



Dural Group
Consulting

DA Noise Impact Assessment (Aircraft Noise)

**41 VIRTUE STREET,
CONDELL PARK**

PREPARED FOR

BJC Design

PREPARED BY

Dural Group Pty Ltd

ABN :91 619 721 023



Suite-19, 80-82 Bathurst street
Liverpool, NSW-2170

Phone: +61 2 9601 3039

Mob: 0433411889

Email: info@duralgroup.com.au

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1. Introduction

Dural group consulting has been commissioned to carry out an acoustic assessment at the proposed development in 41 Virtue Street, Condell Park, NSW 2200

This assessment forms part of the supporting documentation associated with the Development Application for the proposed development.

1.1 PURPOSE

The assessment aims to address the sound insulation requirements from the external aircraft noise and advice on the building materials to be used and the construction methods to be adopted in line with the existing Code, Policy and guidelines.

Dural group also utilised the following documents and regulations in the assessment of noise from the development which is also discussed in section-2

- Canterbury-Bankstown Council 'Development Control Plan (DCP)'
- 2021-2015 "Acoustics-Aircraft Noise Intrusion –Building Siting and Construction"
- BJC Design Architectural drawings
- Insul Software user Manual

1.2 SITE DESCRIPTION

The development site is located at 41 Virtue Street, Condell Park, NSW. An aerial photo of the site and surrounding site is shown below in Figure 1.



Figure 1 Site location of 41 Virtue Street, Condell Park, NSW 2200

The site is bounded by the Virtue Street to North, the existing neighbour to the East, West and south.

Low level of traffic flow was observed. So, Road traffic noise is not considered in the report. A major source of noise for the development is the Bankstown airport aircraft noise.

1.3 PROPOSED DEVELOPMENT

It is proposed to alter and addition of the existing single storey residential dwelling at the existing lot. Full details are given in the drawings provided by BJC Architects, issued on 16/4/ 2025

2. Applicable design criteria

2.1 CANTERBURY-BANKSTOWN CITY COUNCIL

Canterbury Banks town Council DCP does not have any specific design goals for external noise impacts on residential development. Taking this into consideration, external noise impacts on the proposed development will be assessed against the requirements outlined by the Australian Standard 2021-2015.

2.2 AUSTRALIAN STANDARD:

2021-2015 "Acoustics-Aircraft Noise Intrusion –Building Siting and Construction" provides guideline for determining whether the extent of aircraft noise intrusion makes building site "Acceptable", Unacceptable or Conditionally Acceptable for the types of activity to be undertaken.

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

It also recommends the following noise level. Note that the recommended Noise level is based on the assumption that the external windows and doors are shut.

	Space	Indoor design sound level
Houses noise level for determination Aircraft noise reduction	Sleeping areas, dedicated lounges	50
	Other habitable spaces	55
	Bathroom toilet, Laundries	60

3. Description of existing noise environment

3.1 BANKSTOWN AIRPORT:

Banks town Airport provides movements of fixed-wing aircraft, helicopters and related aircraft maintenance activities through its three-runway complex. Its aviation activities include emergency services, air freight, flight training, general aviation, charter flights and maintenance etc. Bankstown Airport operates on a 24-hour basis.

CENTRE RUNWAY

Currently the Central Runway is mostly used due to night flying and for large aircraft departing into controlled airspace. It operates 24-hour basis.

NORTHERN RUNWAY: The Northern Runway typically was the main airport runway, servicing flying training and general aviation arrivals and departures. This runway will be decommissioned soon.

SOUTHERN RUNWAY

The Southern Runway now a days mostly used instead of Northern runway. Typically provides for flying circuit training.

3.2 AUSTRALIAN NOISE EXPOSURE FORECAST (ANEF):

It is single number index for predicting the cumulative exposure to aircraft noise in communities near aerodromes during one year. This single number index is useful for rating the compability of various land uses with respect to aircraft noise. The contour map shows the forecast of noise exposure level that will exists in future.

3.3 DETERMINATION OF BUILDING SITE ACCEPTABILITY

The site is located North of Bankstown Airport, between the Australian Noise Exposure Forecast (ANEF) 20 and ANEF 25 contours. According to Table 2.1 of the Australian Standard 2021-2015 states that, any home unit development that is "Conditionally Acceptable "and the "maximum aircraft noise level for the relevant aircraft and the required noise reduction to be determined and constructed in accordance with clause 3.3.

3.4 DETERMINATION OF AIRCRAFT NOISE LEVEL

The future fleet mix of aircraft likely to be Fixed wing Aircraft, and helicopter in 2039.

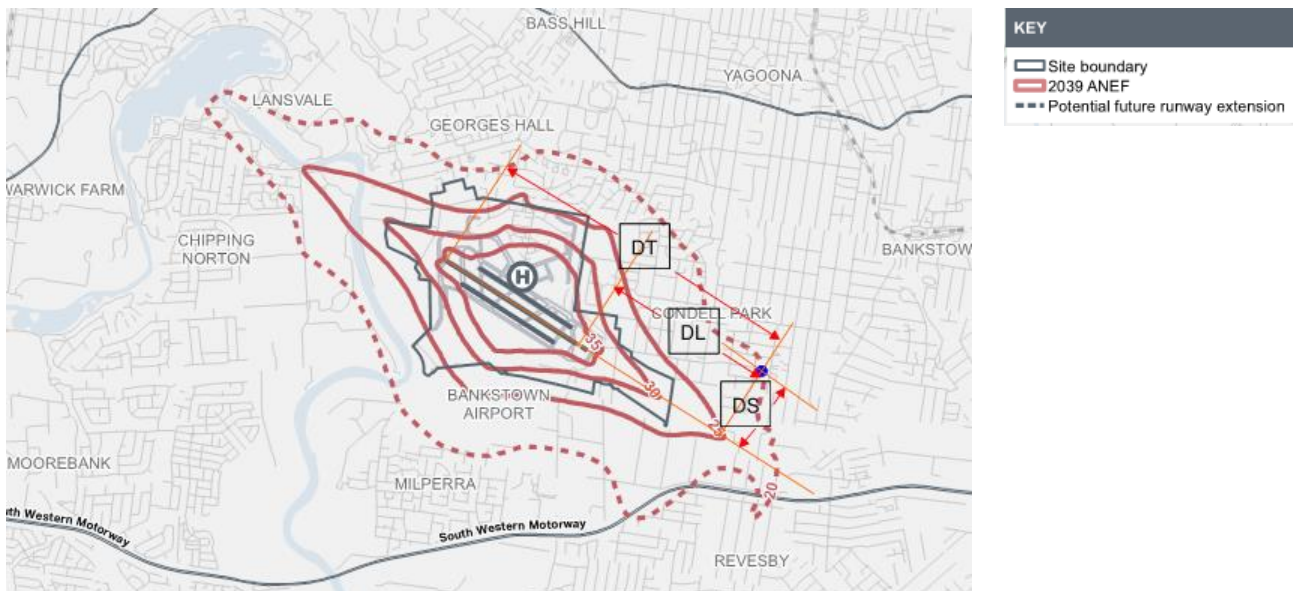


Figure 2: Critical Runway of Bankstown Airport

DT, DL, DS determined as for flight path are as follows:

Straight Flight Path		Curved Flight Path	
DT	3130	DST	2433
DL	1600	DSL	881
DS	740	DS	20

The maximum aircraft noise level as determined from Table 3.55(B) is 81 dB(A) for an GASEPF aircraft (Generic 1 Engine-FP-Departures) (Centre Runway) for curved flight path.

3.4.1 AIRCRAFT NOISE REDUCTION (ANR) REQUIREMENT

In accordance with the table of 3.3 of the standard, indoor design sound level appropriate for the residential building based on curved flight path.

	Indoor design sound level	Aircraft noise reduction (ANR)
Sleeping areas, dedicated lounges	50	31
Other habitable spaces	55	26
Bathroom toilet, Laundries	60	21

3.5 MECHANICAL VENTILATION

An acoustically insulated building must be kept virtually air tight to exclude external noise. So mechanical ventilation or air-conditioning is needed to provide.

4. Recommendation:

To achieve compliance with the Australian standards, building elements with improved sound insulation properties will be required. In particular, an upgraded window system is likely to be required.

Following are the typical constructions that have been specified against proposed architectural designs. However, the contractor may change (if required) with another alternative construction that provides the same or better Sound Transmission Loss performance.

4.1.1 RECOMMENDED NOISE MITIGATION MEASURES

Based on the above assessment the following recommendations have been made in line with the proposed project noise objectives:

4.2 BUILDING FABRIC:

Location	Typical Construction	R _w Achieved*
All external wall	Brick Veneer : <ul style="list-style-type: none">75mm thick glass wool insulation with a density of 11kg/m³ positioned between timber stud.One layer of 13mm plasterboardAll joints to be Acoustically sealed	50
	Timber/Fibro Cavity Panel : <ul style="list-style-type: none">90 mm thick glass wool insulation with a density of 11kg/m³ positioned between steel stud .Timber Clade sheeting and one layer 13mm plasterboard All the joints to be sealed	47-50
Ceiling and roof system	Metal roof + Anticon R1.3+ Ceiling batts (R3.0) + 13mm plasterboard ceiling	50
External Solid Doors:	35 mm solid core timber construction. Acoustic seals should be fitted to the doors(soft plastic gasket around sides, top & drop seal at base)	28-30

*Safety Margin Applied

Table 3: Fabric construction and weighted Sound reduction index (R_w)

4.3 GLAZING:

Any Thicker glazing greater than the scheduled below will be acoustically acceptable.

Location	Typical Construction	ANA(Aircraft Noise Attenuation) Required*
Living/Dining/Kitchen & Bedroom Areas:	6.38mm laminated glass with full perimeter acoustic seals	31
Laundry/Common Bathroom	4/6.38mm Standard glass in compliance with AS 2047	25-28

Table 4: Glazing Requirement (R_w)

It is important that any sound leakage paths around the windows are to be sealed off. It is recommended that prior to the fitting of architraves around the doors, the space between the frames and the wall structure be sealed off with silicone mastic.

5. Conclusion:

This report presents an acoustic assessment of noise impacts associated with the proposed alteration & Addition at 41 Virtue Street, Condell Park, NSW 2200.

In accordance with the AS 2021.2015, the site is conditionally acceptable for residential dwelling. The acoustic treatments set out in this report shall comply with the council DCP, and the AS 2021.2015 provided that the materials to be used in the construction comply with the specifications presented in this report.

The internal noise levels in the proposed building will provide reasonable comfort for the occupants. Should you require any further explanation please don't hesitate to contact us.