REHBEIN Airport Consulting

28 September, 2023
Our File Ref: M21116AL001Rev3
Contact: Bridget Wouts

Project Manager
Trustees of the Sisters of the Good Samaritan
c/o Pascoe Planning Solutions
PO Box 349
Mittagong NSW 2575

Attention: Graham Pascoe

RE: 'WIVENHOE' – 229 MACQUARIE ROAD GROVE, COBBITTY
NASF ASSESSMENT – AVIATION SERVICES

REHBEIN Airport Consulting was engaged by the Trustees of the Sisters of the Good Samaritan via Pascoe Planning Solutions to undertake an Aviation Safeguarding assessment of the land identified at 229 Macquarie Road Grove, Cobbitty (the subject land).

The subject land has been assessed against the National Airports Safeguarding Framework (NASF) Guidelines as they relate to the adjacent Camden Airport, for the purposes of a planning proposal request which, Pascoe Planning advises, seeks to facilitate a super lot subdivision and land use planning rationalisation.

1. PLANNING PROPOSAL

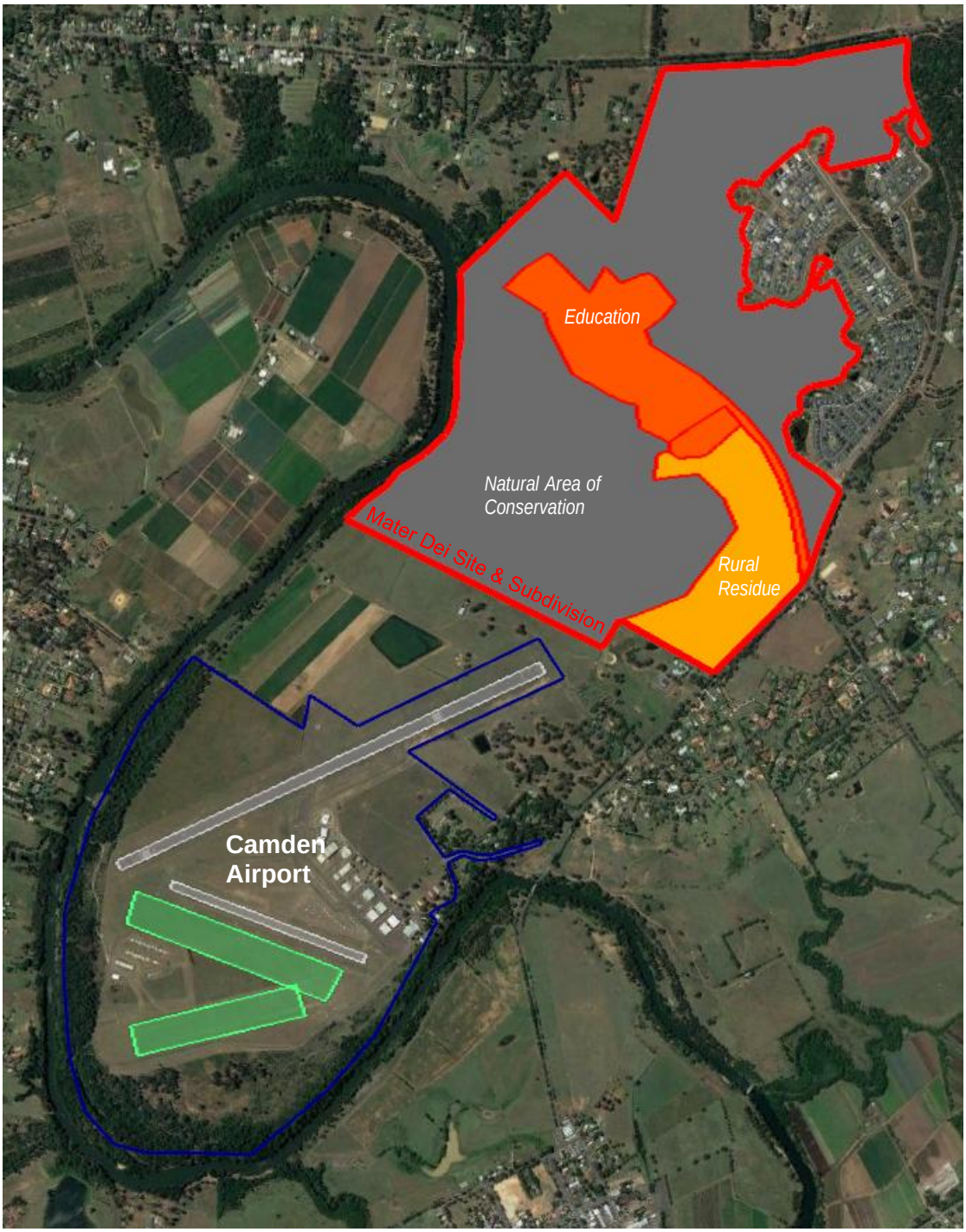
The subject land, known as the Mater Dei Site, is owned by the Trustees of the Sisters of the Good Samaritan, who are proposing to subdivide it to permit a four (4) precinct super lot/subdivision. The proposed land use precincts are identified on the Beveridge Williams drawing *Map for Landuse* Precincts Sheet 4 of 5 and as follows:

- Rural residue;
- Education (includes the Mater Dei and Aspect School); and
- Natural area conservation.

Additionally, Pascoe Planning advises the proposal seeks to rationalise the land use zoning planning provisions. The proposed zoning includes RU2 for the Rural Residue and Education precincts and C2 for the Natural Area of Conservation. RE1 and SP are also proposed in and around the existing Wivenhoe Village that is not included in the Mater Dei Site.

The subject land is located adjacent to the north of Camden Airport, in close proximity to the eastern end of the main Runway 06/24 as illustrated in **Figure 1** below.

Figure 1: Proposed Subdivision and Land Use Precincts



Source: Google Earth & Beveridge Williams Drg *Map for Landuse Precincts* Rev E and Drg No 20115/20115(MAIN)-PS/RevE

2. CAMDEN AIRPORT

Camden Airport is a general aviation airport, which is operated by Camden Airport Limited (CAL). CAL's vision is to continue to operate and develop Camden Airport to be[1]:

> …the general aviation, emergency services, sport and recreational airport servicing the South West Growth Centre for Sydney, and a bespoke commercial and employment hub for the Camden region.

Camden Airport operates 24 hours 7 days a week and caters for a wide range of general aviation aircraft including fixed wing, helicopters and gliders. The airport provides for flight training, emergency services, gliding, ballooning and recreational flying along with not-for-profit youth organisations and aviation maintenance facilities.

2.1 Protected Airspace

Camden Airport is a federally leased airport regulated under the *Airports Act 1996* (Cth) (the Act). The Department of Infrastructure, Transport, Regional Development and Communications protects the airspace around Camden Airport under Part 12 of the Act and the *Airports (Protection of Airspace) Regulations 1996*. Together these regulations establish the framework for the protection of airspace at and around Camden Airport.

The airspace above the airport's Obstacle Limitation Surface (OLS) and the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surface forms the airport's protected airspace. The protection of this airspace is discussed in **Section 3.6**.

2.2 Master Plan 2020

All leased federal airports are subject to a planning framework in the Act that requires the airport to prepare a Master Plan that is approved by the Minister.

The Camden Airport Master Plan 2020, approved by the Commonwealth Minister for Infrastructure, Transport, Regional Development and Communications on 25 January 2021, sets out a long-term plan to maintain and continue to development Camden Airport as one of the closest general aviation and recreational airports to the Sydney CBD, servicing the Greater Sydney region and the Southern Highlands. The Master Plan provides details of investment in maintaining and improving existing aviation infrastructure and supporting commercial development. A focus for the Master Plan is the development of the existing vacant land to the east of the existing airport hangar facilities, for both airside (hangar) and landside aviation and commercial development.

3. NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK

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

[1] Camden Airport Limited *Camden Airport Master Plan 2020* (March 2021) Approved by the Commonwealth Minster for Infrastructure, Transport and Regional Development on 25 January 2021.

- 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[2].

All Guidelines can be found at www.infrastructure.gov.au .

NASF currently consists of a set of nine guidelines, as follows, each has been summarised for its relevance to the subject land and likely implications for future planning and development.

3.1 Guideline A: Measures for Managing Impacts of Aircraft Noise

At Camden Airport, the majority of aircraft operating at the airport are used for pilot training and recreational aviation. Camden Airport consists of two runways, two glider strips and a helicopter landing site on the north side of the main Runway 06/24. The airport does not have a curfew. It operates under Air Traffic Control (ATC) during daylight hours and on a common frequency during night when not operating under air traffic control.

The majority of the fixed wing aircraft will use Runway 06/24, with almost all the traffic operating during daylight hours. Aircraft operating for training activities (i.e. circuits), both fixed wing and helicopters, will be flying to the north-eastern side of the airport.

Guideline A can be used in the assessment of new development applications for noise sensitive uses and is considered to be relevant in advancing planning proposals. The subject land is partly within the endorsed Camden Airport Australian Noise Exposure Forecast (ANEF) 2040.

Southern portion of the land identified as the Rural Residue, Education and Natural Area Conservation are within the 20 to 25 ANEF zone as illustrated on **Figure M21116/01** (Refer to Appendix “A”). The majority of the subject land is outside the 20 ANEF contour.

[2] https://www.transportinfrastructurecouncil.gov.au/sites/default/files/SCOTI_2nd_Communique_FINAL.pdf

For land within the 20 ANEF contour, AS2021:2015 provides building site acceptability based on ANEF zones. Building types such as *School, University* or *House, home unit, flat, caravan park* is considered 'conditionally acceptable' within 20 to 25 ANEF zone.

It should be noted, that while the majority of the subject land is outside the 20 ANEF contour, the actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths.

Further, recognising that noise does not suddenly stop at the 20 ANEF level, Guideline A provides for frequency based measures of aircraft noise as an additional tool for illustrating potential aircraft noise impacts. This approach combines information into a description of high noise zones, termed the 'Number Above' noise metric. This N70 or N65 or N60 is the number of aircraft noise events per average day which are louder than 70 dB(A) or 65 dB(A) or 60 dB(A) respectively, on the ground. The 70 dB(A) events have often been used to categorise an event as 'noisy' as these correspond to a 60 dB(A) noise level indoors, which can disturb conversation or other indoor activities such as watching television.

Figure M21116/02 (Refer to Appendix "B") illustrates the N60 contours and **Figure M2116/03** (Refer to Appendix "B") illustrates the N70 contours as described above and included in the Camden Airport Master Plan 2020.

From the N60 contours it can be seen that parts of the Rural Residue and Natural Area Conservation precincts are forecast to be subject to over 100 noise events of 60 dB(A) or louder on an average day in 2040. The N70 contours indicate that the Rural Residue and a small portion of the Natural Area Conservation would experience between 50-100 event of 70 dB(A) or louder on an average day in 2040. The Education and majority of the Natural Area Conservation is expected to experience between 50 and 5 70 dB(A) events per average day.

3.2 Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports

The purpose of this Guideline 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 the 'assessment trigger area' around the runway, that is:

- 1200 m or closer perpendicular from the runway centreline (or extended runway centreline);
- 900 m or closer in front of runway threshold (towards the landside of the airport); and
- 500 m or closer from the runway threshold along the runway.

Should any building developments be proposed within the assessment trigger area, Guideline B refers to the mitigation of risk by use of a 'height multiplier' (that is, the 1 in 35 rule) determining that buildings meeting this rule are not expected to create unsafe wind effects.

The western half of the subject land is within the building generated windshear and turbulence assessment trigger area at Camden Airport as illustrated in **Figure M21116/04** (Refer to Appendix "C").

3.3 Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports

Guideline C 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 buffer areas of 3 km, 8 km and 13 km of an airport, where the Aerodrome Reference Point (ARP) is generally used as the point of origin. However, the Guideline acknowledges there may be some circumstances where multiple points of origin may be appropriate. In the case of Camden Airport, where the airport is surrounded by areas that are attractive to wildlife, especially birds, the buffer areas have been measured from the runway thresholds.

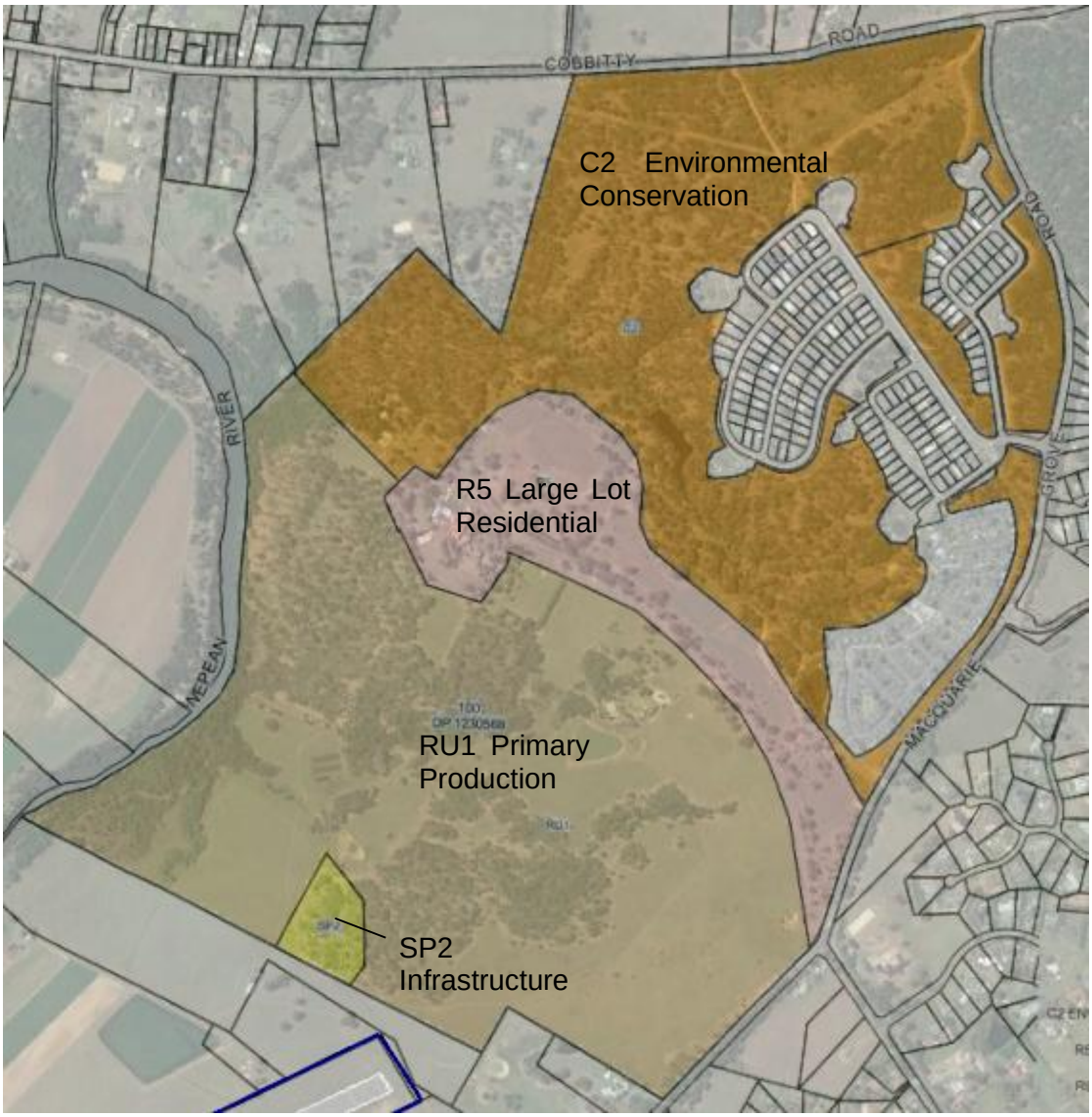
The subject land is within the 3 km Wildlife buffer zone as illustrated on **Figure M21116/05** (Refer to Appendix "D"). Attachment 1 to Guideline C (Refer to Appendix "D") provides guidance on the land uses that present a risk of attracting wildlife and triggers (based on distance from the airport) for adopting active measures to mitigate that risk.

Attachment 1 to Guideline C identifies Conservation land uses as follows:

- 'Wildlife sanctuary / conservation area – dryland' as having a Wildlife Attraction Risk of 'Moderate' and where this land use is within 3 km of the airport the recommended action is 'mitigation'. This applies for existing developments, as well as for proposed developments/changes to existing developments.
- 'Wildlife sanctuary / conservation area – wetland' as having a Wildlife Attraction Risk of 'High'. Proposed wetland developments are considered 'incompatible' within 3 km of an airport under Guideline C.

The project inception meeting held on 29 June 2021 confirmed that the subject land identified as Natural Area Conservation would be classified as 'conservation area – dryland'. It is understood through advice from Travers Bushfire & Ecology (email dated 26 August 2021) that the proposed rezoning and subdivision is intended to allow the current land uses to remain in place. Currently the existing land uses include conservation, residential and primary production as illustrated below in Figure 2.

Figure 2: Existing Zoning

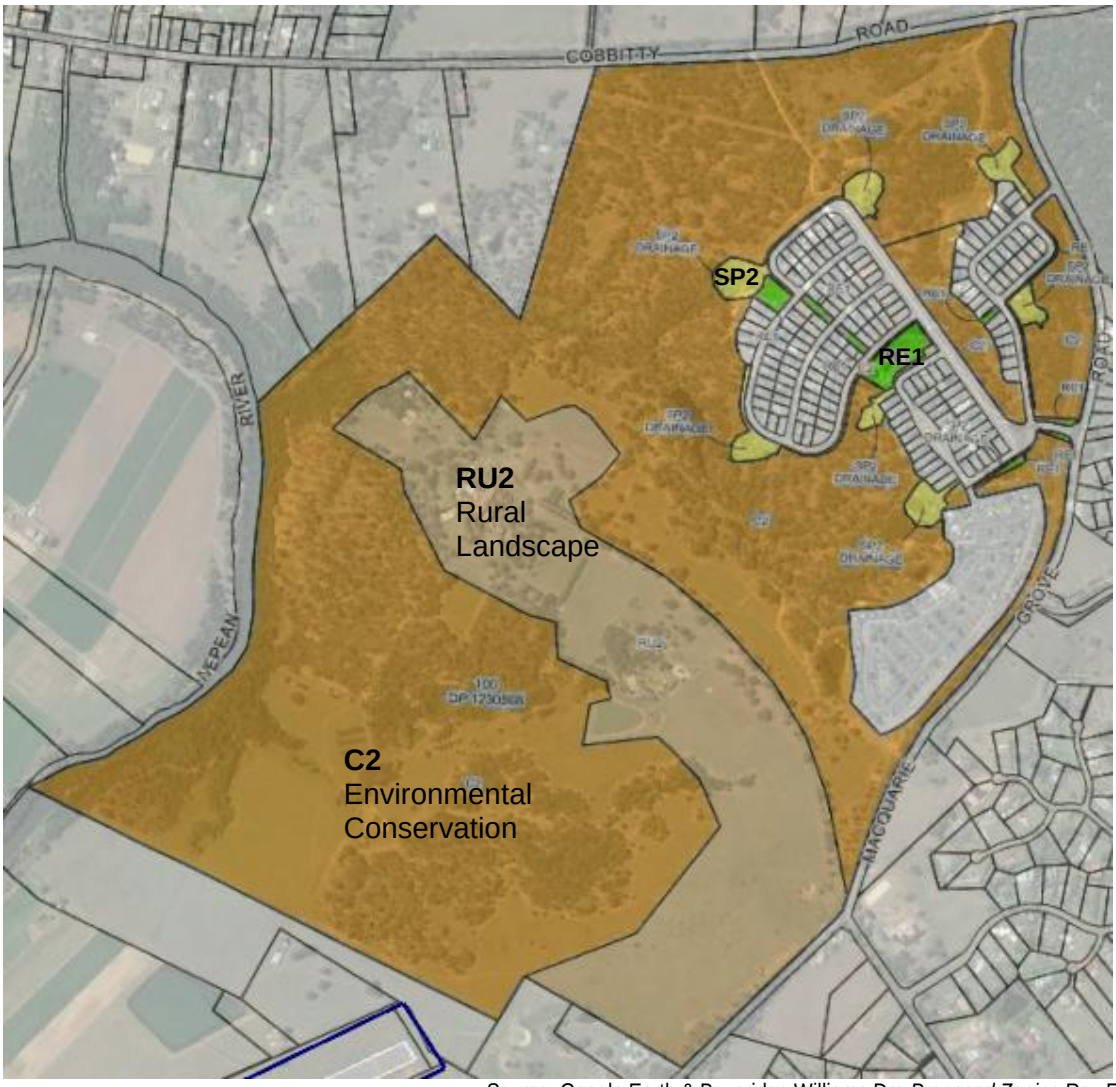


Source: Google Earth & Beveridge Williams Drg *Current Zoning* Rev E

The proposed zoning rationalises the land use zoning planning provisions; however of particular interest to the airport operations is the change in zoning as illustrated below in Figure 3 and as follows:

- The Residue Site at the southeastern end of the subject land from zone RU1 Primary Production to zone RU2 Rural Landscape; and
- The Natural Area Conservation adjacent to the airport from RU1 Primary Production and SP2 Infrastructure to C2 Environmental Conservation.

Figure 3: Proposed Zoning



Source: Google Earth & Beveridge Williams Drg *Proposed Zoning* Rev E

The Rural Residue precinct is beneath the Runway 06/24 extended centreline. Changing the Rural Residue precinct, e.g. revegetating, may impact the safety of aircraft operations. To mitigate this, it is recommended that vegetation avoids the use of potentially bird attracting species and once established vegetation must be managed to avoid intrusions into the protected airspace (height limitations are discussed in **Section 3.6**). Creation of wetlands should be avoided as being incompatible with NASF Guideline C.

As a certified airport under Part 139 of the *Civil Aviation Safety Regulations 1996* there are number of requirements that must be met, including monitoring and recording of wildlife activity.

Given the adjacent vegetated landscape already exists within the proposed Natural Area Conservation precinct, it is assumed current monitoring and management practices are acceptable to Camden Airport. Ongoing discussions with the airport operator are recommended to confirm the monitoring and mitigation measures

currently in place will remain appropriate and will also be applied to the Rural Residue precinct going forward.

3.4 Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation

Guideline D 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 subject land does not include any proposal for wind turbine farms.

3.5 Guideline E: Managing the Risk of Distraction 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.

The CASA *Part 139 (Aerodromes) Manual of Standards 2019* Section 9.144: *Lights – requirements for zones* sets out the restrictions and degree of interference ground lights can cause as a pilot approaches. 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. Within this 6 km radius is a primary area which is divided into four light control zones: A, B, C and D. These zones reflect the degree of interference ground lights can cause pilots as they approach.

The subject land is within the 6 km radius of Camden Airport and partially within the primary area light control zones A, B, C and D as illustrated on **Figure M21116/06** (Refer to Appendix "E"). Lighting associated with any proposals within the corresponding zone should therefore meet the restrictions associated with that Zone as follows:

- Zone A does not allow for any (0 cd) intensity of light sources measured at 3 degrees above the horizontal;
- Zone B allows for the maximum intensity of light sources measured at 3 degrees above the horizontal to be 50 cd;
- Zone C allows for the maximum intensity of light sources measured at 3 degrees above the horizontal to be 150 cd; and
- Zone D allows for the maximum intensity of light sources measured at 3 degrees above the horizontal to be 450 cd.

The design of any potential development should take into consideration NASF Guideline E to ensure that lighting does not compromise aviation safety and specify any mitigation measures to be put in place.

Coloured lights, flashing lights or lasers may cause a hazard to aircraft operations and should be referred to CASA for detailed guidance as they are likely to cause conflict particularly as coloured lights are used to identify different aerodrome facilities and infrastructure.

The lighting designer will need to ensure that the lights meet the requirements prescribed in the CASA *Part 139 (Aerodromes) Manual of Standards 2019* Section 9.144: *Lights – requirements for zones.*

Glare caused by reflective surfaces may also be a source of distraction to pilots. It should be noted that solar panel installation is a particular consideration in relation to glare/reflectivity affecting aircraft in various stages of flight as well as ATC operations. If any solar panels are ultimately proposed, the proponent will need to complete a solar glare hazard analysis to satisfy CASA that the safety of aircraft and ATC will not be affected.

3.6 Guideline F: Managing the Risk of Intrusions into the Protected Operational Airspace of Airports

NASF Guideline F is designed to address the issue of intrusions into the operational airspace of airports by tall structures, such as buildings and cranes as well as trees in the vicinity of airports. The Guideline also addresses activities that could cause air turbulence that could affect the normal flight of aircraft operating in the prescribed airspace and/or emissions of steam, other gas, smoke, dust or other particulate matter that could affect the prescribed airspace in accordance with Visual Flight Rules (VFR).

As a leased federal airport, Camden Airport airspace is protected under the *Airports (Protection of Airspace) Regulations 1996*. Any activities that result in intrusions into the airspace are deemed controlled activities and required approval under the regulations. Controlled activities in relation to prescribed airspace are activities that intrude into the airspace and range from any activity or physical structure or thing such as vegetation that is attached to or in physical contact with the ground. Controlled activities also include a range of activities such as sources of artificial light, reflectivity, activities that cause air turbulence or result in the emission of smoke, dust, steam or other gas, or other particulate matter.

Controlled activities must not be carried out without an approval by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA). Carrying out a controlled activity without approval is a punishable offence under the *Airports Act 1996*.

3.6.1 Obstacle Limitation Surfaces (OLS)

The Obstacle Limitation Surfaces (OLS) is the protection for aircraft operating on visual flight procedures. It is a series of virtual surfaces around a runway, which establish the height limits for objects in and around an airport.

The subject land is within the lateral extents of the Camden Airport OLS as illustrated on **Figure M21116/07** (Refer to Appendix “F”). The majority of the subject land lies within the OLS inner horizontal surface at 113.0 m AHD.

The Rural Residue precinct and the southeast end of the Natural Area Conservation are partially within the extents of:

- OLS Runway 24 approach surface;
- OLS Runway 06 take-off climb surface; and
- OLS Runway 06/24 transitional surface.

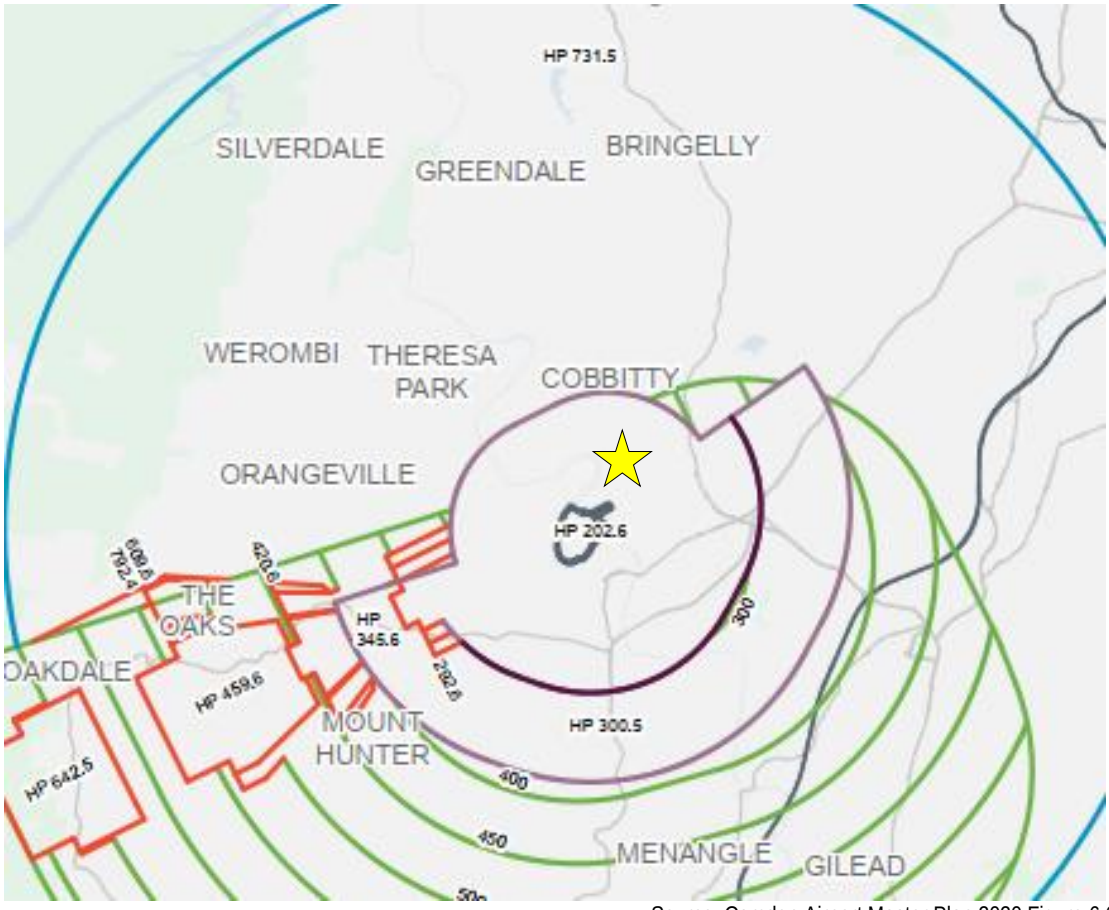
These sloping surfaces range over this section of the subject land from approximately 78 m AHD to 113.0 m AHD as illustrated on **Figure M21116/7.1** (Refer to Appendix "F").

3.6.2 PANS-OPS Airspace

The PANS-OPS protective surfaces are for aircraft operating under instrument flight rules. The existing PANS-OPS protected surfaces for aircraft operating under these non-visual conditions, at Camden Airport, are estimated to be higher than the OLS.

The subject land is within the lateral extents of the Camden Airport PANS-OPS as shown in the Camden Airport Master Plan 2020 Figure 6.6, which shows the most restrictive PANS-OPS limit at approximately 200 m AHD over the subject land as illustrated below on **Figure 4**.

Figure 4: Camden Airport PANS-OPS



Source: Camden Airport Master Plan 2020 Figure 6.6

3.6.3 Height limits

It is important to note that vegetation, as well as structures, must remain below the OLS and PANS-OPS to avoid becoming a hazard to aircraft operations.

The OLS and PANS-OPS limits are conventionally expressed in metres above the Australian Height Datum (AHD), not above ground level. Therefore, limits must be compared to the ground elevations to understand the height available above the ground.

The ground beneath these surfaces varies in elevation ranging from 76 m AHD to 100 m AHD under the OLS as shown **M21116/7.1**. The OLS consists of a complex series of sloping surfaces also shown on Figure **M21116/7.1**. Therefore, the available height above the ground ranges from approximately 2 m to 10 m across the site (the elevation of the OLS minus the elevation of the ground) and within the extents of the Runway 06 take-off climb surface.

As a certified airport under Part 139 of the *Civil Aviation Safety Regulations 1996* there are number of requirements that must be met, including regular obstacle surveys. These surveys identify infringements of the OLS and report them back to the airport operator for action.

Given the adjacent vegetated landscape already exists within the proposed Natural Area Conservation precinct, it is assumed current obstacle monitoring and management practices are acceptable to Camden Airport. Ongoing discussions with the airport operator are recommended to confirm the monitoring and mitigation measures currently in place will remain appropriate, and will also be applied to the Rural Residue precinct going forward.

3.6.4 Helicopter Landing Site

Camden Airport has a main Helicopter Landing Site (HLS) located on the northern side of Runway 06/24 with flight paths that operate parallel to the runway centreline so as not to cause traffic conflicts with fixed wing operations. The subject land is beneath the arrival and departure paths for the main HLS as illustrated on **Figure M21116/08** (Refer to Appendix “G”).

The helicopter OLS ranges from approximately 107 m AHD to 159 m AHD across the southeastern quadrant of the subject land. The ground beneath this surface is also changing in elevation ranging from 73 m AHD to 95 m AHD. Therefore, the available height above the ground ranges from 34 m to 64 m (the elevation of the helicopter OLS minus the elevation of the ground).

3.7 Guideline G: Protecting 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 Camden Airport does not host any CNS facilities as listed in Guideline G.

3.8 Guideline H: Protecting Strategically Important Helicopter Landing Sites

Guideline H 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. The HLS on Camden Airport is discussed in **Section 3.6.1**.

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 flight path protection areas extend 3.5 km from the SHLS. Camden Hospital is approximately 3 km from the southern end of the subject land but does not appear to include HLS facilities.

3.9 Guideline I: Managing the Risk in Public Safety Zones at the Ends of Runways

Guideline I 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 requirements and when developing strategic land use plans.

The Guideline acknowledges that the UK and Queensland approaches to the development of PSA contours are of most relevance to Australia. The dimensions of the Queensland PSA template were determined with reference to the UK methodology for determining third party risk.

Camden Airport Master Plan 2020 has identified Public Safety Areas at the end of each runway. The southeastern end of the subject land is within the PSA as illustrated on **Figure M21116/09** (Refer to Appendix "H").

Any proposals for development on the Rural Residue precinct will need to take into consideration Guideline I *Table 1: General guidance for new/proposed developments on compatible and incompatible activities within PSA risk contours.* As a general guide, the types of new or changed development considered compatible or incompatible are included in Table 1 of the Guideline, which is reproduced as Appendix "I".

4. CONCLUSION

REHBEIN Airport Consulting has completed an assessment of the subject land at 229 Macquarie Road Grove, Cobbitty against the NASF Guidelines A through I. The assessment against each Guideline is summarised below:

- **Guideline A**: The majority of the subject land is outside the 20 ANEF contour. Part of the land identified as the Rural Residue and Natural Area Conservation lie within the 20 to 25 ANEF zone. Any proposed development within these areas will need to consider AS2021:2015. The likely implications are that land use authorities may consider that the incorporation of noise control features in the construction of residences or schools is appropriate;

- **Guideline B:** The western half of the subject land is within the building generated windshear and turbulence assessment trigger area. Guideline B is applicable to buildings only, as such should any building developments be proposed within the assessment trigger area, they will be subject to the 1 in 35 surface. The likely implications are that where proposed buildings infringe the 1 in 35 surface further assessment will be required in accordance with the Guideline. Further assessment involves a qualified wind engineer or other suitably qualified wind professional to assess the proposed structure using wind tunnel testing or computational fluid dynamics in order to satisfy the approval authority/decision maker that the structure is acceptable;

- **Guideline C**: The subject land is within the 3 km wildlife buffer zone. Conservation area – dryland is a 'moderate' risk under Attachment 1 to Guideline C with 'mitigation' is required. Consultation with the airport operator is required to maintain vegetation and any future vegetation from infringing the Camden Airport protected airspace. The likely implications are that there is limited height restrictions depending on location as low as 2 m above the ground, specifically the Rural Residue precinct;

- **Guideline D**: No wind turbines or wind monitoring towers are proposed;

- **Guideline E:** The subject land is within the 6 km radius and the primary area light control zones A, B, C and D. Coloured lights, flashing lights or lasers within the 6 km radius must be referred to CASA. Lighting associated with any proposals within the corresponding zone must therefore meet the restrictions associated with that Zone. The lighting designer will need to ensure that the lights meet the requirements prescribed in the CASA *Part 139 (Aerodromes) Manual of Standards 2019 Section 9.144: Lights – requirements for zones*. Compliance within each zone is expected to be manageable given the proposed land is for C2 and RU2.

- **Guideline F**: The subject land is within the Camden Airport OLS and PANS-OPS extents. The OLS limit ranges from approximately 78 m AHD over the Conservation area at the southern end of the subject land across the Rural Residue precinct to 113.0 m AHD over the majority of the subject land. The helicopter OLS ranges from approximately 107 m AHD to 159 m AHD across the southeastern quadrant of the subject land. The PANS-OPS is estimated at approximately 200 m AHD over the subject land. The likely implications are any development proposals on the subject land will need to stay below the OLS and vegetation will also need to be managed to remain below the OLS.

- **Guideline G**: Camden Airport does not host any CNS facilities as listed in Guideline G;

- **Guideline H**: The Camden Hospital is the only hospital within 3.5 km of the subject land however, does not appear to have an HLS and therefore has no implications for the subject proposal; and

- **Guideline I**: the southeast portion of the subject land is within the Public Safety Area in accordance with Guideline I. Any proposals for development will need to take into consideration Guideline I *Table 1: General guidance for new/proposed developments on compatible and incompatible activities within PSA risk contours.* The principal implications for the proposal will be to prevent residential development or other activities which encourage the congregation of large numbers of people within the PSA. Should Council wish to highlight the subject restrictions in a relevant Development Control Plan (DCP) amendment it would be appropriate to reference NASF Guideline I and the Public Safety Area map reproduced from the Camden Airport Master Plan 2020 as included in this report at Appendix H.

For further information in relation to the above, please contact the undersigned.

Yours faithfully
For and on behalf of
LAMBERT REHBEIN (VIC) PTY LTD

BRIDGET WOUTS MPIA
PRINCIPAL CONSULTANT

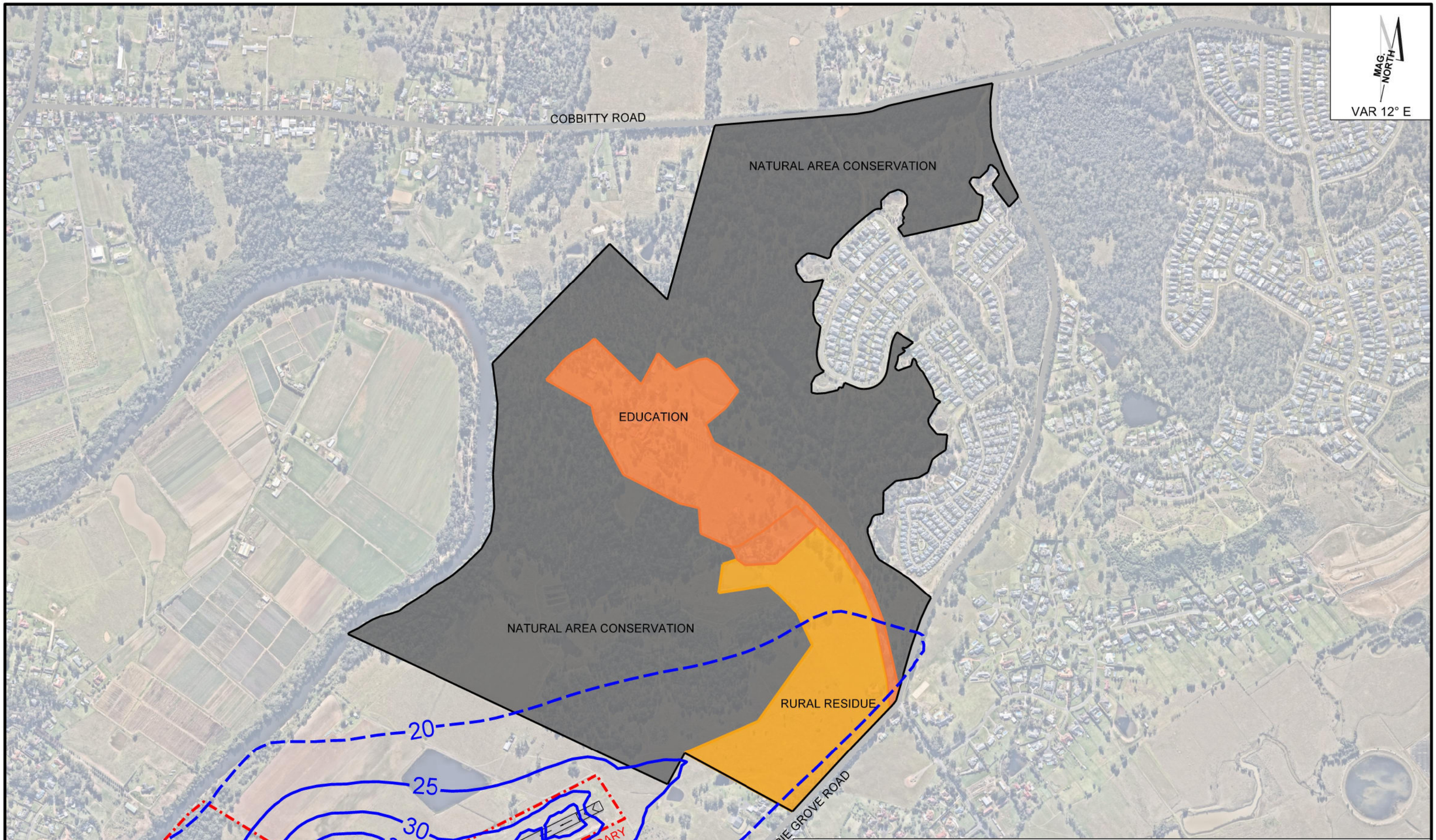
Enc: Appendix A - I

APPENDIX A

NASF Guideline A – Aircraft Noise

Camden Airport Endorsed ANEF 2040

(Figure M21116/01)



NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. THE AIRCRAFT NOISE CONTOURS SHOWN ARE BASED ON THE ENDORSED CAMDEN AIRPORT ANEF 2040.

Project
'WIVENHOE'
229 MACQUARIE ROAD GROVE, COBBITTY
AVIATION ASSESSMENT

Client
Trustees of the Sisters of the Good Samaritan

Title
NASF GUIDELINE A
CAMDEN AIRPORT
ENDORSED ANEF 2040

REHBEIN Airport Consulting
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Drawn MK | Checked BMW | Approved BMW

Rev	Date
1	24 07 23
0	18 09 21

Figure No
M21116/01

Scale 1:11,000 | A3
File Ref M21116 | Sheet Size

TitleSheet-V00

APPENDIX B

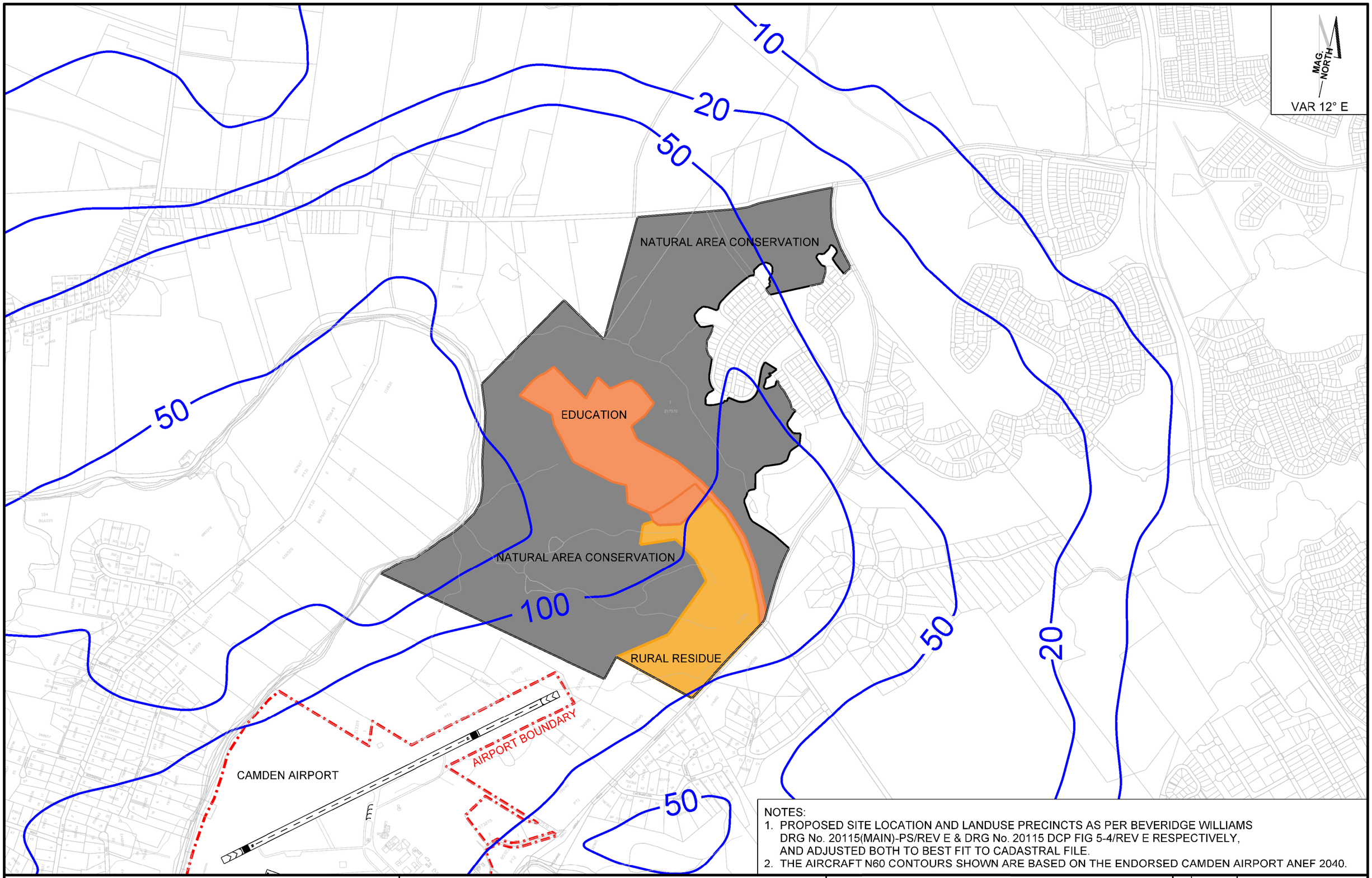
NASF Guideline A – Aircraft Noise

Camden Airport - N60 Contour ANEF 2040

(Figure M21116/02)

Camden Airport - N70 Contour ANEF 2040

(Figure M21116/03)



NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. THE AIRCRAFT N60 CONTOURS SHOWN ARE BASED ON THE ENDORSED CAMDEN AIRPORT ANEF 2040.

Project
'WIVENHOE'
229 MACQUARIE ROAD GROVE, COBBITTY
AVIATION ASSESSMENT

Client
Trustees of the Sisters of the Good Samaritan

Title
NASF GUIDELINE A
N60 CONTOUR ANEF 2040

REHBEIN Airport Consulting
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Rev	Date
1	24 07 23
0	18 09 21

Drawn MK | Checked BMW | Approved BMW

Figure No M21116/02
Scale 1:15,000
File Ref M21116
Sheet Size A3

TitleSheet-V00

MAG. NORTH

VAR 12° E

5

10

5

10

5

10

20

50

100

NATURAL AREA CONSERVATION

EDUCATION

NATURAL AREA CONSERVATION

RURAL RESIDUE

AIRPORT BOUNDARY

CAMDEN AIRPORT

NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. THE AIRCRAFT N70 CONTOURS SHOWN ARE BASED ON THE ENDORSED CAMDEN AIRPORT ANEF 2040.

Project
'WIVENHOE'
229 MACQUARIE ROAD GROVE, COBBITTY
AVIATION ASSESSMENT

Client
Trustees of the Sisters of the Good Samaritan

Title
NASF GUIDELINE A
N70 CONTOUR ANEF 2040

REHBEIN Airport Consulting
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Rev	Date
1	24 07 23
0	18 09 21

Drawn MK | Checked BMW | Approved BMW

Figure No M21116/03

Scale 1:15,000 | A3 Sheet Size

File Ref M21116

TitleSheet - V00

APPENDIX C

NASF Guideline B – Building Generated Windshear & Turbulence Assessment Trigger Areas

(Figure M21116/04)

NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. RWY 06/24 AND RWY 10/28 SHOWN AS PER DAH 17JUN2021.
3. THE BUILDING GENERATED WINDSHEAR AND TURBULENCE ASSESSMENT TRIGGER AREAS ARE BASED ON NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK (NASF) GUIDELINE B VERSION 2.2.5

MAG. NORTH
VAR 12° E

COBBITTY ROAD
NATURAL AREA CONSERVATION
EDUCATION
NATURAL AREA CONSERVATION
RURAL RESIDUE
MACQUARIE GROVE ROAD
CAMDEN AIRPORT
RWY 06/24
RWY 10/28
AIRPORT BOUNDARY
1200m
900m
500m
500m
900m
1200m

Project	'WIVENHOE' 229 MACQUARIE ROAD GROVE, COBBITTY AVIATION ASSESSMENT	Client	Trustees of the Sisters of the Good Samaritan
		Title	NASF GUIDELINE B BUILDING GENERATED WINDSHEAR & TURBULENCE ASSESSMENT TRIGGER AREAS

REHBEIN Airport Consulting
CONSULT AUSTRALIA
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Drawn MK | Checked BMW | Approved BMW

Rev	Date
1	24 07 23
0	18 09 21

Figure No M21116/04
Scale 1.13,000 A3
File Ref M21116 Sheet Size

TitleSheet-V00

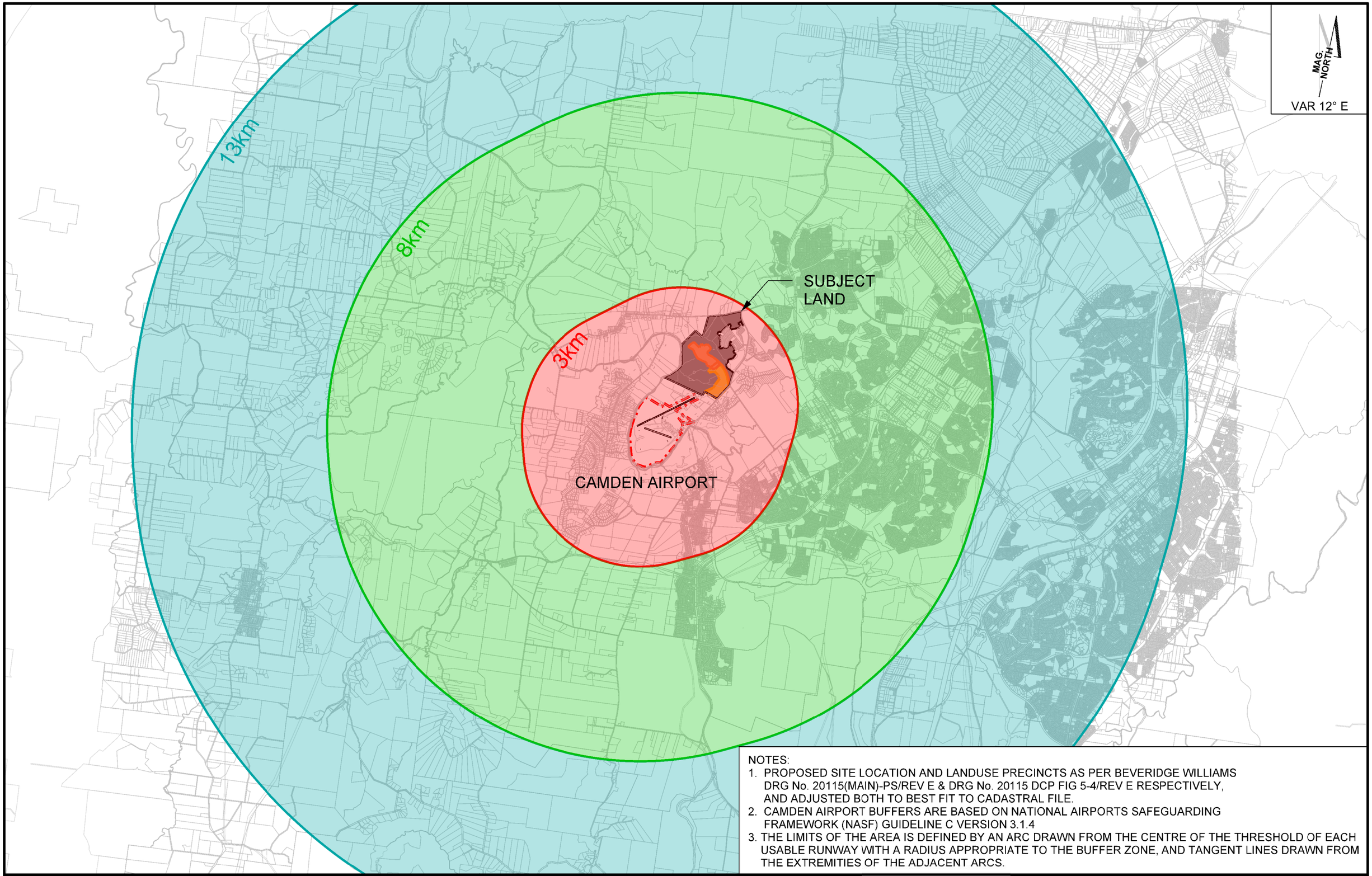
APPENDIX D

NASF Guideline C – Wildlife Buffer Zones

Wildlife Buffer Zones - Camden Airport

(Figure M21116/05)

Attachment 1 to Guideline C



NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. CAMDEN AIRPORT BUFFERS ARE BASED ON NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK (NASF) GUIDELINE C VERSION 3.1.4
3. THE LIMITS OF THE AREA IS DEFINED BY AN ARC DRAWN FROM THE CENTRE OF THE THRESHOLD OF EACH USABLE RUNWAY WITH A RADIUS APPROPRIATE TO THE BUFFER ZONE, AND TANGENT LINES DRAWN FROM THE EXTREMITIES OF THE ADJACENT ARCS.

Project
'WIVENHOE'
229 MACQUARIE ROAD GROVE, COBBITTY
AVIATION ASSESSMENT

Client
Trustees of the Sisters of the Good Samaritan

Title
NASF GUIDELINE C
WILDLIFE BUFFER ZONES - CAMDEN AIRPORT

REHBEIN Airport Consulting
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Rev	Date
1	24 07 23
0	18 09 21

Drawn MK | Checked BMW | Approved BMW

Figure No
M21116/05

Scale 1:88,000 | A3 Sheet Size

File Ref M21116

TitleSheet - V00

Land Use	Wildlife Attraction Risk	Actions for Existing Developments			Actions for Proposed Developments/ Changes to Existing Developments		
		3 km radius (Area A)	8 km radius (Area B)	13 km radius (Area C)	3 km radius (Area A)	8 km radius (Area B)	13 km radius (Area C)
Agriculture							
Turf farm	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Piggery	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Fruit tree farm	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Fish processing /packing plant	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Cattle /dairy farm	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Poultry farm	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 sanctuary / conservation area - wetland	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Wildlife sanctuary / conservation area - dryland	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Recreation							
Showground	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Racetrack / horse riding school	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Golf course	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Sports facility (tennis, bowls, etc)	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Park / Playground	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Picnic / camping ground	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Commercial							
Food processing plant	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Warehouse (food storage)	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
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
Office building	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
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
Warehouse (non-food storage)	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
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
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

APPENDIX E

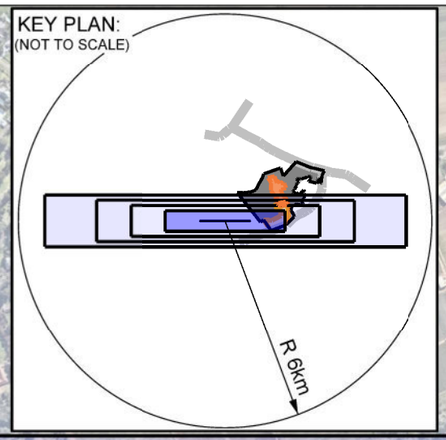
NASF Guideline E – Lighting in the Vicinity of Airports

Maximum Lighting Intensity Zones

(Figure M21116/06)

NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. THE MAXIMUM INTENSITY OF LIGHT SOURCES SHOWN ARE BASED ON NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK (NASF) GUIDELINE E VERSION 5.1.4 AND CASA PART 139 (AERODROMES) MANUAL OF STANDARDS 2019 SECTION 9.144: LIGHTS - REQUIREMENTS FOR ZONES.

KEY PLAN:
(NOT TO SCALE)



MAG. NORTH
VAR 12° E

Maximum Intensity of Light Sources Measured at 3° Above the Horizontal	
Zone A	0 cd
Zone B	50 cd
Zone C	150 cd
Zone D	450 cd

*cd = Candela (the common candle emits light at an intensity of roughly one candela)

COBBITTY ROAD
NATURAL AREA CONSERVATION
EDUCATION
NATURAL AREA CONSERVATION
ZONE D
ZONE C
ZONE B
ZONE A
RURAL RESIDUE
MACQUARIE GROVE ROAD
CAMDEN AIRPORT
RWY 06/24
AIRPORT BOUNDARY
600m
900m
1200m
00m
1000m
2000m

Project	'WIVENHOE' 229 MACQUARIE ROAD GROVE, COBBITTY AVIATION ASSESSMENT	
Client	Trustees of the Sisters of the Good Samaritan	
Title	NASF GUIDELINE E MAXIMUM LIGHTING INTENSITY ZONES	

REHBEIN Airport Consulting
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Drawn MK	Checked BMW	Approved BMW

Rev	Date
1	24 07 23
0	18 09 21

Figure No. M21116/06
Scale 1:11,000
File Ref M21116
Sheet Size A3

TitleSheet-V00

APPENDIX F

NASF Guideline F – Protected Operational Airspace

Obstacle Limitation Surfaces

(Figure M21116/07 & Figure M21116/7.1)

NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. RWY 06/24 AND RWY 10/28 SHOWN AS PER DAH 17JUN2021.
3. THE EXISTING OBSTACLE LIMITATION SURFACES SHOWN ARE IN ACCORDANCE WITH MOS PART 139 V1.15, ONLY LOWEST SURFACES SHOWN, OTHER HIGHER SURFACES NOT SHOWN.
4. ELEVATIONS SHOWN ARE MEASURED AS METRES ABOVE THE AUSTRALIAN DATUM (m AHD) UNLESS OTHERWISE NOTED.
5. HP DENOTES HORIZONTAL PLANE.

MAG. NORTH
VAR 12° E

COBBITTY ROAD

EDUCATION

NATURAL AREA CONSERVATION

NATURAL AREA CONSERVATION

RURAL RESIDUE

MACQUARIE GROVE ROAD

INNER HORIZONTAL SFC
HP 113.0m AHD

OLS TAKE-OFF CLIMB SFC: 78.1m AHD

RWY 24 APCH SFC

RWY 06 TKOF CLIMB SFC

RWY 06/24 TRANS SFC

AIRPORT BOUNDARY

CAMDEN AIRPORT

RWY 06/24

Project	'WIVENHOE' 229 MACQUARIE ROAD GROVE, COBBITTY AVIATION ASSESSMENT	Client	Trustees of the Sisters of the Good Samaritan
		Title	NASF GUIDELINE F OBSTACLE LIMITATION SURFACES

REHBEIN Airport Consulting
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Drawn	Checked	Approved
MK	BMW	BMW

Rev	Date
1	24 07 23
0	18 09 21

Figure No. M21116/07
Scale 1:13,000
File Ref M21116
Sheet Size A3

TitleSheet-V00

NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. RWY 06/24 AND RWY 10/28 SHOWN AS PER DAH 17JUN2021.
3. THE EXISTING OBSTACLE LIMITATION SURFACES SHOWN ARE IN ACCORDANCE WITH MOS PART 139 V1.15, ONLY LOWEST SURFACES SHOWN, OTHER HIGHER SURFACES NOT SHOWN.
4. ELEVATIONS SHOWN ARE MEASURED AS METRES ABOVE THE AUSTRALIAN DATUM (m AHD) UNLESS OTHERWISE NOTED.
5. HP DENOTES HORIZONTAL PLANE.
6. GROUND LEVELS SHOWN ACROSS THE SUBJECT LAND ARE APPROXIMATE AND INTENDED TO INDICATE THE GENERAL VARIATION IN GROUND ELEVATION ONLY

EDUCATION

RURAL RESIDUE

NATURAL AREA CONSERVATION

MAG. NORTH
VAR 12° E

MACQUARIE GROVE ROAD

INNER HORIZONTAL SFC
HP 113.0m AHD

RWY 6/24 TRANS SFC

RWY 24 APCH SFC

RWY 06 TKOF CLIMB SFC

RWY 06/24

OLS TAKE-OFF CLIMB SFC: 78.1m AHD

INNER HORIZONTAL SFC
HP 113.0m AHD

Project	'WIVENHOE' 229 MACQUARIE ROAD GROVE, COBBITTY AVIATION ASSESSMENT	Client	Trustees of the Sisters of the Good Samaritan
		Title	NASF GUIDELINE F OBSTACLE LIMITATION SURFACES

REHBEIN Airport Consulting
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Drawn	Checked	Approved
MK	BMW	BMW

Rev	Date
1	24 07 23
0	18 09 21

Figure No. M21116/7.1
Scale 1:13,250
File Ref M21116
Sheet Size A3

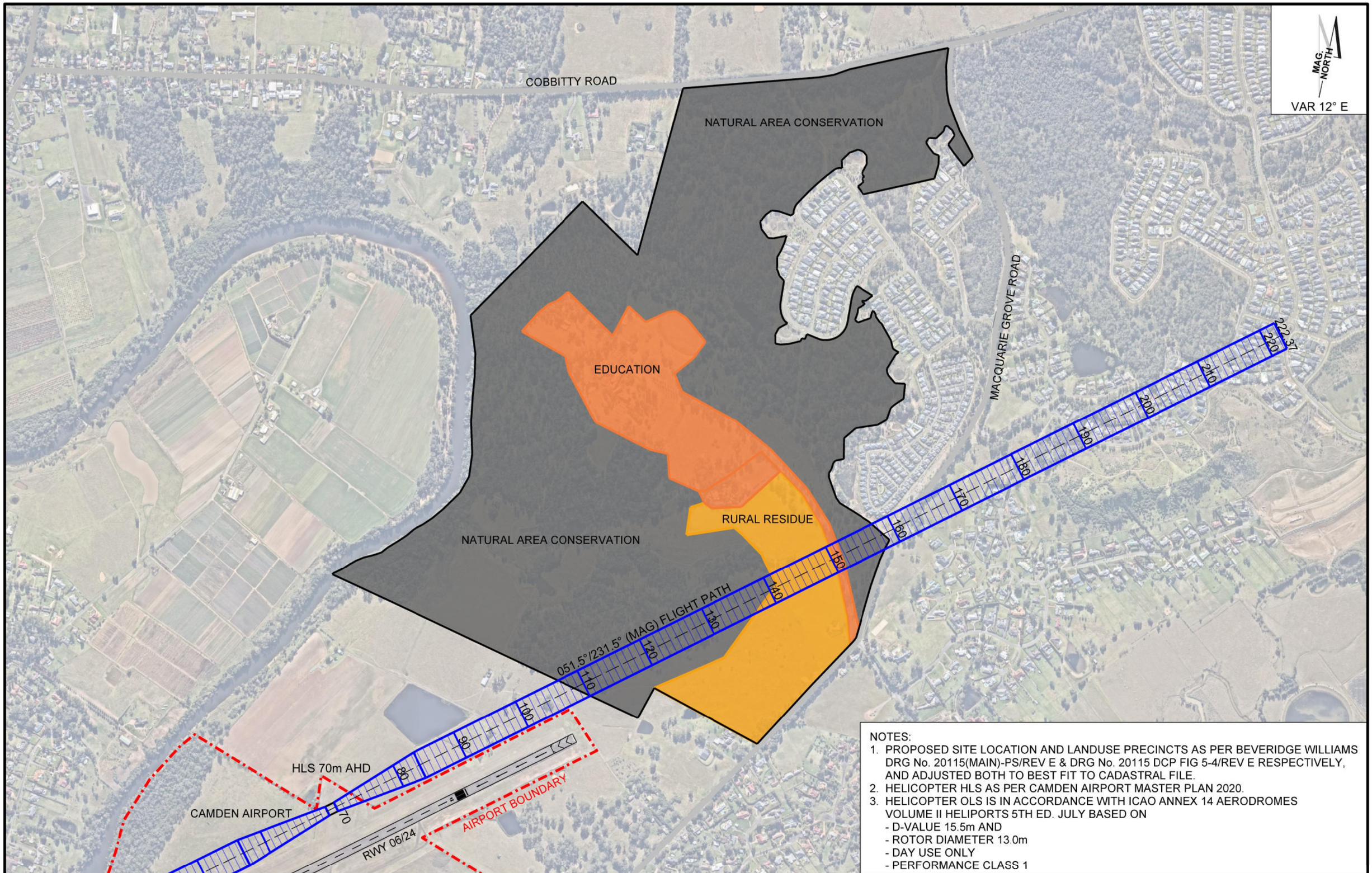
TitleSheet-V00

APPENDIX G

NASF Guideline F – Protected Operational Airspace

Helicopter OLS

(Figure M21116/08)



NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. HELICOPTER HLS AS PER CAMDEN AIRPORT MASTER PLAN 2020.
3. HELICOPTER OLS IS IN ACCORDANCE WITH ICAO ANNEX 14 AERODROMES VOLUME II HELIPORTS 5TH ED. JULY BASED ON
   - D-VALUE 15.5m AND
   - ROTOR DIAMETER 13.0m
   - DAY USE ONLY
   - PERFORMANCE CLASS 1

Project
'WIVENHOE'
229 MACQUARIE ROAD GROVE, COBBITTY
AVIATION ASSESSMENT

Client
Trustees of the Sisters of the Good Samaritan

Title
NASF GUIDELINE F
HELICOPTER OLS

REHBEIN Airport Consulting
CONSULT AUSTRALIA
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Rev	Date
1	24 07 23
0	18 09 21

Drawn MK | Checked BMW | Approved BMW

Figure No M21116/08
Scale 1:11,000 A3
File Ref M21116
Sheet Size

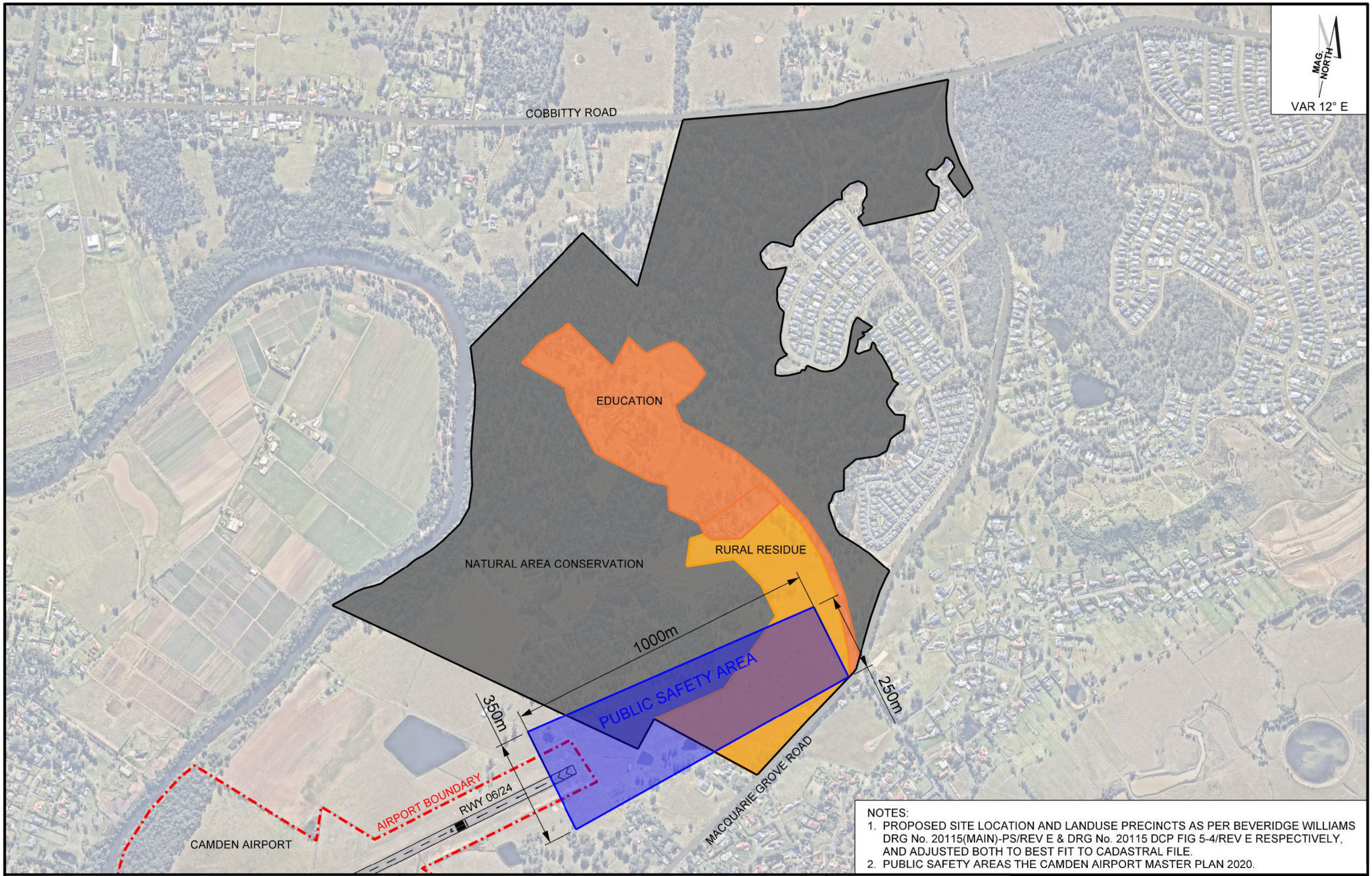
TitleSheet-V00

APPENDIX H

NASF Guideline I – Public Safety Areas

Camden Airport – Public Safety Areas MP 2020

(Figure M21116/09)



NOTES:
1. PROPOSED SITE LOCATION AND LANDUSE PRECINCTS AS PER BEVERIDGE WILLIAMS DRG No. 20115(MAIN)-PS/REV E & DRG No. 20115 DCP FIG 5-4/REV E RESPECTIVELY, AND ADJUSTED BOTH TO BEST FIT TO CADASTRAL FILE.
2. PUBLIC SAFETY AREAS THE CAMDEN AIRPORT MASTER PLAN 2020.

Project
'WIVENHOE'
229 MACQUARIE ROAD GROVE, COBBITTY
AVIATION ASSESSMENT

Client
Trustees of the Sisters of the Good Samaritan

Title
NASF GUIDELINE I
PUBLIC SAFETY AREA
CAMDEN AIRPORT MP2020

REHBEIN Airport Consulting
CONSULT AUSTRALIA
SUITE 1, GROUND FLOOR
55 WALSH STREET
WEST MELBOURNE VIC 3003
TELEPHONE (03) 9328 4166
EMAIL info@rehbein.aero
WEB www.rehbein.aero

Drawn MK | Checked BMW | Approved BMW

Rev	Date
1	24 07 23
0	18 09 21

Figure No
M21116/09

Scale 1:11,000 | A3 Sheet Size

File Ref M21116

TitleSheet-V00

APPENDIX I

NASF Guideline I – Table 1

Table 1: General guidance for new/proposed developments on compatible and incompatible activities within PSA risk contours

PSA	COMPATIBLE USES	INCOMPATIBLE USES/ACTIVITIES
OUTER AREA - 1 in 100,000	• **Long stay and employee car parking** (where the minimum stay is expected to be in excess of six hours) • **Shorter stay car parking** (with a safety case – depends on intensity of use) • **Built development for the purpose of housing plant or machinery** and would require **no people** on site on a regular basis, such as electricity switching stations or installations associated with the supply or treatment of water • **Golf courses, but not club houses** (provided appropriate mitigation measures are in place to reduce wildlife attraction risk - see NASF Guideline C) • **Open storage and types of warehouses with a very small number of people on site.** The planning authority could consider imposing conditions to prevent future intensification of the use of the site and limit the number of people to be present on the site • **Developments which require few or no people on site on a regular basis** such as buildings housing plant or machinery • **Low intensity public open space**	• **Accommodation activities:** This includes dwelling houses, multiple dwellings, resort complexes, tourist park, hostels, retirement villages or other residential care buildings • **Community activities**: educational establishment, community centres, hospitals, theatres, child-care and playgrounds, detention facilities, place of worship • **Recreation activities:** This includes parks, outdoor recreation and sport, major sport and entertainment facilities • **Entertainment and centre activities:** Shopping centres, service stations, showrooms, markets, hotels, theatres, tourist attraction, garden centres • **Industrial and commercial uses involving large numbers of workers or customers:** Intensive uses such as high impact, medium and low impact industry, warehousing, services industry • **Manufacture or bulk storage of flammable, explosive or noxious materials** • **Public passenger transport infrastructure:** This includes bus, train and light rail stations
INNER AREA – 1 in 10,000	• **Long stay and employee car parking** (where the minimum stay is expected to be in excess of six hours) • **Built development for the purpose of housing plant or machinery** and would require **no people** on site on a regular basis, such as electricity switching stations or installations associated with the supply or treatment of water • **Golf courses, but not club houses** (provided appropriate mitigation measures are in place to reduce wildlife attraction risk - see NASF Guideline C)	• **Accommodation activities:** This includes dwelling houses, multiple dwellings, resort complexes, tourist park, hostels, retirement villages or other residential care buildings • **Community activities**: educational establishment, community centres, hospitals, theatres, child-care and playgrounds, detention facilities, place of worship • **Recreation activities:** This includes parks, outdoor recreation and sport, major sport and entertainment facilities • **Entertainment and centre activities:** Shopping centres, service stations, showrooms, markets, hotels, theatres, tourist attraction, garden centres • **Industrial and commercial uses involving large numbers of workers or customers:** Intensive uses such as high impact, medium and low impact industry, warehousing, services industry • **Manufacture or bulk storage of flammable, explosive or noxious materials** • **Public passenger transport infrastructure:** This includes bus, train and light rail stations