AVIATION PROJECTS

Cameron Thomson
Director
Podia

By email: cameron.thomson@podia.com.au

March 2025

Our reference: 069101-01

Dear Cameron

Re: Adelaide Central Plaza – Preliminary Aviation Impact Assessment

Reference is invited to your request for a Preliminary Aviation Impact Assessment of the proposed Adelaide Central Plaza.

Please find following an assessment of possible development constraints due to aviation impacts. This analysis is based on the information provided in your email correspondence.

1.1. Project background

The developer proposes constructing a 30-storey building at Adelaide Central, at 100 Rundle Mall, Adelaide with a maximum height of up to RL 178.85 m AHD.

Podia has engaged Aviation Projects to provide a preliminary aviation impact analysis to support the application process.

1.2. References

References used or consulted in the preparation of this report included:

- Airservices Australia
    - Aeronautical Information Package, effective 20 March 2025
    - Designated Airspace Handbook and Aeronautical Charts, effective 28 November 2024.
- Airports (Protection of Airspace) Regulations 1996
- Civil Aviation Safety Authority
    - Advisory Circular (AC) 91-02 V1.2, *Guidelines for aeroplanes with MTOW not exceeding 5700 kg – suitable places to take off and land*, dated November 2022
    - Advisory Circular (AC) 91-10 v1.3: *Operations in the vicinity of non-controlled aerodromes*, dated January 2025
    - Advisory Circular 139.E-01 v1.0—*Reporting of Tall Structures*, dated December 2021
    - Advisory Circular (AC) 139.E-05 v1.1 Obstacles (including wind farms) outside the vicinity of a CASA certified aerodrome (October 2022).
    - Civil Aviation Regulations 1988 (CAR)

  - Civil Aviation Safety Regulations 1998 (CASR)
  - CASR Part 139 MOS– *Aerodromes*
  - CASR Part 173 MOS– *Standards Applicable to Instrument Flight Procedure Design*
- Department of Infrastructure, Transport, Regional Development, Communications and Arts, Australian Government, National Airport Safeguarding Framework:
  - Guideline C: *Managing the Risk of Wildlife Strikes in Vicinity of Airports*
  - Guideline F: *Managing the Risk of Intrusions into the Protected Operational Airspace of Airports*
  - Guideline G: *Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)*
  - Guideline H: *Protecting Strategically Important Helicopter Landing Sites (HLS)*
- International Civil Aviation Organization (ICAO):
  - Annex 14—*Aerodromes*
  - Doc 8168 *Procedures for Air Navigation Services—Aircraft Operations* (PANS-OPS).
- OzRunways, dated March 2025.
- Other references as noted.

1.3. Client material

Podia provided the following material for the purposes of this analysis:

- 100 Rundle Mall – DR 02 – PACT Architects – Draft.pdf

1.4. National Airports Safeguarding Framework

The National Airports Safeguarding Advisory Group (NASAG) was established by the Commonwealth Department of Infrastructure and Transport to develop a national land use planning framework called the National Airports Safeguarding Framework (NASF). The purpose of the NASF is to enhance the current and future safety, viability, and growth of aviation operations at Australian airports through:

- The implementation of best practice in relation to land use assessment and decision making in the vicinity of airports
- Assurance of community safety and amenity near airports
- Better understanding and recognition of aviation safety requirements and aircraft noise impacts in land use and related planning decisions
- The provision of greater certainty and clarity for developers and landowners
- Improvements to regulatory certainty and efficiency
- The publication and dissemination of information on best practice in land use and related planning that supports the safe and efficient operation of airports.

1.4.1. NASF Guideline C: Managing the Risk of Wildlife Strikes in Vicinity of Airports

This guideline principally provides recommendations to local planning authorities on implementing policies to limit the impact of (generally flying) wildlife on aircraft operations within their legislative frameworks using principles set out in International Civil Aviation Organisation (ICAO) documentation.

The proposed development should not increase the risk of wildlife strikes at airports. Land uses that present a risk of attracting wildlife should be controlled (and mitigated) within 3 km, 8 km and 13 km of an airport.

1.4.2. NASF Guideline F: Managing the Risk of Intrusions into the Protected Operational Airspace of Airports

This guideline provides guidance to State/Territory and local government decision makers as well as airport operators to jointly address the issue of intrusions into the operational airspace of airports by tall structures, such as buildings, cranes and transmission lines, as well as trees in the vicinity of airports.

Key considerations for managing risk of intrusions into the protected operational airspace of airports

Protection of visual operations - Obstacle limitation surfaces

> *The first group of criteria are used to determine the obstacle limitation surfaces (OLS) for a runway. Criteria for determining these surfaces are established by the International Civil Aviation Organisation (ICAO). In Australia, CASA publishes these criteria in the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations.*
>
> *Structures, trees or other activities that intrude into the OLS could constitute obstacles to aircraft taking off or approaching to land. The OLS for an airport charts the volume and dimensions of operational airspace that should be kept free of obstacles to aircraft operations being conducted under VFR or during the visual stages of IFR operations.*
>
> *It is important to note that the OLS does not prohibit all intrusions. The aim is to ensure that all objects that intrude into the OLS can be identified and assessed for their potential impact on aircraft operations. The assessment will enable a determination on whether the intrusion is permissible, and if so, a determination on whether any risk mitigation requirements should be imposed.*
>
> *The requirements to protect operational airspace will be enforced most rigorously along the extended centrelines of runways in the approach and takeoff areas. This could extend up to 15 kilometres from the ends of runways at major airports. Other OLS surfaces that protect aircraft circling to land may also extend up to 15 kilometres from major airports.*
>
> *The effects of individual obstacles may be relatively minor, but together a number of obstacles may seriously limit runway utilisation, cause airspace congestion and reduce the effective handling capacity of the airport. It is therefore important to understand that the pre-existence of a structure or other intrusion into operational airspace does not necessarily mean that a new proposal to penetrate operational airspace will be approved under Commonwealth legislation.*
>
> *Land use planning authorities and state/territory governments should be aware that all intrusions into the OLS have the potential to create aviation safety risks and to limit the scope of aviation operations into and out of the airport.*

Protection of instrument operations - Procedures for Air Navigation Services – Operations (PANS-OPS) surfaces

> *A second group of criteria is used to determine the volumes and dimensions of airspace required to protect the safety of IFR operations. Under IFR operations, pilots fly aircraft relying on instruments for navigation. Airspace protection for IFR operations cannot allow for any long-term penetrations.*

ICAO established these criteria which are published in a document titled 'Procedures for Air Navigation Services – Operations (PANS-OPS)'. The surfaces determined by using the criteria in the PANS-OPS publication are called PANS-OPS surfaces.

The PANS-OPS surfaces are used in the construction of take-off, landing and approach procedures based entirely on navigation with sole reference to aircraft instruments. They are designed to protect aircraft from colliding with obstacles when flying on instruments. Minimum safe altitudes are established for each segment of an instrument procedure.

If it is agreed by all stakeholders that a long-term penetration of the PANS-OPS surfaces is essential, the PANS-OPS surfaces must be raised so they are clear of the development causing the penetration. However, this may also have operational penalties for airport operations and could have community impacts, such as re-design of flight paths that increase the population exposed to high levels of aircraft noise.

1.4.3. NASF Guideline G: Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)

The guideline provides land use planning information to enable the protection of CNS facilities which support the systems and processes in place by Airservices Australia (Airservices), the Department of Defence (Defence) or other agencies under contract with the Australian Government, to safely manage the flow of aircraft into, out of and across Australian airspace.

1.4.4. NASF Guideline H: Protecting Strategically Important Helicopter Landing Sites (HLS)

The purpose of this guideline is to protect important Helicopter Landing Sites (HLS) from infringements. An HLS is a specific nominated area (not located on an aerodrome) wholly or partly used for the arrival or departure of helicopters for strategically important purposes.

Key Considerations:

It will be the responsibility of each jurisdiction to consult with the asset owner to identify those HLS that are considered to be of strategic importance or those that are to be protected in the interest of public safety.

SHLS to protect should include:

a) *a HLS associated with a hospital; or*

b) *an elevated HLS1, located within a populated area; or*

c) *a HLS subject to instrument flight procedures; or*

d) *any other facility identified as strategic by State/Territory or Commonwealth government/authorities.*

Where otherwise not required under state/territory provisions, a responsible planning authority or proponent is encouraged to consult with the relevant SHLS asset owner to establish protocols for the referral process within their jurisdiction including:

a) *material to be provided as part of the referral;*

b) *the timeframes in which advice is required to be provided; and*

c) *the format of any advice provided and the wording of appropriate conditions that can be applied to mitigate any impacts. This should include standard conditions that can be applied in the event that the asset owner is unable to respond within the required assessment timeframes.*

1.5. Airports (Protection of Airspace) Regulations 1996

Part 12 of the ***Airports Act 1996*** and the **Airports (Protection of Airspace) Regulations 1996** establish a framework for the protection of airspace at and around airports. The following summary of these requirements is provided on the Commonwealth Department of Infrastructure, Transport, Regional Development and Communications website.

The *Airports Act 1996* defines any activity resulting in an intrusion into an airport's protected airspace to be a "controlled activity" and requires that controlled activities cannot be carried out without approval.

The Regulations provide for the Department or the airport operator to approve applications to carry out controlled activities, and to impose conditions on an approval.

Any activity that infringes an airport's protected airspace is called a **controlled activity** and requires approval before it can be carried out. Controlled activities include the following:

- Permanent structures, such as buildings, intruding into the protected airspace;
- Temporary structures such as cranes intruding into the protected airspace; and
- Any activities causing intrusions into the protected airspace through glare from artificial light or reflected sunlight, air turbulence from stacks or vents, smoke, dust, steam or other gases or particulate matter.

The Regulations 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, excluding PANS-OPS infringements, and for the Department to approve long-term controlled activities, or *short-term* controlled activities referred to it by the airport operator, including short-term infringements of the PANS-OPS surface. However, long term intrusions of the PANS-OPS surface are prohibited.

Applications to carry out a controlled activity are to be made to the airport operator in writing. The information required in the application must include:

1. A description of the proposed controlled activity (building construction, crane operation etc);
2. Its precise location (street directory grid references are suitable);
3. If the controlled activity consists of the erection of a building or structure:
    a. The proposed maximum height of the structure above the Australian Height Datum (including any antennae or towers), and
    b. The proposed maximum height of any temporary structure or equipment (e.g. cranes) intended to be used in the erection of the structure.
4. The purpose of the controlled activity.

The airport operator will conduct the initial assessment of the application in terms of:

- Whether the activity results in an intrusion into the OLS or PANS-OPS surface;
- The extent of the intrusion; and
- The precise location of the development or activity.

The airport operator is required to invite the following organisations to assess or comment on an application:

- **The Civil Aviation Safety Authority (CASA)** for an assessment of the impact on aviation safety;

- **Airservices Australia** for assessments of proposals resulting in a penetration of the PANS-OPS surface or temporary redirection of flight paths;
- **The local council authority** responsible for building approvals; and
- **The Department of Defence** in the case of joint-user airports.

For short term-controlled activities, comments are only required from CASA and Airservices.

The approval process varies depending on the type of controlled activity:

- **Short-term controlled activities** which penetrate the OLS can be approved/refused by the airport operator after consultation with CASA and Airservices Australia or referred by the airport to the Department for a decision. However, if the short term-controlled activity penetrates the PANS-OPS surfaces, airport operators are required to consult with CASA and Airservices and then refer applications to the Department for a decision. This referral is to include advice about whether the short-term penetration of the PANS-OPS has the support of the airport operator;
- **Long-term controlled activities penetrating the OLS** are referred by the airport to the Department for a decision after consultation with CASA, Airservices and the relevant building authority; and
- **Long-term controlled activities penetrating the PANS-OPS airspace** are not permitted, and the airport operator can notify the refusal of such controlled activities.

  The Regulations require any decision by the airport operator to be made in the interests of the safety, efficiency or regularity of existing or future air transport operations into or out of the airport.

1.6. Civil Aviation Safety Regulations 1998 Part 139—Aerodromes

The Civil Aviation Safety Authority (CASA) regulates aviation activities in Australia. Applicable requirements include the Civil Aviation Safety Regulations 1998 Part 139—*Aerodromes* (CASR 139), the associated Manuals of Standards Part 139—*Aerodromes* (MOS 139) and other guidance and advisory material.

1.7. Adelaide Airport Master Plan 2019

The Adelaide Airport Master Plan 2019 was approved by the Federal Minister for Infrastructure, Transport and Regional Development on 02 March 2020.

The Master Plan 2019 has been prepared in accordance with the *Airports Act 1996* and is the primary planning document for the next eight years to 2027. It also presents the long-term strategic plans for the 20-year period through to 2039.

The Adelaide Airport Master Plan 2019, and in particular Chapter 12, addresses current and future requirements for airport safeguarding. In particular:

> *12.1 Introduction*
>
> *The safety of aircraft operations to and from Adelaide Airport, and the capacity of the airport to operate and respond to growing demand, can be directly impacted by inappropriate land use and activities that occur on the land surrounding the airport.*
>
> *Long-term and effective protection and safeguarding of Adelaide Airport is critical to ensuring ongoing aviation operations and safety. The safeguarding of the airport, which refers to measures taken to minimise inappropriate land uses and activities, is the shared responsibility of AAL and all levels of government.*

The Commonwealth Government has enacted regulations to protect airspace around airports (the Airports (Protection of Airspace) Regulations 1996) and, in recent years, has developed a series of Guidelines as part of the National Airports Safeguarding Framework (NASF) to protect the long term safe operations of airports. These Guidelines have been developed by the Commonwealth Government in conjunction with the relevant State and Territory planning Ministers and are being implemented throughout Australia by the relevant State and Territory planning authorities.

12.2 National Airports Safeguarding Framework

The current and future viability of aviation operations at Adelaide Airport can be impacted by inappropriate developments in areas beyond the airport boundary. The safeguarding measures applied by AAL in its planning include the NASF guidance documents

12.3 South Australian Government Planning Polices

The South Australian Government has given commitments to implementing the outcomes of NASF. The current South Australian planning system (established under the Development Act 1993) provides a framework for addressing some of the NASF Guidelines in relation to off-airport development.

The current planning policy module 'Buildings Near Airfields' has been included in most development plans within the State. The objective of this planning policy module states:

Development that ensures the long-term operational, safety, commercial and military aviation requirements of airfields (airports, airstrips and helicopter landing sites) continue to be met.

The Principles of Development Control provide general guidance with regard to:

- *Limiting height and location of buildings and structures adjacent to airports*
- *Considering the risks to public safety of development in the vicinity of an airport (i.e. consideration of lighting glare, smoke, dust and exhaust emissions, air turbulence, storage of flammable liquids, attraction of birds, reflective surfaces, and materials that affect aircraft navigational aids)*
- *Lighting within six kilometres of an airport*
- *Minimising development that increases the attraction of birds within three kilometres of an airport*
- *Limiting development within areas affected by aircraft noise*

Development proposals which exceed building height limitations around airports, as shown in Development Plans, will trigger a referral to the Commonwealth Government for assessment.

The South Australian planning system is in transition. The new Planning, Development and Infrastructure Act 2016 and the State-wide Planning and Development Code replacing the current Development Act 1993 and associated development plans for each council area being replaced by 2021.

Figure 1 Adelaide Airport Obstacle Limitation Surfaces

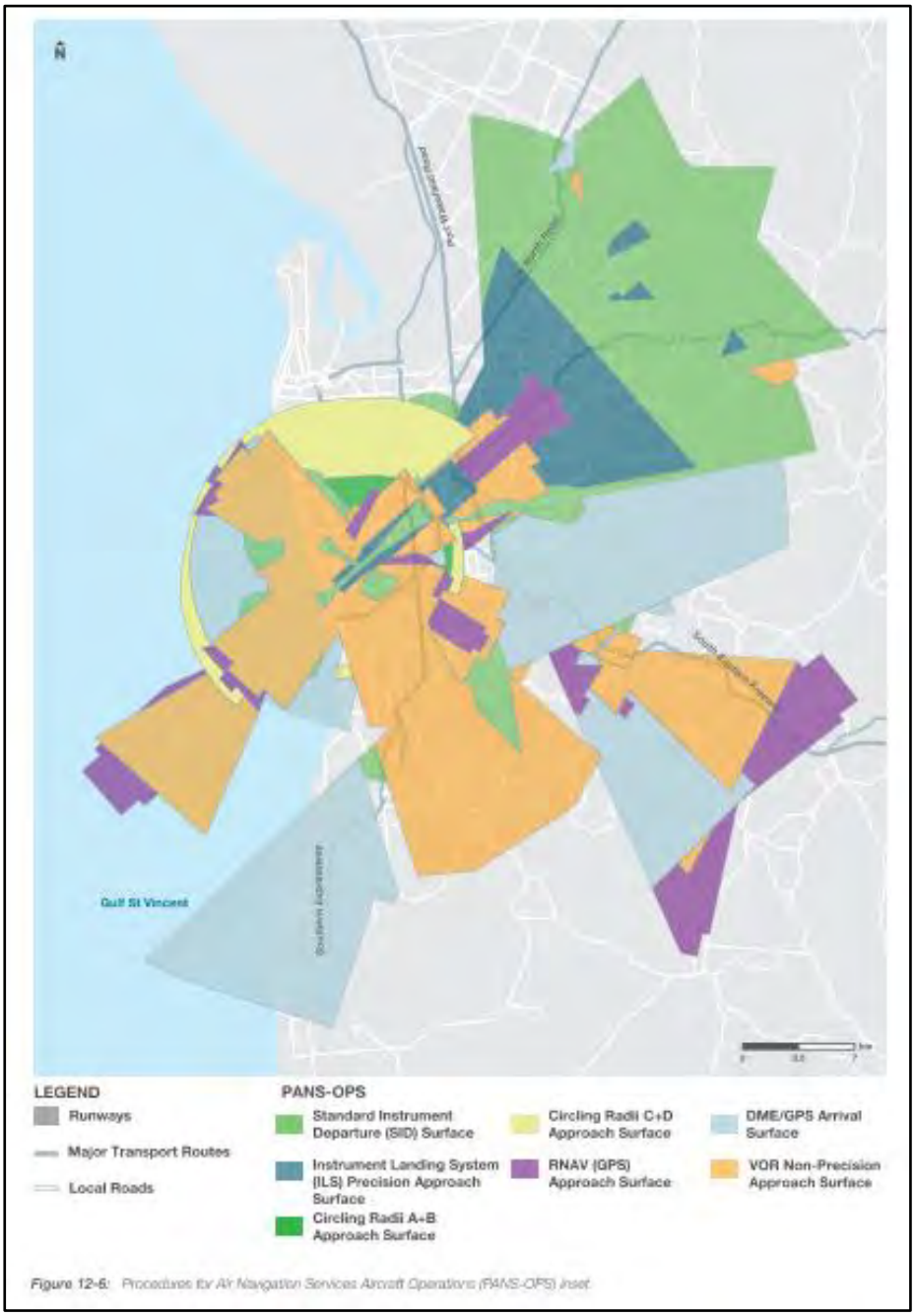


Figure 12-6: Procedures for Air Navigation Services Aircraft Operations (PANS-OPS) Inset

Figure 2 Adelaide Airport PANS-OPS Surfaces

1.8. Parafield Airport Master Plan 2024

The Parafield Airport Master Plan 2024 (PAMP 2024) details the airport's strategic vision and development roadmap through 2043, with a detailed focus on the period up to 2031.

PAMP 2024 provides a comprehensive framework for the development of Parafield Airport to support aviation activities, commercial development, environmental management and infrastructure delivery. It includes a

Development Program, Environment Strategy and Ground Transport Plan as well as an overview of aviation forecasts and aircraft noise exposure.

Figure 12.4: Obstacle Limitation Surfaces (OLS) plan for Parafield Airport

Figure 3 Parafield Airport OLS

Figure 4 Parafield Airport PANS-OPS Surfaces

1.9. Project description

The developer is proposing to construct a 30-storey building at Adelaide Central, at 100 Rundle Mall, Adelaide with a maximum height of up to RL 178.85 m AHD:

- Building Height: The top of the parapet is 175,850 AHD.

- **Detailed construction schedule**: The project is slated as a 27-month construction timeframe. At this early stage we do not have a detailed construction programme. It is anticipated that the crane will be at maximum height for the final 18 months of construction.

Figure 5 depicts the project's section plan (source: Podia).

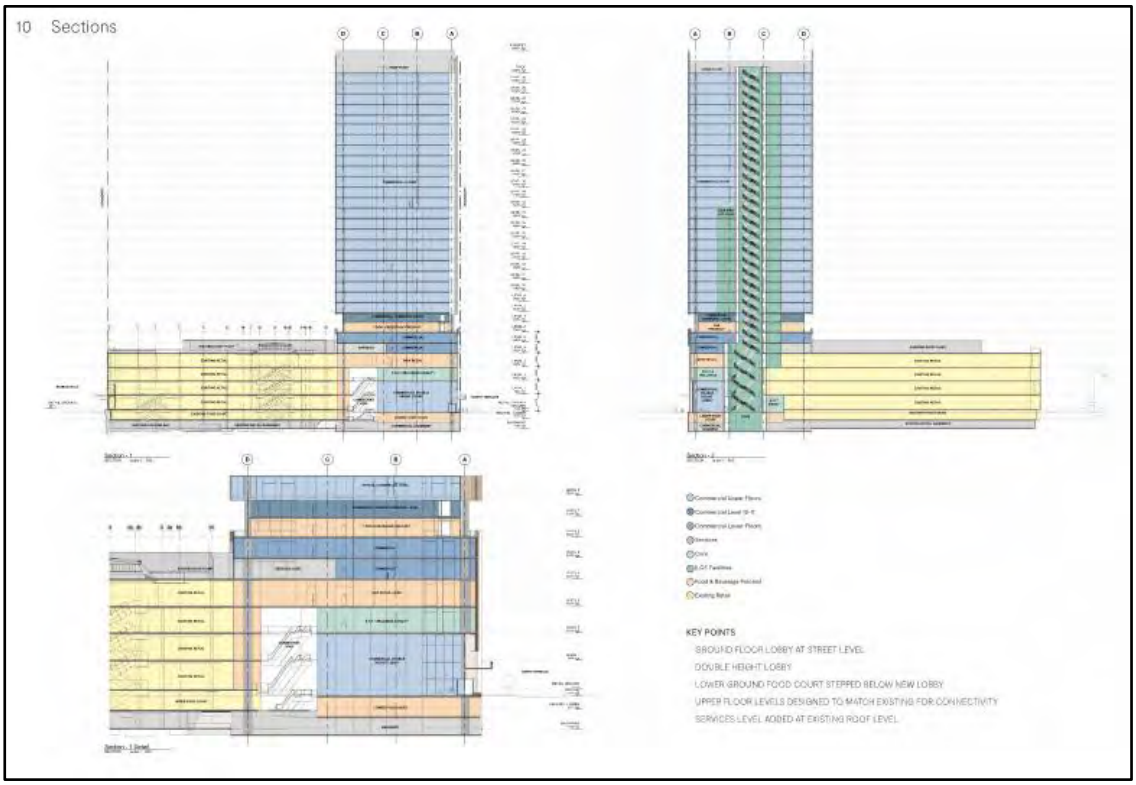


Figure 5 Project site section drawing

1.10. Nearby certified aerodromes

A certified aerodrome is an aerodrome regulated by the Civil Aviation Safety Authority (CASA) under Part 139 of the Civil Aviation Safety Regulations (CASR), with defined standards established in Part 139 (Aerodromes) Manual of Standards (MOS) 2019.

The proposed Project Site is located within 30 nm of two (2) certified airports and one (1) military airport:

- Adelaide Airport (YPAD) - 7 km (3.8 nm)
- Adelaide / Parafield Airport (YPPF) – 15 km (8 nm)
- RAAF Edinburgh Military Airport (YPED) – 25 km (14 nm)

The 30 nm radius represents the 25 nm minimum sector altitude (MSA) for aerodromes with terminal instrument flight procedures. The 25 nm MSA is determined by assessing obstacles within 30 nm (25 nm plus 5 nm buffer) of the aerodrome reference point or navigational aid on which the MSA is based.

1.11. Adelaide Airport (YPAD)

Adelaide Airport (YPAD) is the closest certified aerodrome to the Project Site. It is operated by Adelaide Airport Limited (AAL). A check of Airservices Australia's Aeronautical Information Package (AIP) dated 20 March 2025 shows that airspace procedures are measured from the aerodrome reference point (ARP). The coordinates published in Airservices Australia's Designated Airspace Handbook (DAH) dated 28 November 2024, are as follows:

- ARP coordinates: Latitude 34°56'42"S and Longitude 138°31'50"E

According to En Route Supplementary Australia (ERSA) facilities information chart (FAC) for YPAD, Adelaide Airport has an aerodrome elevation of 6.1 m AHD (20 ft AMSL).

1.11.1. Obstacle Limitation Surface (OLS)

Adelaide Airport provides a map that shows the contours of the different OLS surfaces of Adelaide Airport in Adelaide Airport Master Plan 2019. The OLS surfaces of Adelaide Airport are designed to accommodate future upgrade needs.

Figure 6 Adelaide Airport OLS contours and project site

The Project Site is located within the Conical surface, as shown in Figure 6 (source: Google Earth, Adelaide Airport Master Plan 2019).

The height for the Conical surface is between 48.5 m AHD and 153.3 m AHD. The proposed building height is 178.85 m AHD, which will infringe on the conical surface. Consultation with Adelaide Airport will be required.

1.11.2. Instrument approach procedures

A check of the Aeronautical Information Package (AIP) via the Airservices Australia website showed that Adelaide Airport is served by precision and non-precision flight procedures (source: AsA, effective 20 March 2025).

Table 1 identifies the aerodrome and procedure charts for Adelaide Airport designed by Airservices Australia.

Table 1 Adelaide Airport (YPAD) aerodrome and procedure charts

Chart name (Procedure Designer)	*Effective date*
AERODROME CHART PAGE 1 (AsA)	25-March-2021 (Am 166)
AERODROME CHART PAGE 2 (AsA)	15 June 2023 (Am 175)
SID ADELAIDE FOUR DEPATURE (RADAR) (AsA)	17 June 2021 (Am 167)
SID ORBUN FIVE (JET) (RNAV) (AsA)	17 June 2021 (Am 167)
SID RWY EAST (JET) (RNAV) (AsA)	13 June 2024 (Am 179)
SID RWY WEST (JET) (RNAV) (AsA)	13 June 2024 (Am 179)
SID UPROT TWO (JET) (RNAV) (AsA)	28 November 2024 (Am 181)
DME OR GNSS ARRIVAL (AsA)	25-March-2021 (Am 166)
RNP Z RWY 05 (AsA)	28 November 2024 (Am 181)
RNP Y RWY 05 (AR) (AsA)	28 November 2024 (Am 181)
RNP X RWY 05 (AR) (AsA)	28 November 2024 (Am 181)
RNP W RWY 05 (AR) (AsA)	28 November 2024 (Am 181)
VOR RWY 05 (AsA)	28 November 2024 (Am 181)
RNP RWY 12 (AsA)	01 December 2022 (Am 173)
VOR RWY 12 (AsA)	24 March 2022 (Am 170)
RNP RWY 23 (AsA)	28 November 2024 (Am 181)
ILS-Y OR LOC-Y RWY 23 (AsA)	20 March 2025 (Am 182)
ILS-Z OR LOC-Z RWY 23 (AsA)	20 March 2025 (Am 182)
VOR RWY 23 (AsA)	13 June 2024 (Am 179)
RNP RWY 30 (AsA)	01 December 2022 (Am 173)
VOR RWY 30 (AsA)	24 March 2022 (AM 170)

1.11.3.PANS-OPS Surfaces

A detailed assessment of the PANS-OPS surfaces associated with the published instrument approach procedures was undertaken:

- MSA Surfaces
- IFR Circling Areas
- PANS-OPS Approach and Departure Procedure Surfaces.

MSA Surfaces

The minimum sector altitude (MSA) applies to each instrument approach procedure at Adelaide Airport. Images of the MSA published for the airport in AIP DAP are shown in Figure 7 (Source: Airservices Australia, 20 March 2025).

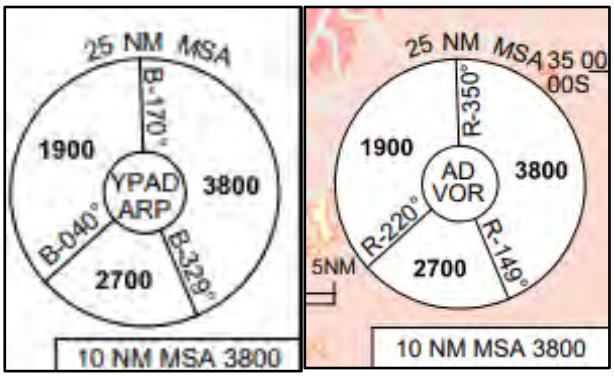


Figure 7 Adelaide Airport MSA

The CASR Part 173 Manual of Standards requires a minimum obstacle clearance (MOC) of 984 ft to be applied above the highest terrain or obstacle within the applicable segment.

Obstacles within the 10 nm and 25 nm MSA of Adelaide Airport's ARP or Airport's Very High-Frequency Omni-directional Range (VOR) define the minimum height at which an IFR aircraft can fly when within 10 nm and 25 nm of the airport when not in visual flight conditions.

The proposed project will be within Adelaide Airport's 10 nm and 25 nm MSA. The orange circle represents Adelaide Airport's 10 nm (10 nm MSA + 5 nm buffer area) and 25 nm MSA (25 nm MSA + 5 nm buffer area), as shown in Figure 8 (Source: Podia, Google Earth).

Figure 8 Adelaide Airport MSA

The 10 nm MSA minimum altitude is 1158 m AHD (3800 ft AMSL), and the PANS-OPS surface elevation is 858 m AHD (2816 ft AMSL).

The eastern sector of the 25 nm MSA's minimum altitude is 1158 m AHD (3800 ft AMSL), with a PANS-OPS surface elevation of 858 m AHD (2816 ft AMSL).

The northwestern sector of the 25 nm MSA's minimum altitude is 579 m AHD (1900 ft AMSL), with a PANS-OPS surface elevation of 279 m AHD (916 ft AMSL).

The southwestern sector of the 25 nm MSA's minimum altitude is 823 m AHD (2700 ft AMSL), with a PANS-OPS surface elevation of 523 m AHD (1716 ft AMSL).

A 5 nm buffer area will be applied to each sector boundary of the 25 nm MSA; therefore, the Project Site will be within all the 25 nm MSA sectors.

To avoid infringing on the MSA surfaces, the Project Site's maximum height (building height + the operation Crane height) should not exceed 279 m AHD (916 ft AMSL).

IFR Circling areas

A circling approach is an extension of an instrument approach to the specified circling minima (lowest altitude permitted without visual reference to the ground) at which point the pilot will visually manoeuvre the aircraft to align with the runway for landing. Typically, a circling approach is only conducted where there is no runway-aligned instrument procedure, or if the runway used for the approach procedure is not suitable for landing.

Circling areas are established by the instrument flight procedure designer based on ICAO specifications related to the performance category of the design aircraft. The circling area is determined by drawing an arc centred on the threshold of each usable runway and joining these arcs by tangents. The most demanding aircraft category provided for in Adelaide Airport's instrument flight procedures is Category D.

The radii for each relevant category of aircraft are provided below:

- Category A – 1.68 nm / 3.11 km
- Category B – 2.66 nm / 4.93 km
- Category C – 4.20 nm / 7.78 km
- Category D – 5.28 nm / 9.78 km

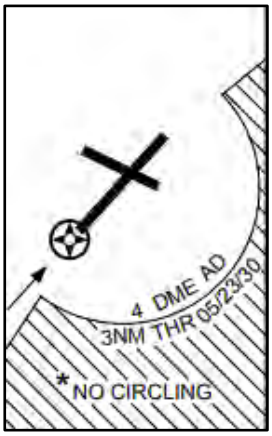


Figure 9 Circling operations of Adelaide Airport

There will be no circling beyond 3 nm from Runway 23's threshold, as shown in Figure 9 (source AsA). The Project Site is 3.1 nm / 5.8 km from Runway 23's threshold. Therefore, the Project Site will not impact circling areas established for instrument flight procedures.

PANS-OPS Approach and Departure Procedure Surfaces

A detailed assessment of the PANS-OPS surfaces associated with the published instrument approach procedures was undertaken. Table 2 Details the assessment for each instrument approach procedure.

The lowest protection surface limit for the departure procedure is 205 m AHD (673 ft AMSL). To avoid infringing on the MSA surfaces, the Project Site's maximum height (building height + the operation Crane height) should be lower than this.

Note that RTCC information on Adelaide Airport is not available to the public. Penetrations of the RTCC surface (by buildings and cranes) are not permitted, as the increased radar vectoring height would impact ATC's ability to radar vector aircraft and could adversely affect the regularity of operations. Consultation with Adelaide Airport will be required.

Table 2 Sydney Airport PANS-OPS Assessment

Instrument Approach Title	*Minimum Altitude over Project (ft AMSL)*	*PANS- OPS Surface (ft AMSL)*	*Project Site's maximum height (building height + the operation Crane height)*
SID ADELAIDE FOUR DEPATURE (RADAR) (AsA)	N/A	673	The Project Site will be within the departure surface. The maximum height should not exceed 205 m AHD (673 ft AMSL).
SID ORBUN FIVE (JET) (RNAV) (AsA)	N/A	673	The Project Site will be within the departure surface. The maximum height should not exceed 205 m AHD (673 ft AMSL).
SID RWY EAST (JET) (RNAV) (AsA)	N/A	903	The Project Site will be within the departure surface. The maximum height should not exceed 275 m AHD (903 ft AMSL).
SID RWY WEST (JET) (RNAV) (AsA)	N/A	673	The Project Site will be within the departure surface. The maximum height should not exceed 205 m AHD (673 ft AMSL).
SID UPROT TWO (JET) (RNAV) (AsA)	N/A	673	The Project Site will be within the departure surface. The maximum height should not exceed 205 m AHD (673 ft AMSL).
DME OR GNSS ARRIVAL Sector B (AsA)	1700	1454	The Project Site will be within the final approach surface. The maximum height should not exceed 443 m AHD (1454 ft AMSL).

Instrument Approach Title	*Minimum Altitude over Project (ft AMSL)*	*PANS- OPS Surface (ft AMSL)*	*Project Site's maximum height (building height + the operation Crane height)*
DME OR GNSS ARRIVAL Sector A and C(AsA)	N/A	N/A	Nil – outside
RNP Z RWY 05 (AsA)	934	773	The Project Site will be within the missed approach surface. The maximum height should not exceed 235 m AHD (773 ft AMSL).
RNP Y RWY 05 (AR) (AsA)	883	723	The Project Site will be within the missed approach surface. The maximum height should not exceed 220 m AHD (723 ft AMSL).
RNP X RWY 05 (AR) (AsA)	883	723	The Project Site will be within the missed approach surface. The maximum height should not exceed 220 m AHD (723 ft AMSL).
RNP W RWY 05 (AR) (AsA)	883	723	The Project Site will be within the missed approach surface. The maximum height should not exceed 220 m AHD (723 ft AMSL).
VOR RWY 05 (AsA)	877	808	The Project Site will be within the missed approach surface. The maximum height should not exceed 246 m AHD (808 ft AMSL).
RNP RWY 12 (AsA)	N/A	N/A	Nil – outside
VOR RWY 12 (AsA)	N/A	N/A	Nil – outside
RNP RWY 23 (AsA)	N/A	N/A	Nil – outside
ILS-Y OR LOC-Y RWY 23 (AsA)	N/A	773.3	The Project Site will be within the approach surface. The maximum height should not exceed 235 m AHD (773.3 ft AMSL).
ILS-Y OR LOC-Y RWY 23 (AsA)	N/A	773.3	The Project Site will be within the approach surface. The maximum height should not exceed 235 m AHD (773.3 ft AMSL).
VOR RWY 23 (AsA)	900	865	The Project Site will be within the secondary area of the final approach surface. The maximum height should not exceed 263 m AHD (865 ft AMSL).
RNP RWY 30 (AsA)	N/A	N/A	Nil – outside
VOR RWY 30 (AsA)	N/A	N/A	Nil – outside

1.12. Parafield Airport (YPPF)

Parafield Airport Limited operates Parafield Airport (YSBK). A check of AIP dated 20 March 2025 shows that airspace procedures are measured from the ARP. The coordinates published in Airservices Australia's DAH dated 28 November 2024 are as follows:

- ARP coordinates: Latitude 34°47'36"S and Longitude 138°37'59"E

According to ERSA FAC for YPPF, Parafield Airport's aerodrome elevation is 17.4 m AHD (57 ft AMSL).

1.12.1. OLS surfaces

Parafield Airport provides a map showing the contours of its different OLS surfaces in the Parafield Airport Master Plan 2024. The OLS surfaces of Parafield Airport are designed to accommodate future upgrade needs.

The Project Site is located outside the OLS surfaces, as shown in Figure 10 (source: Google Earth, Parafield Airport Master Plan 2024).

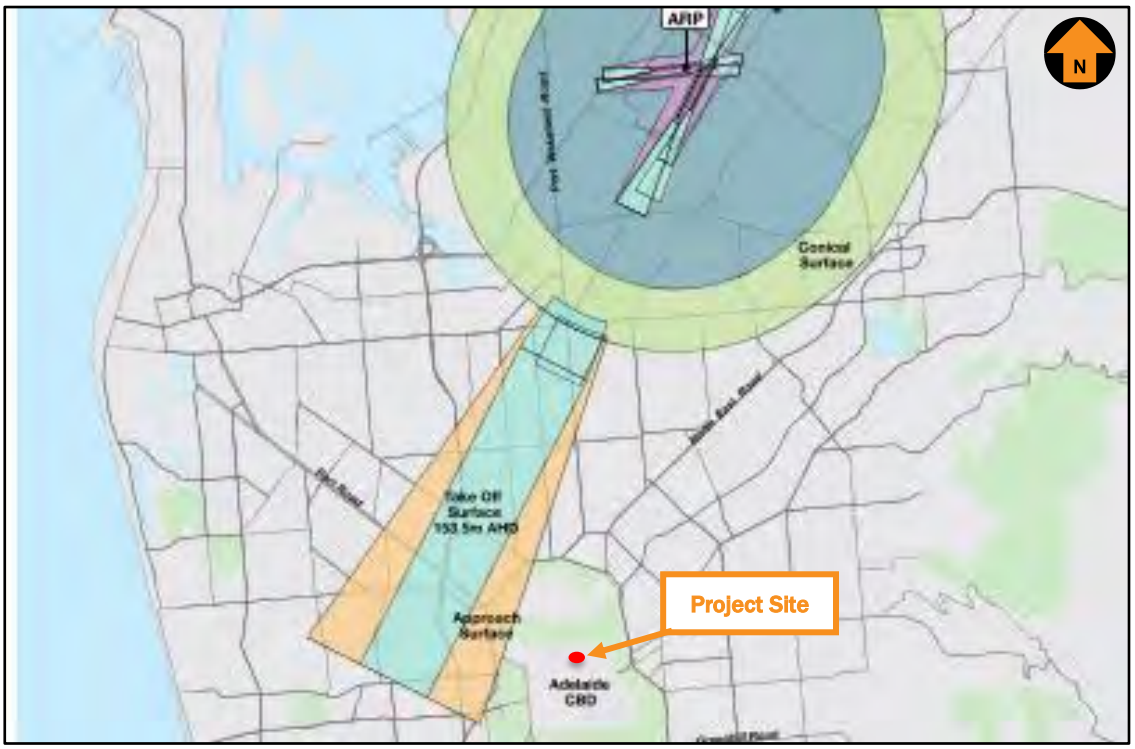


Figure 10 Adelaide Airport OLS contours and project site

1.12.2. Instrument procedures

A check of the AIP via the Airservices Australia website showed that Parafield Airport is served by non-precision flight procedures (source: AsA, effective 20 March 2025).

Table 3 identifies the aerodrome and procedure charts designed by Airservices Australia.

Table 3 Parafield Airport (YPPF) aerodrome and procedure charts

Chart name (Procedure Designer)	*Effective date*
AERODROME CHART PAGE 1 (AsA)	28 November 2024 (Am 181)
AERODROME CHART PAGE 2 (AsA)	28 November 2024 (Am 181)
SID PARAFIELD ONE DEPARTURE (RADAR) – RWY 03L/21R (AsA)	17 June 2021 (Am 167)
RNP RWY 21R (AsA)	23 March 2023 (Am 174)
NDB-Y RWY 21R (AsA)	25 March 2021 (Am 166)
NDB-Z RWY 21R (AsA)	28 November 2024 (Am 181)
VOR-A (AsA)	02 December 2021 (Am 169)

1.12.3.PANS-OPS Surfaces

A detailed assessment of the PANS-OPS surfaces associated with the published instrument approach procedures, including MSA surfaces, IFR Circling areas, and PAN-OPS Approach and Departure Procedure surfaces, was undertaken.

MSA Surfaces

Images of the MSA published for Parafield Airport are shown in Figure 11 (Source: Airservices Australia, 20 March,2025).

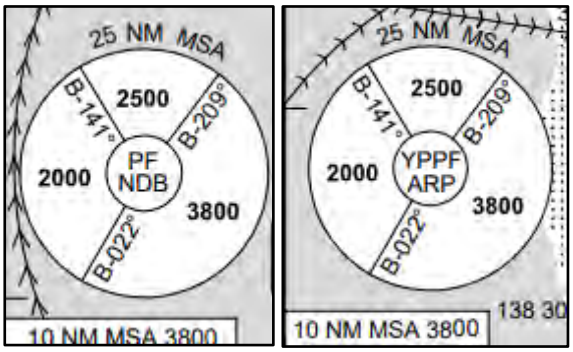


Figure 11 Parafield Airport MSA

The proposed project will be within Parafield Airport's 10 nm and 25 nm MSA. The orange circle represents Adelaide Airport's 10 nm (10 nm MSA + 5 nm buffer area) and 25 nm MSA (25 nm MSA + 5 nm buffer area), as shown in Figure 12 (Source: Podia, Google Earth).

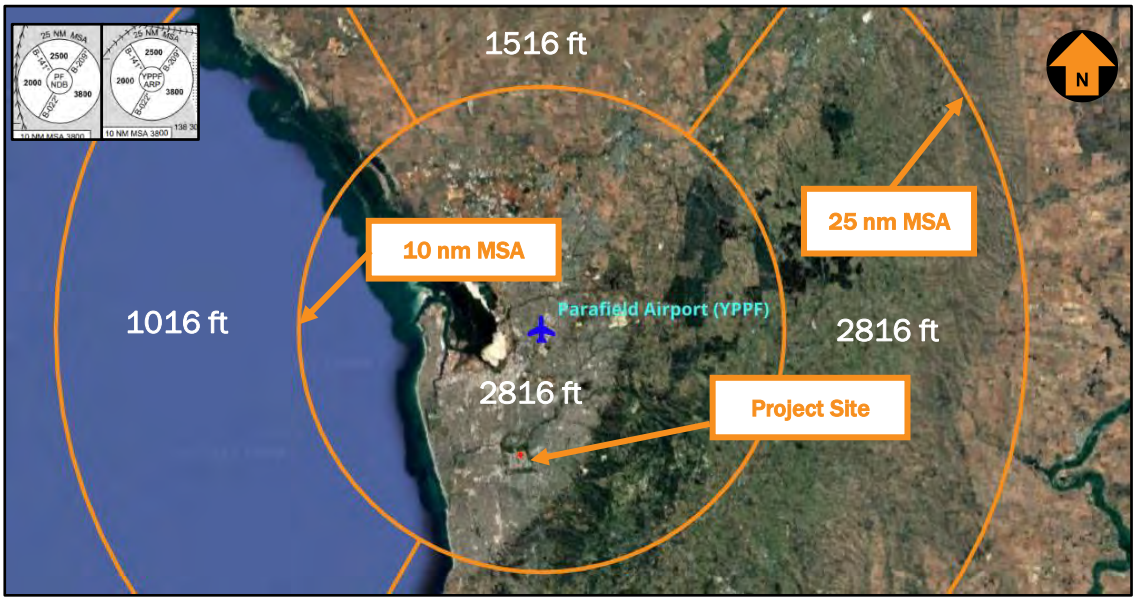


Figure 12 Parafield Airport MSA in relation to the Project Site

The 10 nm MSA minimum altitude is 1158 m AHD (3800 ft AMSL), and the PANS-OPS surface elevation is 858 m AHD (2816 ft AMSL).

The eastern sector of the 25 nm MSA's minimum altitude is 1158 m AHD (3800 ft AMSL), with a PANS-OPS surface elevation of 858 m AHD (2816 ft AMSL).

The northern sector of the 25 nm MSA's minimum altitude is 762 m AHD (2500 ft AMSL), with a PANS-OPS surface elevation of 462 m AHD (1516 ft AMSL).

The western sector of the 25 nm MSA's minimum altitude is 609 m AHD (2000 ft AMSL), with a PANS-OPS surface elevation of 309 m AHD (1016 ft AMSL).

A 5 nm buffer area will be applied to each sector boundary of the 25 nm MSA; therefore, the Project Site will be within the eastern and western 25 nm MSA sectors.

To avoid infringing on the MSA surfaces, the Project Site's maximum height (building height + the operation Crane height) should not exceed 309 m AHD (1016 ft AMSL).

IFR Circling areas

Category B is the most demanding aircraft category provided for instrument flight procedures. Its radius is 2.66 nm / 4.93 km.

The Project is located 7.2 nm / 13.3 km from Parafield Airport and is outside the airport's Circling surfaces.

PANS-OPS Approach and Departure Procedure Surfaces

A detailed assessment of the PANS-OPS surfaces associated with the published instrument approach procedures was undertaken.

The Project Site is located outside all PANS_OPS surfaces, as shown in Figure 13 (source: Google Earth, Parafield Airport Master Plan 2024). Therefore, it will not impact Parafield's departure and approach procedures.

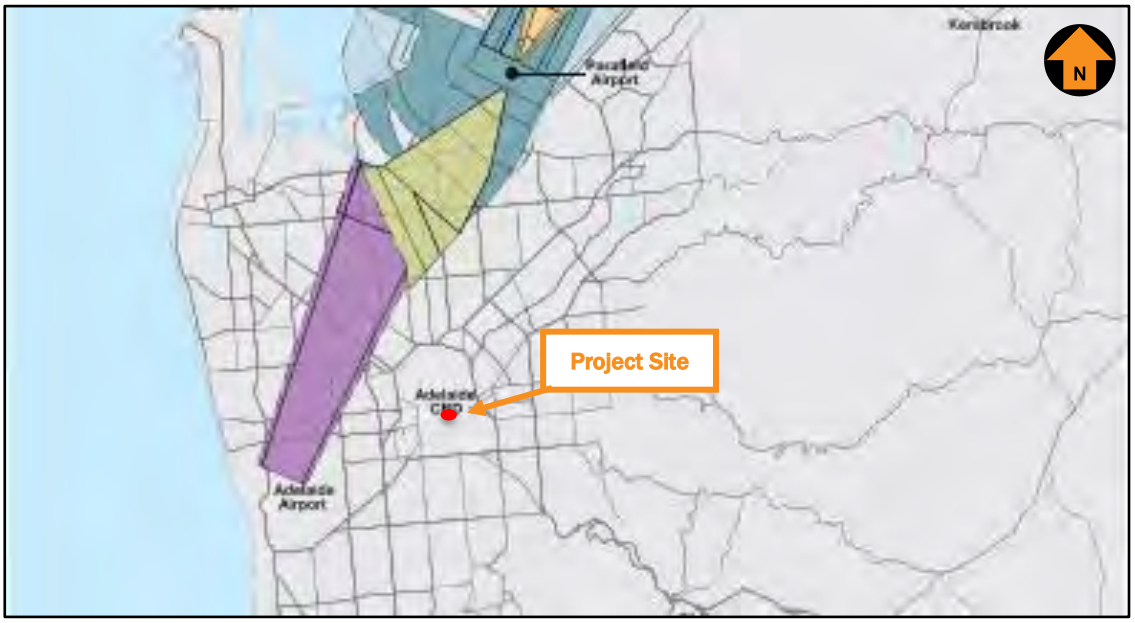


Figure 13 Adelaide Airport PANS-OPS surfaces and Project Site

1.13. RAAF Edinburgh Military Airport (YPED)

RAAF Edinburgh Military Airport (YPED) is operated by the Royal Australian Air Force (RAAF), Airbase Operations Centre – RAAF Base Edinburgh. SA.

A check of AIP, dated 20 March 2025, shows that airspace procedures are measured from the ARP. The coordinates published in Airservices Australia's DAH dated 28 November 2024 are as follows:

- ARP coordinates: Latitude 34°42'09"S and Longitude 138°37'15"E

According to ERSA FAC, the airport's aerodrome elevation is 20.4 m AHD (67 ft AMSL).

1.13.1.OLS surfaces

The maximum lateral extent of the OLS is up to 6 km for the conical surface and 15 km for the take-off and approach surfaces.

The closest point of the building is 25 km away from Edinburgh Airport, outside the Airport's OLS.

1.13.2.Instrument approach procedures

A check of the AIP via the Airservices Australia website and Australian Defence Force Flight Information Publication (TERMINAL) showed that RAAF Edinburgh Airport is served by precision and non-precision flight procedures (source: AsA, effective 20 March 2025).

Table 4 Identifies the aerodrome and procedure charts for Edinburgh Airport designed by Airservices Australia and RAAF.

Table 4 Edinburgh Airport (YPED) aerodrome and procedure charts

Chart name (Procedure Designer)	*Effective date*
AERODROME CHART PAGE 1 (AsA)	20 March 2025 (Am 182)
AERODROME CHART PAGE 2 (AsA)	28 November 2024 (Am 181)
ILS-Z OR LOC-Z RWY 18 (AsA)	28 November 2024 (Am 181)
SID (RADAR) ALL RWYS (RAAF)	23 March 2023
SID RWY 18/36 (RAAF)	23 March 2023
ILS-Y OR LOC-Y RWY 18 UISING EDN TACAN OR IED DME (RAAF)	21 March 2024
ARA RWY 18 (RAAF)	20 March 2025
TACAN RWY 18 (RAAF)	23 March 2023
RNP RWY 18 (RAAF)	15 June 2023

1.13.3.PANS-OPS Surfaces

A detailed assessment of the PANS-OPS surfaces associated with the published instrument approach procedures, including MSA surfaces, IFR Circling areas, and PAN-OPS Approach and Departure Procedure surfaces, was undertaken.

MSA Surfaces

Images of the MSA published for RAAF Edinburgh Airport in AIP DAP is shown in Figure 14 (Source: Airservices Australia and RAAF).

The proposed project will be within RAAF Edinburgh Airport's 10 nm and 25 nm MSA. A 5 nm buffer area will be applied to each sector boundary of the 25 nm MSA; therefore, the Project Site will be within the southeastern and southwestern 25 nm MSA sectors.

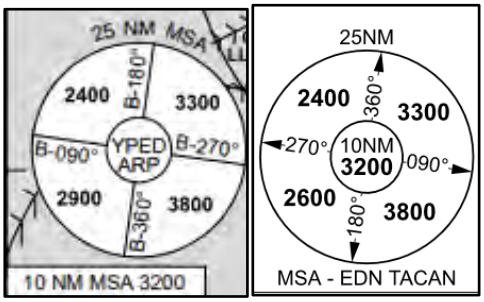


Figure 14 MSA at RAFF Edinburgh Airport

The 10 nm MSA minimum altitude is 976 m AHD (3200 ft AMSL), and the PANS-OPS surface elevation is 676 m AHD (2216 ft AMSL).

The southeastern sector of the 25 nm MSA's minimum altitude is 1158 m AHD (3800 ft AMSL), with a PANS-OPS surface elevation of 858 m AHD (2816 ft AMSL).

The southwestern sector of the 25 nm MSA's minimum altitude is 884 m AHD (2900 ft AMSL), with a PANS-OPS surface elevation of 584 m AHD (1916 ft AMSL).

To avoid infringing on the MSA surfaces, the Project Site's maximum height (building height + the operation Crane height) should not exceed 584 m AHD (1916 ft AMSL).

IFR Circling Areas

Category D is the most demanding aircraft category provided for the instrument flight procedures. Its radii are 9.78 km (5.28 nm).

The Project is located 24.5 km from Edinburgh Airport and outside the Circling area.

PANS-OPS Approach and Departure Procedure Surfaces.

A detailed assessment of the PANS-OPS surfaces associated with the published instrument approach and SID Departure procedures was undertaken. The Project will be outside all the procedures' protection surfaces

1.14. Grid and Air routes LSALT

CASR Part 173 MOS requires that the published lowest safe altitude (LSALT) for a particular airspace grid or air route provides a minimum of 1000 ft clearance above the controlling (highest) obstacle within the relevant airspace grid or air route tolerances.

1.14.1.Grid LSALT

The project site is located within an airspace grid with a LSALT of 3900 ft AMSL, which provides clearance above obstacles with heights up to 2900 ft AMSL.

Figure 15 provides the Grid LSALT in proximity to the project site (source: ERC Low National, OzRunways, March 2025, Google Earth).

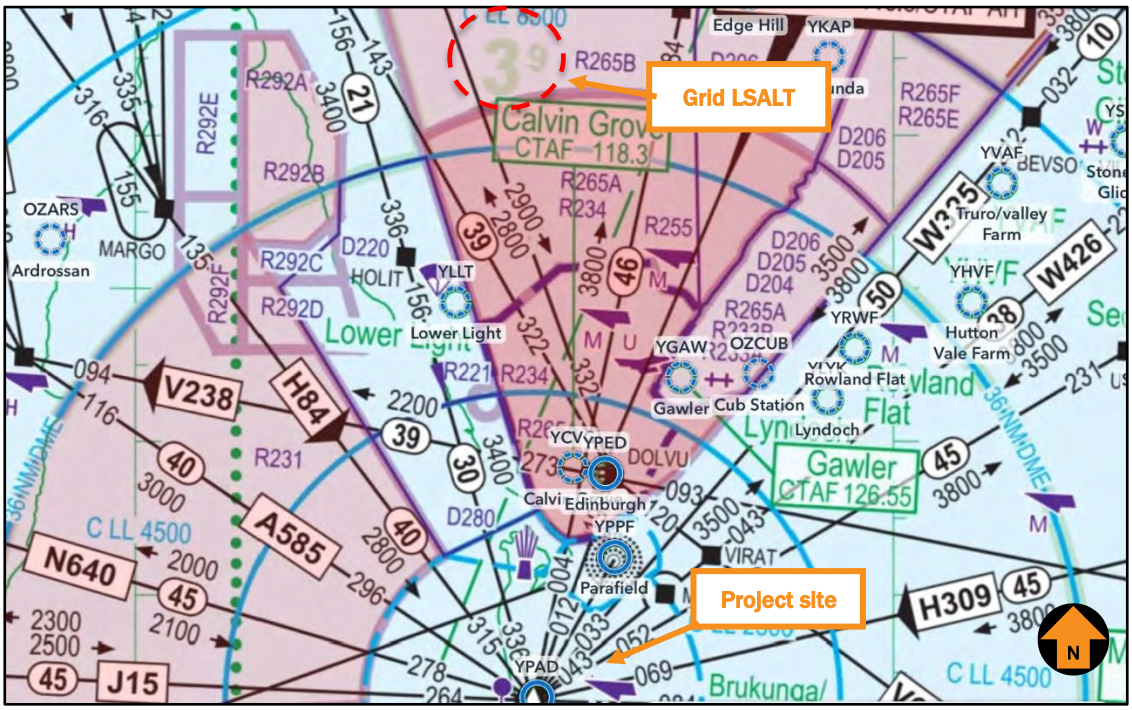


Figure 15 Grid LSALT in proximity to the Project Site

To avoid infringing on the Grid LSALT, the Project Site's maximum height (building height + the operation Crane height) should not exceed 884 m AHD (2900 ft AMSL).

1.14.2.Air Route LSALTs

A protection area of 7 nm laterally either side of an air route is used to assess the LSALT for the air route.

There are few air routes within 7 nm of the project site. To avoid infringing on the Air Route LSALT, the Project Site's maximum height (building height + the operation Crane height) should not exceed 762 m AHD (2500 ft AMSL).

1.15. Airspace Protection

The project site is located outside controlled airspace, wholly within Class G. It is not located in any prohibited restricted areas or Danger areas.

Therefore, the Project Site will not impact controlled or designated airspace.

1.16. Aviation facilities

The proposed Project Site is located a sufficient distance away from nearby certified airports and aviation facilities and will not have an impact.

1.17. ATC Surveillance Radar installations

Airservices Australia currently requires an assessment of the potential for a development site to affect radar lines of sight.

With respect to aviation radar facilities, the following facilities are referenced:

- Adelaide Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR) - approximately 7.8 km southwest of the project
- Summertown Air Route Surveillance Radar (RSR) - approximately 11 km east of the project.

The project is unlikely to have an impact upon either ATC radar system.

1.18. Guideline C: Managing the risk of wildlife in vicinity of airport

The proposed Project Site should not increase the risk of wildlife strikes at airports. Based on National Airports Safeguarding Framework Guideline C: Managing the risk of wildlife strikes in the vicinity of Airports, land uses that present a risk of attracting wildlife should be controlled (and mitigated) within 3 km, 8 km and 13 km of an airport as shown in Figure 16 (Source: Guideline C- November 2023).

Wildlife Hazard Management Action Table **Attachment 1**

Land use types	Likely attractants ▲ natural elements ■ structural elements ● waste and food	Wildlife attraction risk	Actions for existing development and land uses in wildlife management areas			Actions for new and changed development and land uses in wildlife management areas		
			0-3 km (Area A)	3-8 km (Area B)	8-13 km (Area C)	0-3 km (Area A)	3-8 km (Area B)	8-13 km (Area C)
Agriculture								
Turf farm, piggery, abattoir, aquaculture	▲ ■ ●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Fruit tree farm/orchard	▲ ■ ●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Fish processing/packing plant	▲ ■ ●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Farm (cattle, dairy, poultry, crops)	▲ ■ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Horticulture, viticulture, market farms/gardens	▲ ■ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Forestry	▲ ●	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Plant nursery	▲ ■ ●	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Conservation								
Wildlife/conservation area - wetland, waterways	▲	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Wildlife/conservation area - dryland	▲	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Recreation								
Significant open water (ancillary to development)	▲	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Showground	▲ ■ ●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Significant landscaped space (ancillary to development)	▲	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Golf course	▲ ■ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Park, playground	▲ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Picnic areas, camping ground	▲ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Racetrack, horse riding school	▲ ■ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Sports facility (tennis, bowls, football fields)	▲ ■ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Commercial								
Food processing or storage facility	■ ●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Fast food, drive-in, outdoor restaurant	■ ●	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Shopping centre	■ ●	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Warehouse (food storage)	■ ●	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Car park	■ ●	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Cinemas	■ ●	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Hotel/motel	■ ●	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Office building	■ ●	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Petrol station	■ ●	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Warehouse (non-food storage)	■ ●	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Utilities								
Food / organic waste facility	■ ●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Putrescible waste facility - landfill	●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Putrescible waste facility - transfer station	■ ●	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Water infrastructure (drains, channels, basins)	▲	High	Mitigate	Mitigate	Monitor	Mitigate	Mitigate	Monitor
Non-putrescible waste facility - landfill	●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Non-putrescible waste facility - transfer station	■ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Sewage / wastewater treatment facility	■ ●	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Potable water treatment facility	▲ ■	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action

Figure 16 Wildlife Control Zones and Mitigations

As shown in Figure 17, the Project Site is within Area B. Specifically in Guideline C, Commercial is listed as a "low" or 'very low' risk and requirement to 'Monitor' or "No Action" within Area B, unless it is "food processing or storage facility" and the requirement to "Mitigate".

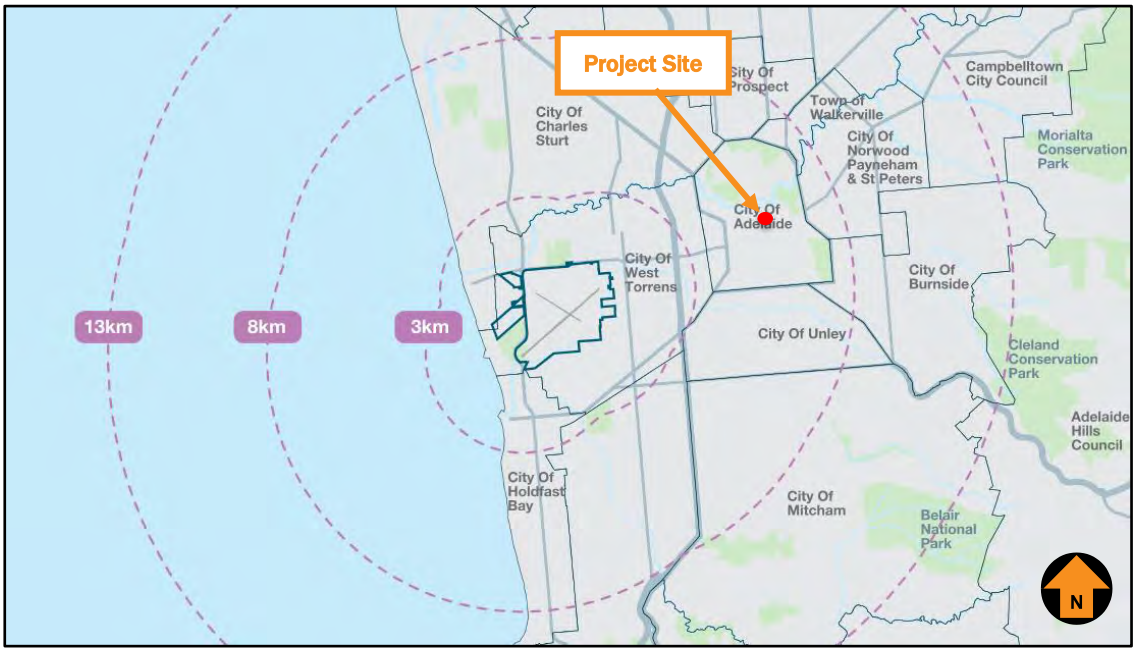


Figure 17 Wildlife Control Zones related to Adelaide Airport

1.19. Guideline H: Protecting Strategically Important Helicopter Landing Sites (HLS)

The purpose of Guideline H is to protect important Helicopter Landing Sites (HLS) from infringements. An HLS is a specific nominated area (not located on an aerodrome) wholly or partly used for the arrival or departure of helicopters for strategically important purposes

Any development that exceeds the heights shown in Figure 18, which is consistent with the highest level of HLS classification (Performance Class 1), must be referred to the asset owner and CASA.

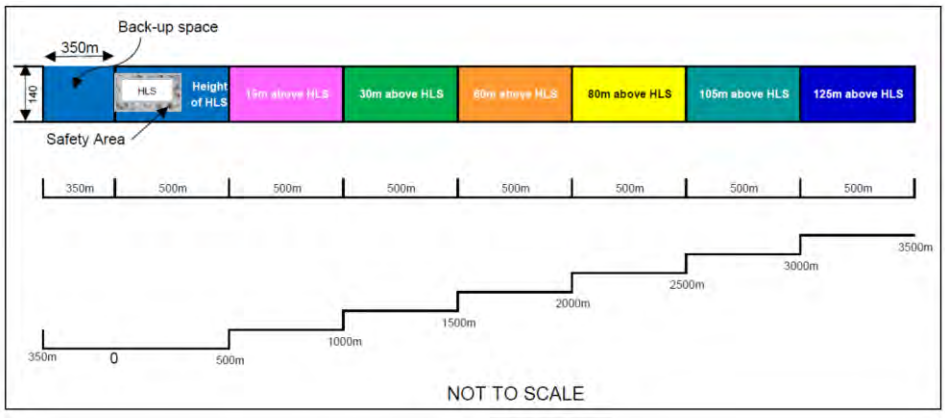


Figure 18 Referral Trigger for SHLS

The New Royal Adelaide Hospital Rooftop HLS (YXAA) is approximately 1.5 km from the Project Site. Although there is no public information about the HLS's operation, based on preliminary analysis, the Project Site will be located outside of the YXAA HLS's flight path.

1.20. Summary

Following a high-level evaluation of aviation operation aspects of the Project, Aviation Projects has concluded that:

- The proposed site has the following characteristics:
    - Building Height: The top of the parapet is 175.850 AHD.
    - Detailed construction schedule: The project is slated as a 27 month construction timeframe. At this early stage we do not have a detailed construction programme. It is anticipated that the crane will be at maximum height for the final 18 months of construction.
- The project development:
    - Will be within 30 nm of two (2) certificated airports and one (1) military airport:
        - Adelaide Airport (YPAD) - 7 km (3.8 nm)
        - Adelaide / Parafield Airport (YPPF) – 15 km (8 nm)
        - RAAF Edinburgh Military Airport (YPED)

    Adelaide Airport:

        - Would infringe OLS surface – Conical Surface
        - To avoid infringing on the MSA surfaces, the Project Site's maximum height (building height + the operation Crane height) should not exceed 279 m AHD (916 ft AMSL).
        - Would not infringe Circling areas
        - The lowest PANS-OPS protection surface limit is 205 m AHD (673 ft AMSL) and it is for the departure procedure. To avoid infringing on the MSA surfaces, the Project Site's maximum height (building height + the operation Crane height) should be lower than it
        - RTCC information on Adelaide Airport is not available to the public. Penetrations of the RTCC surface (by buildings and cranes) are not permitted, as the increased radar vectoring height would impact ATC's ability to radar vector aircraft and could adversely affect the regularity of operations. Consultation with Adelaide Airport will be required.

    Rest Airports (Parafield Airport and RAFF Edinburgh Military Airport):

        i. Would not infringe on OLS surface
        ii. Would not infringe on Circling areas
        iii. To avoid infringing on the Parafield Airport's MSA surfaces, the Project Site's maximum height (building height + the operation Crane height) should not exceed 309 m AHD (1016 ft AMSL)
        iv. To avoid infringing on the RAAF Edinburgh Military Airport's MSA surface, the maximum building height (building height + the operation Crane height) should not exceed 584 m AHD (1916 ft AMSL).

v. Would not infringe the obstacle clearance heights applicable to any of the instrument procedures

- To avoid infringing on the Grid LSALT, the Project Site's maximum height (building height + the operation Crane height) should not exceed 884 m AHD (2900 ft AMSL).
- To avoid infringing on the Grid LSALT, the Project Site's maximum height (building height + the operation Crane height) should not exceed 762 m AHD (2500 ft AMSL).
- Would not impact controlled or designated airspace.
- Would not impact any aviation navigation facilities.
- Would unlikely to have an impact upon either ATC radar system.
- Would not impact HLS operations based on preliminary analysis.
- Would be within Aera B of the wildlife zone at Adelaide Airport. The commercial is listed as a "low" or 'very low' risk and requirement to 'Monitor' or "No Action" within Area B unless it is a "food processing or storage facility" and the requirement to "Mitigate".

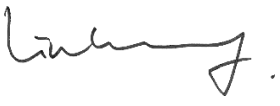
1.21. Recommendation

- The Construction Methodology will need to demonstrate that the maximum Crane height site below 205 m AHD (based on available public information).

  Noting that the proposed building height is 175.85 metres AHD this allows reasonable airspace for a construction crane to operate on the subject site.
- A Detailed evaluation of the construction methodology and crane operation will be required when available.
- Subject to a final full AIA report, consultation with Adelaide Airport, AsA, CASA and the Department of Defence will be required.
- Long-term controlled activities penetrating the OLS are referred by the airport to the Department for a decision after consultation with CASA, Airservices and the relevant building authority

If you wish to clarify or discuss the contents of this correspondence, please contact me on 0433 747 835.

Kind regards



Lyn Wang

Aviation Specialist Consultant

26 March 2025