

NEW SHELLHARBOUR HOSPITAL AVIATION REPORT FOR STATE SIGNIFICANT DEVELOPMENT (SSD)



19 September 2025

Prepared for

HELICOPTER LANDING SITE

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This Report is prepared for Health Infrastructure, as instructed by BESIX Watpac in relation to a new permanent, rooftop Helicopter Landing Site (HLS) at the New Shellharbour Hospital by Resolution Response Pty. Ltd. ABN: 94 154 052 883, trading as 'AviPro'.

The Report relates to the aviation aspects associated with the establishment and site design of the proposed permanent HLS to inform consideration of a State Significant Development Application.

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1. DESCRIPTION OF THE PROPOSAL

1.1. Background

In September 2020, the NSW Government committed to more than \$700 million to deliver new and improved health facilities for the Illawarra Shoalhaven Local Health District (ISLHD) to meet the needs of the growing community.

The original development consent, approved on 12 August 2024, was for a new greenfield hospital for the Shellharbour region, known as the New Shellharbour Hospital (NSH). Health Administration Corporation (HAC) acquired land at 50 and 86 Dunmore Road, Dunmore (formally described as Lot 1 DP302910 and Lot 10 DP1281639) for a new health campus in June 2022. The NSH, the subject of the originally-approved State Significant Development Application (SSDA), is proposed to occupy Lot 10 DP1281639. Lot 1 DP302910 did not form part of the original application.

Broadly, the original NSH SSDA consisted of:

- Construction and operation of a new (role delineation Level 4) hospital for Shellharbour to provide the health services required to meet the needs of the Shellharbour and Illawarra region (in conjunction with the other hospitals and community health facilities across the region).
- Construction of supporting infrastructure required for the NSH, including green space/landscaping and other amenities, internal roads and access, at-grade and multi-deck car parking, external road upgrades and connections, utility/ services connections, and other supporting infrastructure.

The original SSDA did not seek approval for the construction and operation of Helicopter Landing Site (HLS), and this became of focal point in Submissions as part of the SSDA public exhibition.

Subsequently, Modification 1 to the original SSDA for design, car parking and landscaping changes was approved on 4 July 2025.

Modification 2, the focus of this Aviation SSD Report, now seeks approval for the inclusion of a rooftop Helicopter Landing Site (HLS), into the hospital design, and for the operation of that HLS once constructed and commissioned.

1.2. Site Description

Figure 1 and Figure 2 show an aerial perspective of the original NSH design and the original proposed site plan. Refer to Section 3 of the Environmental Impact Statement (EIS) for a detailed project description.



Figure 1: Aerial Perspective of NSH from Entry on Dunmore Road (COX+STH 2023)

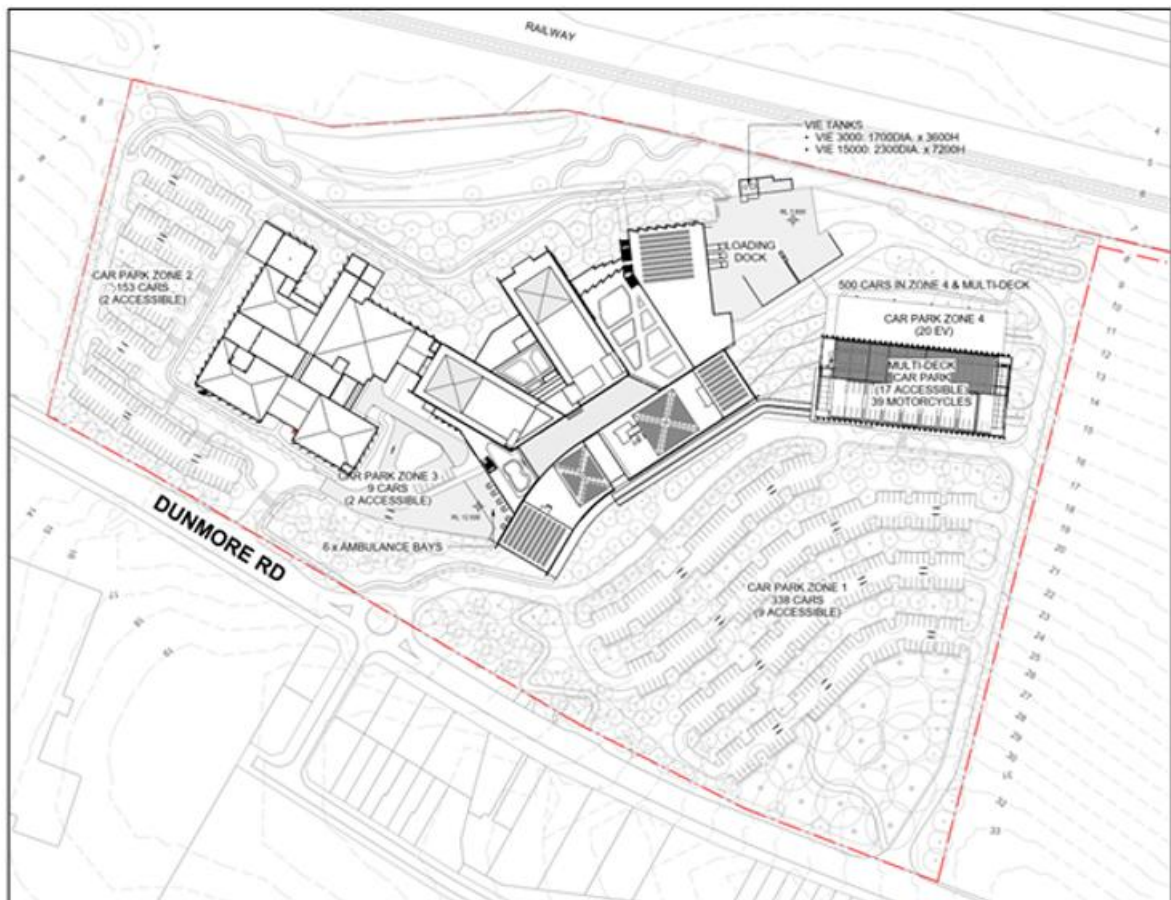


Figure 2: NSH Original Site Plan (COX+STH 2023)

1.3. Description of the Proposed Modification

The following works are proposed as part of the amended application/modification:

Alterations and additions to the NSH, comprising:

- Inclusion of a rooftop HLS, including HLS deck, walkway and protective (fall from height) safety nets on the eastern wing;
- Relocation and reorientation of rooftop services, plant and fixtures to accommodate HLS approach and departure paths;
- An increase in the elevation of the lift overrun in order to provide vertical transport services for patient transfers and other personnel (and equipment) movements;
- A lift foyer/lobby to facilitate the transfer of patients to and from the gaining or losing hospital department;
- Emergency egress from the HLS deck;
- Changes to the hospital's fresh air intake system to ensure that helicopter exhaust fumes are not ingested into the main building;
- Protective awnings, where deemed necessary, to prevent helicopter main rotor downwash and outwash from causing damage or injury;
- Lighting/electrical and firefighting services to support safe helicopter operations;
- Earthworks to accommodate tanks and drainage systems for storing liquids (spills etc) emanating from the HLS; and
- Approval to operate the HLS.

1.4. HLS Location and Layout

The locations of the proposed new permanent HLS is show in [Figure 3](#) below:

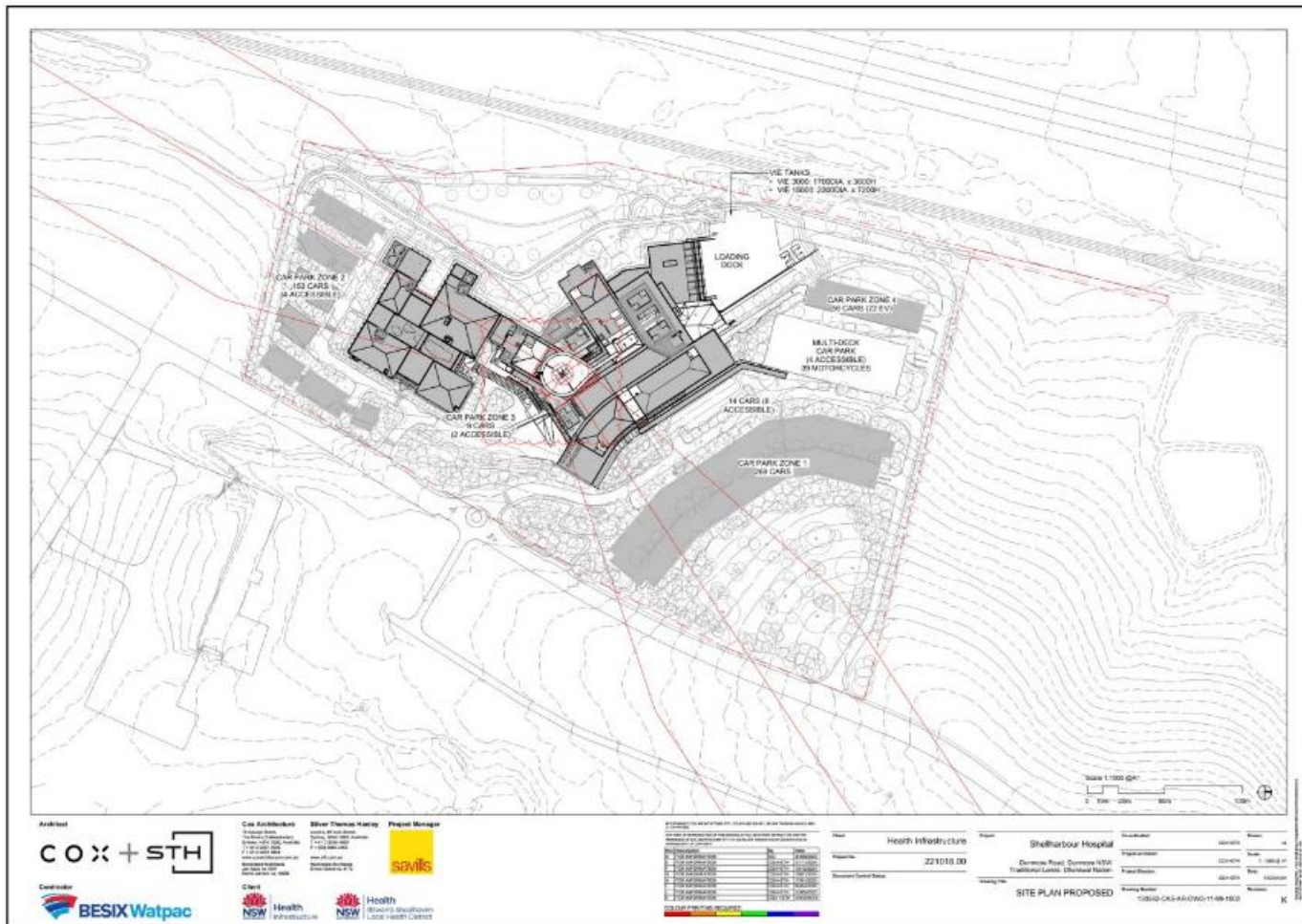


Figure 3: Proposed HLS Location and Layout

1.5. SEARs Reporting

In preparing this report, the following SEARs General Requirements and Key Issues have been addressed. [Table 1](#) below sets out the reference or location of these matters within this report.

Item	SEARs Requirement	Relevant Section of Report
24.1	If the development proposes a helicopter landing site (HLS), assess its potential impacts on the flight paths of any nearby airport, airfield or HLS.	See Section 4.4
24.2	If the site contains or is adjacent to an HLS, assess the impacts of the development on that HLS.	N/A

Table 1: Secretary’s Environmental Assessment Requirements – Aviation

2. TERMS AND ABBREVIATIONS

2.1. Explanation of Terms

Aircraft. Refers to both aeroplanes (fixed wing) and helicopters (rotorcraft).

Approach and Departure Path (IFR). The flight track helicopters follow when landing at or departing from the FATO of an HLS under the Instrument Flight Rules. The IFR approach and departure path extends upwards and outwards from the edge of the FATO safety area with an obstacle free gradient of 2.6°/4.5%/ 1:22.2 (22.2 units horizontal in 1 unit vertical), to a height of 152m above the FATO at a distance of ~3,386 m. The approach and departure path commences at the forward edge of the FATO safety area at a width of 34m, and increases in width uniformly to 152m m above the elevation of FATO surface at a distance of ~3,386 m.

Approach/Departure Path (VFR). The flight track helicopters follow when landing at or departing from the FATO of an HLS. Updated standards to align with ICAO requirements now has the VFR (day and) night approach and departure path extending upwards from the forward edge of the FATO safety area with an obstacle free gradient of 2.6°/4.5%/ 1:22.2 (22.2 units horizontal in 1 unit vertical), to a height of 152m above the FATO at a distance of ~3,386 m. The approach and departure path commences at the forward edge of the FATO safety area at a width of 34m, and expands uniformly, laterally at an angle of 8.7°/15%/1:12.8 to a total width of 140 m, then remains parallel to a distance of ~3,386m, where the height is 152 m above the elevation of FATO surface.

Design Helicopter. The Agusta AW139 contracted to the NSW Ambulance. The type reflects the latest generation Performance Class 1 capable helicopters used in HEMS and reflects the maximum weight and maximum contact load/minimum contact area. The design helicopter has a maximum all up mass of 7 tonnes, however for HLS design purposes it is assumed the helicopter will never exceed 6.8 tonnes on the HLS.

D Value (Overall Length). The distance from the tip of the main rotor tip plane path to the tip of the tail rotor tip plane path or the fin if further aft, of the Design Helicopter.

Elevated Helicopter Landing Site. An HLS located on a roof top or some other elevated structure where the Ground Effect Area/Touchdown and Lift-off Area (TLOF) is at least 2.5m above ground level.

Final Approach. The reduction of height and airspeed to arrive over a predetermined point above the FATO of an HLS.

Final Approach and Takeoff Area (FATO). A defined area over which the final phase of the approach to a hover, or a landing is completed and from which the takeoff is initiated. For the purposes of these guidelines, the specification of 1.5 x D Value or Overall Length of the Design Helicopter is used and equates to 25m. diameter. Area to be load bearing.

Ground Taxi. The surface movement of a wheeled helicopter under its own power with wheels touching the ground.

Hazard to Air Navigation. Any object having a substantial adverse effect upon the safe and efficient use of the navigable airspace by aircraft, upon the operation of air navigation facilities, or upon existing or planned airport/heliport capacity.

Helicopter Landing Site (HLS). One or more may also be known as a **Heliport**. The area of land, water or a structure used or intended to be used for the landing and takeoff of helicopters, together with appurtenant buildings and facilities.

Helicopter Landing Site Elevation. At an HLS without a precision approach, the HLS elevation is the highest point of the FATO expressed as the distance above mean sea level.

Helicopter Landing Site PC1 Survey Reference Point. A position at the forward edge of the FATO safety area in the centre of the approach and departure path, from which the PC1 survey at 2.6° (4.5%) is initiated.

Helicopter Landing Site Reference Point (HRP). The geographic position of the HLS expressed as the latitude and longitude at the centre of the FATO.

Hospital Helicopter Landing Site. HLS limited to serving helicopters engaged in air ambulance, or other hospital related functions.

Note:

*A designated HLS located at a hospital or medical facility is an emergency services HLS and **not** a medical emergency site.*

Heliport. Two or more co-existing helicopter landing sites (HLS). There are no implications for operating a heliport as opposed to an HLS, other than having a “Heliport Operations Manual” rather than an “HLS Operations Manual” which would address the various interactions and interoperability (aviation, clinical etc.) at the dual sites.

Hover Taxi. The movement of a helicopter above the surface, generally at a wheel/skid height of approximately one metre. For facility design purposes, a skid-equipped helicopter is assumed to hover-taxi.

Landing and Lift Off Area (LLA). A load-bearing, nominally paved area, normally located in the centre of the TLOF, on which helicopters land and lift off. Minimum dimensions are based upon a 1 x metre clearance around the undercarriage contact points of the Design Helicopter.

Lift Off. To raise the helicopter into the air.

Movement. A landing or a lift off of a helicopter.

Object Identification Surface. The OIS are a set of imaginary surfaces associated with a heliport. They define the volume of airspace that should ideally be kept free from obstacles in order to minimise the danger to a helicopter during an entirely visual approach.

Obstacle Limitation Surface. The OLS are a set of imaginary surfaces associated with an aerodrome. They define the volume of airspace that should ideally be kept free from obstacles in order to minimise the danger to aircraft during an entirely visual approach.

Obstruction to Air Navigation. Any fixed or mobile object, including a parked helicopter, which impinges the approach/departure surface or the transitional surfaces.

Parking Pad. The paved centre portion of a parking position, normally adjacent to an HLS.

Performance Class 1 (PC1). Similar to Category A requirements. For a rotorcraft, means the class of rotorcraft operations where, in the event of failure of the critical power unit, performance is available to enable the rotorcraft to land within the rejected take-off distance available, or safely continue the flight to an appropriate landing area, depending on when the failure occurs. For an elevated HLS, the reject area is that area within the FATO (25 m. diameter) and therefore this area is to be load bearing. PC1 also requires CASA approved flight path surveys to/from the HLS.

Performance Class 2 (PC2). For a rotorcraft, means the class of rotorcraft operations where, in the event of failure of the critical power unit, performance is available to enable the rotorcraft to safely continue the flight, except when the failure occurs early during the take-off manoeuvres, in which case a forced landing may be required. PC2 also requires CASA approved flight path surveys to/from the HLS.

Performance Class 2 With Exposure (PC2WE). PC2WE is very similar to PC2 as mentioned above. The primary difference is that there need not be any provision for a suitable forced landing area during the take-off and landing phases of flight, within the designated exposure period for the rotorcraft. PC2WE offers operators alternative mitigation strategies based on: a defined exposure time limit, demonstrated engine reliability, engine maintenance standards, pilot procedures and training, and operator risk assessments. Specific approval to operate with exposure is required from CASA and will require a number of mitigation strategies from the operator to gain that approval.

Performance Class 3 (PC3). For a rotorcraft, means the class of rotorcraft operations where, in the event of failure of the critical power unit at any time during the flight, a forced landing:

- in the case of multi-engine rotorcraft – may be required; or
- in the case of single-engine rotorcraft – will be required.

Pilot Activated Lighting (PAL). A PAL system utilises a hospital-based VHF radio and timed switching device, activated by the pilot via a radio transmission on a pre-set frequency, to turn on the associated HLS lighting.

Prior Permission Required (PPR) HLS. An HLS for the exclusive use of the owner and persons authorised by the owner, i.e., a hospital-based emergency services HLS.

Note:

The HLS owner and the HEMS operator are to ensure that all pilots are thoroughly knowledgeable with the HLS (including such features as approach/departure path characteristics, preferred heading, facility limitations, lighting, obstacles in the area, size of the facility, etc.). This is addressed as part of the HLS commissioning process.

Rotor Downwash. The volume of air moved downward by the action of the rotating main rotor blades. When this air strikes the ground or some other surface, it causes a turbulent outflow of air from beneath the helicopter.

Safety Area. A defined area on an HLS surrounding the FATO intended to reduce the risk of damage to helicopters accidentally diverging from the FATO. This area should be free of objects, other than those frangible mounted objects required for air navigation purposes. The Safety Area for the Design Helicopter extends 4.5 m. beyond the FATO perimeter forming a 34 m. X 34 m. square or a 34m. diameter circle.

Safety Net. Surrounds the outer edge of a rooftop HLS. It is to be a minimum of 1.5 m. wide and have a load carrying capacity of not less than 122 kg/m². The outer edge is not to project above the HLS deck, and slope back and down to the deck edge at approximately 10 degrees, and not more than 20 degrees. Both the inside and outside edges of the safety net are to be secured to a solid structure.

Shielded Obstruction. A proposed or existing obstruction that does **not** need to be marked or lit due to its close proximity to another obstruction whose highest point is at the same or higher elevation.

Standard HLS. A place that may be used for helicopter operations by day and night.

Take off. To accelerate and commence climb at the relevant climb speed.

Take off Position. A load bearing, paved area, normally located on the centreline and at the edge of the TLOF, from which the helicopter departs. Typically, there are two such positions at the edge of the TLOF, one for each of two departure or arrival directions.

Touchdown and Lift-off Area (TLOF). A load bearing, generally paved area, normally centred in the FATO, on which the helicopter lands or takes off, and that provides ground effect for a helicopter rotor system. Size is based on 1 x main rotor diameter of Design Helicopter, and is 14m diameter.

Transitional Surfaces. Starts from the side edges of the FATO safety area parallel to the approach and departure path centre line, and extends upwards and outwards (to the sides) at a slope of 2:1 (two-units horizontal in one-unit vertical or 26.6°) to a height of 45m above the elevation of the FATO surface. Further, from the forward edge of the side transitional surfaces, the transitional surface joins the outer edges of the approach and departure surface, and proceeds upwards and outwards until the outer edges are 152m wide at ~3386m which corresponds with the end of the approach and departure surface.

Unshielded Obstruction. A proposed or existing obstruction that may need to be marked or lit since it is **not** in close proximity to another marked and lit obstruction whose highest point is at the same or higher elevation.

2.2. Applicable Abbreviations

Acronym	Meaning
AC	Advisory Circular (US FAA)
ACC	Aeromedical Control Centre (HQ Eveleigh). Responsible for control and tasking of HEMS
ACMA	Australian Communication and Media Authority
ADS-B	Automated Dependent Surveillance - Broadcast
AsA	Airservices Australia
ASB	Acute Services Building
A-SMGCS	Advanced Surface Movement Guidance & Control System
ATC	Air Traffic Control
CAAP	Civil Aviation Advisory Publication (Australia)
CASA	Civil Aviation Safety Authority (Australia)
CASRs	Civil Aviation Safety Regulations (1998) Australia
CTAF	Common Traffic Advisory Frequency
D	Helicopter D value - (also referred to as Overall Length) - the total distance between the main rotor and tail rotor tip path planes when rotating
DA	Development Application
DDO	Design and Development Overlay
DIFFS	Deck Integrated Fire Fighting System
DPHI	Department of Planning, Housing and Industry (NSW)
FAA	Federal Aviation Administration, USA
FATO	Final Approach and Take-Off Area (1.5 x helicopter length)
FARA	Final Approach Reference Area
FMS	Fixed Monitor System (foam fire-fighting system)
GPS	Global Positioning System
HEMS	Helicopter Emergency Medical Service
HF	High Frequency
HI	Health Infrastructure
HLS	Helicopter Landing Site
HLSRO	HLS Reporting Officer
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions – requiring IFR flight
ISLHD	Illawarra-Shoalhaven Local Health District
L	Helicopter fuselage length
LDP	Landing Decision Point (Category A/Performance Class 1 operations)
LGA	Local Government Area
LHD	Local Health District
MoH	Ministry of Health NSW

Acronym	Meaning
MOS	Manual of Standards (CASA)
MRI	Magnetic Resonance Imagers
MTOM	Maximum Take Off Mass
MTOW	Maximum Take Off Weight
NOTAM	Notice to Airmen. Issued by Airservices Australia in relation to airspace and navigation warnings
NSH	New Shellharbour Hospital
NVG	Night Vision Goggle(s)
OIS	Object Identification Surface(s) (Heliport/HLS)
OLS	Obstacle Limitation Surface(s) (Aerodrome)
PC1	Performance Class 1
PC2	Performance Class 2
PC2WE	Performance Class 2 With Exposure
PC3	Performance Class 3
PRM	Precision Runway Monitoring
RD	Main Rotor Diameter
RTCC	Radar Terrain Clearance Chart
SARPS	Standards and Recommended Practices developed by ICAO and promulgated in the Annexes to the Convention of International Civil Aviation
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
SSDA	State Significant Development Application
TDP	Takeoff Decision Point (Category A/Performance Class 1 operations)
TDPC	Touchdown Positioning Circle
TLOF	Touch Down and Lift Off Area. Load bearing min. 1 x main rotor diameter.
UHF	Ultra-High Frequency (radio)
VFR	Visual Flight Rules
VHF	Very High Frequency (radio)
VMC	Visual Meteorological Conditions - allowing flight under VFR
V _{TOSS}	Take off Safety Speed
WAM	Wide Area Multilateralism

3. SSD SPECIFIC REQUIREMENTS – NEW PERMANENT HLS

3.1. Need for a Permanent HLS

The decision whether or not to have an HLS at all is a clinical decision, not an aviation decision (unless it was considered unsafe from an aviation perspective). It was determined by clinical planners that, with a need to urgently transfer an average of approximately three patients per month from Shellharbour Hospital, an HLS remains a necessity.

3.2. HLS Approach and Departure Path Considerations

Primary considerations in selection of HLS approach and departure paths include:

- Avoidance of airspace restrictions and limitations,
- Avoidance of high terrain;
- Avoidance of vertical structures and obstacles/hazards (including the building lift core/overrun),
- Alignment with direction of prevailing winds,
- Availability of emergency landing areas,
- Integrating with local aerodrome traffic and circuit procedures,
- Avoidance of flying animal/bird camps/colonies,
- Avoidance of areas sensitive to noise and vibration,
- Avoidance of culturally sensitive areas, and
- Avoidance of ecologically and environmentally sensitive areas.

Important criteria for approach/departure paths is that there be a minimum of two that are at least 135° apart.

3.3. Wind

The Bureau of Meteorology has an automated weather station at the Shellharbour (Illawarra Regional/Albion Park) Airport, approximately 6.5km from the NSH campus. The NSH would be subject to very similar wind exposure as the airport.

The wind roses for this location show data, since 1999, based on annual, average wind readings at 0900 and 1500. The wind data points towards preferred approach and departure paths to/from the east-north-east and to/from the west-south-west. See Figure 4 below.

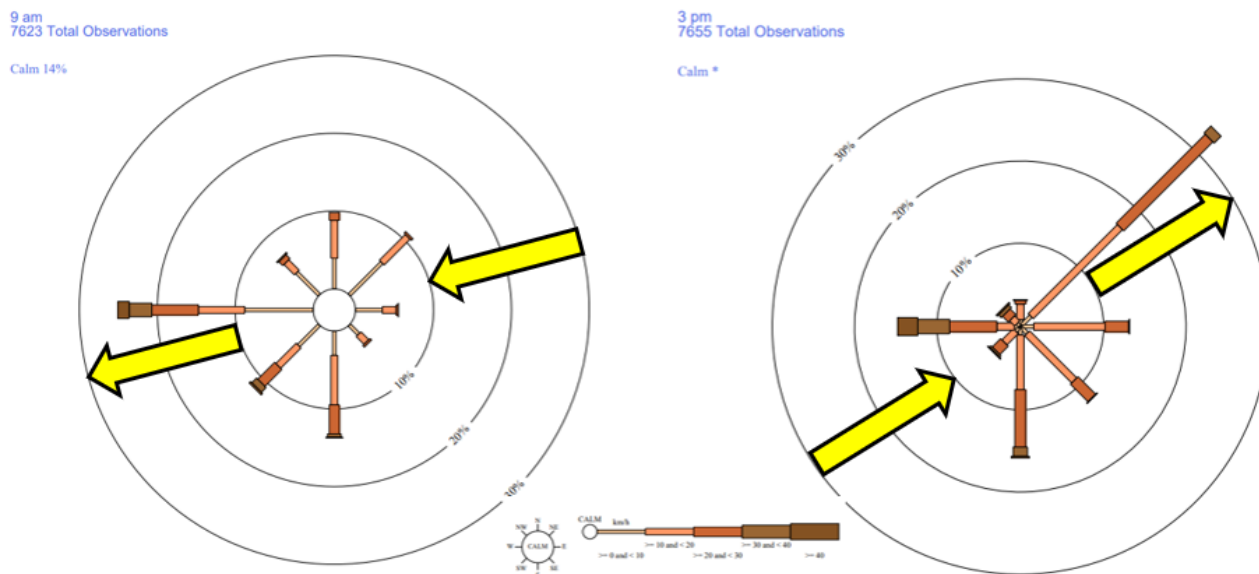


Figure 4: Shellharbour Wind Roses – Annual Averages

3.4. Local Government Requirements - Shellharbour Local Environment Plan (LEP) 2013

Clause 6.7 of the Shellharbour Local Environment Plan 2013 states that one objective of the Clause is “to provide for the effective and on-going operation of the Illawarra Regional Airport by ensuring that such operation is not compromised by proposed development that penetrates the Limitation or Operations Surface for that airport.”

In this case, the term “Limitation or Operations Surface” means “the Obstacle Limitation Surface or the Procedures for Air Navigation Services Operations Surface as shown on the Obstacle Limitation Surface Map or the Procedures for Air Navigation Services Operations Surface Map for the Illawarra Regional Airport.”

Further, Clause 6.7 states that “If a development application is received and the consent authority is satisfied that the proposed development will penetrate the Limitation or Operations Surface, the consent authority must not grant development consent unless it has consulted with the relevant Commonwealth body about the application.”

The Airports (Protection of Airspace) Regulations 1996 differentiate between short-term (less than 3 months) and long-term controlled activities. The Regulations provide for the airport operator to approve short-term controlled activities that penetrate the OLS, and for the Commonwealth Department of Infrastructure, Transport, Regional Development and Communications for approval of long-term controlled activities and those short-term controlled activities referred to it by the airport operator. However, the airport operator must refer short-term PANS-OPS intrusions to the Department for approval. Long term intrusions of the PANS-OPS surface are prohibited.

3.5. Airspace

The NSH is located clear of any controlled or restricted airspace. There are no danger areas in the vicinity, and no problematic aerial activities such as hang-gliding, ballooning, model aeroplane flying or parachuting indicated on aeronautical charts. From a Shellharbour (Illawarra Regional/Albion Park) Airport air traffic perspective, there will be little difference between helicopter operations at the existing Shellharbour Hospital HLS and the new one. See Figure 5 below.

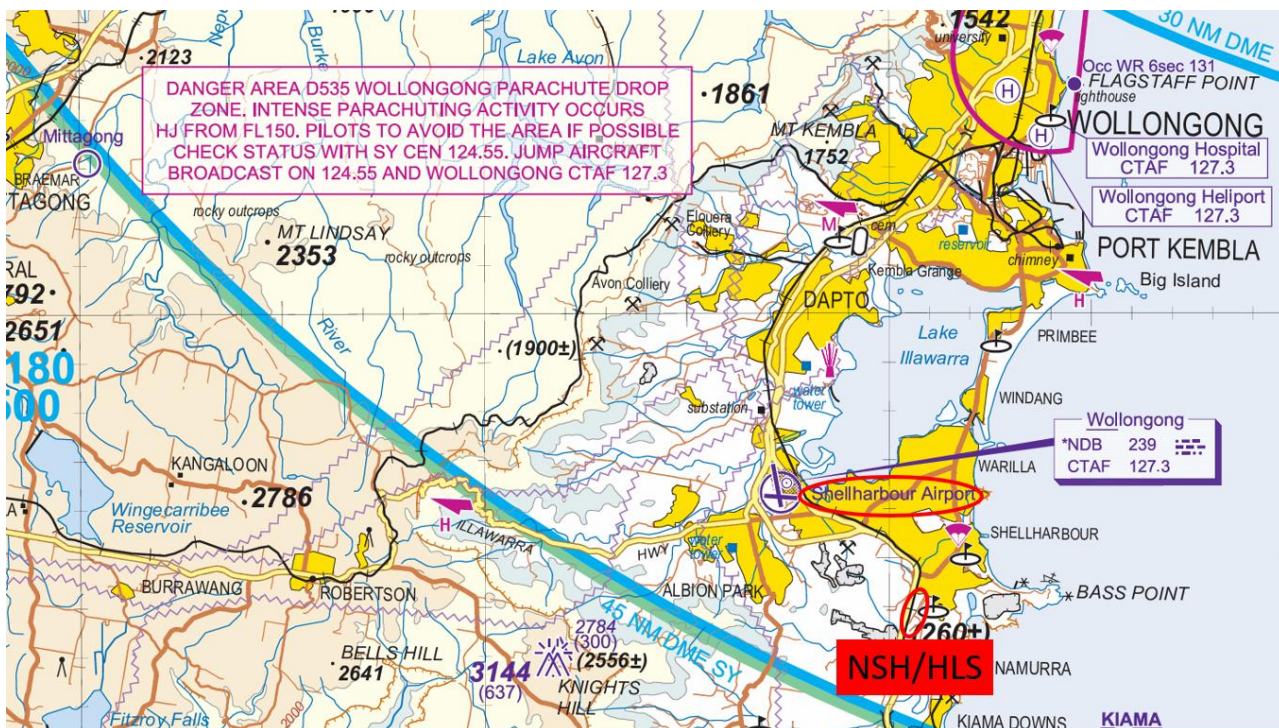


Figure 5: NSH and Shellharbour Airspace

The Shellharbour Aerodrome Obstacle Limitation Surfaces (OLS) are depicted in [Figure 6](#) below. The approximate location of the NSH Hospital campus is also indicated. The Outer Horizontal Surface of the OLS extends over the NSH site at RL127.

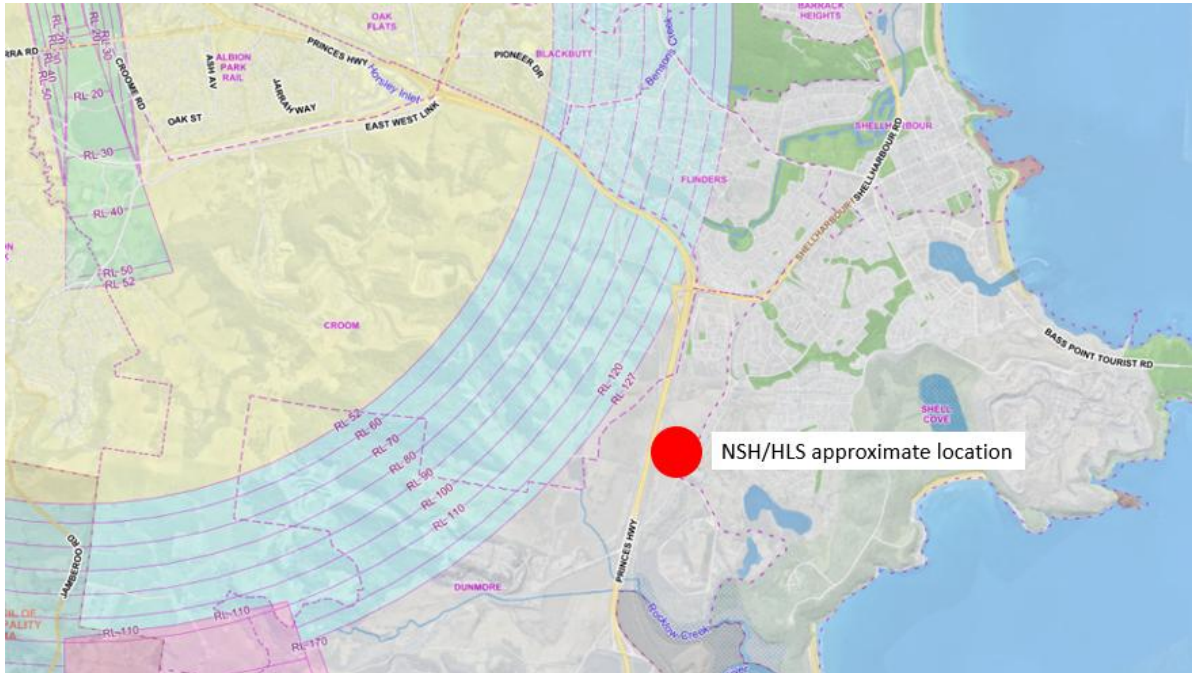


Figure 6: Shellharbour Aerodrome Obstacle Limitation Surfaces

At RL121.683, the tallest crane will remain clear of the Shellharbour OLS. A third, much lower crane will be erected to construct a multi-storey car park and it has not been considered in relation to airspace implications (due to its low elevation). The requirement for crane approvals for the NSH HLS is not applicable. See [Figure 7](#) below:

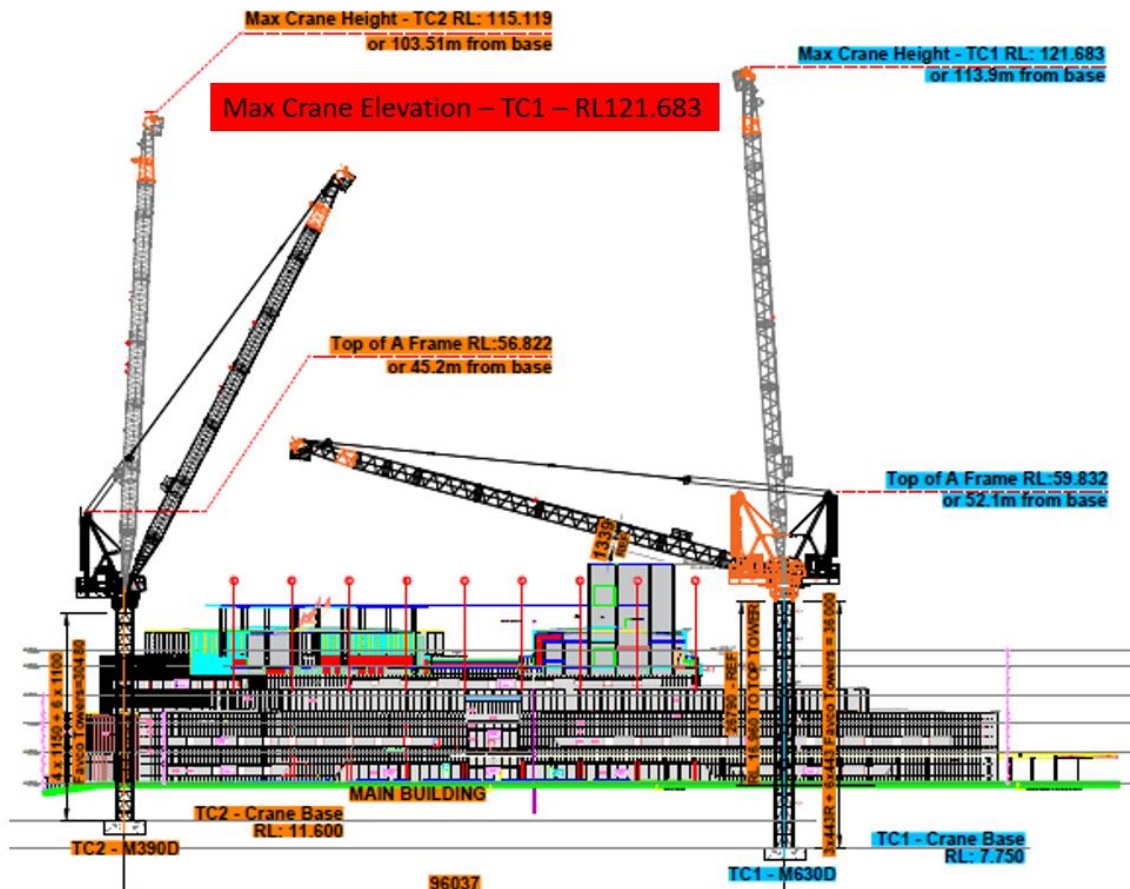


Figure 7: NSH Crane Layout

3.6. Crane Assessment by the Civil Aviation Safety Authority (CASA)

The Civil Aviation Safety Authority (CASA) assessed the crane layout on 11 October 2024 stating: “CASA has determined the cranes would not constitute an unacceptable hazard to aircraft operations...”.

3.7. Other Airspace Assessments

The NSH is far enough away from Shellharbour Aerodrome so as to not require any assessment of Instrument Flight Procedures or Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces. A significant piece of high terrain (up to RL175) separates the NSH site from Shellharbour Aerodrome and provides “shielding” for tall buildings and crane operations in the Dunmore region. See Figure 8 below:

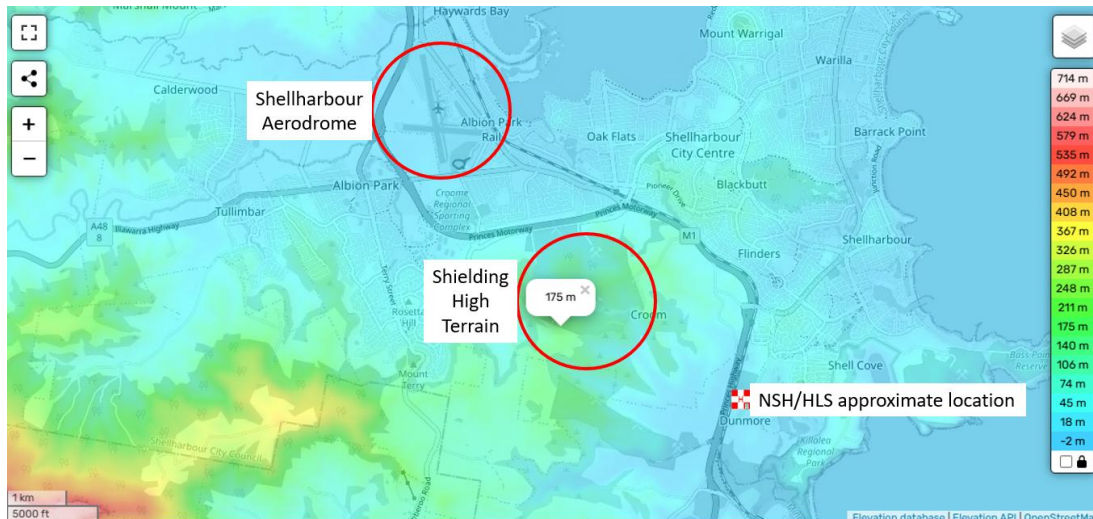


Figure 8: NSH Terrain “Shielding”

There is no Radar Terrain Clearance Chart (RTCC) for Shellharbour Aerodrome. The aerodrome has limited radar coverage (from Sydney), no Air Traffic Control (ATC) services and thus no positive radar control.

In summary, airspace implications for Shellharbour Aerodrome are non-existent.

3.8. Impacts on Sensitive Receivers

There are no known areas of sensitive environmental or ecological concern in the preferred approach and departure zones. The noise and vibration impacts may be somewhat similar to those for the existing HLS, with the areas of receivership further to the south. This will inevitably lead to a cohort of new sensitive receivers complaining about exposure; however, this needs to be balanced against the reduction of sensitive receivers affected in the vicinity of the current HLS. As the new rooftop HLS is much higher than the existing HLS at the existing Shellharbour Hospital, impacts on surrounding residential areas will be reduced, notwithstanding that those sensitive receivers closest to the HLS will complain early in the life of the HLS. In totality, the overall societal impact will be a reduction in noise and vibration.

3.9. HLS Lighting

The NSH HLS will have a lighting system to aid pilots navigating towards the facility and to aid approaches to land. Most of the lights are only visible from above and won't impact local residents. Such lighting use would be limited in frequency and duration and is a safety feature and a standing requirement for NSW HLSs. Floodlights on the HLS will be used to aid the loading/unloading of patients being transferred, and will only be illuminated after the helicopter lands and then extinguished prior to the helicopter departing. Some people find such lighting annoying. Little can be done to reduce any impacts as the siting of such lights fits with an overall scheme of design to best support helicopter operations. Lighting on helicopters is minimal.

3.10. Effects of Helicopter Operations on Buildings, Infrastructure and People

Figure 9 below illustrates the planned flight paths to the potential new rooftop NSH HLS. These approach and departure paths are the best fit for average annual prevailing winds, terrain, avoidance of obstacles (predominantly the lift overrun), avoidance of quarry blasting operations and availability of forced landing areas.

The north-easterly path transits via the suburb of Dunmore. It will mostly be used for approaches into strong westerly and south-westerly winds which are prevalent in the area. This is an unavoidable outcome of overall HLS design. There will be unavoidable occasions when occupants of nearby buildings experience negative impacts of helicopter noise and/or vibration. There should not, however, be any occasions when an individual experiences negative impacts of helicopter main rotor downwash.

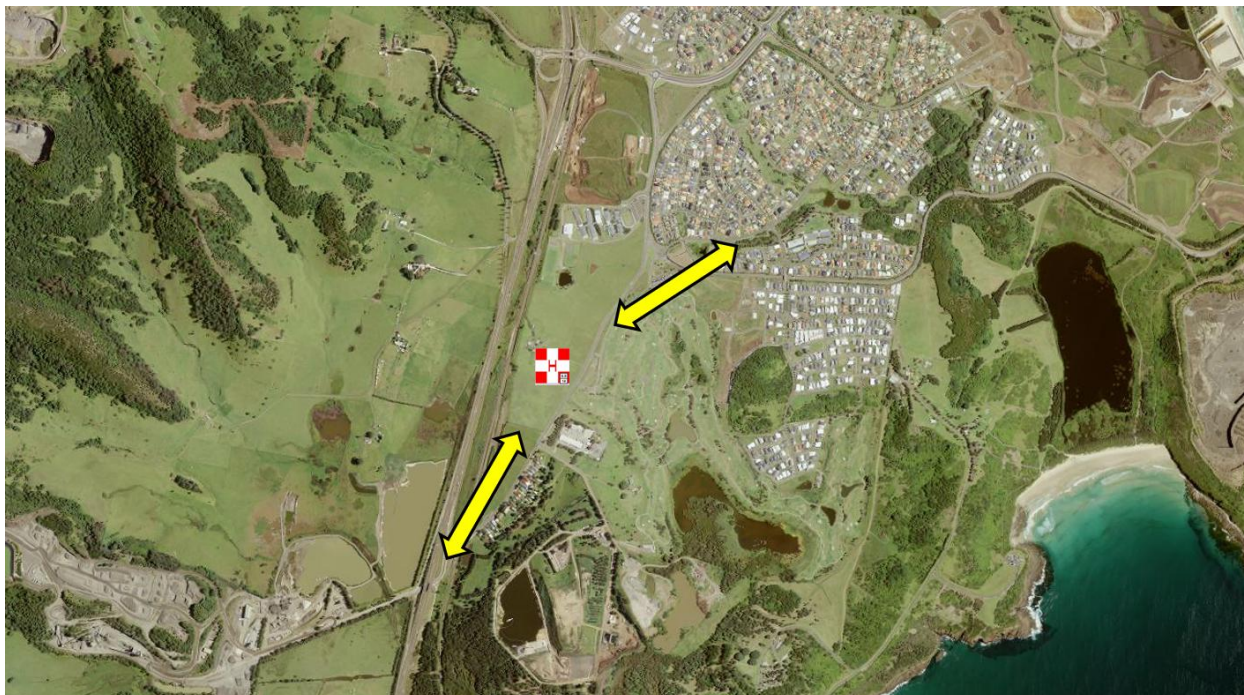


Figure 9: Approach and departure paths at the NSH HLS

3.11. Requirement for HLS Survey

There should be few occasions when wind direction alone would lead to the HLS being unusable. The primary wind risk is a very strong westerly wind that creates turbulence as it flows across and around the lift core/overrun. Data shows that this is likely to be a reasonably common occurrence. Such a risk has been treated by avoiding a direct approach path into the west in strong westerly winds, and providing an offset departure path to the south-west. Prior to acceptance by NSW Ambulance, a VFR Approach and Departure Surface (Performance Class 1) survey combined with a Design Development Overlay (DDO) survey will need to be completed.

The primary purpose of a DDO survey is to provide a baseline for the protection of airspace around the HLS as defined in the National Airports Safeguarding Framework Guideline H – Protecting Strategically Important Helicopter Landing Sites.

3.12. Obstructions and VFR Approach/Departure Paths

Two VFR Approach and Departure paths run: north-east; and south-south- west. The selection of these paths aims to achieve an obstacle free gradient of 2.6° (4.5%, 1:22.2 vertical to horizontal), measured from the forward edge of a 34m diameter safety area, and expand uniformly, laterally at an angle of 8.7°/15%/1:12.8 to a width of 140 m to a height of 152m above the FATO at a distance of ~3,386m. The VFR approach and departure paths are to be obstacle free. It is important to achieve the 2.6°/4.5%/1:22.2 obstacle free slope to account for the performance requirements of one engine inoperative (OEI) flight following an emergency. The veracity of these paths has been assessed using Light Detection And Ranging (LiDAR). See [Figure 10](#) below:

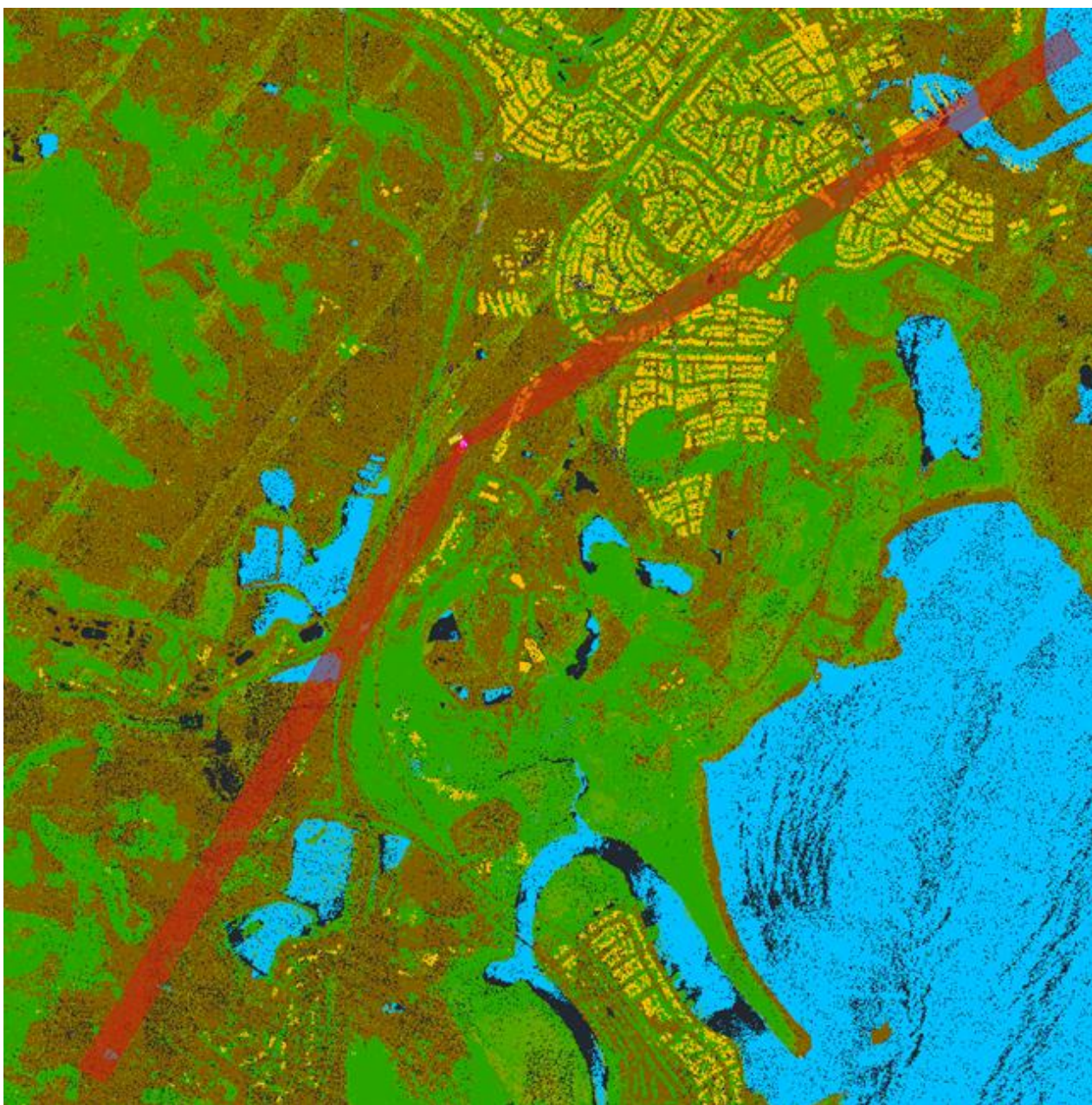


Figure 10: NSH HLS Approach and Departure Path LiDAR Analysis

If an obstacle existed within the approach and departure path, it would appear as a green area within the red overlay.

3.13. NSH HLS Design and Markings

The NSH HLS design and markings are shown in [Figure 11](#) below:



Figure 11: NSH HLS Design and Markings

3.14. Acoustic Mapping

Acoustic assessment is included in the Pulse White Noise Acoustics (PWNA) SSD Modification 2 Acoustic Assessment Report dated 5 September 2025. In summary the report states that: "...we believe the proposed Helicopter Landing Site (HLS) above the roof the New Shellharbour Hospital (NSH) is acoustically acceptable..."

3.15. Crane Lighting

In their assessment of the tower cranes on 11 October 2024, CASA identified that, at above 100m above ground level, TC1 and TC2 required specified aviation obstacle lighting under Civil Aviation Safety regulation 139.165. CASA recommended that:

- TC1 and TC2 are lit with a medium intensity steady (or flashing) red light at night at the tip of the jib as per section 9.31 of the Part 139 (Aerodromes) Manual of Standards; and
- TC1 and TC2 are obstacle marked in conspicuous colour on the upper sections of the jib; or should be lit with a flashing white obstacle light during daylight.

4. SSD KEY ISSUES

4.1. Key Issue: Policies

NSW Health Policy. The NSH HLS will meet the compliance requirements of CASA Advisory Circular (AC) 139R-01 Guideline for heliports – design and operation, and NSW Health GL2020_014 Guidelines for Hospital Helicopter Landing Sites in NSW. Whilst the guidance does not restrict flight over adjacent buildings, it is common practice in approach and departure path design to avoid such situations. It has been possible on this occasion to avoid extended overflight of the adjacent hospital buildings and to also avoid impacting any rooftop services e.g. cooling towers and vents, with rotor downwash.

4.2. Key Issue: Environmental Amenity

Acoustic Impacts. There will be acoustic impacts associated with the conduct of helicopter flight operations to/from the NSH HLS, but overall, this impact should be reduced in totality from what is currently experienced with the existing HLS (albeit impacting a new group of receivers). Total avoidance of acoustic impacts on surrounding areas is impractical and cannot be guaranteed.

Main Rotor Downwash Impacts. There will be no negative impacts on external receivers from main rotor downwash. CPP Wind Engineering Consultants Report “Shellharbour Hospital – Helicopter operations and general wind advice” dated 6 August 2025 contains detailed information on downwash risk. Local procedures may be required to manage any risks (e.g. balconies, terraces, courtyards exposure) within the immediate confines of the NSH building, and these procedures, if developed, will need to be applied diligently.

Lighting Impacts. There may be some reaction to HLS lighting early in the life of the HLS.

Ecological Impacts. There are no known areas of environmental or ecological significance that require specific protection from the impacts of helicopter operations. A search of data, reports and other sources did not reveal the existence of any additional, nearby, noteworthy habitats, nesting areas, breeding grounds or roosting colonies that might be impacted by helicopters.

4.3. Key Issue: Noise and Vibration

Noise. The typical helicopter “noise” event includes the following components:

Helicopter arrival:

- 1-minute approach and land, and
- 2 minutes engine idle (then shutdown).

Helicopter departure:

- 1-minute start-up,
- 1-minute hover and backup, and
- 1-minute departure.

The total elapsed noise event is approximately 6 minutes. With only approximately three helicopter arrivals and departures per month (based on historical data), total noise pollution and vibration exposure will be very low.

4.4. Key Issue: Contamination

The main contamination from an HLS is that of petroleum product (fuel, oil etc.) spillage. In the case of the NSH HLS, this risk is significantly mitigated by not conducting refuelling operations or maintenance on the HLS.

If there was a fuel leak of any sort from the helicopter, the installation of the fuel/water separator will mitigate the contamination risk.

Without treatment, helicopter exhaust fumes can be ingested into the hospital’s fresh air intakes. A management system has been applied to prevent this problem arising.

4.5. Key Issue: Drainage

The HLS will have drainage to ensure standing water is drained from the deck. A slope of up to 2° will ensure water does not pool and helps maintain the integrity of the anti-slip surface. Contaminants in any runoff will be captured in a purpose-designed container for future disposal.

4.6. Key Issue: Management of Cranage during construction

The construction cranes will be lit to CASA standards so there will be no issues with cranes during NSH HLS construction.

5. CONSULTATION, CONCLUSION AND SUMMARY

5.1. Consultation

AviPro has consulted with the following organisations with no reportable feedback:

- Shellharbour Airport,
- NSW Ambulance aeromedical operations,
- Toll Helicopters (contracted helicopter operator), and
- CASA.

5.2. Future Consultation

AviPro will further engage with the following organisations as appropriate:

- Shellharbour Airport,
- CASA,
- Health Infrastructure (Program Management),
- Savills (Project Management),
- NSW Ambulance aeromedical operations, and
- Toll Helicopters (contracted helicopter operator).

5.3. Conclusion

The NSH rooftop HLS is appropriately designed. From an SSD perspective, in summary:

- Planned approach and departure paths for the NSH HLS will provide for the strongest and most prevalent wind directions whilst concurrently also avoiding building overflight to the maximum extent possible.
- The NSH and its new permanent rooftop HLS, and associated cranes used for construction will not infringe prescribed or protected airspace.
- The NSH HLS will be compliant with CASA AC 139R-01 Guideline for heliports – design and operation and NSW Health Guideline GL2020_014 Hospital Helicopter Landing Sites in NSW (where relevant). The HLS design is in accordance with relevant national and international guidelines.