

## 531 COBBITTY ROAD, COBBITTY

### Tranche 5 - Road traffic noise assessment

11 May 2023

Mirvac Homes (NSW)

TM504-03F03 Tranche 5 Road Traffic Noise Assessment (r2)

## Document details

| Detail         | Reference                                                |
|----------------|----------------------------------------------------------|
| Doc reference: | TM504-03F03 Tranche 5 Road Traffic Noise Assessment (r2) |
| Prepared for:  | Mirvac Homes (NSW)                                       |
| Address:       | Level 28, 200 George Street<br>Sydney NSW 2000           |
| Attention:     | Stephanie Vanderent                                      |

## Document control

| Date       | Revision history                       | Non-issued revision | Issued revision | Prepared | Instructed | Reviewed / Authorised |
|------------|----------------------------------------|---------------------|-----------------|----------|------------|-----------------------|
| 28.04.2023 | Draft                                  | 0                   | 1               | L. Woolf | -          | M. Gange              |
| 11.05.2023 | Revised site layout and traffic report |                     | 2               | L. Woolf | -          | M. Gange              |

File Path: \\192.168.168.249\data\AssocSydProjects\TM501-TM550\TM504 ds 531 Cobbitty Rd, Cobbitty\Task 3\1 Docs\2 Report\TM504-03F03 Tranche 5 Road Traffic Noise Assessment (r2).docx

### Important Disclaimers:

The work presented in this document was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian/New Zealand Standard AS/NZS ISO 9001.

This document is issued subject to review and authorisation by the suitably qualified and experienced person named in the last column above. If no name appears, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for the particular requirements of our Client referred to above in the 'Document details' which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Renzo Tonin & Associates. The information herein should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

In preparing this report, we have relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, we have not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

We have derived data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination and re-evaluation of the data, findings, observations and conclusions expressed in this report.

We have prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

External cladding disclaimer: No claims are made and no liability is accepted in respect of any external wall and/or roof systems (eg. facade / cladding materials, insulation etc) that are: (a) not compliant with or do not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes; or (b) installed, applied, specified or utilised in such a manner that is not compliant with or does not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes.

## Contents

|            |                                                                                             |    |
|------------|---------------------------------------------------------------------------------------------|----|
| 1          | Introduction                                                                                | 1  |
| 2          | Site description                                                                            | 2  |
| 3          | Noise Criteria                                                                              | 6  |
| 3.1        | Oran Park Precinct Development Control Plan 2007                                            | 6  |
| 3.2        | Camden Council Environmental Noise Policy 2018                                              | 7  |
| 3.2.1      | External noise                                                                              | 7  |
| 3.2.2      | Internal noise                                                                              | 8  |
| 3.3        | Department of Planning 'Development near rail corridors and busy roads – interim guideline' | 8  |
| 3.4        | Clarification of Transport and Infrastructure SEPP noise limits                             | 9  |
| 4          | Road traffic noise assessment                                                               | 11 |
| 4.1        | Traffic flow and composition                                                                | 11 |
| 4.2        | Road noise prediction model                                                                 | 12 |
| 4.3        | Noise modelling assumptions                                                                 | 13 |
| 4.4        | Noise modelling results                                                                     | 13 |
| 5          | Conclusion                                                                                  | 19 |
| APPENDIX A | Glossary of terminology                                                                     | 20 |
| APPENDIX B | Building treatment categories                                                               | 22 |

## List of tables

|          |                                                                                  |    |
|----------|----------------------------------------------------------------------------------|----|
| Table 1: | Transport and Infrastructure SEPP noise criteria for new residential development | 10 |
| Table 2: | Traffic volumes and compositions                                                 | 12 |
| Table 3: | Summary of modelling inputs                                                      | 12 |
| Table 4: | Worst case building treatment required                                           | 13 |
| Table 5: | Treatment categories                                                             | 22 |

## List of figures

|             |                                                                  |    |
|-------------|------------------------------------------------------------------|----|
| Figure 2-1: | South West Growth Centre SEPP (2006) land zoning                 | 3  |
| Figure 2-2: | Proposed Tranche 5a subdivision layout (lots 115-185)            | 4  |
| Figure 2-3: | Proposed Tranche 5a subdivision layout (lots 101-114)            | 5  |
| Figure 4-1: | Predicted road traffic noise levels at first floor facades, Day  | 15 |
| Figure 4-2: | Predicted road traffic noise levels at ground floor facades, Day | 16 |
| Figure 4-3: | Treatment categories at ground floor facades                     | 17 |
| Figure 4-4: | Treatment categories at first floor facades                      | 18 |

# 1 Introduction

Renzo Tonin & Associates was engaged by Mirvac Homes to conduct an acoustic assessment of the road traffic noise impact onto the proposed Tranche 5a residential subdivision at 531 Cobbitty Road, Cobbitty. This report provides an update to the previous traffic noise modelling and now includes further detail for the Tranche 5a subdivision which consists of 85 residential lots. The Tranche 5a subdivision encompasses the allotments closer to the future extension of Charles McIntosh Parkway. The overall Tranche 5 subdivision (Tranches 5a and 5b) is understood to comprise of 204 residential lots. It is understood that this road traffic noise assessment is to support the Development Application (DA) for the lots in Tranche 5a.

The main sources of noise affecting the proposed residential development is road traffic along Cobbitty Road and the future extension of Charles McIntosh Parkway.

APPENDIX A contains a glossary of acoustic terms used in this report.

## 2 Site description

Land zoning for the State Environmental Planning Policy South West Growth Centre (2006) (SEPP) indicates that the land within the proposed site is zoned as R1 General Residential and C4 Environmental Living. This is presented in Figure 2-1.

It is anticipated that a total of 85 residential lots will be created within the Tranche 5a subdivision located on the north-western portion of the site.

Nearby existing roads to the site include Cobbitty Road as well as the future planned extension of Charles McIntosh Parkway to the south and the Northern Road arterial road to the far east.

A layout of the Tranche 5a subdivision is presented in Figure 2-2 below.

Figure 2-1: South West Growth Centre SEPP (2006) land zoning

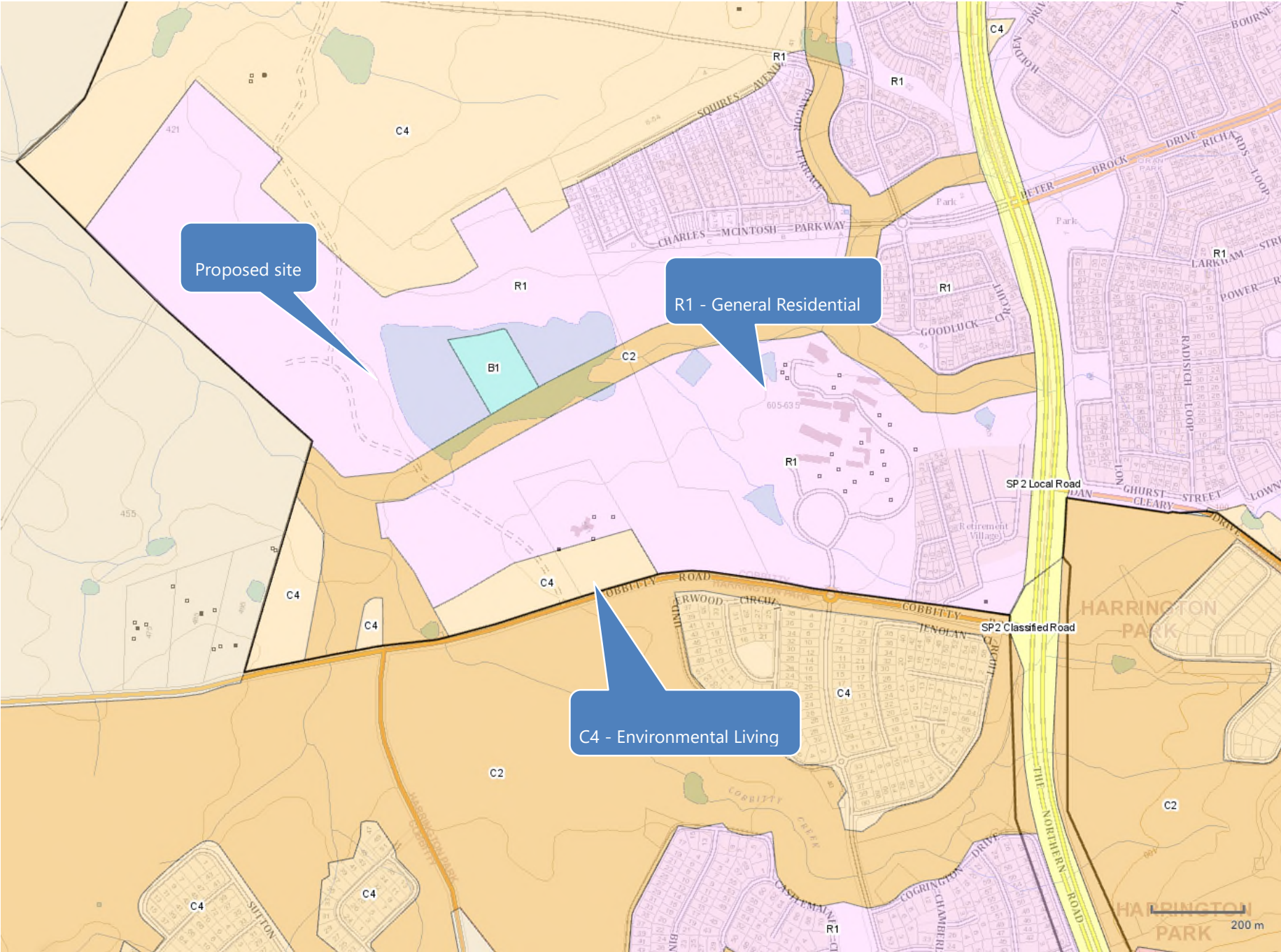


Figure 2-2: Proposed Tranche 5a subdivision layout (lots 115-185)

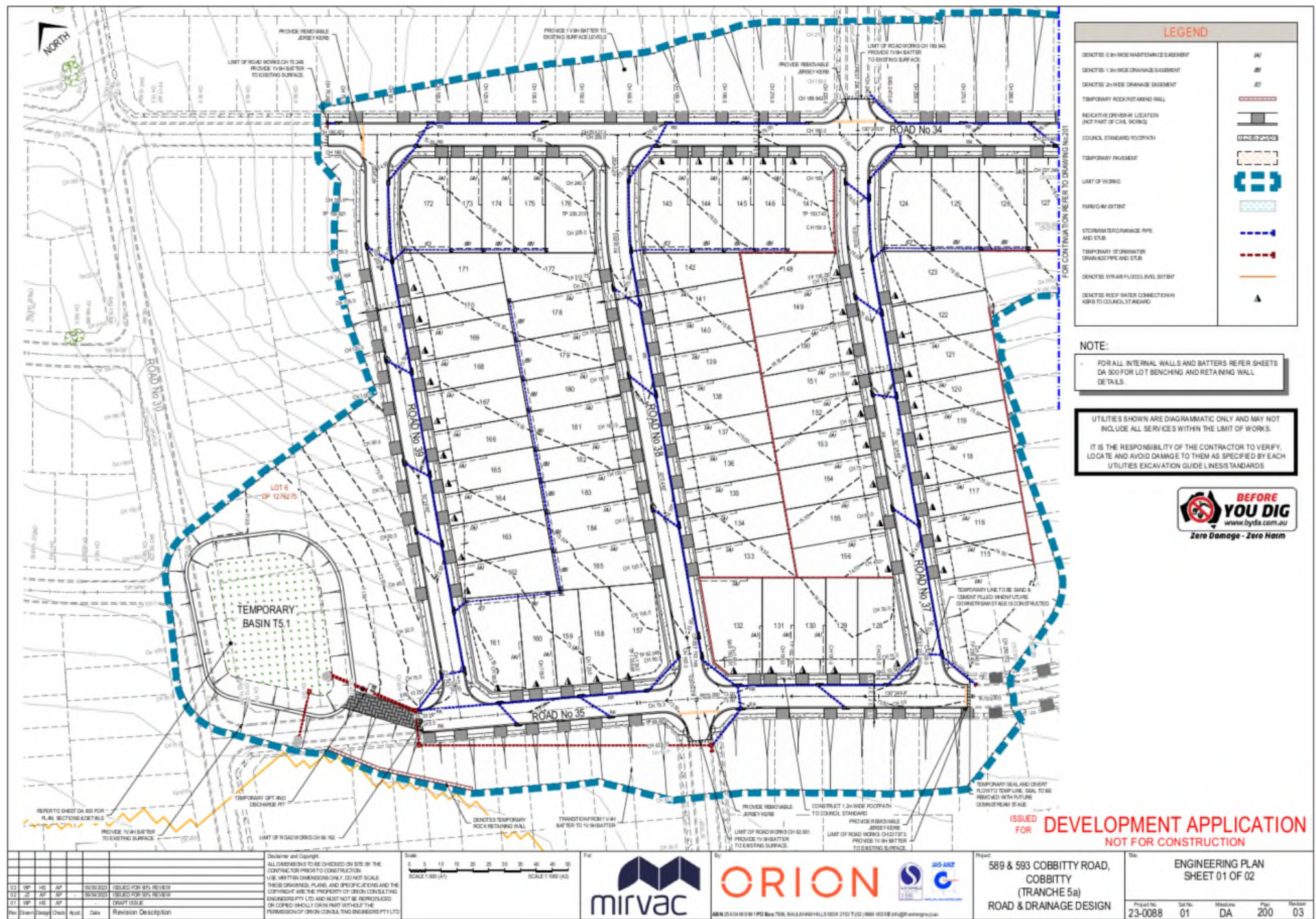
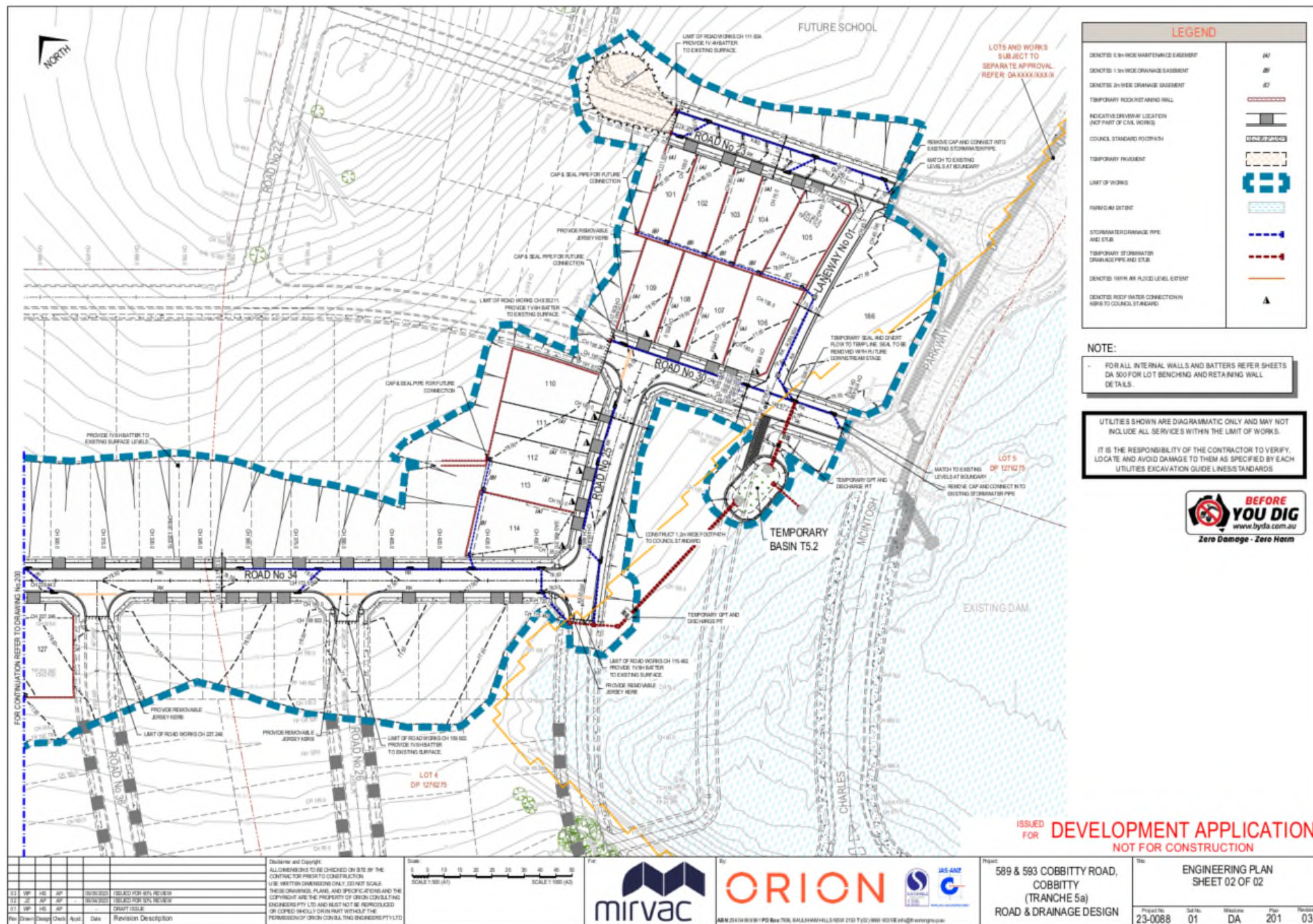


Figure 2-3: Proposed Tranche 5a subdivision layout (lots 101-114)



### 3 Noise Criteria

This assessment is concerned with impacts on proposed and future residential allotments. Given that most of the planned future lots are at an early design stage, non-residential land uses will be designed based on the predicted noise levels once further detailed design of the future lots are known.

#### 3.1 Oran Park Precinct Development Control Plan 2007

The proposed residential subdivision is within the Oran Park South West Growth Area. The SEPP refers to the Oran Park Precinct Development Control Plan 2007.

The Oran Park Precinct Development Control Plan 2007 (DCP 2007) aims to reduce potential noise and vibration impacts by identifying the conditions where an acoustic assessment may be required. It also details which policies and guidelines should be used to inform the assessment.

Controls 1 and 2 in Section 6.9 of DCP 2007 addresses road traffic noise and states:

1. *Residential development shall be designed to comply with Council's Environmental Noise Policy that incorporates DECC's Environmental Criteria for Road Traffic Noise. However, for residential development adjoining sub-arterial and collector roads, where external traffic noise level limits will be exceeded at the façade of the residential premises nearest to the noise source, the development will be deemed to comply with Council's Environmental Noise Policy if:*
  - *the principal private open space area of the residential premises complies with the relevant noise limit, and*
  - *the internal noise levels identified in sub-clause (2) are achieved.*
2. *The internal noise level limits for residential development are:*

*For residential premises impacted by traffic noise from arterial, or sub-arterial roads;*

- *In a naturally ventilated - windows open condition (i.e. windows open up to 5% of the floor area, or attenuated natural ventilation open to 5% of the floor area), or mechanically ventilated windows closed condition:*

|                |                     |       |
|----------------|---------------------|-------|
| Sleeping areas | LAeq 15 hour, Day   | 40dB  |
|                | LAeq, 9 hour, Night | 35dB  |
| Living areas   | LAeq 15 hour, Day   | 45 dB |
|                | LAeq, 9 hour, Night | 40dB  |

- *where a naturally ventilated - windows open condition cannot be achieved, it is necessary to incorporate mechanical ventilation compliant with AS1668 and the Building Code of Australia. The noise levels above shall be met with mechanical ventilation or air-conditioning systems not operating. The following LAeq noise levels shall not be*

*exceeded when doors and windows are shut and mechanical ventilation or air conditioning is operating:*

|                |                    |       |
|----------------|--------------------|-------|
| Sleeping areas | LAeq 15 hour, Day  | 43dB  |
|                | LAeq 9 hour, Night | 38dB  |
| Living areas   | LAeq 15 hour, Day  | 48 dB |
|                | LAeq 9 hour, Night | 43dB  |

*Note: These levels correspond to the combined measured level of external sources and the ventilation system operating normally.*

Acoustic amenity to residential principal private open space (PPOS) areas in sub-clause (1) is addressed in Camden Council's Environmental Noise Policy 2018. This is elaborated in Section 3.2 below.

It is noted that the internal levels in Control 1, sub-clause (2) of the DCP 2007 for the windows closed condition are generally consistent with the noise limits contained within the Department of Planning's "Development near Rail Corridors and Busy Roads – Interim Guideline", although they allow an additional 3dB for contribution from mechanical ventilation system.

## 3.2 Camden Council Environmental Noise Policy 2018

### 3.2.1 External noise

'Road and Rail Noise' Control 3 in Camden Council's Environmental Noise Policy 2018 addresses acoustic amenity for PPOS areas. Control 3 states:

*The principle private open space or an equivalent area of useable open space of a dwelling within a new release area is not to exceed 57dBA LAeq (15hr) from 7am to 10pm.*

*Note: For clarification purposes, a new release area, includes land mapped as Urban Release Area within the CLEP 2010 and includes Growth Area Precincts that have been rezoned.*

*For dwellings in areas outside of the new release areas, the principle private open space area is to be attenuated to 55dBA LAeq (15hr) from 7am to 10pm.*

*Council may consider an increased decibel level where it can be demonstrated that the objectives of this policy are met and the above criteria is not able to be reasonably or feasibly achieved.*

*Note: The residential noise level criterion includes + 2.5 dBA allowance for noise reflected from the façade ('facade correction').*

As the proposed residential subdivision is located within the Oran Park South West Growth Area, the daytime 57dB(A) criteria applies. It is noted that no criteria are stated for other time periods.

### 3.2.2 Internal noise

'Road and Rail Noise' Control 2 in Camden Council's Environmental Noise Policy 2018 addresses internal noise criteria for residential dwellings adjacent to an existing or proposed railway line, arterial, sub-arterial or collector road. Control 2 states:

*Both 'residential dwellings' and 'non-residential buildings must comply with the internal noise criteria in 'Table 3.1' from the 'Department of Planning: Interim Guideline – Development Near Rail Corridors and Busy Roads'*

Henceforth in this report, the *Development near Rail Corridors and Busy Roads – Interim Guideline* has been utilised to establish applicable internal road traffic noise criteria, as detailed in Section 3.4.

### 3.3 Department of Planning 'Development near rail corridors and busy roads – interim guideline'

The NSW State Environmental Planning Policy (Transport and Infrastructure) 2021 commenced on 1 March 2022 and consolidated a number of former state environmental planning policies. The former State Environmental Planning Policy (Infrastructure) 2007 (known as 'ISEPP') has been integrated into "Chapter 2 Infrastructure" of the Transport and Infrastructure SEPP.

Chapter 2 of the Transport and Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across NSW. The aim of the Chapter includes identifying the environmental assessment category into which different types of infrastructure and services development fall and identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure.

Pertinent to road noise assessment, the Transport and Infrastructure SEPP includes the following sections:

#### *2.120 Impact of road noise or vibration on non-road development*

- (1) *This section applies to development for any of the following purposes that is on land in or adjacent to the road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of TfNSW) and that the consent authority considers is likely to be adversely affected by road noise or vibration:*
- (a) *Residential accommodation,*
  - (b) *a place of public worship,*
  - (c) *a hospital,*
  - (d) *an educational establishment or centre-based child care facility.*

- (2) *Before determining a development application for development to which this section applies, the consent authority must take into consideration any guidelines that are issued by the Planning Secretary for the purposes of this clause and published in the Gazette.*
- (3) *If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded:*
- (a) *in any bedroom in the residential accommodation - 35 dB(A) at any time between 10 pm and 7am,*
  - (e) *anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway) - 40 dB(A) at any time.*
- (3A) *Subsection (3) does not apply to a building to which State Environmental Planning Policy (Housing) 2021, Chapter 3, Part 7 applies.*
- (4) *In this section, "freeway", "tollway" and "transitway" have the same meanings as they have in the Roads Act 1993.*

The Transport and Infrastructure SEPP (ISEPP) has been used to set appropriate road traffic noise criteria for the proposed subdivision.

The NSW Department of Planning has additionally released the *Development near Rail Corridors and Busy Roads – Interim Guideline* (December 2008). The Guideline assists in the planning, design and assessment of developments in, or adjacent to, major transport corridors in terms of noise, vibration and air quality. While the Transport and Infrastructure SEPP applies only to roads with an AADT greater than 20,000 vehicles, the Guideline is also recommended for other road traffic noise affected sites.

### 3.4 Clarification of Transport and Infrastructure SEPP noise limits

The Guideline clarifies the time period of measurement and assessment. Section 3.4 '*What Noise and Vibration Concepts are Relevant*' and Table 3.1 of Section 3.6.1 confirms that noise assessment is based over the following time periods:

- Daytime            7:00am - 10:00pm    LAeq(15hr)
- Night-time        10:00pm - 7:00am    LAeq(9hr)

The noise criteria nominated in the Transport and Infrastructure SEPP apply to internal noise levels with windows and doors closed. However, as the preliminary noise assessment is based on predictions at external locations, equivalent external noise criteria has been established. The equivalent external noise criterion is used to determine which areas of the development may require acoustic treatment to meet the internal noise requirements of the Transport and Infrastructure SEPP. The equivalent external goals have been determined on the following basis:

- The Guideline states: *"If internal noise levels with windows or doors open exceed the criteria by more than 10dBA, the design of the ventilation for these rooms should be such that occupants*

*can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia."* The internal criteria with windows open is therefore 10dB(A) above the criteria explicitly outlined in the Transport and Infrastructure SEPP.

- The generally accepted noise reduction through an open window from a free-field external position is 10dB(A). Windows/doors are assumed to be open no more than 5% of room floor area, in accordance with the Building Code of Australia (BCA) ventilation requirements.

Table 1 presents the Transport and Infrastructure SEPP internal noise criteria along with the equivalent external noise criteria for residential premises.

**Table 1: Transport and Infrastructure SEPP noise criteria for new residential development**

| Room          | Location                                               | L <sub>Aeq</sub> , 15hr Day<br>7am – 10pm | L <sub>Aeq</sub> 9hr Night<br>10pm – 7am |
|---------------|--------------------------------------------------------|-------------------------------------------|------------------------------------------|
| Living rooms* | Internal, windows closed                               | 40                                        | 40                                       |
|               | Internal, windows open                                 | 50                                        | 50                                       |
|               | External free-field (allowing windows to remain open)^ | 60                                        | 60                                       |
| Bedrooms*     | Internal, windows closed                               | 40                                        | 35                                       |
|               | Internal, windows open                                 | 50                                        | 45                                       |
|               | External free-field (allowing windows to remain open)^ | 60                                        | 55                                       |

Notes: \* Requisite for 20,000AADT Roads only under Transport and Infrastructure SEPP 2021.

^ Guideline states that where internal noise criteria are exceeded by more than 10dB(A) with windows open mechanical ventilation is required. External goals have been calculated on the basis of nominal 10dB(A) reduction through an open window to a free-field position. Windows open to 5% of floor area in accordance with the BCA 2019 requirements.

## 4 Road traffic noise assessment

### 4.1 Traffic flow and composition

To conduct an acoustic assessment for the site, traffic flows along Cobbitty Road and the future extension of Charles McIntosh Parkway are required.

Peak hour traffic flows along Cobbitty Road were obtained from the response to Council's RFI by SCT Consulting (SCT)<sup>1</sup>. SCT based on a future 2036 forecast that Cobbitty Road could carry up to 600 vehicles per hour in each direction during the peak hours.

Worst case peak hour traffic volumes along Charles McIntosh Parkway were obtained from the traffic and transport assessment provided by email on 31 January 2022<sup>2</sup>. The traffic assessment predicted that Charles McIntosh parkway could carry 853 vehicles travelling southbound towards Cobbitty Road and 594 Vehicles travelling northbound from Cobbitty Road to The Northern Road.

A memo from SCT Consulting dated 15 September 2022<sup>3</sup> confirmed that:

- Charles McIntosh Parkway is a sub-arterial road, and
- The previous traffic modelling conducted for the masterplan are still relevant and forecasted traffic and volumes along Charles McIntosh Parkway have not changed.

Additionally, to address the individual traffic contribution from the Tranche 5a subdivision, SCT prepared a traffic statement<sup>4</sup> to support the DA. In the traffic statement, SCT predict that there could be during peak hours, up to 85 vehicles per hour from the subdivision. With respect to acoustics, this represents an insignificant increase above the forecast 2036 traffic volume on Cobbitty Road.

The following assumptions have been used which are consistent with previous assessments conducted by Renzo Tonin & Associates for the Oran Park Precinct:

- Peak hour traffic volumes are 10% of the 24hr volume;
- The 15hr daytime volume is 85% of the 24hr volume;
- Percentage of heavy vehicles in traffic mix is assumed to be 5%.

The traffic volumes used for the acoustic assessment are presented in Table 2. It is noted that variations in the actual traffic volumes, in particular heavy vehicle percentages, will affect the traffic noise

---

<sup>1</sup> Document reference: DA2020\_345\_1 Responses to Camden Council RFI\_Traffic\_Stage 3\_20210903\_v2.0, dated 3 September 2021

<sup>2</sup> Document reference: northern-road-ref-appendix-j-3, received 31 January 2022

<sup>3</sup> Document reference: SCT\_00306\_Mivac Cobbitty Tranche 4 DA\_RPT\_Traffic impact statement\_v1.0, dated 15 September 2022

<sup>4</sup> Document reference: SCT\_00306\_Mivac Cobbitty DA\_RPT\_Partial T5 Stage 5a DA\_TIS\_v1.0, dated 9 May 2023

exposure. A sensitivity assessment could be undertaken during the detail design phase of the development to further refine the predicted traffic noise exposure.

**Table 2: Traffic volumes and compositions**

| Road                     | Direction  | Day (7am to 10pm) |                               | Night (10pm to 7am) |                               | Speed, km/h     |
|--------------------------|------------|-------------------|-------------------------------|---------------------|-------------------------------|-----------------|
|                          |            | 15hr Volume       | % Heavy vehicles <sup>2</sup> | 9hr Volume          | % Heavy vehicles <sup>2</sup> |                 |
| Cobbitty Road            | Eastbound  | 5100              | 5                             | 900                 | 5                             | 80 <sup>1</sup> |
|                          | Westbound  | 5100              | 5                             | 900                 | 5                             | 80 <sup>1</sup> |
| Charles McIntosh Parkway | Northbound | 5049              | 5                             | 891                 | 5                             | 60 <sup>3</sup> |
|                          | Southbound | 7251              | 5                             | 1280                | 5                             | 60 <sup>3</sup> |

Notes:

1. Posted speed
2. Assumed heavy vehicle percentage
3. Assumed vehicle speed

While both 'day' and 'night' traffic noise goals are to be satisfied, the daytime traffic goals are more likely to be exceeded in a developed residential area. This corresponds with the assumed traffic distribution. Night-time road traffic noise levels are likely to create greater impact only where the night-time percentage of heavy vehicles is significantly higher than the daytime period.

## 4.2 Road noise prediction model

Noise predictions are based on a method developed by the United Kingdom Department of Environment titled "Calculation of Road Traffic Noise (1988)" known as the CoRTN (1988) method. This method has been adapted to Australian conditions and extensively tested by the Australian Road Research Board and as a result it is recognised and accepted by the Environment Protection Authority. The model predicts noise levels for steady flowing traffic and noise from high truck exhausts is also considered.

The CoRTN algorithms are contained within the CadnaA noise modelling software which has been used to calculate traffic noise levels at receivers. The noise prediction model accounts for the following:

**Table 3: Summary of modelling inputs**

| Input parameters        | Data acquired from                                                             |
|-------------------------|--------------------------------------------------------------------------------|
| Traffic volumes and mix | Day and night volumes as detailed in Table 2                                   |
| Vehicle speed           | Posted speed limit as detailed in Table 2                                      |
| Gradient of roadways    | Based upon 3D topographic data obtained from NSW Land and Property Information |
| Source height           | 0.5 metre as per standard CoRTN algorithms                                     |
| Ground topography       | 3D topographic data obtained from Land and Property Information                |
| Ground absorption       | 0.5 (to represent part hardstand road/footpath and part landscaped area)       |

| Input parameters                     | Data acquired from                                                                     |
|--------------------------------------|----------------------------------------------------------------------------------------|
| Receiver heights                     | 1.5 m above ground level for ground floor,<br>4.5 m above ground level for first floor |
| Facade correction                    | N/A                                                                                    |
| Acoustic properties of road surfaces | Dense graded asphalt, +0 dB correction                                                 |

### 4.3 Noise modelling assumptions

The following assumptions were adopted for noise modelling:

- Indicative building envelopes on each lot as per the subdivision layout in Figure 2-2. Front and rear property setbacks for each building envelope are generally in accordance with Section 7.6.1 of the Oran Park Precinct Development Control Plan (2007).
- Each building is assumed a two-storey dwelling with a total height of 6m above ground level.
- Residential floor areas and window sizes are assumed to not exceed those outlined in Appendix B of the Department of Planning "Development near Rail Corridors and Busy Roads - Interim Guideline".

### 4.4 Noise modelling results

Noise modelling was conducted for both ground and first floor receivers for the daytime period which is the worst case. The generated road traffic noise contours from Cobbitty Road and Charles McIntosh Parkway are presented in Figure 4-1 and Figure 4-2.

Building treatment recommendations for the site are derived from the noise model results and are presented in Figure 4-3 - Figure 4-4. The highest required building treatment for each allotment is detailed in Table 4. Each category and its required facade sound reduction performance and construction details are summarised in APPENDIX B.

The noise model results indicate that for the Tranche 5a allotments, four future dwellings will require facade treatment of at least Category 1. Additionally, future lots 186 will require facade treatment of Category 2 and above.

**Table 4: Worst case building treatment required**

| Lot Number      | Highest building treatment category required | Facade direction of highest building treatment required |
|-----------------|----------------------------------------------|---------------------------------------------------------|
| 103             | Category 1                                   | East                                                    |
| 104             | Category 1                                   | East                                                    |
| 105             | Category 2                                   | South-East                                              |
| 106             | Category 1                                   | South                                                   |
| Future Lots 186 | Category 4                                   | South                                                   |

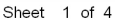
Note: Worst case results demonstrated at first floor level

To achieve the ventilation requirements as specified in the “Development near rail corridors and busy roads – interim guideline”, any room on a facade with treatment Category 2 or higher would require ventilation that allows windows and doors to remain closed.

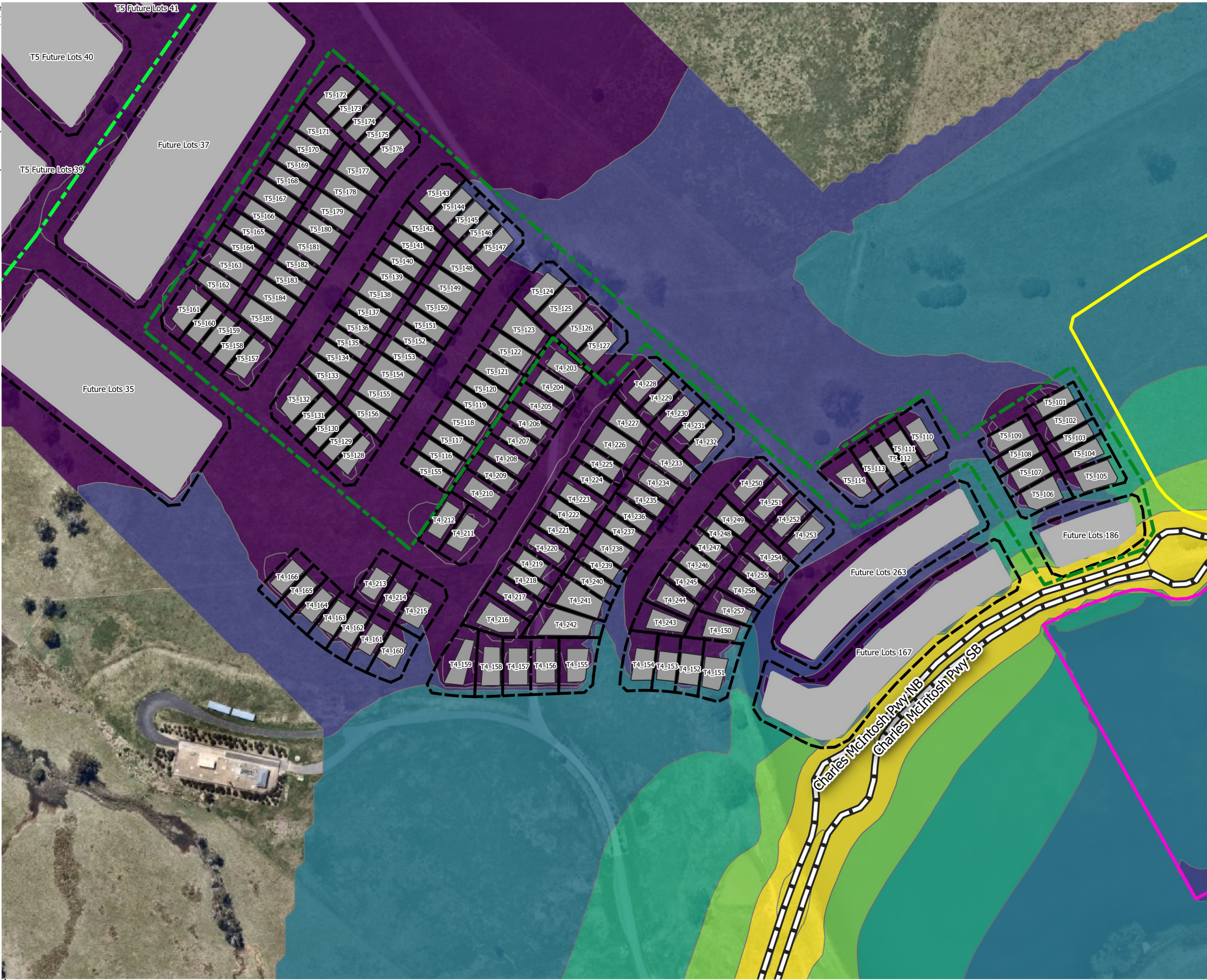
In general, acoustic amenity to PPOS areas are dependent on the orientation of future dwellings. Future dwellings fronting Charles McIntosh Parkway are likely to provide adequate acoustic shielding to PPOS areas. Acoustic mitigation measures such as acoustically rated boundary fences may be required if dwellings are orientated such that PPOS areas are exposed to Charles McIntosh Parkway.

As discussed in Section 3.2.1, Camden Council’s Environmental Noise Policy outlines that PPOS areas within a new release area is not to exceed 57dBA LAeq (15hr) from 7am to 10pm. As presented in the noise contours in Figure 4-2, noise levels for future Tranche 5 dwellings are predicted to be below the 57 dB(A) criterion, assuming that PPOS areas are shielded from the main roads. Hence, no acoustic mitigation measures are required.

For future lot 186, the PPOS acoustic amenity can be assessed further at a later design stage once proposed dwelling orientations are known.



360 m  
320  
280  
240  
200  
160  
120  
80  
40  
0



LEGEND

- Lot outlines
- Building outlines
- Future community centre
- Future school
- Roads
- Tranche 5a Area
- Tranche 5b Area

Noise level  
Day, 7am to 10pm  
dB(A) Leq 15 hour

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- Above 65



|     |          |          |                                       |          |
|-----|----------|----------|---------------------------------------|----------|
| ..  | ..       | ..       | ..                                    | ..       |
| ..  | ..       | ..       | ..                                    | ..       |
| ..  | ..       | ..       | ..                                    | ..       |
| ..  | ..       | ..       | ..                                    | ..       |
| ..  | ..       | ..       | ..                                    | ..       |
| r1  | LW       | 09/05/23 | Updated site layout and lot numbering | MG       |
| r0  | LW       | 23/04/23 | Prepare figure                        | MG       |
| REV | BY       | DATE     | DESCRIPTION                           | APPROVED |
| A3  | Original |          | Co-ordinate System: MGA Zone 56       |          |

050100150

0

50

100

150 m

1:2,000

N

CLIENT

mirvac

ACoustic CONSULTANT

RENZO TONIN & ASSOCIATES

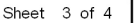
inspired to achieve

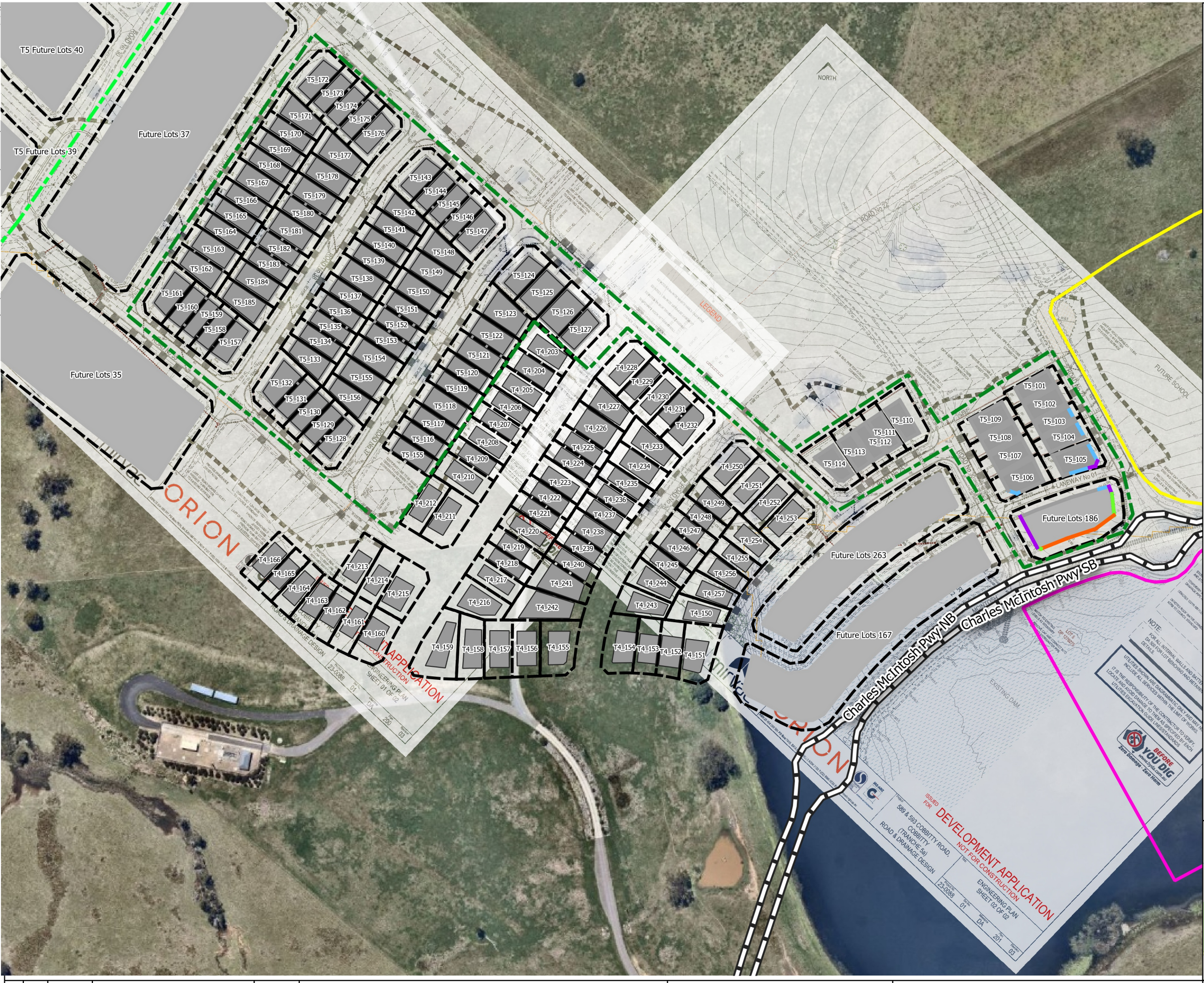
Ph (02) 8218 0500 Fax (02) 8218 0501

531 Cobbitty Road, Cobbitty

Figure 4-2: Predicted road traffic noise levels at ground floor facades, Day

Sheet 2 of 4





LEGEND

- Lot outlines
- Building outlines
- Future community centre
- Future school
- Roads
- Tranche 5a Area
- Tranche 5b Area
- Property treatment categories
  - Category 1
  - Category 2
  - Category 3
  - Category 4
  - No treatment required



|             |    |          |                                       |          |
|-------------|----|----------|---------------------------------------|----------|
| REV         | BY | DATE     | DESCRIPTION                           | APPROVED |
| r1          | LW | 11/05/23 | Updated site layout and lot numbering | MG       |
| r0          | LW | 24/04/23 | Prepare figure                        | MG       |
| A3 Original |    |          | Co-ordinate System: MGA Zone 56       |          |

0 50 100 150 m

1:2,000

NOTE: Do not scale from this drawing.

CLIENT

**mirvac**

ACOUSTIC CONSULTANT

**RENZO TONIN & ASSOCIATES**

*inspired to achieve*

Ph (02) 8218 0500 Fax (02) 8218 0501

531 Cobbitty Road, Cobbitty

Figure 4-4: Treatment categories at ground floor facades, Day

Sheet 4 of 4

## 5 Conclusion

Potential noise impacts have been identified and assessed for the proposed Tranche 5a residential subdivision at 531 Cobbitty Road, Cobbitty. Road traffic noise from Cobbitty Road and Charles McIntosh Parkway has been considered.

Based on the noise modelling and indicative building envelopes, future dwellings will require facade treatment to control road traffic noise ingress in accordance with the Transport and Infrastructure SEPP and the Department of Planning *"Development in Rail Corridors and Busy Roads – Interim Guideline"*. Facade treatments have been for the proposed residential subdivision. The recommended treatments can be achieved using standard building materials and techniques.

Furthermore, as confirmed by the generated noise contours, acoustic amenity to external PPOS or private areas for individual lots can be achieved without requiring additional mitigation measures. For future lot 186, the PPOS acoustic amenity can be assessed further at a later design stage once the division of this lot is known.

## APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--|----------------------|------|--------------------------------|-------|-----------------|---------------|-------|--|-------|----------------------------------------------------|-----------------|-------|---------|-------|-------------------------------------------------------|-----------------|-------|------------------------|-------|------------------------------------------|------|-------|---------------------------|-------|--------------------------------------------|-----------|--------|--------------------------|--------|------------------------------------|----------------|--------|---------------------------------|--------|--|-------------------|--------|-----------------------------------|
| Adverse weather      | Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| Ambient noise        | The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| Assessment period    | The period in a day over which assessments are made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| Assessment Point     | A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| Background noise     | Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| Decibel [dB]         | <p>The units that sound is measured in. The following are examples of the decibel readings of common sounds in our daytime environment:</p> <table><tr><td rowspan="2">threshold of hearing</td><td>0 dB</td><td>The faintest sound we can hear</td></tr><tr><td>10 dB</td><td>Human breathing</td></tr><tr><td rowspan="2">almost silent</td><td>20 dB</td><td></td></tr><tr><td>30 dB</td><td>Quiet bedroom or in a quiet national park location</td></tr><tr><td rowspan="2">generally quiet</td><td>40 dB</td><td>Library</td></tr><tr><td>50 dB</td><td>Typical office space or ambience in the city at night</td></tr><tr><td rowspan="2">moderately loud</td><td>60 dB</td><td>CBD mall at lunch time</td></tr><tr><td>70 dB</td><td>The sound of a car passing on the street</td></tr><tr><td rowspan="2">loud</td><td>80 dB</td><td>Loud music played at home</td></tr><tr><td>90 dB</td><td>The sound of a truck passing on the street</td></tr><tr><td rowspan="2">very loud</td><td>100 dB</td><td>Indoor rock band concert</td></tr><tr><td>110 dB</td><td>Operating a chainsaw or jackhammer</td></tr><tr><td rowspan="2">extremely loud</td><td>120 dB</td><td>Jet plane take-off at 100m away</td></tr><tr><td>130 dB</td><td></td></tr><tr><td>threshold of pain</td><td>140 dB</td><td>Military jet take-off at 25m away</td></tr></table> |                                                       |  | threshold of hearing | 0 dB | The faintest sound we can hear | 10 dB | Human breathing | almost silent | 20 dB |  | 30 dB | Quiet bedroom or in a quiet national park location | generally quiet | 40 dB | Library | 50 dB | Typical office space or ambience in the city at night | moderately loud | 60 dB | CBD mall at lunch time | 70 dB | The sound of a car passing on the street | loud | 80 dB | Loud music played at home | 90 dB | The sound of a truck passing on the street | very loud | 100 dB | Indoor rock band concert | 110 dB | Operating a chainsaw or jackhammer | extremely loud | 120 dB | Jet plane take-off at 100m away | 130 dB |  | threshold of pain | 140 dB | Military jet take-off at 25m away |
| threshold of hearing | 0 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The faintest sound we can hear                        |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|                      | 10 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Human breathing                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| almost silent        | 20 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|                      | 30 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Quiet bedroom or in a quiet national park location    |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| generally quiet      | 40 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Library                                               |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|                      | 50 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Typical office space or ambience in the city at night |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| moderately loud      | 60 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CBD mall at lunch time                                |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|                      | 70 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The sound of a car passing on the street              |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| loud                 | 80 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Loud music played at home                             |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|                      | 90 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The sound of a truck passing on the street            |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| very loud            | 100 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Indoor rock band concert                              |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|                      | 110 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Operating a chainsaw or jackhammer                    |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| extremely loud       | 120 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Jet plane take-off at 100m away                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
|                      | 130 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| threshold of pain    | 140 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Military jet take-off at 25m away                     |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| dB(A)                | A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the “A” filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |
| dB(C)                | C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                       |  |                      |      |                                |       |                 |               |       |  |       |                                                    |                 |       |         |       |                                                       |                 |       |                        |       |                                          |      |       |                           |       |                                            |           |        |                          |        |                                    |                |        |                                 |        |  |                   |        |                                   |

|                      |                                                                                                                                                                                                                                                                                                                                                            |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency            | Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.                                                                  |
| Impulsive noise      | Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.                                                                                                                                                                                                         |
| Intermittent noise   | The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.                                                                                                                                       |
| L <sub>Max</sub>     | The maximum sound pressure level measured over a given period.                                                                                                                                                                                                                                                                                             |
| L <sub>Min</sub>     | The minimum sound pressure level measured over a given period.                                                                                                                                                                                                                                                                                             |
| L <sub>1</sub>       | The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.                                                                                                                                                                                                                                                        |
| L <sub>10</sub>      | The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.                                                                                                                                                                                                                                                       |
| L <sub>90</sub>      | The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).                                                                                                                                                                                                                          |
| L <sub>eq</sub>      | The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.                                                                                                                                                                                                                                               |
| Reflection           | Sound wave changed in direction of propagation due to a solid object obscuring its path.                                                                                                                                                                                                                                                                   |
| SEL                  | Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain L <sub>eq</sub> sound levels over any period of time and can be used for predicting noise at various locations. |
| Sound                | A fluctuation of air pressure which is propagated as a wave through air.                                                                                                                                                                                                                                                                                   |
| Sound absorption     | The ability of a material to absorb sound energy through its conversion into thermal energy.                                                                                                                                                                                                                                                               |
| Sound level meter    | An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.                                                                                                                                                                                                    |
| Sound pressure level | The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.                                                                                                                                                                                                                                          |
| Sound power level    | Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.                                                                                                                                                                                                                                         |
| Tonal noise          | Containing a prominent frequency and characterised by a definite pitch.                                                                                                                                                                                                                                                                                    |

## APPENDIX B Building treatment categories

The dwellings in the proposed development will require facade treatment to achieve suitable internal noise levels. The facade treatment recommendations are shown in Figure 4-3 and Figure 4-4. The recommendations are for both ground and first floor and are applicable to bedrooms and living rooms.

Table 5 details the facade treatment categories and recommended constructions. The facade recommendations assume room volumes and areas as per Table B1 of the ISEPP Guideline.

**Table 5: Treatment categories**

| Category No. | Building Element        | Required Acoustic Rating of Building Element, Rw | Construction Recommendation                                                                                                                                                                  |                                                                                                                                                                                             |                                                                               |
|--------------|-------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 1            | Windows / Sliding Doors | 24+                                              | Openable with minimum 4mm monolithic glass and standard weather seals                                                                                                                        |                                                                                                                                                                                             |                                                                               |
|              | Facade                  | 38+                                              | Cladding Construction: 9mm fibre cement sheeting or weatherboards or plank cladding externally, 90mm timber stud, R2 insulation batts in wall cavity, 10mm standard plasterboard internally. | Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally. | Cavity Brick Construction: 2 leaves of 110mm brickwork separated by 50mm gap. |
|              | Roof                    | 40+                                              | Pitched concrete or terracotta tile or metal sheet roof, 10mm plasterboard ceiling fixed to ceiling joists, bulk insulation in roof cavity.                                                  |                                                                                                                                                                                             |                                                                               |
|              | Door                    | 28+                                              | 35mm solid core timber door fitted with full perimeter acoustic seals                                                                                                                        |                                                                                                                                                                                             |                                                                               |
| 2            | Windows / Sliding Doors | 27+                                              | Openable with minimum 6mm monolithic glass and full perimeter acoustic seals                                                                                                                 |                                                                                                                                                                                             |                                                                               |
|              | Facade                  | 45+                                              | Cladding Construction: 9mm fibre cement sheeting or weatherboards or plank cladding externally, 90mm timber stud, R2 insulation batts in wall cavity, 10mm standard plasterboard internally. | Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally. | Cavity Brick Construction: 2 leaves of 110mm brickwork separated by 50mm gap. |
|              | Roof                    | 43+                                              | Pitched concrete or terracotta tile or metal sheet roof, 10mm plasterboard ceiling fixed to ceiling joists, bulk insulation in roof cavity.                                                  |                                                                                                                                                                                             |                                                                               |
|              | Door                    | 30+                                              | 40mm solid core timber door fitted with full perimeter acoustic seals                                                                                                                        |                                                                                                                                                                                             |                                                                               |
| 3            | Windows / Sliding Doors | 32+                                              | Openable with minimum 6.38mm laminated glass and full perimeter acoustic seals                                                                                                               |                                                                                                                                                                                             |                                                                               |
|              | Facade                  | 52+                                              | Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally.  | Cavity Brick Construction: 2 leaves of 110mm brickwork separated by 50mm gap.                                                                                                               |                                                                               |

| Category No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Building Element        | Required Acoustic Rating of Building Element, Rw | Construction Recommendation                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Roof                    | 48+                                              | Pitched concrete or terracotta tile or sheet metal roof, 1 layer of 13mm sound-rated plasterboard fixed to ceiling joists, bulk insulation in roof cavity.                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Door                    | 33+                                              | 45mm solid core timber door fitted with full perimeter acoustic seals                                                                                                                                                                                                     |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Windows / Sliding Doors | 35+                                              | Openable with minimum 10.38mm laminated glass and full perimeter acoustic seals                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Facade                  | 55+                                              | Brick Veneer Construction: 110mm brick, 90mm timber stud, minimum 40mm clearance between masonry and stud frame, R2 insulation batts in wall cavity, 10mm standard plasterboard internally. Cavity Brick Construction: 2 leaves of 110mm brickwork separated by 50mm gap. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Roof                    | 52+                                              | Pitched concrete or terracotta tile or sheet metal, 2 layers of 13mm sound-rated plasterboard fixed to ceiling joists, bulk insulation in roof cavity.                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Door                    | 33+                                              | 45mm solid core timber door fitted with full perimeter acoustic seals                                                                                                                                                                                                     |
| <p>Notes:</p> <ul style="list-style-type: none"> <li>Where a room has different category recommendations on two or more facades, the roof recommendation for the highest category applies.</li> <li>Any wall, roof or ceiling penetrations shall be acoustically sealed so as not to reduce the acoustic performance of the element.</li> <li>The acoustic performance of glazed doors should be in accordance with the window glazing requirement of the applicable category.</li> <li>Development Near Rail Corridors and Busy Roads – Interim Guideline recommends solid core timber doors of 45mm thickness for treatment categories 3 and 4. To align with current industry construction methods, solid core door recommendations have been limited to no more than 40mm thickness.</li> </ul> |                         |                                                  |                                                                                                                                                                                                                                                                           |
| <p>The required acoustic rating is for the entire system. For example, for windows this includes the glass, frame and seals including the perimeter seal at the wall junction.</p> <p>By way of explanation, the Sound Insulation Rating Rw is a measure of the noise reduction property of the glazing assembly, a higher rating implying a higher sound reduction performance.</p> <p>Note that the Rw rating of systems measured as built on site (R'w Field Test) may be up to 5 points lower than the laboratory result.</p>                                                                                                                                                                                                                                                                   |                         |                                                  |                                                                                                                                                                                                                                                                           |
| <p>The client is advised not to commence detailing or otherwise commit to systems which have not been tested in an approved laboratory or for which an opinion only is available. Testing of systems and assemblies is a component of the quality control of the design process and should be viewed as a priority because there is no guarantee the forecast results will be achieved. No responsibility is taken for use of or reliance upon untested systems, estimates or opinions. The advice provided here is in respect of acoustics only.</p>                                                                                                                                                                                                                                               |                         |                                                  |                                                                                                                                                                                                                                                                           |
| <p>The advice provided here is in respect of acoustics only. Supplementary professional advice may need to be sought in respect of fire ratings, structural design, buildability, fitness for purpose and the like.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                                                  |                                                                                                                                                                                                                                                                           |
| <p>NOTES FOR GLAZING CONSTRUCTIONS:</p> <p>All openable glass windows and doors shall incorporate full perimeter acoustic seals equivalent to Q-Lon, which enable the Rw rating performance of the glazing to not be reduced.</p> <p>The above glazing thicknesses should be considered the minimum thicknesses to achieve acoustical ratings. Greater glazing thicknesses may be required for structural loading, wind loading etc.</p>                                                                                                                                                                                                                                                                                                                                                            |                         |                                                  |                                                                                                                                                                                                                                                                           |
| <p>GENERAL</p> <p>The sealing of all gaps in acoustic rated glazing assemblies and facades is critical in a sound rated construction. Use only sealer approved by the acoustic consultant.</p> <p>Check design of all junction details with acoustic consultant prior to construction.</p> <p>Check the necessity for HOLD POINTS with the acoustic consultant to ensure that all building details have been correctly interpreted and constructed.</p> <p>The information provided in this table is subject to modification and review without notice.</p> <p>The advice provided here is in respect of acoustics only. Supplementary professional advice may need to be sought in respect of fire ratings, structural design, buildability, fitness for purpose and the like.</p>                 |                         |                                                  |                                                                                                                                                                                                                                                                           |