kym

Kym Scanlon

Manager Health Planning | Healthcare Improvement, Quality, Strategy and Improvement Directorate

37 William St, Gosford NSW 2250

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From: j.stark@avipro.com.au [<mailto:j.stark@avipro.com.au>]
Sent: Thursday, 4 March 2021 5:58 PM
To: Kym Scanlon (Central Coast LHD)
Subject: CONSULTATION ON AVIATION IMPACT ASSESSMENT

Hi Kym,

Apologies for using you as the CCLHD point of contact for this however I've been directed by the NSW Department of Industry, Planning and Environment to consult with you in the preparation of the attached Aviation Impact Assessment report. Your name is the nominated point of contact in the CCLHD's response (see also attached) to SSDA 10114.

I'm not expecting the LHD to have much to say about my assessment, but please send me any comments or feedback you may have. I've been doing quite a few of these lately but this is the first one that I've seen where the Development Consent requires me to consult with the LHD. That requirement is also attached for your perusal (see Condition A 11).

Regards

Jeff Stark
Senior Consultant - Infrastructure



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Member National Business Aviation Association (NBAA)

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From: Kym Scanlon (Central Coast LHD) <Kym.Scanlon@health.nsw.gov.au>
Sent: Friday, 5 March 2021 5:17 PM
To: j.stark@avipro.com.au; Chad Corsiatto (Central Coast LHD); Chris Thomas (Central Coast LHD)
Subject: FW: AVIATION IMPACT ASSESSMENT for Proposed Development at 26-32 Mann St Gosford

Dear Jeff

Please note that we have received advice from the Chief Pilot via NSW Ambulance that does require attention. Please see below. Regards Kym Scanlon

Email from Cameron Edgar, NSW Ambulance

"Unfortunately the assessment presumes that we circumvent the township and hill when conducting the visual segment of the instrument approach procedure. This is incorrect as we fly a direct track to the hospital which takes us straight past the proposed development. I would also add that when returning to Bankstown VFR but with lower cloudbases, the development sits directly on our departure track. Request AviPro revisit the impact statement."

Regards,

Chief Superintendent Cameron Edgar ASM

Director Helicopter Operations | Aeromedical Operations | NSW Ambulance

Helicopter Critical Care Paramedic, Special Casualty Access Team, PSO

Sydney Helicopter Base, 33 Nancy Ellis Leebold Drive, [Bankstown Airport NSW 2200](#)
p: 8575 7061 | e & skype: cameron.edgar@health.nsw.gov.au | www.ambulance.nsw.gov.au

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