AVIATION IMPACT ASSESSMENT

Sydney Automated Distribution Centre, 475 Badgerys Creek Road, Bradfield

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ALDI Foods Pty Ltd

L+R AIRPORT CONSULTING

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Revision	Date	Description	Author	Verifier	Approver
0	17.12.2024	DRAFT	BMW	BJH	BJH
1	18.12.2024	FINAL	BMW	BJH	BJH
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EXECUTIVE SUMMARY

This Aviation Impact Assessment (AIA) has been prepared by L+R Airport Consulting to accompany a detailed State Significant Development Application (**SSDA**) for the construction of a warehouse or distribution facility (as defined), referred to throughout this report as an automated distribution facility (**ADC**).

The land to which this report relates is referred to as 475 Badgerys Creek Road, Bradfield, which has direct interface with the Western Sydney International Airport (WSI), legally described as Lot 100 in DP 1287207. It is noted that the ADC will be located on future lots within the 475 Badgerys Creek Road landholding. For the purpose of this Report, reference to 'the site' will relate primarily to the area within the broader lot proposed to be developed for the ADC, unless otherwise specified.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-76913969). Specifically, this report has been prepared to respond to the SEARs requirement for Airport Safeguarding.

The methodology undertaken to assess the project proposal against airport safeguarding measures involves review of the publicly available information for WSI airport safeguarding. This includes the:

- NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Part 4.3 *Development controls – Airport safeguards*;
- WSI online aviation safeguarding mapping tool; and
- National Airports Safeguarding Framework guidelines.

This AIA concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures:

- Australian Standard AS2021:2015 *Acoustics - Aircraft noise intrusion - Building siting and construction* should be used to ensure indoor design sound levels within the office spaces are as per AS2021:2015 Table 3.3 (refer Appendix A).
- Action plans for wildlife hazard 'monitoring' are to be agreed between the airport operator and landowner and could include:
  - Regular monitoring surveys;
  - Wildlife hazard assessment by qualified ornithologists or biologists;
  - Wildlife awareness and management training for relevant staff;
  - Establishment of bird population triggers;
  - Implementation of activities to reduce hazardous bird populations; and
  - Adoption of wildlife deterrent technologies to reduce hazardous bird populations.
- Lights are not installed which may cause confusion, distraction or glare to pilots in the air;
- The ADC maximum elevation does not exceed 111 m AHD, including any roof top plant, equipment, antennas or exhaust plumes in excess of 4.3 m/s, without additional assessment; and
- Construction equipment and methodologies are assessed for any penetrations of prescribed airspace and controlled activity approvals are sought where required under the Airports (Protection of Airspace) Regulations 1996 (Cth).

1. INTRODUCTION

This report has been prepared to accompany an SSDA for the construction of a warehouse or distribution facility (as defined) for ALDI Foods Pty Ltd (**ALDI**), at 475 Badgerys Creek Road, Bradfield, properly described as Lot 100 in DP 1287207 (**the site**).

As the proposal has an estimated development cost (**EDC**) of more than $30 million, the proposed development is State Significant Development (**SSD**) pursuant to Clause 29 of Schedule 1 of State Environmental Planning Policy (Planning Systems) 2021 (**Planning Systems SEPP**). The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the SSDA and this application is lodged with the NSW Department of Planning, Housing and Infrastructure (DPHI) for assessment.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (**SEARs**) 8 November 2024 and issued for the SSD-76913969. Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Item	Description of Requirement	Section reference
Airport Safeguarding	An aviation impact assessment including:	
	– an assessment of the potential impact of the proposed development on the Western Sydney International (Nancy-Bird Walton) Airport operations	Refer to Section 5.0 – 10.0 and 12.0 - 13.0
	– a wildlife hazard assessment, wildlife management plan and a lighting plan	Refer to Section 7.0
	consideration of related matters in the *Aviation Safeguarding Guidelines – Western Sydney Aerotropolis and surrounding areas*, Western Parkland City SEPP and the National Airports Safeguarding Framework, including (but not limit to) public safety, wildlife hazards, lighting, wind shear and the prescribed airspace.	Refer to Section 5.0 – 13.0

An aeronautical impact assessment was completed in November 2023 by Landrum & Brown (L&B Report), which addressed the Ingham Property Group (IPG) Master Plan for the site at 475 Badgerys Breek Road Bradfield. The L&B Report was prepared to indicate the maximum building height above Australian Height Datum (AHD) that can be constructed within the context of the Master Plan developed at that time. The L&B Report states that when details for specific lots within the Master Plan become available the plans are to be reviewed against the parameters within the L&B Report.

L+R Airport Consulting, has prepared a specific aviation impact assessment for the construction of a warehouse or distribution facility for ALDI at the site. L+R Airport Consulting is the specialist aviation division of the Lambert & Rehbein (L+R) group, a 100% Australian owned and operated, multi-disciplinary consultancy offering services in the aviation, civil, structural, traffic, environmental, project management, and infrastructure sectors. We have been providing airport owners and operators, airlines, government

agencies, construction companies, property developers and other consultants with a range of specialist aviation consulting services since 1992. Our key team members for the project include:

Ben Hargreaves – National Manager, Aviation

- Master of Science, Airport Planning and Management – Loughborough University (UK), 2005
- MIEAust, CPEng
- Chartered Member of the Institution of Engineers – C.Eng MICE, 2001
- Masters of Engineering (Civil) – Durham University (UK), 1997

Ben is a professionally qualified civil engineer and airport planner with 25 years' experience, including over 20 years specialising within the airports sector. He has considerable expertise in this field gained through numerous airport planning and development studies, in Europe, the Middle East and Australasia. In 2005, he completed a postgraduate Master of Science in Airport Planning and Management.

Since joining L+R Airport Consulting in September 2005, Ben has contributed to and managed a wide range of airport feasibility, master planning and design studies. He has a thorough understanding of aviation technical and operational considerations and recognised expertise in aerodrome standards, airport safeguarding and airspace matters.

Bridget Wouts – Principal Consultant

- Member of the Planning Institute of Australia (MPIA)
- Master of Community Planning and Development, La Trobe University, 2013
- Bachelor of Arts (Geography), University of Calgary, Canada 1999
- Commercial Pilot, Flight Instructor, Calgary, Canada 1996

Bridget is an aviation industry professional with a broad range of experience, from flight training instruction to regional airport management.

As manager of Bendigo Airport between 2009 and 2014 Bridget was responsible for project managing a major redevelopment including securing funding, design, property acquisition, planning scheme amendments and environmental approvals for a new Code 3C runway.

Since joining L+R Airport Consulting in 2016, Bridget has worked on numerous airport safeguarding assessments and master planning and development studies.

As a qualified planner she is focussed on integrating aviation safety and urban development in a compatible way.

2. SITE DESCRIPTION

The land to which this Report relates is referred to as 475 Badgerys Creek Road, Bradfield, properly described as Lot 100 in DP 1287207, which has direct interface with the Western Sydney International Airport (WSI). It is noted that the ADC will be located on future lots within the 475 Badgerys Creek Road landholding.

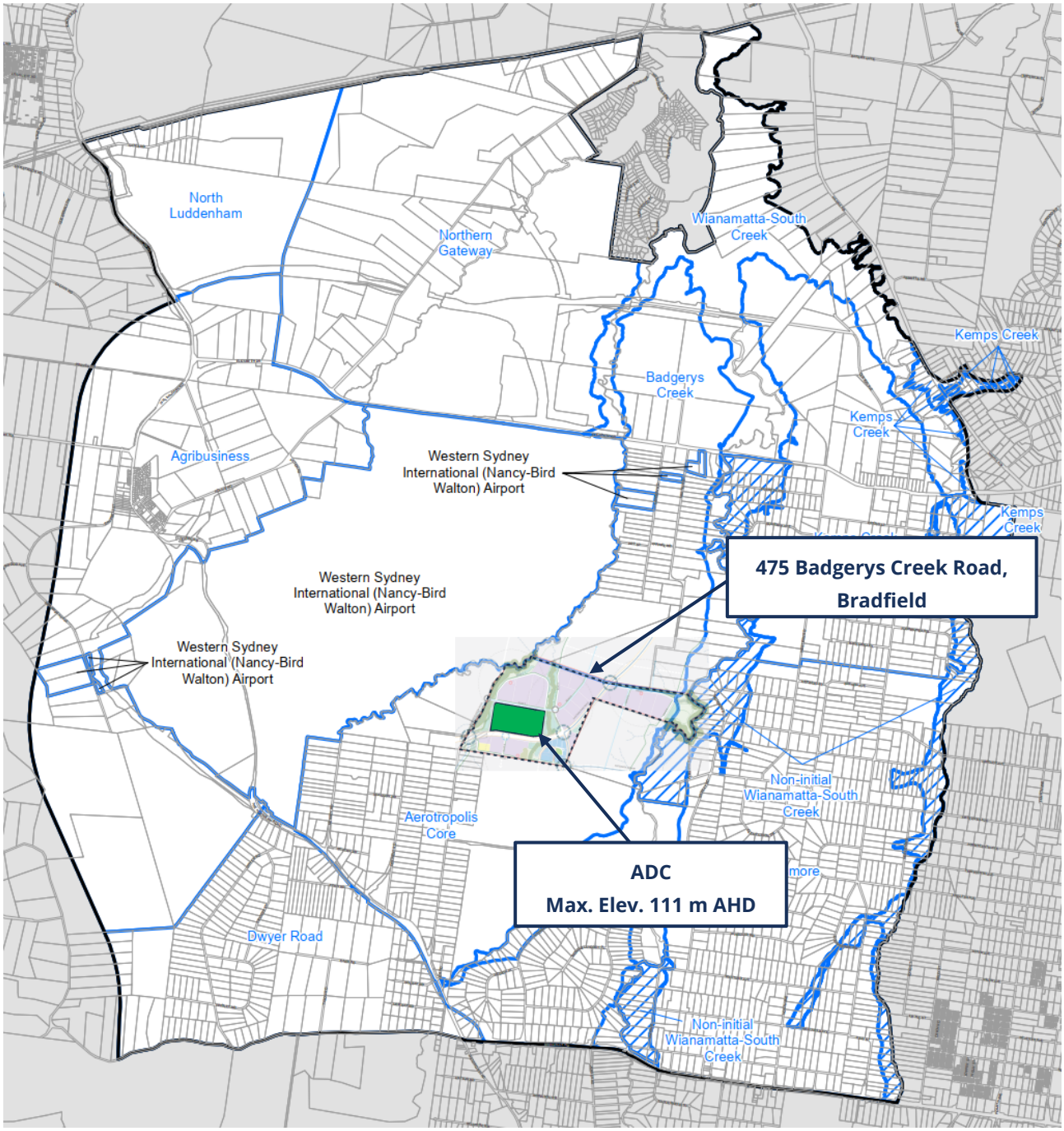
The development is located on lots which are not yet formally registered. The lots are located within a broader parcel of land known as 475 Badgerys Creek Road, Bradfield.

Broader site comprises approximately 184 hectares, however the site proposed to accommodate the ADC is approximately 220,827sqm.

The site was formerly used for intensive poultry farming operated by current landowner Ingham Property Group (IPG) and is characterised by a series of now demolished sheds and ancillary structures. There is also an internal road network within the site which had connected the sheds and ancillary structures dispersed across the site.

The ADC is situated within the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Aerotropolis boundary as shown in **Figure 1** below.

Figure 1: Aerotropolis Boundary



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Aerotropolis Boundary Map

3. PROJECT DESCRIPTION

It is ALDI's intention to construct and operate a new ADC within a portion of the IPG site. The ADC will supply over 200 ALDI stores in NSW with daily goods and have capacity to service future expansion of the store network.

The proposed ADC will comprise of a combination of temperature zones (including ambient, chilled & freezer zones) for the safe storage and distribution of goods. The facility will be highly automated with approximately 80% of the internal processes being performed unmanned. The facility will have a footprint of approximately 90,827 sqm and at the highest point will have a height of approx. 42m above ground. Further project specifics are provided in **Table 1** below.

Table 1: Project Specifications

Key Element	Proposal
Defined Use	Warehouse or distribution facility
Site Area (approx.)	220,827sqm
Building Height	24m with two 42m 'high bay' components
Warehouse GLA	106,706 sqm
Site Coverage	41.1%
Landscaped Area	15.0%
Car Parking	408
Staff	Warehouse: 510 people (split across 3 shifts. Main Office: 75 Office plus ancillary spaces. 350 - maximum on-site at one time.
Truck Movements	Total vehicle movements p/day: 3,980 movements Light vehicle movements p/day: 1,844 movements Heavy Vehicle movement p/day: 2,136 movements
Hours of Operation	24 hours a day, 7 days a week

4. ASSESSMENT METHODOLOGY

The ADC has been assessed against airport safeguarding measures as are publicly available for WSI airport safeguarding. This assessment is a desktop assessment only and includes review against the following frameworks.

- NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Part 4.3 *Development controls – Airport safeguards*;
- WSI online aviation safeguarding mapping tool; and
- National Airports Safeguarding Framework guidelines.

As the lots within 475 Badgerys Creek Road, Bradfield are not yet formally registered the positioning of the ADC within the site is approximate only.

4.1. NSW State Environment Planning Policy

The NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Part 4 sets out the land use and planning controls for the area surrounding the Airport knows as Western Sydney Aerotropolis.

The NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (SEPP) *Part 4.3 Development controls – Airport safeguards* contain development controls that relate to WSI. The development controls for Airport safeguards are shown on maps which can be accessed through the NSW ePlanning Spatial Viewer[1].

The ADC has been assessed against each development control as per the maps available.

4.2. WSI Airport Safeguarding Tool

WSI has also developed an online aviation safeguarding mapping tool which interprets some of the planning protection overlays referred to in the SEPP and can be accessed at https://westernsydney.com.au/your-airport/airport-safeguarding-tool. These controls include:

- Obstacle limitation surfaces (OLS);
- ANEC noise contours;
- Windshear assessment zone;
- Wildlife buffer zones;
- Wind turbines;
- Lighting;
- Airspace operations; and
- Public safety area.

[1] https://www.planningportal.nsw.gov.au/spatialviewer/

4.3. National Airports Safeguarding Framework

The National Airports Safeguarding Framework (NASF) is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms; and
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety related issues.

The National Airports Safeguarding Advisory Group (NASAG), comprising of Commonwealth, State and Territory Government planning and transport officials, the Australia Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA), has developed the National Airports Safeguarding Framework.

Commonwealth, State and Territory Ministers considered NASF at the Standing Council on Transport and Infrastructure meeting on 18 May 2012. Ministers agreed to the NASF, noting reservations from New South Wales on the format of Guideline A on measures for managing impacts of aircraft noise. The agreement represents a collective commitment from Governments to ensure that an appropriate balance is maintained between the social, economic and environmental needs of the community and the effective use of airport sites.

All NASF Guidelines can be found at www.infrastructure.gov.au The NASF currently consists of a set of nine (9) guidelines, Guideline A through to I.

All guidelines are relevant to the proposed ADC with the exception of Guideline D *Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation*. This guideline provides guidance to State/Territory and local government decision makers, airport operators and developers of wind farms to jointly address the risk to civil aviation arising from development, presence and use of wind farms and wind monitoring towers. The project description as above in **Section 3** do not include the installation of any wind turbines or wind monitoring towers.

5. AIRCRAFT NOISE

5.1. SEPP

The State Environmental Planning Policy (SEPP) (Precincts – Western Parkland City) 2021 includes aircraft noise under Part 4.3 *Development controls – Airport safeguards*. The objectives of this section are to:

- Prevent certain noise sensitive development on land near the Airport;
- Minimise the impact of aircraft noise for other noise sensitive development; and
- Ensure that land use and development near the Airport do not hinder the 24 hour a day operation of the Airport.

The ADC lies within the WSI Australian Noise Exposure Concept (ANEC) as illustrated on **Figure 2** below. In accordance with the SEPP Section 4.17 (2) *development consent must not be grated to noise sensitive development if the development is to be located on land that is in an ANEF or ANEC contour of 20 or greater*. The ADC is not defined as a noise sensitive development in accordance with the SEPP Part 4.3 Section 4.17 (5).

5.2. NASF Guideline A: Measures for Managing Impacts of Aircraft Noise

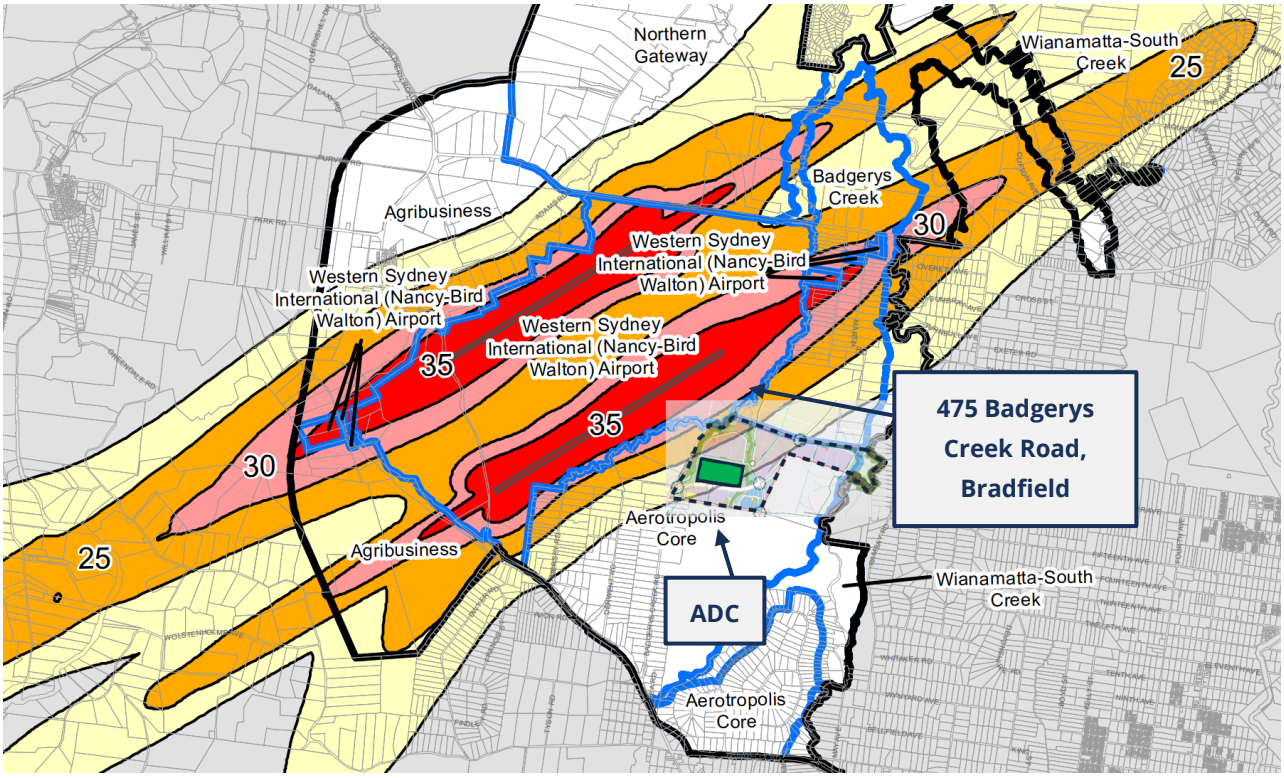
Guideline A provides guidance to the Commonwealth, State, Territory and Local Government decision makers to manage the impacts of noise around airports including assessing the suitability of developments. WSI has published the ANEC for the purposes of new developments proposed in the surrounding area of WSI. As illustrated on Figure 2 below the ADC is within the ANEC 20 to 25 zone.

The Australian Standard *Acoustics – Aircraft noise intrusion – Building siting and construction* AS2021:2015 identifies building acceptability. 'Light industrial' is 'acceptable' in less than 30 ANEF (refer Appendix A, AS2021:2015, Table 2.1).

As defined in the standard for building sites which are classified as 'acceptable' there is usually no need for the building construction to provide protection specifically against aircraft noise. However, AS2021:2015 specifically notes (Table 2.1 Note (3))

> *There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (e.g. an office in an industrial building). In these cases Table 2.1 should be used to determine site acceptability, but internal design noise levels within the specific spaces should be determined by Table 3.3.* (Refer Appendix A)

Figure 2: WSI Australian Noise Exposure Concept



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Noise Exposure Contour Map

6. BUILDING GENERATED WINDSHEAR AND TURBULENCE AT AIRPORTS

6.1. SEPP

The SEPP (Precincts – Western Parkland City) 2021 includes Building wind shear and turbulence under Part 4.3 *Development controls – Airport safeguards*. The objective of this section is to safeguard Airport operations from wind shear and turbulence generated by buildings. This section applies to developments on land shown as the "Windshear Assessment Trigger Area" on the SEPP (Precincts – Western Parkland City) 2021 Lighting Intensity and Wind Shear Map – Aerotropolis.

The ADC is outside the building generated windshear and turbulence assessment trigger areas as illustrated on **Figure 3,** the Lighting Intensity and Wind Shear Map, therefore the SEPP section 4.18 Building wind shear and turbulence does not apply.

6.2. NASF Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports

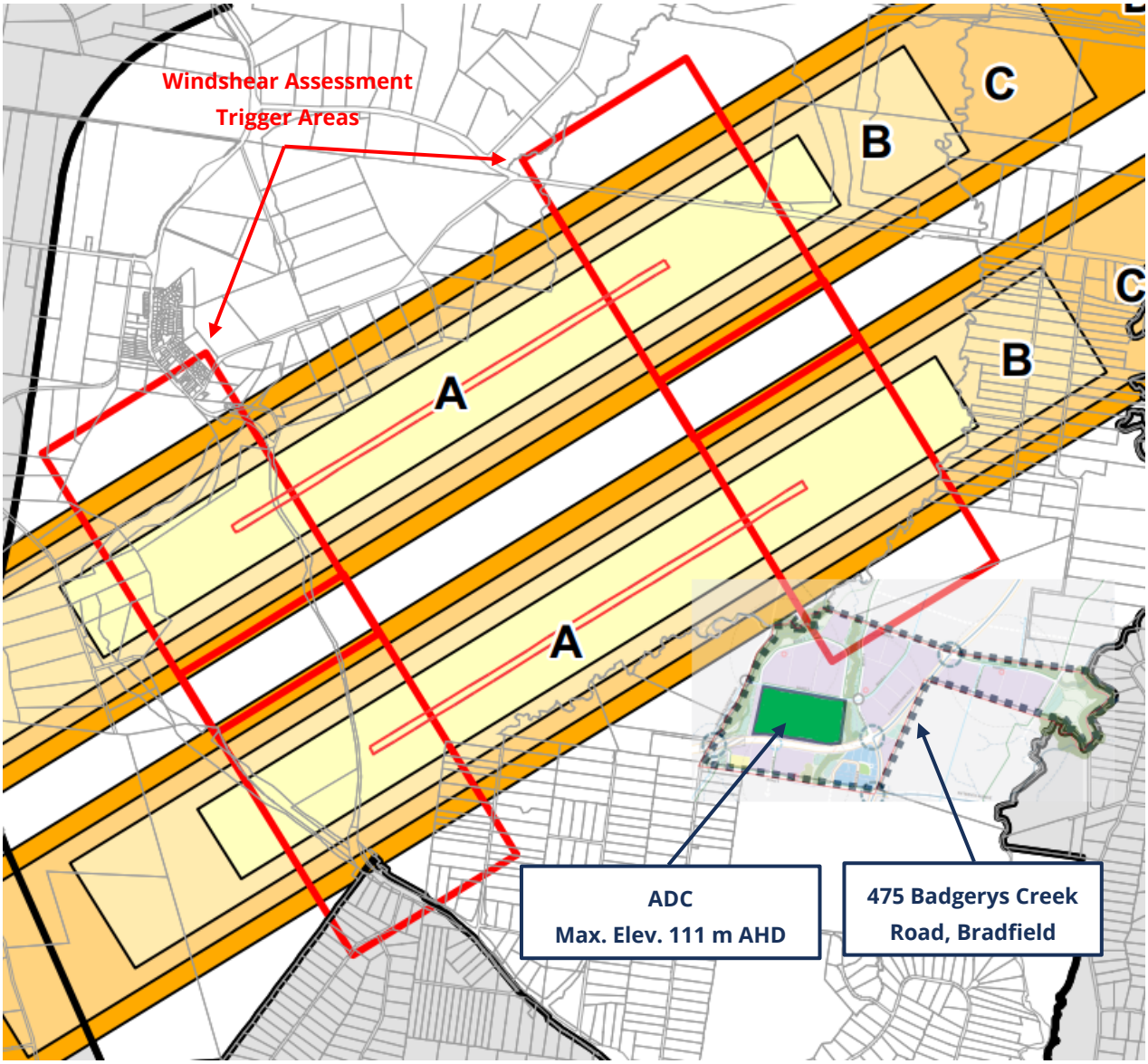
The purpose NASF Guideline B is to assist land use planners and airport operators in their planning and development processes to reduce the risk of building generated windshear and turbulence at airports near runways.

Applicability of this Guideline is initially determined by the location of a building within the assessment trigger area around the runway, that is:

- 1,200 m or closer perpendicular to the runway centreline;
- 900 m or closer in front of the runway threshold; and
- 500 m closer from the runway threshold along the runway.

The ADC is outside the building generated windshear and turbulence assessment trigger areas as defined in Guideline B and illustrated on **Figure 3**, therefore in accordance with Guideline B there is no further action required.

Figure 3: WSI Building Generated Windshear and Turbulence Trigger Areas



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Lighting Intensity and Wind Shear Map - Aerotropolis

7. WILDLIFE HAZARDS

NASF Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports pertains to the way in which existing land use is managed in the vicinity of airports with respect to the attraction of wildlife, particularly birds. Guideline C establishes wildlife management areas A (0-3 km), B (3-8 km) and C (8-13 km) from the aerodrome reference point. The ADC is within wildlife management area A as shown on the SEPP Wildlife Buffer Zone Map and **Figure 4**.

A Wildlife Hazard Assessment was completed by Eco Logical Australia Pty Ltd for the proposed Master Plan at 475 Badgerys Creek Road, Bradfield (Wildlife Hazard Assessment). The assessment considered the following framework:

- ICAO Annex 14 Volume 1 Aerodrome Design and Operation Section 9.4;
- CASA Advisory Circular 139.C-16v1.0 & Part 139 (Aerodromes) Manual of Standards;
- NASF Guideline C Managing the Risk of Wildlife Stikes in the Vicinity of Airports
- Aviation Safeguarding Guidelines – Western Sydney Aerotropolis and surrounding areas Chapter 4
- NSW SEPP (Precincts – Western parkland City) 2021Section 4.19
- Aerotropolis Precinct Plan May 2023
- Western Sydney Aerotropolis Development Control Plan 2022

The Eco Logical Australia *Wildlife Hazard Assessment – 475 Badgerys Creek Road, Bradfield* concludes

> *The design and mitigation measures will reduce habitat attractiveness, however they are unlikely to eliminate high risk species utilising the site. Monitoring will therefore be necessary to determine if and how high risk species are using the site. Adaptive management will then be required if the species are deemed to present a significant risk to airport operations.*

Recommended monitoring is provided in Table 8 of the Wildlife Hazard Assessment which details the landscape element and the proposed mitigation and monitoring. In accordance with Table 8 of the Wildlife Hazard Assessment, 'Landscaping on-lot' and 'warehouse (non-food storage) and office' would involve the following:

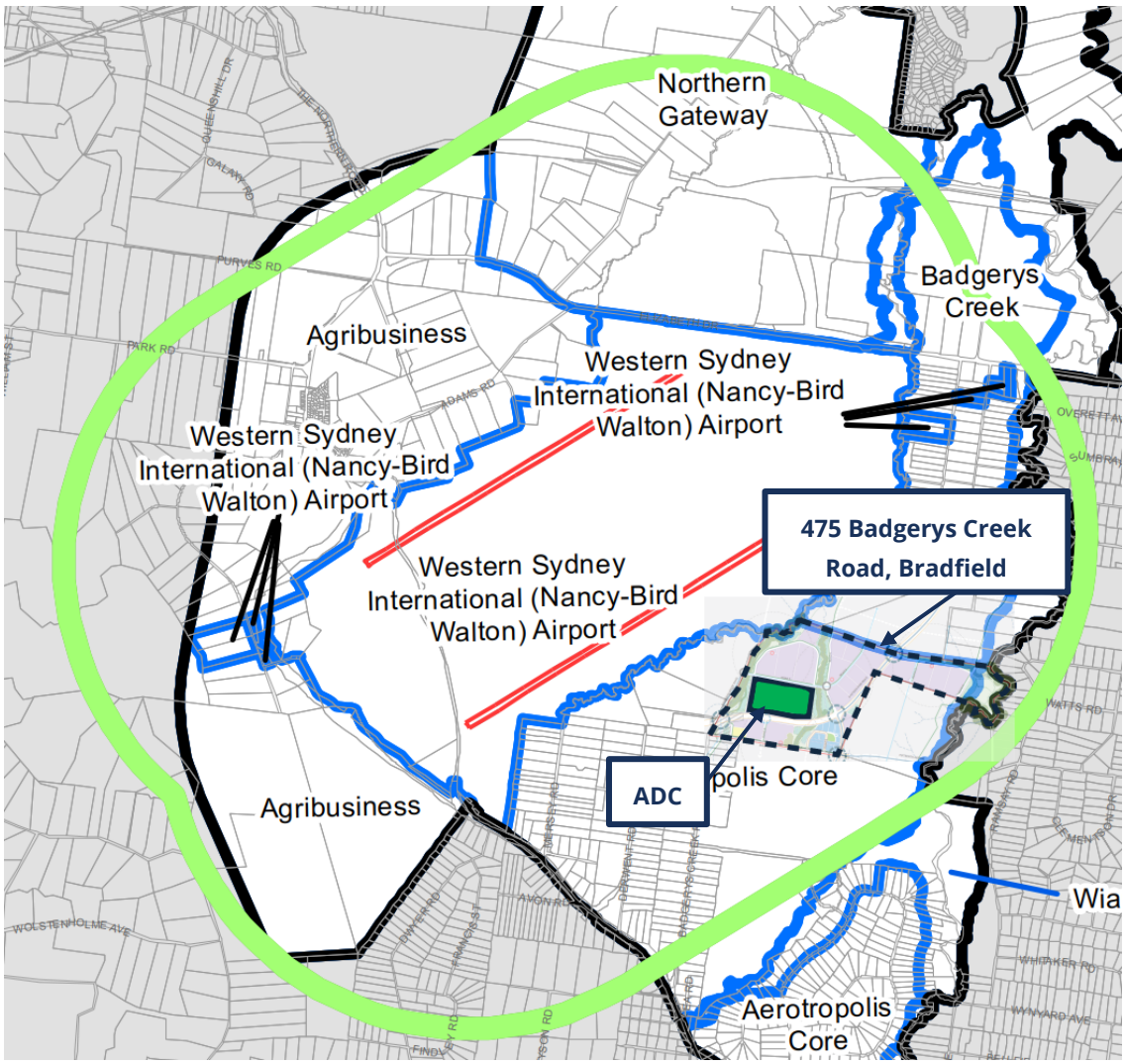
- Landscaping on-lot is a wildlife attraction risk of 'moderate' and the actions for proposed development is to 'mitigate'.
  - Proposed mitigation includes Planting aiming to achieve canopy targe of around 15% for the Enterprise and Light Industry. Species to be planted will only include those in the DCP species list that do not have additional considerations for wildlife risk
  - Monitoring is recommended twice annual diurnal bird survey
- Warehouse (non-food) and Offices is a wildlife attraction risk of 'Very Low' and the actions for proposed development is to 'monitor'.
  - Proposed mitigation includes:
    - waters storage and collection to be in accordance with a Waste Management Plan that ensures all waste is inaccessible to wildlife.
    - Ensure that entrances to roof cavities and the like are blocked off to prevent uptake as habitat for roosting (bats and birds).
    - Install signage at food outlets and construction sites to discourage feeding of wildlife.

– Monitoring includes twice annual diurnal bird survey and monitoring to establish usage of habitat, focusing on waste storage areas and any evidence or roosting in buildings.

The ADC is a Warehouse (food storage) and Offices and in accordance with Attachment 1 to Guideline C (refer Appendix B) 'warehouse (food storage)' is a Wildlife Attraction Risk of 'low' and within the Area A the required action is to 'monitor'. The Eco Logical Wildlife Hazard Assessment Table 8 included mitigation and monitoring for Warehouse and Offices is in keeping with the Guideline C action plans for 'monitoring' which include the following to be agreed with the airport operator:

- Regular monitoring surveys;
- Wildlife hazard assessment by qualified ornithologists or biologists;
- Wildlife awareness and management training for relevant staff;
- Establishment of bird population triggers;
- Implementation of activities to reduce hazardous bird populations; and
- Adoption of wildlife deterrent technologies to reduce hazardous bird populations.

Figure 4: WSI Wildlife Management Areas



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Wildlife Buffer Zone Map

8. LIGHTING IN THE VICINITY OF AIRPORTS

8.1. SEPP

The SEPP includes *Lighting* under Part 4.3 *Development controls – Airport safeguards*. The objective is to safeguard Airport operations from the risk of lighting and reflectivity distractions for pilots.

The ADC lies within the 6 km lighting intensity radius as shown on **Figure 5** below. The ADC is outside the light control zones and runway boundaries.

In accordance with the SEPP Part 4.3 Section 4.21 development consent must not be granted to developments within the identified areas unless the consent authority has consulted the relevant Commonwealth body:

(a) installation and operation of external lighting (whether coloured or white lighting) in connection with development for the following purposes—

(i) classified roads,

(ii) freight transport facilities,

(iii) heavy industrial storage establishments,

(iv) recreation facilities (major),

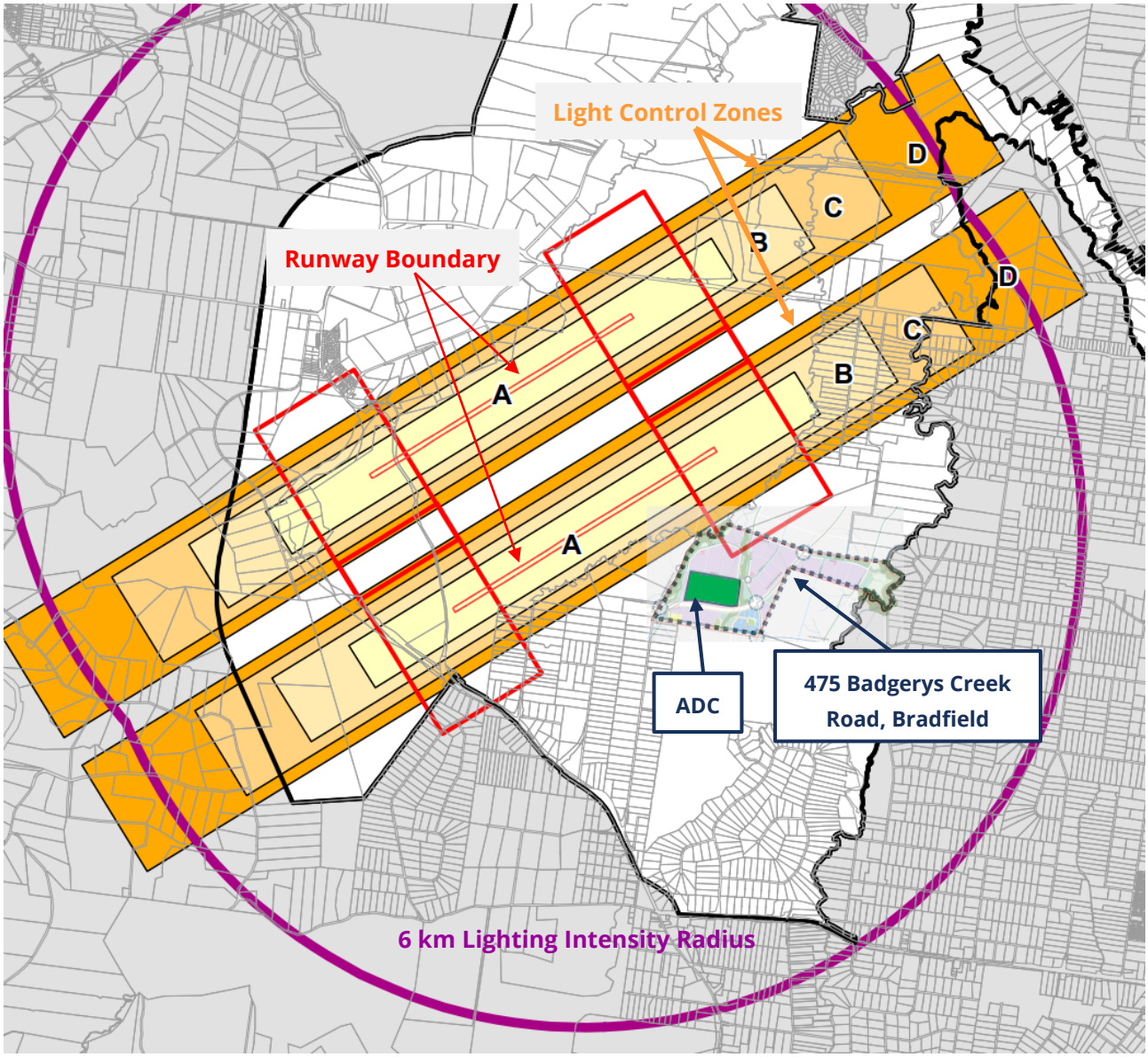
(v) recreation facilities (outdoor),

(b) installation and operation of external lighting in connection with construction works that is likely to be obtrusive or create light spill outside the land on which the construction works are carried out.

8.2. NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports

NASF Guideline E provides guidance on the risk of distractions to pilots of aircraft from lighting and light fixture near airports. Advice for the guidance of designers and installation contractors is provided for situations where lights are to be installed within a 6 km radius (applied from the centre point of each runway) of a known aerodrome. Lights within this area fall into a category most likely to be subject to the provisions of Regulation 94 of the Civil Aviation Regulations 1988 (CAR 1988). Under Regulation 94 CASA can require lights which may cause confusion, distraction or glare to pilots in the air, to be extinguished or modified.

Figure 5: WSI Lighting Intensity



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Lighting Intensity and Wind Shear Map - Aerotropolis

9. PROTECTED AIRSPACE

The SEPP and NASF Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports specifically address the protection of prescribed airspace for airports.

9.1. Obstacle Limitation Surfaces

The SEPP includes *Airspace operations* under Part 4.3 *Development controls – Airport safeguards*. The objectives of this section are:

- To provide for the effective and ongoing operation of the Airport by ensuring that its operation is not compromised by development that penetrate the prescribed airspace for the Airport, and
- The relevant Commonwealth body does not object to the development.

This SEPP Section 4.22 applies to development on land shown on the Obstacle Limitation Surface Map that is a controlled activity within the meaning of Part 12 Division 4 of the *Airports Act 1996* of the Commonwealth. Controlled activities include the construction or alteration of buildings or other structures that penetrate the prescribed airspace. Controlled activities cannot be carried out without an approval under Part 12, Division 4 of the *Airports Act 1996*.

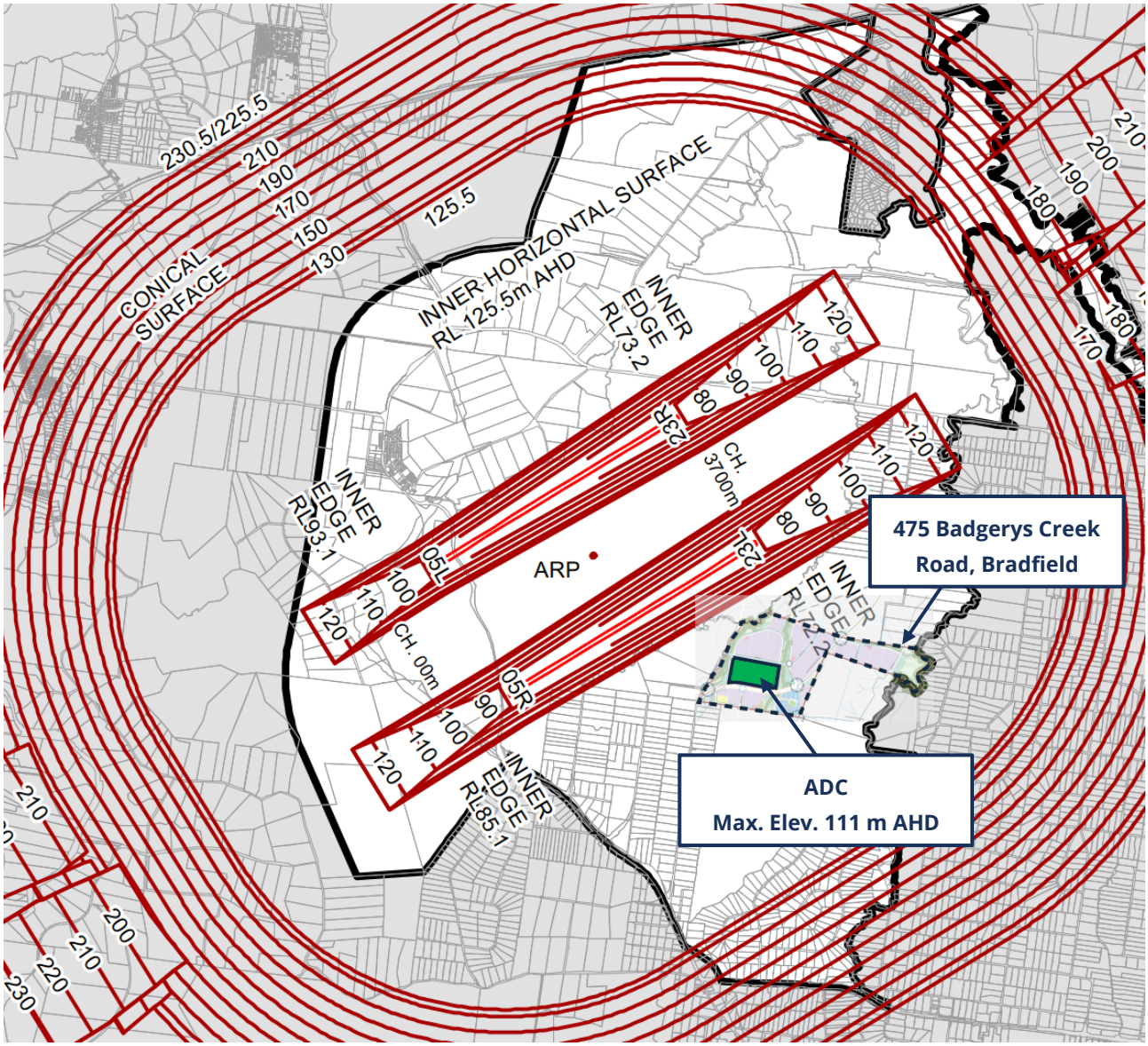
The ADC is within the lateral extents of the WSI Obstacle Limitation Surfaces (OLS). The ADC is proposed at a maximum elevation of approximately 111 m AHD (building 42 m high + finished floor level 69 m AHD) would remain below the OLS inner horizontal of 125.5 m AHD as illustrated below on **Figure 6**.

The project description and warehouse elevations[2] provided for assessment do not include specifics of roof top plant and equipment. The intrusion to prescribed airspace must consider the maximum elevation of the proposed warehouse as well as any roof top installations such as antennas, roof access ladders or equipment. Further activities that could cause air turbulence or affect the ability of aircraft to operate in the prescribed airspace in accordance with Visual Flight Rules such as emission of steam, other gas, smoke, dust or other particulate matter.

Plume rise is also a consideration in relation to penetration of the OLS. Aircraft in various stages of flight may be affected by exhaust plume of significant velocity. CASA has published an Advisory Circular *AC-139-5 v.3.0 Plume Rise Assessments*. The proponent should follow the process set out in AC-139-5 v3.0 to ensure any exhaust plumes that exceed the critical velocities are assessed by CASA.

[2] SBA Architects drawing no 24110/DA-140/Rev P6 – Elevations Warehouse (6.11.2024)

Figure 6: WSI Obstacle Limitation Surfaces



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Obstacle Limitation Surface Map

9.2. PANS-OPS Airspace

PANS-OPS Airspace is associated with instrument flight procedures and other requirements for aircraft operating under Instrument Flight Rules, such as will be the case for the majority of WSI aircraft operations. Flight procedures and the respective PANS-OPS airspace protection are not yet published for the WSI.

Calculating PANS-OPS surfaces is complex because of the highly technical nature of the design and interaction of procedures. The design of a full set of PANS-OPS for Stage 1 and long-term operations will be required following the formal flight path design before the start of operations. Once designed, the PANS-OPS will be protected under the Airspace Protection Regulations[3].

Based on our preliminary assessment, we would expect the lowest PANS-OPS surfaces to be those associated with ILS approaches and Omni Directional Departures to/from the future Runway 05R/23L. We estimate these surfaces, based on the inner edge elevations in the published OLS, to be higher than the OLS at 125.5 m AHD over the site. As such the OLS would provide adequate planning protection to the required airspace for instrument flight procedures at Western Sydney Airport. The ADC at 111 m AHD would remain below the OLS as discussed in **Section 9.1** above.

[3] Commonwealth of Australia 2021 *Western Sydney Airport - Airport Plan / September 2021*

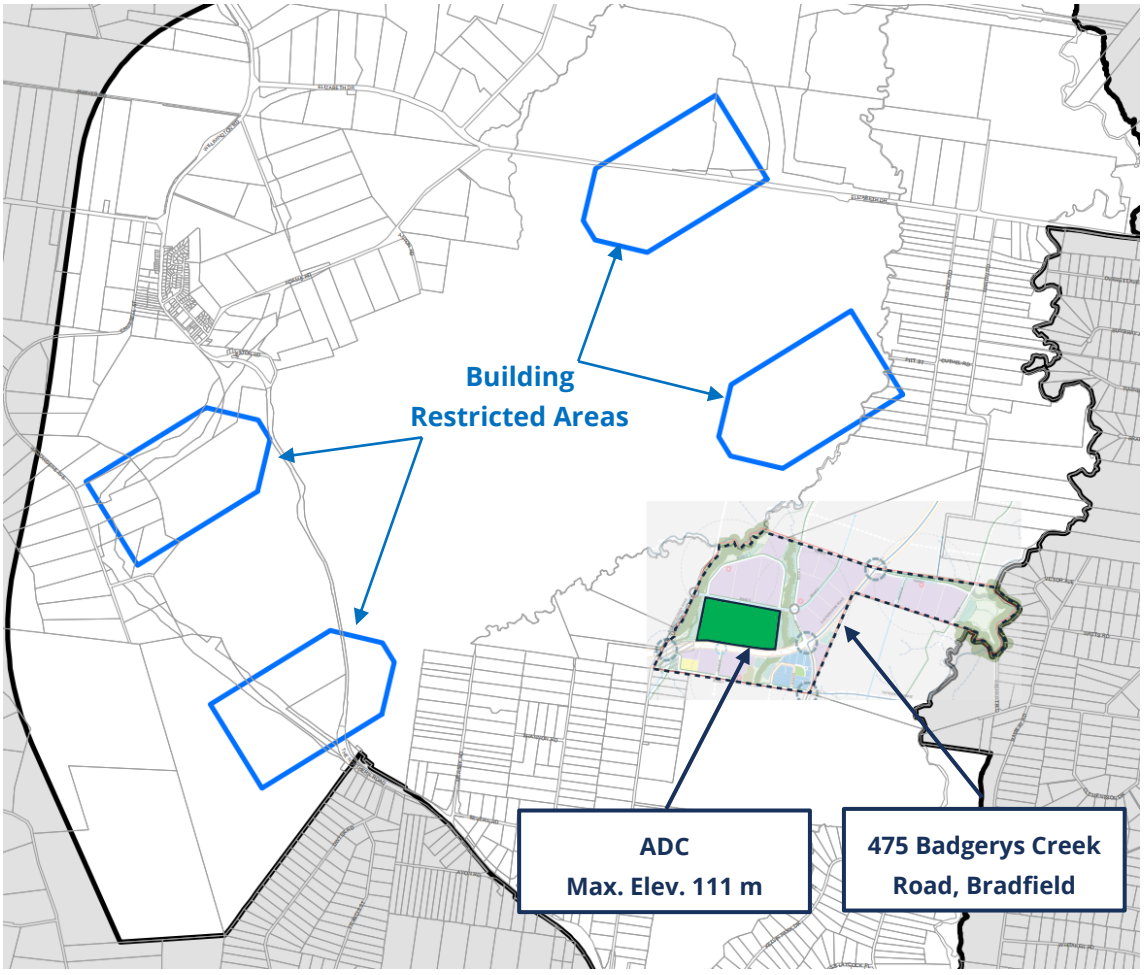
10. AVIATION FACILITIES – COMMUNICATION, NAVIGATION AND SURVEILLANCE (CNS)

The purpose of Guideline G is to formalise the protection of CNS facilities in land use planning decisions. This Guideline provides land use planning guidance to better protect CNS facilities which support the system and processes in place by various agencies to safely manage the flow of aircraft into, out of and across Australian airspace. The Guideline also informs procedures which ensure development associated activities within Building Restricted Areas (BRA) of CNS facilities do not adversely affect the facility or cause interference for air traffic controllers or aircraft in transit.

The SEPP Part 4.3 Section 4.23A *Operation of certain air transport facilities* objective is to regulate development that may impact the operation of air transport facilities. A *Building Restricted Area Map* is included to ensure that development in these areas would not adversely impact the operation of communication and air traffic control facilities or structures associated with the airport.

The ADC is outside the Building Restricted Areas for WSI as shown below on **Figure 7**.

Figure 7: WSI Building Restricted Areas (BRA)



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Building Restricted Area Map

11. STRATEGICALLY IMPORTANT HELICOPTER LANDING SITES (HLS)

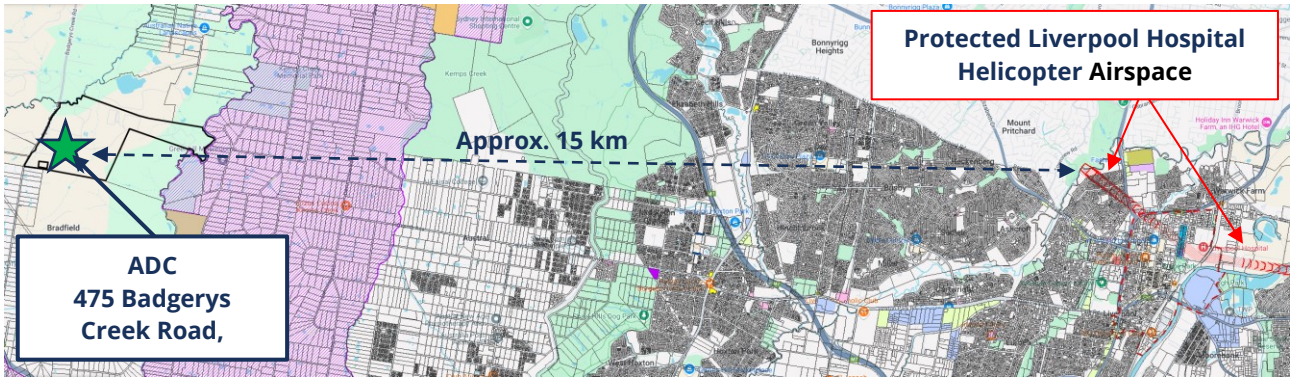
Guideline H: Protecting Strategically Important Helicopter Landing Sites provides guidance to State/Territory and local government decision makers as well as the owners/operators of identified strategically important Helicopter Landing Sites (SHLS) for the ongoing operations and to ensure SHLS are not compromised by any propose development. For the purposes of this Guideline, an SHLS is an area not located on an aerodrome.

A SHLS is that as identified as being of strategic importance as well as associated with a hospital, elevated in a populated area and/or subject to instrument flight procedures. The proposed ADC does not appear to be within 3.5 km of any hospital as shown in **Figure 8**. Within the Liverpool City Council, the LGA within which the ADC is located, the Liverpool Local Environmental Plan 2008 protects hospital helicopter airspace as shown on **Figure 9** below.

Figure 8: Nearby Hospitals

Source: Google Earth Pro

Figure 9: Protected Hospital Helicopter Airspace



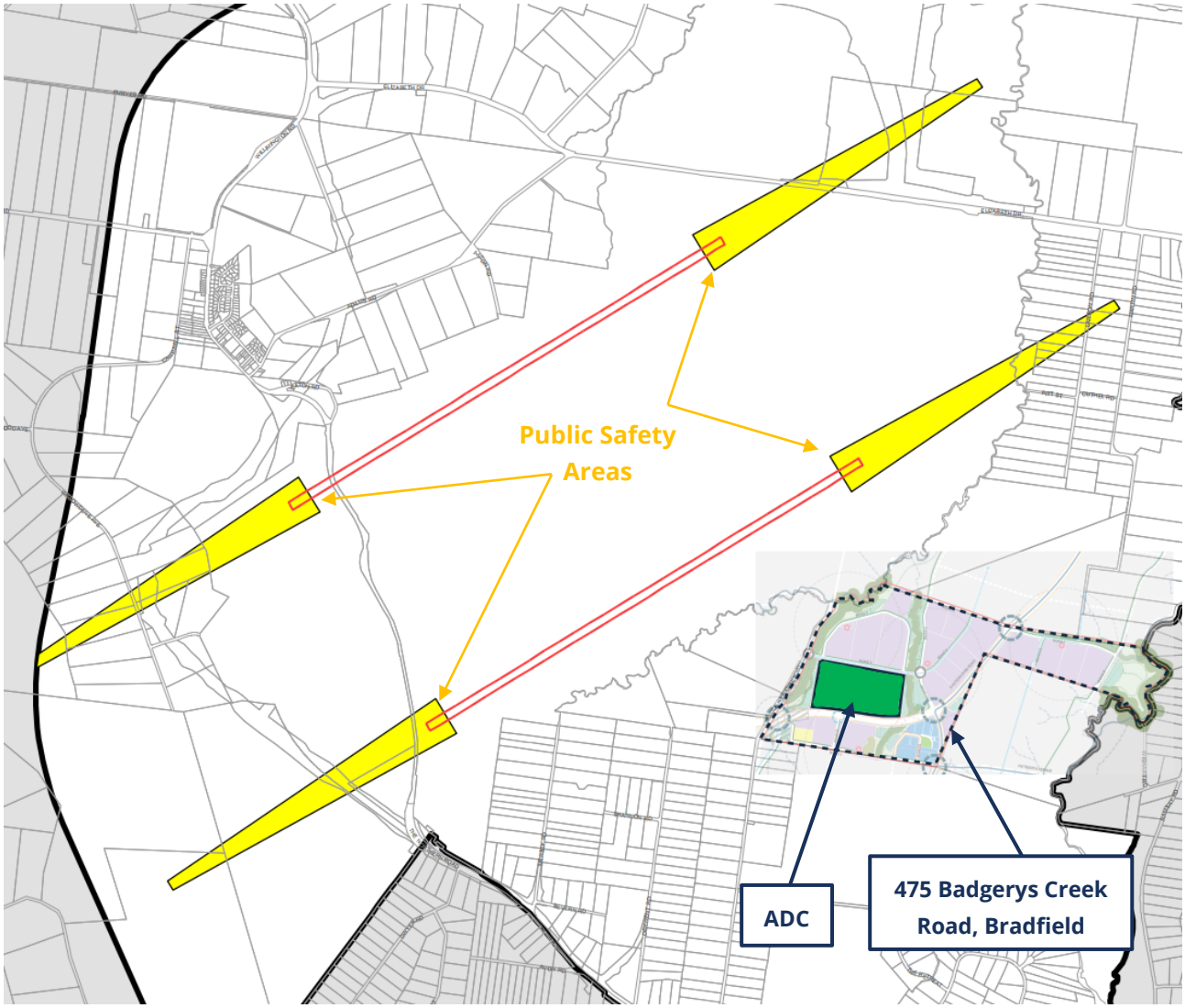
Source: eplanning.liverpool.nsw.gov.au

12. PUBLIC SAFETY

NASF Guideline I: Managing the Risk in Public Safety Reas at the Ends of Runways provides guidance on approaches for the application of Public Safety Areas (PSA) planning framework in Australian jurisdictions. The Guideline is intended to ensure there is no increase in risk from new development and assist land-use planners to better consider public safety when assessing development proposals, rezoning and the development of strategic land use plans.

The SEPP Part 4.3 Section 4.23 *Public safety* objective is to regulate development on land on which there is an appreciable risk to public safety from the operation of the airport. The SEPP Public Safety Map identifies the public safety areas. The ADC is not within the extents of the public safety areas as shown below on **Figure 10**.

Figure 10: WSI Public Safety Areas



Source: Extract from NSW State Environmental Planning Policy (Precincts – Western Parkland City) 2021 Public Safety Area Map

13. CONSTRUCTION IMPACTS

During construction, the construction sequencing and methodology should be considered carefully in relation to the OLS and PANS-OPS surfaces. Penetrations of prescribed airspace by construction plant and equipment during construction constitute a controlled activity under the *Airports (Protection of Airspace) Regulations 1996*.

Construction activities on the site will need to be assessed and any penetrations of prescribed airspace will require approval under the Regulations.

14. CONCLUSION

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-76913969). The findings of the aviation impact assessment are summarised as follows:

- **Aircraft Noise**: Situated within the ANEC 20 to 25 zone. The Australian Standard *Acoustics – Aircraft noise intrusion – Building siting and construction* AS2021:2015 identifies building acceptability. 'Light industrial' is 'acceptable' in less than 30 ANEF. However, indoor design should be used to ensure indoor design sound levels within the office spaces are as per AS2021:2015;
- **Building Generated Windshear and Turbulence**: Outside the windshear and turbulence assessment trigger areas, no further assessment is required;
- **Wildlife Hazards**: Within wildlife management area, Area A. New developments with commercial land uses of 'warehouse (food storage)' are classified with a Wildlife Attraction Risk of 'Low' and the action required is to 'monitor'. Action plans for wildlife hazard 'monitoring' are to be agreed between the airport operator and landowner;
- **Lighting**: Outside the light control zones, within the 6 km lighting intensity radius. Lights are not installed which may cause confusion, distraction or glare to pilots in the air;
- **Prescribed Airspace:** The proposed ADC at a maximum elevation of 111 m AHD would remain below the OLS inner horizontal surface at 125.5 m AHD;
- **CNS Facilities:** Outside the Building Restricted Area Map as defined in the SEPP;
- **Strategic Helicopter Sites**: Beyond 3.5 km from surrounding major hospital sites; and
- **Public Safety**: Outside the WSI Public Safety Areas as defined by the SEPP.

This report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures:

- Australian Standard AS2021:2015 *Acoustics - Aircraft noise intrusion - Building siting and construction* should be used to ensure indoor design sound levels within the office spaces are as per AS2021:2015 Table 3.3 (refer Appendix A);
- Action plans for wildlife hazard 'monitoring' are to be agreed between the airport operator and landowner;
- Lights are not installed which may cause confusion, distraction or glare to pilots in the air;
- The ADC maximum elevation does not exceed 111 m AHD, including any roof top plant, equipment, antennas or exhaust plumes in excess of 4.3 m/s, without additional assessment; and
- Construction equipment and methodologies are assessed for any penetrations of prescribed airspace and controlled activity approvals are sought where required under the Airports (Protection of Airspace) Regulations 1996 (Cth).

APPENDIX A

AS2021:2015 Table 2.1 *Building Site Acceptability Based on ANEF Zones*

AS2021:2015 Table 3.3 *Indoor Design Sound Levels* for Determination of Aircraft Noise Reduction*

TABLE 2.1

BUILDING SITE ACCEPTABILITY BASED ON ANEF ZONES
(To be used in conjunction with Table 3.3)

Building type	ANEF zone of site		
	Acceptable	Conditionally acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF (Note 1)	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF (Note 1)	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

NOTES:

1 The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths. Because of this, the procedure of Clause 2.3.2 may be followed for building sites outside but near to the 20 ANEF contour.

2 Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the incorporation of noise control features in the construction of residences or schools is appropriate (see also Figure A1 of Appendix A).

3 There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (e.g. an office in an industrial building). In these cases Table 2.1 should be used to determine site acceptability, but internal design noise levels within the specific spaces should be determined by Table 3.3.

4 This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2. For residences, schools, etc., the effect of aircraft noise on outdoor areas associated with the buildings should be considered.

5 In no case should new development take place in greenfield sites deemed unacceptable because such development may impact airport operations.

TABLE 3.3

INDOOR DESIGN SOUND LEVELS* FOR DETERMINATION OF AIRCRAFT NOISE REDUCTION

Building type and activity	Indoor design sound level*, dB(A)
Houses, home units, flats, caravan parks	
Sleeping areas, dedicated lounges	50
Other habitable spaces	55
Bathrooms, toilets, laundries	60
Hotels, motels, hostels	
Relaxing, sleeping	55
Social activities	70
Service activities	75
Schools, universities	
Libraries, study areas	50
Teaching areas, assembly areas (see Note 5)	55
Workshops, gymnasia	75
Hospitals, nursing homes	
Wards, theatres, treatment and consulting rooms	50
Laboratories	65
Service areas	75
Public buildings	
Churches, religious activities	50
Theatres, cinemas, recording studios (see Note 4)	40
Court houses, libraries, galleries	50
Commercial buildings, offices and shops	
Private offices, conference rooms	55
Drafting, open offices	65
Typing, data processing	70
Shops, supermarkets, showrooms	75
Industrial	
Inspection, analysis, precision work	75
Light machinery, assembly, bench work	80

* These indoor design sound levels are not intended to be used for measurement of adequacy of construction. For measurement of the adequacy of construction against aircraft noise intrusion see Appendix D.

NOTES TO TABLE 3.3:

1 The indoor design sound levels in Column 2 are hypothesized values based on Australian experience. A design sound level is the maximum level (dB(A)) from an aircraft flyover which, when heard inside a building by the average listener, will be judged as not intrusive or annoying by that listener while carrying out the specified activity. Owing to the variability of subjective responses to aircraft noise, these figures will not provide sufficiently low interior noise levels for occupants who have a particular sensitivity to aircraft noise.

2 Some of these levels, because of the short duration of individual aircraft flyovers, exceed some other criteria published by Standards Australia for indoor background noise levels (see AS/NZS 2107).

3 The indoor design sound levels are intended for the sole purpose of designing adequate construction against aircraft noise intrusion and are not intended to be used for assessing the effects of noise. Land use planning authorities may have their own internal noise level requirements which may be used in place of the levels above.

4 For opera and concert halls and theatres, and for recording, broadcast and television studios and similar buildings where noise intrusion is unacceptable, specialist acoustic advice should always be obtained.

5 Certain activities in schools may be considered particularly noise sensitive and 50 dB(A) may be a more desirable indoor sound level to select for any teaching areas used for such activities. However, the effect of other noise sources should be considered.

6 The provisions of this Standard relating to different internal design sound levels for different indoor spaces could result in the use of different construction and materials in contiguous spaces, and require the construction of substantial barriers between habitable spaces, e.g. heavy self-closing internal doors, detracting from the amenity of the building. Therefore consideration should be given to a uniform perimeter insulation approach.

APPENDIX B

NASF Guideline C Attachment 1 *Wildlife Hazard Management Action Table*

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