



ACT
Government

Suburban Land
Agency

Whitlam Stage 3

Residential Estate Housing Development Guide - Packaged Lots

November 2023



Housing Development Guide Whitlam - Stage 3 – Packaged Lots - November 2023

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We acknowledge the Ngunnawal people, the Traditional Custodians of the lands and waters where we live and work, and pay our respects to the elders past, present and future.



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Version Control

This section of the Specific Requirements shows the different versions that have been issued. On each page of the document there is also a page number, issue date and a version number. You should make sure you are using the most recent version.

Version	Date	Amendment Details
1.0	August 2022	Draft
2.0	December 2022	Additional Stage Requirements

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Accessibility

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If you have difficulty reading a standard printed document and would like to receive this publication in an alternative format, such as large print, please phone Access Canberra on 13 22 81 or email the Suburban Land Agency at suburbanland@act.gov.au.

If English is not your first language and you require a translating and interpreting service, please phone 13 14 50.

If you are deaf, or have a speech or hearing impairment, and need the teletypewriter service, please phone 13 36 77 and ask for Access Canberra on 13 22 81.

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Disclaimer

The Suburban Land Agency makes no warranty regarding the accuracy or completeness of the information in this material and recommends obtaining independent legal, financial and accounting advice before considering purchasing land or making an offer to purchase land. The plans, examples and information contained herein are for illustrative purposes only and should not, without further inquiry, be relied upon as to their ultimate accuracy, to the extent permitted by law, the Suburban Land Agency will not be responsible for any loss or damage that may be incurred as a result of your reliance upon these materials.

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Specific Requirements

1. Variations

The Suburban Land Agency reserves the right to vary this document from time to time. Variations will be issued via an addendum to affected buyers who have entered into a First Grant Contract for a Block.

2. Additional Requirements

Outlined below are additional requirements that apply to Stage 3 – Packaged Lots - November 2023 .

2.1. Verge Bond

The ACT Government, Suburban Land Agency has installed and established as part of the estate works in your new community, new street trees and grassing to the verge areas. The trees and grass provide a green streetscape and contribute to shading your new home from summer sun, as well as contributing to the creation of habitat for native fauna in the area.

The street trees are looked after by the ACT Government's land custodian, Transport Canberra and City Services, whilst the verge grassing is the responsibility of the lease holder of the block behind the verge.

As part of the construction of your new home, you are required to protect the verge assets during construction and make good any damage upon completion of your landscape works. The verge includes the area forward of your property boundary line to the kerb and gutter and can include ACT Government assets such as concrete footpaths, driveways, kerb and gutters, light poles, mini pillars, street trees and grassing.

This can include but is not limited to re-grassing the verge if areas fail due to construction related activities. If there is other damage, from construction related activities, such as damage to the new street tree, or concrete footpath you are required to notify the Suburban Land Agency, so an assessment can be made as to the best way to repair these assets. If there is damage to ACT Government assets, please contact the Suburban Land Agency Place Management team at SLAPlacemanagement@act.gov.au.

To ensure the verges are returned to their original state post construction, a \$1000 bond will be required at the time of settlement. Within six months of receiving your certificate of occupancy and no later than 30months after settlement of your block, and once the verge is returned back to its original and established condition, the bond paid at time of settlement (and as detailed in your sales contract), can be reimbursed to you.

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If you would like to change the verge surface treatment from grass to something else, such as a garden, please contact Transport Canberra and City Services on 13 22 81.

To claim your bond following the completion of your house, you will need to send an email to suburbanland@act.gov.au with the following information:

- Certificate of occupancy
- Photos of the verge showing its current condition
- If relevant, written agreement from Transport Canberra and City Services to a change in the verge treatment

When assessing a claim for bond return, the Suburban Land Agency may conduct an inspection of the verge to verify that it has been returned to its original condition.

If the Suburban Land Agency is not satisfied that the verge is in an acceptable condition, at its sole discretion it may choose to not return the bond and instead use the funds to repair the verge to its original condition.

If you require the use of the verge during construction, please contact Access Canberra on 13 22 81.

2.2. Home Energy Package Rebate

The Home Energy Package Rebate supports Buyers or Eligible First Transferees in designing an energy efficient home that will increase health and comfort and lower your running costs throughout the life of your home. The Buyer or First Transferee of an Eligible Block will be entitled to receive a Rebate amount of \$10,000, where all the Eligibility Requirements have been fulfilled.

The Home Energy Package requires that Buyers or Eligible First Transferees of an Eligible Block include the following in the design and construction of their home:

1. **Energy:** Build an all-electric home that is not connected to the gas network; and
2. **Roof Colour:** Build a home that has a “light” coloured roof with a solar absorptance value of less than 0.5; and
3. **Hot Water System:** Install an electric heat pump or electric boost solar water heater; and
4. **Solar PV:** Install a Solar PV system with a minimum total rate output of 5kW; and
5. **Cooktop:** Install an electric oven and an electric cooktop in the kitchen; and
6. **Heating and Cooling:** Install an electric heating and/or cooling system; and
7. **Energy Monitoring:** Install an Energy Monitoring and/or Management system in the home; and
8. **EV Charging Point:** Install an electric vehicle charge point in the garage or carport.

For more information please refer to the “**Home Energy Rebate Program Eligibility Guidelines**”.

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2.3. Gas

Whitlam Stage 3 will not be connected to a gas network and gas will not be available to residents homes.

2.4. Solid Fuel Heating Systems

All residents within Whitlam are required to comply with the Solid Fuel Heating restriction in the Memorandum of Provisions incorporated into the Crown Lease. Buyers are not to install or use a solid fuel heating system on the premises without the prior written approval of EPSDD.

2.5. Acoustic Protection

Facades facing John Gorton Drive require acoustic protection measures to address external road noise. These blocks will need to refer to the Whitlam Stage 3 Overarching Noise Management Plan for 'Noise Affected Blocks' by WSP (November 2020) in Annexure F for details of the acoustic protection measures.

Additionally, some blocks have been identified to have a minimum building height along the primary block frontages for acoustic protection.

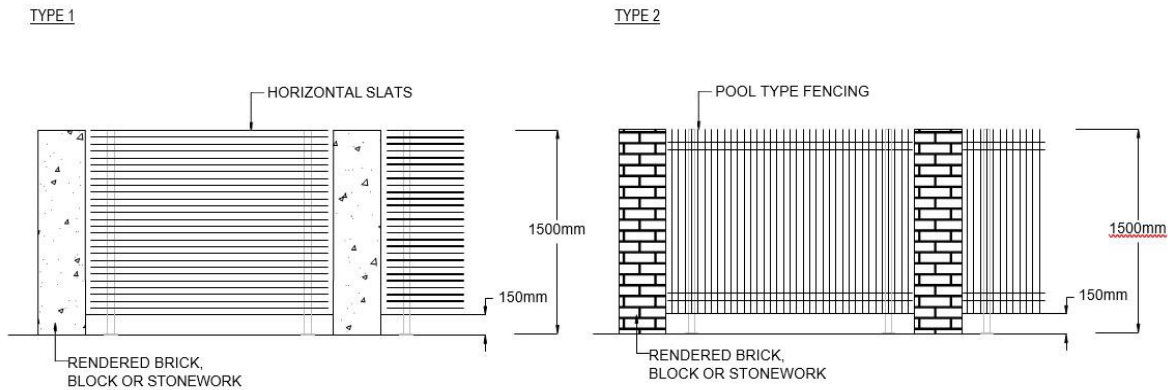
2.6. Mandatory Courtyard Wall

A number of blocks require a courtyard wall to be built along one edge. This is generally where a block faces Sculthorpe Avenue or is adjoining an open space pedestrian link. The specific blocks are identified on the Block Details Plan and can be identified by a blue line.

The courtyard wall is to be 1.5m high and constructed of rendered brick or stonework in combination with feature panels. Acceptable examples are shown below. Where a wall is required along the front boundary, the wall is required to be setback 600mm from the front boundary to enable landscaping to be planted in front of the wall. (Refer to drawing Planning Control Plan 1, Detail-1, Type 1 & Type 2). Where a boundary wall is required on a side boundary, the courtyard wall should terminate 5m from the primary frontage.

A number of blocks require a transparent or semitransparent fence with a gate to be built along one edge. Depending on the location and block, certain blocks will need to install a maximum 1.5m height fence, other blocks will only require a 3m building setback for the transparent fence. The fence is to be visually softened with planting grown as a hedge along the boundary. This planting is required to be located wholly within the property boundary when grown. This provides better visual amenity from the street frontage.

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DETAIL 1 - APPLIES TO ROAD 01, ROAD 39 AND OPEN SPACES

2.7. Blocks over 500m² – Side Setbacks

Blocks over 500m² are to have buildings setback a minimum 3m from the side property boundary 1 and 1.5m off the side boundary 2. Garages are also to be a minimum of 1.5m off the side boundary nominated, side boundary 2. There is to be no zero-side setback or no building right along the boundary. This means that Rule 14 within the Single Dwelling Housing Development Code (allowing zero setback or to build on the boundary), as well as Side setback requirements for the lower floor level in the Tables 5 and 6B under the Single Dwelling Housing Development Code do not apply. This further provides better visual amenity from the street frontage and between blocks.

2.8. Cut and Fill

Cut and fill requirements are required to minimize the effect of topography on the built form. This allows for better use of the sites and better outcomes of built homes.

Retaining walls along street frontages and adjacent to public open spaces are to be a maximum 1m height from the footpath level. We encourage the construction of buildings to incorporate any changes in levels within the design of the building. This will ensure the building will sit within the natural topography of the block. It will also ensure dwellings do not cut or fill more than the maximum 1.5m allowed within the ACT Territory Plan requirements. Any changes in the levels are to be softened through terraced landscaped areas of maximum 1m in height. This could be through terraced retaining walls with planting or grassing.

2.9. Dwelling entrance accessible from front boundary Finished Floor Level (FFL) requirement

Certain blocks with a frontage to Sculthorpe Avenue are required to be designed and constructed in such a way that the finished floor level (FFL) of the dwelling entrance is not lower than the front (Sculthorpe Avenue) boundary level. The purpose of this control is to ensure that homes built along

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the main entrance into Whitlam present a high-quality streetscape that enhances the arrival experience.

2.10. Mandatory Zero Setback (Rule 15 Single Dwelling Housing Development Code - SDHDC)

Certain mid-sized blocks as part of a terrace arrangement are nominated with a mandatory zero setback. Blocks nominated with a blue triangle in the terrace arrangement allows zero side setbacks on the length of the boundary that is indicated by the blue triangle. The purpose of this control is to allow those end blocks to have the same setbacks as the other terrace blocks and for a uniform look in the development. This would otherwise not be allowed according to Rule 15 of the SDHDC.

2.11. Bushfire Attack Level (BAL)

Your level of bush fire risk affects your development requirements – the higher the risk, the more protection you need. The term ‘bush fire attack level’, or BAL, is used to quantify this risk. Blocks identified will need to have buildings meet the Australian Standard Building requirements for Bushfire Attack Level 12.5 (low) or specified BAL.

2.12. Shared Driveway and Right of Access Requirements

Where four blocks share a common driveway, all blocks have right of access on the shared driveway. Each dwelling must have un-impeded access to their garage or vehicle parking area on their block. The following blocks in section 92 are grouped together and share a common driveway:

Blocks 4, 5, 18 & 19

Blocks 6, 7, 16 & 18

Blocks 8, 9, 14 & 15

The common driveway must be constructed of a uniform permeable material.

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Annexure A - Estate Plan

Below is the Estate Plan for Stage 3 – Packaged Lots - November 2023 .

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- Single Residential Blocks
- Terraces
- Multi Unit
- Mixed Use
- Local Centre
- Community Facility



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Annexure B - Block Details Table

Below is the Block Details Table for Stage 3 – Packaged Lots - November 2023 Section 92

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Section	Block	Area (m2)	Maximum dwelling(s)	Block Typology	Mid-Sized Block	Large Block	Noise Protection Requirements Apply	Requires Fencing to Public Areas	Services Easement	Mandatory Courtyard Wall	Mandatory minimum building height (in meters) on primary frontage	Dwelling entrance accessible from front boundary finished floor level (FFL) requirements	Zoning	Block Detail Plan Page Number	Block Fill Plan Page Number	Stage
92	4	641	1	Large		√			√			√	RZ1	14	16	3A
	5	636	1	Large		√			√			√	RZ1	14	16	3A
	6	648	1	Large		√			√			√	RZ1	14	16	3A
	7	671	1	Large		√			√			√	RZ1	14	16	3A
	8	694	1	Large		√			√			√	RZ1	14	16	3A
	9	717	1	Large		√	√		√		3	√	RZ1	14	16	3A
	14	450	1	Mid-size	√		√	√	√	√	3		RZ1	14	16	3A
	15	450	1	Mid-size	√			√	√	√			RZ1	14	16	3A
	16	450	1	Mid-size	√			√	√	√			RZ1	14	16	3A
	17	450	1	Mid-size	√			√	√	√			RZ1	14	16	3A
	18	450	1	Mid-size	√			√	√	√			RZ1	14	16	3A
	19	450	1	Mid-size	√			√	√	√			RZ1	14	16	3A



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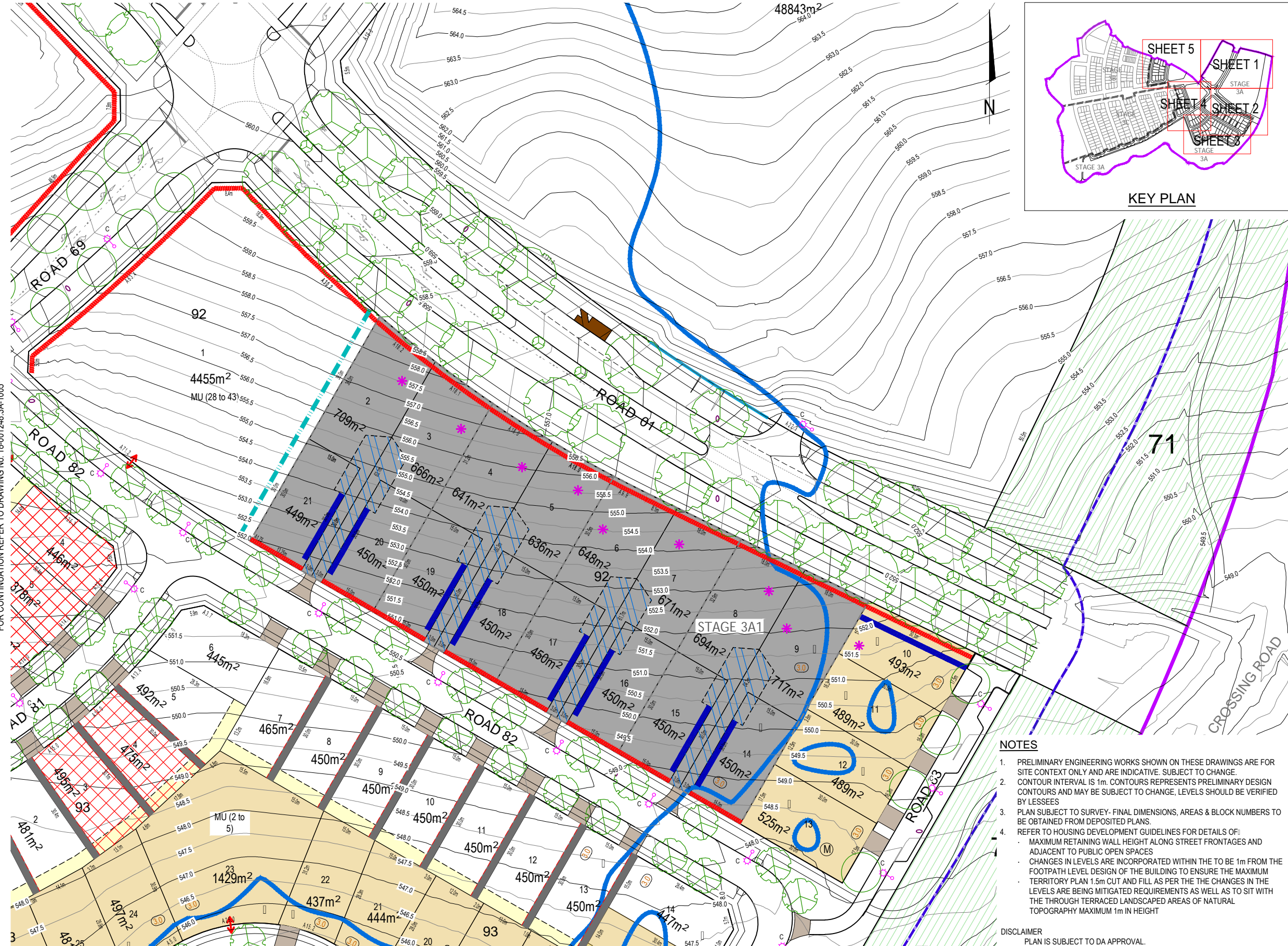
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Annexure C - Block Details Plan

Below is the Block Details Plan for Stage 3 – Packaged Lots - November 2023 Section 92

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FOR CONTINUATION REFER TO DRAWING No. 18-001248.3A-1001



LEGEND

- 1 BLOCK IDENTIFIER
- 3 SECTION IDENTIFIER
- 30m BLOCK DIMENSIONS (m)
- 500m² BLOCK AREA (m²)
- * MANDATORY HABITABLE ROOM ABOVE GARAGE (R62 OF ESTATE DEVELOPMENT CODE)
- * FINISHED FLOOR LEVEL (FFL) OF ANY DWELLING ENTRANCE ACCESSIBLE FROM THE FRONT BOUNDARY MUST BE NO LOWER THAN THE FRONT BOUNDARY RL WHERE THE PATHWAY FROM THAT ENTRANCE CONNECTS TO THE FRONT BOUNDARY
- # FACADES FACING JOHN GORTON DRIVE REQUIRE ACOUSTIC PROTECTION MEASURES TO ADDRESS EXTERNAL ROAD NOISE. REFER TO WHITLAM STAGE 3 - OVERARCHING NOISE MANAGEMENT PLAN FOR NOISE AFFECTED BLOCKS BY WSP (NOVEMBER 2020)
- ▲ MANDATORY ERO SETBACK (NOMINATED AS SIDE BOUNDARY 2 FOR THE PURPOSE OF R15 OF SINGLE DWELLING HOUSING DEVELOPMENT CODE)
- 3.0 MINIMUM BUILDING HEIGHT (IN METRES) ALONG THE PRIMARY BLOCK FRONTAGES FOR ACOUSTIC PROTECTION.
- (M) MID SIZE BLOCK CONTROLS (500m² - 550m²) APPLY TO THESE BLOCKS (FOR THE PURPOSE OF R21 OF THE SINGLE HOUSING DEVELOPMENT CODE)
- BLOCKS OVER 550m² - SIDE SETBACK REQUIREMENTS FOR LOWER FLOOR LEVEL IN THE TABLE 5 AND TABLE 6B UNDER SINGLE DWELLING HOUSING DEVELOPMENT DO NOT APPLY. SETBACKS REQUIRED ARE:
 - A MINIMUM 3.0m FROM SIDE BOUNDARY 1;
 - A MINIMUM 1.5m FROM SIDE BOUNDARY 2; AND
 - A GARAGE MUST BE SETBACK A MINIMUM OF 1.5m FROM SIDE BOUNDARY 2, SO AS TO ALIGN WITH THE VERGE CROSSING LOCATION
- BUS STOP PAD
- DRIVEWAY LOCATION
- c STREET LIGHT
- UTILITY MAINTENANCE ACCESS PASSAGE 1.8m WIDE
- STORMWATER AND SEWER EASEMENT (3.5m WIDE UNLESS NOTED OTHERWISE)
- LIMITED DEVELOPMENT POTENTIAL BLOCK (R.49 OF ESTATE DEVELOPMENT CODE)
- FOOTPATH
- RETAINING WALL BUILT BY DEVELOPER
- MANDATORY COURTYARD WALL TO MAX HEIGHT OF 1.5m CONSTRUCTED OF RENDERED BRICK, BLOCK OR STONEWORK IN COMBINATION WITH FEATURE PANELS, AND SETBACK 600m FROM THE FRONT BOUNDARY TO INCORPORATE LANDSCAPING. REFER TO DRAWING PCP4, DETAIL-1, TYPE 1 & TYPE 2; COURTYARD WALL ALONG SECONDARY FRONTAGE TO TERMINATE AT 5m FROM PRIMARY FRONTAGE.
- ACOUSTIC CONTOUR - L15, HOUR 60DBA FOR DAYTIME
- NO VEHICLE ACCESS TO THIS SECTION OF BOUNDARY
- 3m SETBACK TO R1 BLOCKS
- AP1
- ESTATE BOUNDARY
- STAGE BOUNDARY
- OPEN SPACE
- BUILDFERS TO COMPLY WITH AS 3959:2018 - BUSHFIRE ATTACK LEVEL (BAL) - 12.5 (LOW)
- INTEGRATED HOUSING DEVELOPMENT
- RIGHT OF ACCESS AND SERVICES EASEMENT - INTERNAL DRIVEWAY MUST BE OF A UNIFORM PERMEABLE DESIGN
- 567.0 DESIGN CONTOUR (@ INTERVAL 1m)
- INDICATIVE TREE LOCATIONS
- SUBSTATION
- ↔ INDICATIVE MULTI UNIT DRIVEWAY LOCATION

NOTES

- PRELIMINARY ENGINEERING WORKS SHOWN ON THESE DRAWINGS ARE FOR SITE CONTEXT ONLY AND ARE INDICATIVE. SUBJECT TO CHANGE.
- CONTOUR INTERVAL IS 1m. CONTOURS REPRESENTS PRELIMINARY DESIGN CONTOURS AND MAY BE SUBJECT TO CHANGE, LEVELS SHOULD BE VERIFIED BY LESSEES
- PLAN SUBJECT TO SURVEY- FINAL DIMENSIONS, AREAS & BLOCK NUMBERS TO BE OBTAINED FROM DEPOSITED PLANS.
- REFER TO HOUSING DEVELOPMENT GUIDELINES FOR DETAILS OF:
 - MAXIMUM RETAINING WALL HEIGHT ALONG STREET FRONTAGES AND ADJACENT TO PUBLIC OPEN SPACES
 - CHANGES IN LEVELS ARE INCORPORATED WITHIN THE TO BE 1m FROM THE FOOTPATH LEVEL DESIGN OF THE BUILDING TO ENSURE THE MAXIMUM TERRITORY PLAN 1.5m CUT AND FILL AS PER THE THE CHANGES IN THE LEVELS ARE BEING MITIGATED REQUIREMENTS AS WELL AS TO SIT WITH THE THROUGH TERRACED LANDSCAPED AREAS OF NATURAL TOPOGRAPHY MAXIMUM 1m IN HEIGHT

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FOR CONTINUATION REFER TO DRAWING No. 18-001248.3A-1005

FOR CONTINUATION REFER TO DRAWING No. 18-001248.3A-1003

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>FIRST ISSUE</th> <th>DESIGN</th> <th>DRAWN</th> <th>CHECK</th> <th>APPROVED</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>MU</td> <td>EH</td> <td>gargan</td> <td>gargan</td> <td>19/11/2021</td> </tr> <tr> <td>B</td> <td>MU</td> <td>EH</td> <td>gargan</td> <td>gargan</td> <td>21/02/2022</td> </tr> <tr> <td>C</td> <td>MU</td> <td>EH</td> <td>gargan</td> <td>gargan</td> <td>22/02/2022</td> </tr> <tr> <td>D</td> <td>MU</td> <td>EH</td> <td>gargan</td> <td>gargan</td> <td>30/06/2022</td> </tr> <tr> <td>E</td> <td>MU</td> <td>EH</td> <td>gargan</td> <td>gargan</td> <td>25/07/2022</td> </tr> </tbody> </table>	FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	A	MU	EH	gargan	gargan	19/11/2021	B	MU	EH	gargan	gargan	21/02/2022	C	MU	EH	gargan	gargan	22/02/2022	D	MU	EH	gargan	gargan	30/06/2022	E	MU	EH	gargan	gargan	25/07/2022	<p>AMENDMENT DETAILS</p> <p>LEGEND UPDATED</p> <p>SPACELAB COMMENTS ADDRESSED</p> <p>BLOCK & SECTION NO. UPDATED</p> <p>BLOCK AND SECTION NO. UPDATED FOR LEGEND</p> <p>BLOCK 21 SECTION 92 FRONT BOUNDARY DIMENSIONS UPDATED</p>	<p>DETAIL DESIGN</p> <p>Authorised for Issue:</p> <p>BY:</p> <p>SIGN: _____ DATE: _____</p>	<p>0 5 10 15 20 25 30 35 40</p> <p>SCALE 1:500 (A1) SCALE 1:1000 (A3)</p>	<p>WAE No.</p> <p>ACT Government</p> <p>Suburban Land Agency</p>	<p>calibre</p> <p>calbregroup.com</p>	<p>SPACELAB</p> <p>CREATING TIMELESS PLACES</p> <p>DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY</p>	<p>WHITLAM ESTATE - STAGE 3A</p> <p>BLOCK DETAILS PLAN - SHEET 2</p> <p>SHEET 2 OF 5 Page 14</p> <p>18-001248.3A 2002 E</p>
FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE																																						
A	MU	EH	gargan	gargan	19/11/2021																																						
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D	MU	EH	gargan	gargan	30/06/2022																																						
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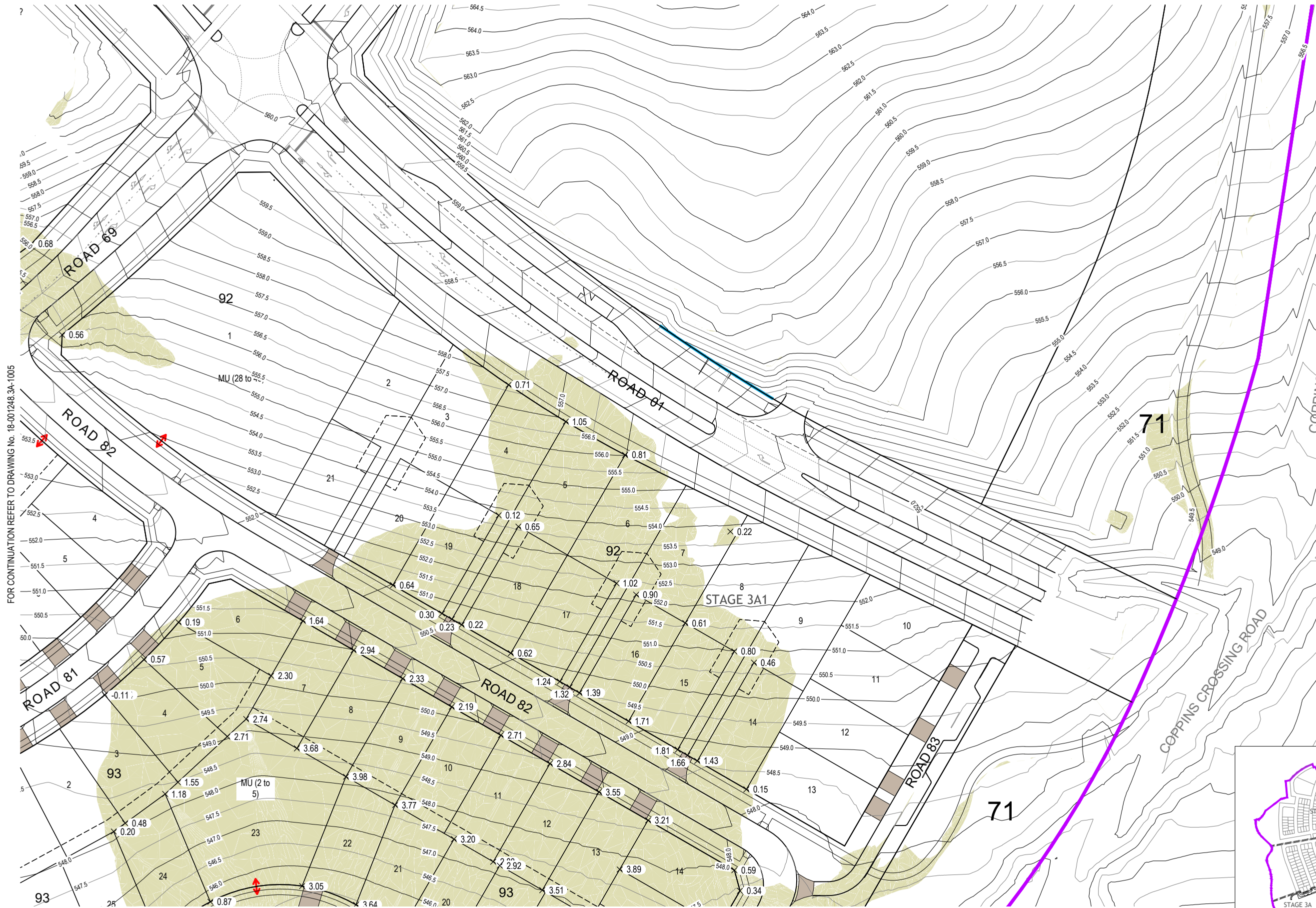
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Annexure D - Block Fill Plan

Below is the Block Fill Plan for Stage 3 – Packaged Lots - November 2023 Stage 3 – Section 92

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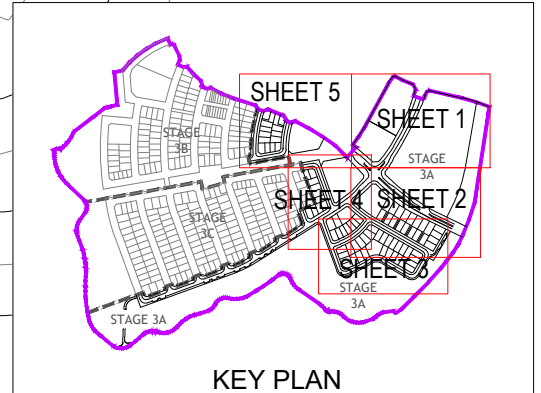
- LEGEND**
- 1 BLOCK IDENTIFIER
 - 3 SECTION IDENTIFIER
 - AREA OF KNOWN FILL (DEPTH IN METRES)
 - DESIGN CONTOUR (@ INTERVAL 0.5m)
 - STAGE BOUNDARY
 - ESTATE BOUNDARY
 - × 0.3 FILL DEPTHS (IN METRES)
 - INDICATIVE MULTI UNIT DRIVEWAY LOCATION

WARNING

PLAN IS SUBJECT TO DA APPROVAL. THIS PLAN ONLY INDICATES AREAS OF FILL OF WHICH THE DEVELOPER AND THEIR AGENTS ARE AWARE. IT HAS NOT BEEN CHECKED BY THE TERRITORY, AND THE TERRITORY DOES NOT GUARANTEE ITS ACCURACY. IN NO WAY SHOULD THIS PLAN BE READ AS A CONCLUSIVE STATEMENT OF THE FULL EXTENT OF THE FILL THAT MAY BE FOUND ON THE WHOLE LAND DEPICTED. LESSEES AND PURCHASERS SHOULD MAKE THEIR OWN INQUIRIES IN REGARD TO THE EXACT DRAINAGE, GEOTECHNICAL AND FILL CONDITIONS AFFECTING THEIR BLOCKS.

FOR CONTINUATION REFER TO DRAWING No. 18-001248.3A-1005

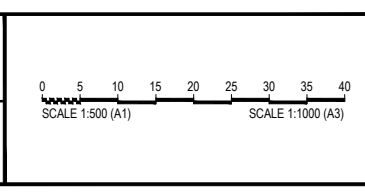
FOR CONTINUATION REFER TO DRAWING No. 18-001248.3A-1003



FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
	AM	EH	Garban		19/11/2021	
A	MU	EH	Garban		10/06/2022	BLOCK & SECTION NO. UPDATED
B	MU	EH	Garban		20/06/2022	BLOCK AND SECTION NO. UPDATED FOR LEGEND

DETAIL DESIGN

Authorised for issue:
BY: _____
SIGN: _____ DATE: _____



WHITLAM ESTATE - STAGE 3A

DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY



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Annexure E – Whitlam Verge Bond Refund Form

Application form for the Whitlam Verge Bond Refund.

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APPLICATION

For the Whitlam Verge Bond Refund

OCTOBER 2021

APPLICATION

For the Whitlam Verge Bond Refund

As part of the construction of your new home, you are required to protect the verge assets during construction and make good any damage upon completion of your landscape works. The verge includes the area forward of your property boundary line to the kerb and gutter and can include ACT Government assets such as concrete footpaths, driveways, kerb and gutters, light poles, mini pillars, street trees and grassing.

During construction on the Land, the Buyer must protect the Verge Assets and remediate and make good any damage to the Verge Assets to the satisfaction of the Seller. Making good includes (but is not limited to) repairing Verge Assets and re-grassing or re-planting the Verge to the satisfaction of the Suburban Land Agency.

To ensure the verges are returned to their original state post construction, a \$1000 bond was required at the time of settlement. Within six months of receiving your certificate of occupancy and no later than 30 months after settlement of your block, and once the verge is returned back to its original and established condition, the bond paid at time of settlement (and as detailed in your sales contract), can be reimbursed to you via this application form.



! Important

- This Application Form must be read in conjunction with the Whitlam Housing Development Guide's relevant to your stage.
- This Application Form must be fully completed by the Buyer or the Eligible Transferee.
- The Declaration in Section 2 of this Application Form must be signed by each person who is the Buyer or Transferee of the Block.
- The documents set out in Section 3 of this Application Form must be submitted to the Agency with this Application Form.
- Application Forms which are not complete or signed, or which are not accompanied by the required supporting documents, may not be considered by the Agency.

SECTION 1: APPLICATION DETAILS

Buyer/Eligible Transferee Name

- Buyer who is the current Crown Lessee; or
- Eligible Transferee who is the current Crown Lessee

First Name _____ Last Name _____

First Name _____ Last Name _____

Company Name (if any) _____

Block Details

Description of Block on First Grant Contract Block _____ Section _____ Suburb _____

Street Address of Block _____

Buyer or Eligible Transferee's Contact Details

Postal Address _____

Phone Number _____

Email Address _____

SECTION 2: DECLARATION

Buyer/Eligible Transferee Name

- I am:
 - The Buyer listed in the First Grant Contract and the current Crown Lessee; or
 - An Eligible Transferee and have notified the Suburban Land Agency and am the current Crown Lessee.
- I certify that this Application Form is submitted within six months of receiving a certificate of occupancy and no later than 30 months after settlement of the block.
- I certify that any Verges adjacent to the Block and effected works on the Block have been restored as they were prior to Settlement or been accepted by Transport Canberra City Services (TCCS).
- I certify that I have remediated and made good any damage to the Verge Assets to the satisfaction of the Suburban Land Agency. Making good includes (but is not limited to) repairing Verge Assets and re-grassing or re-planting the Verge to the satisfaction of the Seller.
- I certify that all Verges adjacent to the Block are clean and free from building materials, refuse or rubbish.
- I certify that documents provided with this Application Form are true and complete copies of the relevant documents.
- I certify that the information contained in this Application form is true and complete in all respects.
- I as the Buyer or Eligible Transferee give permission of the Agency to inspect the Block and take photos as necessary.

Signature of the Buyer/Eligible Transferee /Application 1 _____ Date ____/____/____

Signature of the Buyer/Eligible Transferee /Application 1 _____ Date ____/____/____

SECTION 3: SUPPORTING DOCUMENTS

I attached copies of the following documents:

- Photos of the current verge condition
- Certificate of Occupancy and Use
- A letter of approval from TCCS for any work conducted in the Verge (if required)
- Email confirmation of transfer of block (if required)

SECTION 4: PAYMENT DETAILS

FOR REFUND OF THE VERGE BOND

The refund is to be paid to the Buyer/Eligible Transferee's bank account, details below.

(The bank must be an Australian Bank).

Bank Name _____

Bank Branch _____

Account Name _____

BSB No. _____ Account Number _____



Submitting your application form

Completed Application Forms should be sent via email with the required supporting documentation to suburbanland@act.gov.au

or send it by post:

Whitlam Verge Bond Refund
Suburban Land Agency
GPO Box 158, Canberra ACT 2601



ACT
Government

Suburban Land
Agency



ACT
Government

Suburban Land
Agency

Annexure F - Whitlam Stage 3 Noise Management Plan

Whitlam Stage 3 Noise Management Plan – WSP – November 2020

We acknowledge the Ngunnawal people, the Traditional Custodians of the lands and waters where we live and work, and pay our respects to the elders past, present and future.

CALIBRE CONSULTING (ACT)

WHITLAM STAGE 3

OVERARCHING NOISE MANAGEMENT PLAN FOR 'NOISE AFFECTED' BLOCKS

NOVEMBER 2020



Question today Imagine tomorrow Create for the future

Whitlam Stage 3 Overarching Noise Management Plan for 'noise affected' blocks



Calibre Consulting (ACT)

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Canberra ACT 2600

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REV	DATE	DETAILS
3	02/11/2020	Revised issue to reflect change in assumed dwelling height
4	18/11/2020	Revised issue to clarify modelled building heights and address minor comments

	NAME	DATE	SIGNATURE
Prepared by:	Linnea Eriksson	18/11/2020	
Reviewed by:	Zhang Lai	18/11/2020	
Approved by:	Zhang Lai	18/11/2020	

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EXECUTIVE SUMMARY

WSP Australia Pty Ltd has prepared an overarching Noise Management Plan (NMP) suitable for inclusion in the Development Application (DA) of the 'noise affected' residential blocks located adjacent to the arterial road within Stage 3 of the Whitlam development.

The assessment has been prepared in reference to the planning requirements of the Single Dwelling Housing Development Code and Multi Unit Housing Development Code.

The purpose of this report is to provide information for land purchasers to guide the selection of façade glazing with respect to meeting the road traffic noise intrusion requirements of these codes. Following this guidance does not guarantee Development Application Approval, and further detailed assessment may be required on a site-by-site basis especially if the proposed construction departs from the recommendations contained in this report. Information is provided for costing and selection purposes only.

Accepting that external road noise planning guidelines at certain future residential blocks will be exceeded, the primary objectives of this NMP are to:

- Predict and assess the likely road traffic noise levels impacting on the future building façade of developments on the 'noise affected' blocks in Whitlam Stage 3.
- Provide indicative acoustic building envelope construction requirements that respond to these road traffic noise levels.

It is noted that a residential land block is considered 'noise affected' if the predicted external road noise levels exceed the planning guidelines for external road noise per the Roads ACT Noise Management Guidelines.

Three dimensional computer noise modelling has been undertaken based on the appropriate input parameters, which resulted in prediction of the likely future road traffic noise levels impacting on the façade of the future dwellings adjacent to the arterial road.

Indicative building envelope construction requirements have been recommended in order to meet the internal noise level goals as discussed in Section 5.1.

Implementation of the suggested construction (subject to detailed design) is expected to allow the proposed development at the residential blocks adjacent to the arterial road to meet the current planning requirements.

Recommended minimum façade glazing requirements for all 'noise affected' blocks are tabulated on a block-by-block basis in Appendix A.

1 INTRODUCTION

WSP Australia Pty Ltd has been commissioned by Calibre Consulting to prepare an overarching Noise Management Plan for Whitlam Stage 3.

In accordance to the Single Dwelling Housing Development Code (SDHDC) and the Multi Unit Housing Development Code (MUHDC), a NMP and noise assessment is required to be prepared for any land blocks located adjacent to an arterial road carrying road traffic of 12,000 vehicles per day and above.

The proposed development location is presented in Figure 1.1. Road noise assessments were previously conducted as part of the preparation of the Estate Development Plan (WSP report reference *PS115022-190827-TJG-Whitlam 3 Noise Rev1* dated 2 October 2019 and *PS115022-200423-Whitlam 2 Noise MEM01-Rev01* dated 29 April 2020). A revised version of the 3-dimensional road noise model used for the EDP studies will serve as the basis of the assessment for this NMP.

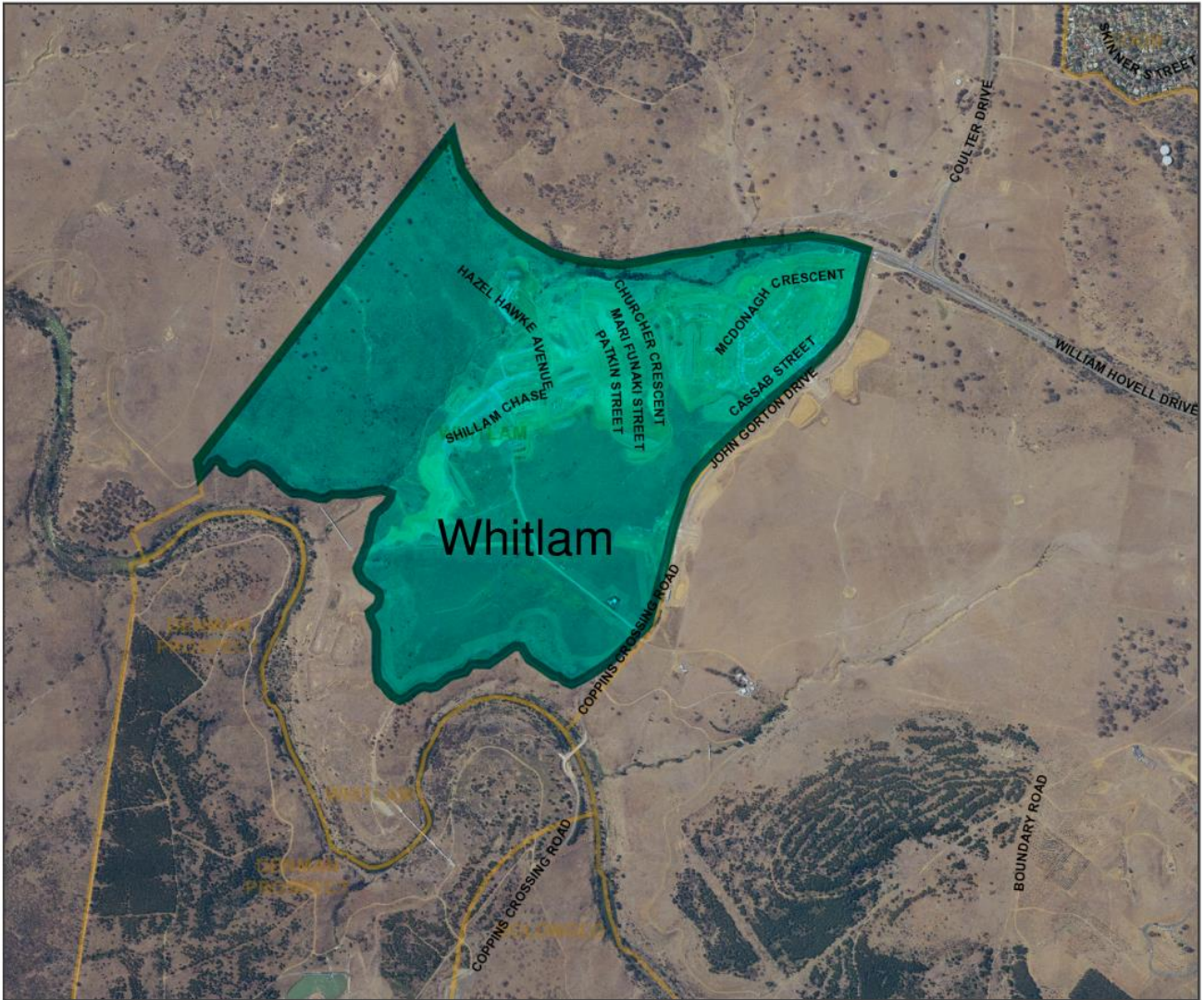
The primary objectives of this NMP are to:

- Predict and assess the likely road traffic noise levels impacting on the future building façade of developments on the ‘noise affected’ blocks in Whitlam Stage 3
- Provide indicative acoustic building envelope construction requirements that respond to these road traffic noise levels.

It should be noted that predicted results in this report for Stage 3 supersedes results presented in *PS115022-190827-TJG-Whitlam 3 Noise Rev1* dated 2 October 2019.

It is noted that a residential land block is considered ‘noise affected’ if the predicted external road noise levels exceed the planning guidelines for external road noise per the Roads ACT Noise Management Guidelines.

The purpose of this report is to provide information for developers to guide the selection of façade glazing with respect to meeting the road traffic noise intrusion requirements of these codes. Following this guidance does not guarantee Development Application Approval, and further detailed assessment may be required on a site-by-site basis. Information is provided for costing and selection purposes only.



Source: ACTmapi, accessed 28 May 2020

Figure 1.1 Aerial photograph of the project site

2 PREVIOUS NOISE ASSESSMENT

During EDP process of Whitlam Stage 3, a road noise modelling and assessment has been undertaken to predict the likely road noise impact on future residential blocks. A summary of that EDP road noise assessment is as follow:

- Assessment conducted per the current Roads ACT Noise Management Guidelines (NMG, 2018), which is discussed in Section 3.2.
- Without specific noise mitigation measures, several land blocks with direct line of sight to John Gorton Drive were predicted to exceed the external noise planning guideline levels per the NMG.
- The NMG requires that either the external noise planning guidelines or the internal noise levels per Australian Standard AS 2107 should be met at residential dwellings.

Due to predicted exceedances of the external noise planning guidelines the EDP study investigated possible road noise mitigation measures. A summary of the mitigation assessment undertaken is presented in Table 2.1.

Table 2.1 Contextualised mitigation investigation – Whitlam Stage 3

MITIGATION OPTION	METHOD/S	DISCUSSION
Land planning	Provision of appropriate setback distances	The provision of greater setback distances would reduce expected noise levels at the proposed residential receivers through distance attenuation; However, increasing the setback distance will significantly reduce the development yield of the proposed subdivision, likely to a degree that the development is not feasible.
At the source	Quieter road pavement or reduced speed limit	The implementation of quieter road pavement along John Gorton Drive is desirable from an Acoustic engineering aspect (can reduce up to 2dB) and desirable from an urban design and estate amenity aspect; However, the high upfront cost to re-construct or overlay the existing WHD road pavement as well as the already partially constructed John Gorton Drive makes this option undesirable; This option has been rejected by TCCS due to requirement to maintain the pavement surface in future maintenance
Along the noise transfer path	Noise barriers etc, height required up to 4.5 metres high Utilising residential building heights along first row of houses most exposed to arterial road traffic noise to act as barriers for subsequent rows.	The installation of noise barriers would be desirable from an acoustic engineering aspect, reducing the expected noise levels at the proposed residential receivers; However, this option is undesirable from an urban design and estate amenity aspect. Installing very large and intrusive barriers well in excess of the surrounding domestic dwellings will be over bearing on the adjacent estate. It is also undesirable from biodiversity aspect as barriers don't permit movement of animals. This option would also require significant upfront infrastructure costs. Locating the noise barrier at source of noise where it is effective (ie edge of road John Gorton Drive carriageway) is not possible due to space constraints as a result of other already constructed features as part of John Gorton Drive 3a and 3b..

MITIGATION OPTION	METHOD/S	DISCUSSION
At the receiver	Planning of the urban design and built form to provide suitable acoustic amenity.	Accepting that external road noise levels are higher than planning guidelines and achieving an acceptable internal noise level using appropriate building envelope construction.

Upon detailed assessment of the options, it was resolved that providing mitigation at the receivers through suitable building design represents the most feasible outcome. This is also an acceptable mitigation measure per the current NMG to be discussed in Section 3.2 below.

3 PLANNING REQUIREMENTS

The relevant noise criteria applicable to the project site have been established in accordance with the following documents:

- Single Dwelling Housing Development Code (SDHDC)
- Multi Unit Housing Development Code (MUHDC)
- Roads ACT Noise Management Guidelines (2018)

3.1 ACT HOUSING DEVELOPMENT CODES

With regard to potential noise intrusion to the proposed residential units, Rule 67 of the MUHDC and Rule 42 of the SDHDC states that:

Where a block has one or more of the following characteristics:

- i) identified in a precinct code as being potentially affected by noise from external sources**
- ii) adjacent to a road carrying or forecast to carry traffic volumes greater than 12,000 vehicles per day**
- iii) located in a commercial zone**
- iv) adjacent to a commercial or industrial zone**

dwellings should be constructed to comply with the relevant sections of all of the following:

- a) AS/NZS 2107:2000 – Acoustics – Recommended design sound levels and reverberation times for building interiors (the relevant satisfactory recommended interior design sound level)*
- b) AS/NZS 3671 – Acoustics – Road Traffic Noise Intrusion Building Siting and Design*

For other than road traffic noise, compliance with this rule is demonstrated by a noise management plan prepared by a member of the Australian Acoustical Society with experience in the assessment of noise, and endorsed by the EPA. For other than road traffic noise, the noise level immediately adjacent to the dwelling is assumed to be the relevant noise zone standard specified in the ACT Environment Protection Regulation 2005.

For road traffic noise, compliance with this rule is demonstrated by an acoustic assessment and noise management plan, prepared by a member of the Australian Acoustical Society with experience in the assessment of road traffic noise, and endorsed by the ACT Government entity responsible for Transport Planning.

As emboldened in the quotation above, the proposed development triggers Rule 67 by being identified as being located adjacent to a road carrying traffic volumes greater than 12,000 vehicles per day. Details of the predicted vehicle count on the arterial roads around the Whitlam developments are presented in Section 4.

It should be noted that AS2107:2000 currently referenced in the SDHDC and MUHDC has been superseded by a revised issue dated 2016. The older version was however referenced in this NMP as per required by the SDHDC and MUHDC.

3.2 ROADS ACT NOISE MANAGEMENT GUIDELINES

Proposed noise sensitive developments located adjacent to arterial or major collector roads in the ACT are to be planned, designed, and constructed in line with the Roads ACT Noise Management Guidelines (NMG, 2018).

The NMG provides road traffic noise planning guideline levels for new developments based on the land / building usage. Based on our interpretation of the NMG, the proposed project is classified as ‘New Developments on Existing Roads’ and the noise planning guidelines applicable are as follows:

- External noise levels for proposed noise sensitive residential developments located adjacent to arterial or major collector roads (based on existing conditions at the receiver):
 - 60 dBA daytime $L_{eq, 15\text{-hour}}$ from 7am to 10pm (1 metre from façade).
 - 55 dBA $L_{eq, 9\text{-hour}}$ from 10pm to 7am (1 metre from façade).

OR

- Internal noise levels that meet the Australian Standard AS 2107

Internal noise levels provided in AS 2107:2000 relevant to the Whitlam development are outlined in Table 3.1

Table 3.1 AS2107:2016 relevant internal noise levels

OCCUPANCY TYPES	AS2107 SATISFACTORY DESIGN SOUND LEVEL		PROPOSED PROJECT ASSESSMENT LEVEL
	RECOMMENDED	MAXIMUM	
Sleeping areas ¹	30 dBA	40 dBA	≤35 dB L_{Aeq-9h} (night-time)
Living areas ¹	35 dBA	45 dBA	≤40 dB $L_{Aeq-15h}$ (daytime)

(1) Based on recommended design targets for the category of *Houses and apartments near major road*.

AS2107 uses the L_{Aeq} descriptor, which describes a steady state sound level of equivalent energy to the time varying noise level over a given period. The time period used for assessment purposes should be representative of the time period that the building will be in use. This assessment will be based on the predicted $L_{Aeq-15min}$ for daytime (7 am to 10 pm) and night time (10 pm to 7 am) as the basis for assessing living areas and bedrooms respectively.

The sound transmission loss performance of the façade of the development shall be designed to achieve the recommended internal noise levels shown in Table 3.1.

3.3 ROAD TRAFFIC NOISE INTRUSION

AS 3671:1989 *Acoustics – Road traffic noise intrusion – Building siting and construction* (AS3671) is concerned with road traffic noise intrusion to buildings near to major roads. AS3671 provides guidelines for determining necessary building envelope constructions to achieve the internal noise levels recommended in AS2107.

Table 3.2 outlines the recommended building construction categories required to achieve satisfactory internal noise levels for a residential building, as per AS2107 (see Table 3.1). This is a guideline only, and the actual reduction afforded will depend upon the frequency content of the noise. Where significant low frequency noise is evident, the guidelines in AS3671 may not be sufficient.

Table 3.2 AS3671 residential building construction categories

BUILDING TYPE	RESIDENTIAL BUILDING CONSTRUCTION CATEGORY			
	Category 1	Category 2	Category 3	Category 4
External road traffic noise level, dB L _{Aeq}	≤45	>45 ≤60	>60 ≤75	>75
Most onerous proposed project assessment level, dB L _{Aeq}	Sleeping areas ≤35	Sleeping areas ≤35	Sleeping areas ≤35	Sleeping areas ≤35
Resulting necessary Traffic Noise Reduction (TNR)	≤10	>10 ≤25	>25 ≤35	>40

According to AS3671, the categories referenced in Table 3.2 are:

- Category 1 – Standard construction: openings including open windows may comprise up to 10% of the exposed façade.
- Category 2 – Standard construction except for lightweight elements or all glass facades (both of which require acoustic advice). Windows, doors and other openings should be closed.
- Category 3 – Special construction as advised in the Standard. Windows, doors and other openings should be closed.
- Category 4 – Special acoustic advice should be sought.

Following noise predictions for this project, all of the development blocks assessed (see Appendix A) were found to be either **Category 2 or 3**, requiring closable windows and a degree of acoustic consultancy support in final glazing selections.

4 ROAD NOISE MODELLING APPROACH

Road noise modelling has been conducted using the SoundPLAN (version 7.4) suite of acoustic prediction software, using the Calculation of Road Traffic Noise (CoRTN) algorithm (UK Department of Environment Welsh Office 1988). Details of these noise assessments are presented in *PS115022-190827-TJG-Whitlam 3 Noise Rev1* (2 October 2019) and *PS115022-200423-Whitlam 2 Noise MEM01-Rev01* (29 April 2020).

4.1 TRAFFIC FORECAST

Traffic forecast figures have been provided in the AM peak format to assist with the modelling of the future scenario. These figures were converted to 18-hour traffic volumes to suit the relevant noise assessment time period.

Based on traffic counts obtained by WSP in 2016 and presented Table 4.1, the ratio of the 18-hour volume over the AM peak volume was determined to be 9.5 for William Hovell Drive. For noise assessment purposes, a conservative conversion factor of 9.7 has been applied to the 2031 forecasted AM peak values for all road sections to obtain the 18-hour volumes (Table 4.2) to inform the modelling and assessment of the future scenario. Heavy vehicle percentages have been adopted from the existing traffic counts.

Table 4.1 Traffic count results

ROAD	DIRECTION	SPEED LIMIT, KM/H	18-HOUR		15 HOUR		9 HOUR	
			LV	HV	LV	HV	LV	HV
William Hovell Drive	Eastbound	90	8,526	319	7625	289	1254	48
	Westbound		7,915	355	7505	336	552	25

(2) Results from traffic counting in 2016 obtained by WSP for Calibre Consulting

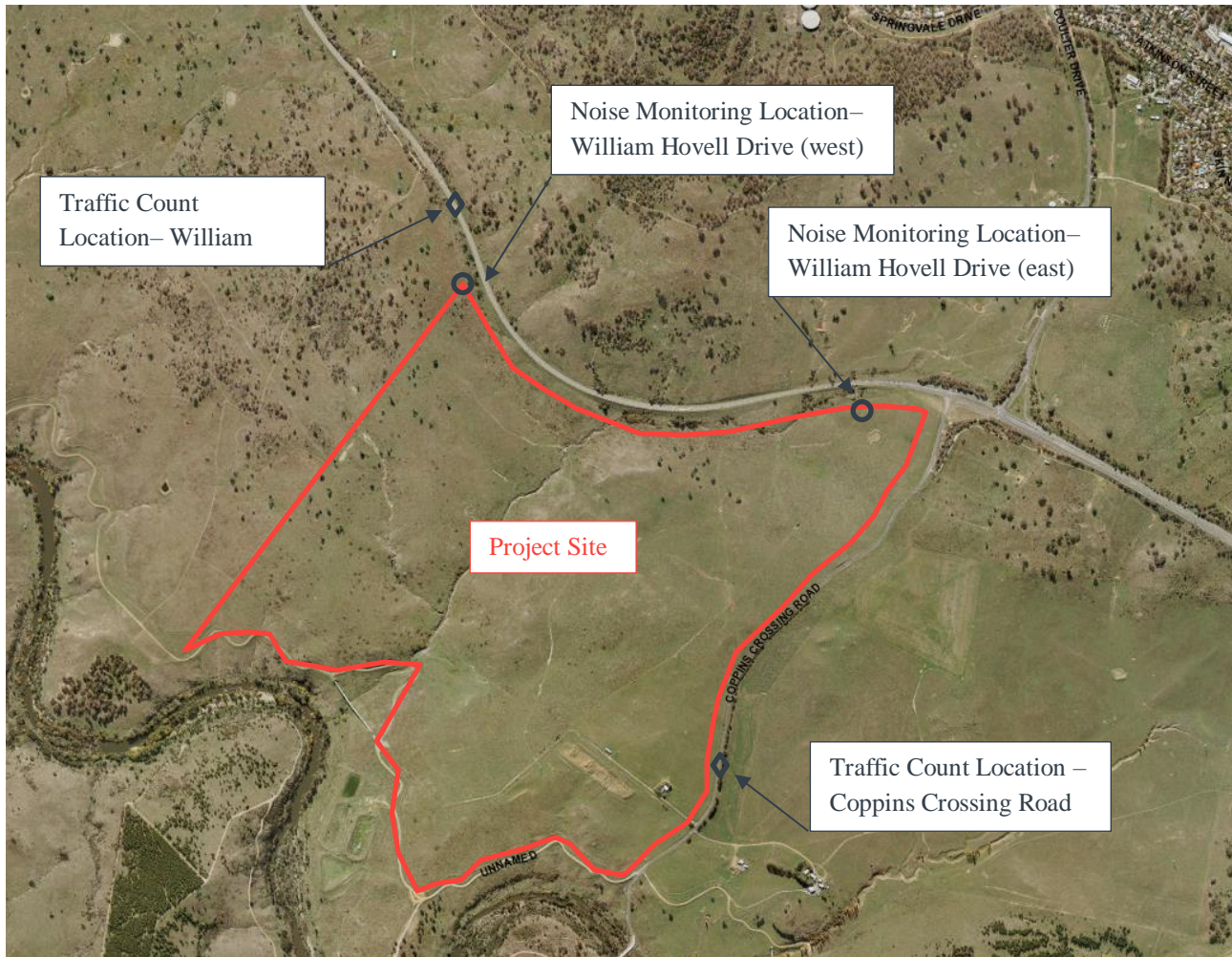
Table 4.2 2031 forecast traffic flow volumes

ROAD SECTION	MODELLED VEHICLE SPEED	2031 AM PEAK	2031 18-HR VOLUME	% HEAVY VEHICLES
William Hovel Drive, west of Coulter Drive	90 km/hr	2,680	25,996	7.6%
William Hovell Drive, east of Coulter Drive	80 km/hr	2,307	22,378	7.6%
Coulter Drive	80 km/hr	1,920	18,624	6.2%
John Gorton Drive, between William Hovell Drive and the new access intersection	80 km/hr	2,947	28,586	6.5%
John Gorton Drive, south of the new access intersection	80 km/hr	3,289	31,903	6.5%
New access road, west of John Gorton Drive	50 km/hr	294	2,852	6.5%
New access road, east of John Gorton Drive	50 km/hr	341	3,308	6.5%

4.2 NOISE MONITORING

To gain an understanding of the road traffic noise levels generated by the existing section of William Hovell Drive adjacent to Whitlam, environmental noise monitoring was performed in 2017 as part of the Whitlam Stages 1 and 2 Road

Noise Impact Assessment (2270809B, dated 20th July 2018). Noise monitoring was conducted at two representative locations within the project area. In addition, traffic counts were conducted concurrently with the noise monitoring. This information served as the basis for calibration of the noise model. This calibrated model is used as the bases for the Stage 3 assessment. The noise and traffic monitoring locations are presented in Figure 4.1. The noise monitoring locations were selected such that there is a clear line of sight to the traffic flow along William Hovell Drive at both extents of the project site.



Source: ACTmapi, accessed 10 August 2017

Figure 4.1 Aerial photograph of the project site including approximate locations of noise monitoring and traffic counts

Unattended noise monitoring was conducted using an ARL type EL-316 noise logger (S/N 16-306-008) and a Norsonic Nor140 sound level meter (S/N 1406503). The instruments' signal chain calibration was checked at the commencement and conclusion of the noise monitoring, with the variation in recorded calibrated levels not exceeding ± 0.5 dB.

All unattended noise monitoring equipment was programmed to continuously record statistical noise level indices in 15 minute intervals including L_{Amax} , L_{A1} , L_{A10} , L_{A50} , L_{A90} , L_{A99} , L_{Amin} and L_{Aeq} .

All traffic counters were programmed to record continuously in one hour intervals including a breakdown of all 13 vehicle classifications according to AustRoads94 scheme.

The noise monitoring results collected at the selected representative locations are summarised in Table 4.3. These results have been used collectively as part of the model calibration process. All noise monitoring and traffic results are presented as the average of all 18-hour, 15-hour, and 9-hour periods during the overall monitoring period for assessment.

Table 4.3 Noise monitoring dates and results

LOCATION (REFER TO FIGURE 4.1)	DESCRIPTION AND DATES	NOISE LEVEL, dBA		
		L ₁₀ , 18-hour	L _{eq} , 15-hour	L _{eq} , 9-hour
William Hovell Drive (west)	Existing greenfield site Saturday 3 June to Friday 9 June 2017 (inclusive)	69	66 2.7 dB lower than L ₁₀ , 18-hour	60 8.7 dB lower than L ₁₀ , 18-hour
William Hovell Drive (east)	Existing greenfield site Saturday 3 June to Friday 9 June 2017 (inclusive)	64	62 2.6 dB lower than L ₁₀ , 18-hour	56 8.1 dB lower than L ₁₀ , 18-hour

4.3 NOISE MODEL VALIDATION

The noise modelling has been conducted using the SoundPLAN (version 7.4) suite of acoustic prediction software, using the Calculation of Road Traffic Noise (CoRTN) algorithm (UK Department of Environment Welsh Office 1988).

The noise monitoring and traffic count results presented in Table 4.1 and Table 4.3 were used to perform a noise model calibration process for existing traffic levels. For the purpose of this assessment noise and traffic survey data collected in 2017 are considered suitable for use as they provide a reliable mean to allow appropriate calibration of the computer noise model. The traffic count results were input to the noise model, and the predicted noise levels output by the model were compared against the measured noise levels. The results of the calibration process are provided in Table 4.4.

Table 4.4 Model validation results

LOCATION (REFER TO FIGURE 4.1)	MEASURED NOISE LEVEL, DBA L ₁₀ , 18-HOUR	PREDICTED NOISE LEVEL, DBA L ₁₀ , 18-HOUR	DIFFERENCE, DB
William Hovell Drive (west)	69	66	-3
William Hovell Drive (east)	64	65	+1

According to the NSW Environment Noise Management Manual (ENMM) released by the NSW Roads and Maritime Services (RMS, previously Roads and Traffic Authority, RTA), it was noted that “*it should be recognised that noise prediction modelling has some accuracy limitations and will commonly produce acceptable errors of around 2 dBA*”.

This approach to validation has generally been accepted in the ACT and various other interstate jurisdictions.

Considering that the difference between the measured and predicted noise levels at the selected representative receivers is an average of ± 2 dB, it can be concluded that the noise model provides results which enable a reliable assessment of the project. A +1 dB correction factor has been provided to all model results as a conservative approach.

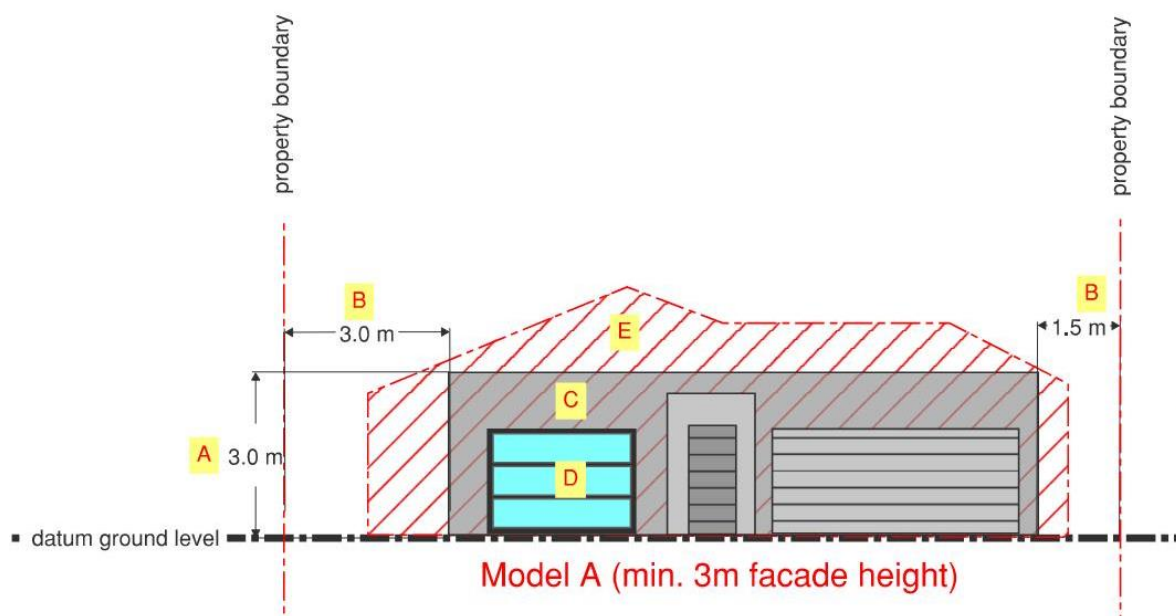
Modelling of both existing and future scenarios has been performed assuming Dense Graded Asphalt (DGA) for all road pavement surfaces.

5 FAÇADE CONSTRUCTION ASSESSMENT

Based on the modelling parameters presented above, the predicted road traffic noise levels are presented in Table A.1 in Appendix A. For the purpose of this assessment, single storey buildings with direct frontage to John Gorton Drive are assumed to be 3 metres in height (as illustrated in Figure 5.1).

Corresponding façade wall and glazing recommendations are described in Section 5.1. As the minimum glazing requirements vary from block to block these are also tabulated in Table A.1 for clarity.

A graphical representation of the identified “noise affected” blocks are also presented in Appendix B. It should be noted that only the daytime L_{eq} noise contours are presented as this represented the most onerous scenario of noise impact.



(A: minimum overall building height; B: minimum setback from side boundaries; C: building façade construction, Section 5.1.2; D: glazing minimum requirements, Section 5.1.1; E: example of building that meets minimum required height and width as modelled.)

Figure 5.1 Modelled dwelling for Whitlam Stage 3

5.1 RECOMMENDED MINIMUM CONSTRUCTIONS

5.1.1 GLAZING

The following recommendations for glazing are applicable for façades that have direct and partial frontage to the arterial road. This means that an occupant inside the space would have direct line of sight to the road. For façades that face away from the arterial road, standard glazing constructions without specific sound insulation requirements would be suitable. This means that for each final block configuration, the actual position of side and rear windows would need to be reviewed. This will be particularly important for corner blocks or end terraces. The following construction recommendations are provided to suit the predicted external noise levels:

- **Type A:** Glazing meeting ≥ 36 dB R_w (≥ 34 dB $R_w + C_{tr}$)
 - ≥ 12.38 mm laminated glass, or;
 - A double-glazed system of ≥ 6 mm float glass | ≥ 12 mm air gap | ≥ 10.38 mm laminated glass

- **Type B:** Glazing meeting ≥ 34 dB R_w (≥ 32 dB $R_w + C_{tr}$)
 - ≥ 10.38 mm laminated glass, or;
 - A double-glazed system of ≥ 6 mm float glass | ≥ 12 mm air gap | ≥ 10 mm float glass
- **Type C:** Glazing meeting ≥ 32 dB R_w (≥ 30 dB $R_w + C_{tr}$)
 - ≥ 6.38 mm laminated glass, or;
 - A double-glazed system of ≥ 6 mm float glass | ≥ 12 mm air gap | ≥ 6 mm float glass

It should be noted that glazing types used in this assessment are based on WSP’s understanding of glazing types that are likely to be considered ‘standard’ in the industry that typically do not require special custom orders. This however can change between different suppliers/ manufacturers and is subject to change. Table 5.1 presents the glazing type for each assessed receiver location and associated maximal area of the façade that can be glazed while still achieving the planning requirements for internal noise levels for each enclosed internal room.

Table 5.1 Glazing type and associated maximal glazed area recommended at façade

GLAZING TYPE	MAXIMUM GLAZED FACADE AREA FOR EACH ENCLOSED ROOM
Type A	≤ 5.4 m ²
Type B	≤ 6.0 m ²
Type C	≤ 6.6 m ²

Note: for assessment purposes, a bedroom was assumed to be approximately 3.5 metres x 3.5 metres, while a living room is assumed to be 5.5 metres by 5.5 metres.

It should be noted that the glazing types and adopted glazing areas above represent one possible construction combination. Other combinations are possible and can be capable of meeting the planning requirements. To change the required R_w value of a glazing by 2 dB, this will correlate with a change of the prescribed maximum glazed façade area by 60%. For example, if a ‘noise affected’ block is assigned Type A glazing in Appendix A, this will be accompanied by a maximum glazing for each enclosed room of ≤ 5.4 m². If a developer decides to use a Type B glazing instead, the originally prescribed maximum glazing area for a room should be reduced to 60% i.e. from ≤ 5.4 m² down to ≤ 3.2 m².

In addition to the above, it should be noted that the selected glazing frame system must not degrade the overall sound insulation performance of the glazing pane.

5.1.2 WALLS

In general, a well-mortared brick veneer or any masonry construction is acoustically suitable on this development without further recommendations.

If lightweight cladding is used on the façade with direct and partial frontage to the arterial road the following typical minimum constructions would provide adequate façade sound insulation to meet the internal noise levels given in Table 3.1:

- External cladding
 - ≥ 9 mm compressed fibre cement board (or boards of total surface mass ≥ 13 kg/m²), or
- Insulated cavity
 - ≥ 90 mm frame fully filled with fibrous acoustic insulation (≥ 14 kg/m³)
- Internal cladding
 - ≥ 2 layers of 13 mm standard core plasterboard (or other boards of surface mass ≥ 8.5 kg/m² each layer)

For other areas, a similar lightweight construction as above is suitable but with a single layer of plasterboard for the internal lining.

It should be noted that there are a wide range of equivalent lightweight constructions that would provide similar façade sound insulation. Any proposed design that does not meet the nominated facade requirements for glazing, height and materials as detailed above should be reviewed by an acoustic consultant as design progresses.

5.1.3 VENTILATION

It is assumed that openable windows will be the principal form of ventilation for these sites. All noise assessment has been undertaken assuming that windows can be closed by the occupant.

If permanently open in-wall passive ventilation is pursued for these buildings, the associated reduction in overall composite façade sound insulation performance should be reviewed by an acoustic consultant at the design stage.

6 CONCLUSIONS

WSP Australia has prepared an overarching Noise Management Plan suitable for inclusion in the Development Application of the 'noise affected' residential blocks in Whitlam Stage 3.

The assessment has been prepared in reference to the planning requirements of the Single Dwelling Housing Development Code and Multi Unit Housing Development Code in regard to building envelope sound insulation performance.

The primary objectives of this NMP are to:

- Predict and assess the likely road traffic noise levels impacting on the future building façade of developments on the 'noise affected' blocks in Whitlam Stage 3.
- Provide indicative acoustic building envelope construction requirements that respond to these road traffic noise levels.

Three-dimensional computer noise modelling has been undertaken based on the appropriate input parameters, which resulted in prediction of the likely future road traffic noise levels impacting on the façade of the future dwellings adjacent to the arterial road.

Indicative building envelope construction requirements have been recommended in order to meet the internal noise level goals as discussed in Section 5.1. Implementation of the suggested constructions (subject to detailed design) are expected to allow the proposed development at the residential blocks adjacent to the arterial road to meet the current planning requirements.

Recommended façade glazing requirements are tabulated on a block-by-block basis in Appendix A. A graphical representation of the identified "noise affected" blocks are also presented in Appendix B. It should be noted that only the daytime L_{eq} noise contours are presented as this represented the most onerous scenario of noise impact.

The intent of the indicative building envelope when assessed with the minimum standards proposed for facade wall construction and glazing is to clarify that a dwelling that meets or exceeds these recommendations therefore meets the assessed criteria of this NMP. These are intended to achieve the current planning requirements for noise affected residential blocks covered within this report.

APPENDIX A

PREDICTED ROAD TRAFFIC NOISE
LEVELS AND ASSOCIATED GLAZING
PERFORMANCES



A1 PREDICTED ROAD TRAFFIC NOISE LEVELS AND ASSOCIATED GLAZING PERFORMANCES

Table A.1 summarises the predicted facade sound pressure level for each development block during the day and night time periods, and gives associated minimum glazing performance requirements. Note that all modelled buildings are single storey.

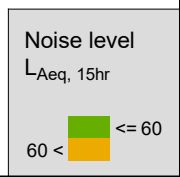
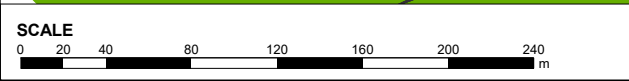
Table A.1 Predicted external façade road noise levels for 'noise affected' blocks

RECEIVER/ BLOCK	DAY TIME $L_{EQ, 15-HOUR}$ DBA	NIGHT TIME $L_{eq, 9-hour}$ dBA	GLAZING TYPE (SEE SECTION 5.1.1)
	GROUND	GROUND	GROUND
W3 R55 S92 - B9	67	61	Type A
W3 R56 S92 - B10	67	61	Type A
W3 R57 S92 - B11	67	61	Type A
W3 R66 S92 - B12	67	61	Type A
W3 R67 S92 - B13	67	61	Type A
W3 R79 S93 - B13	67	61	Type A
W3 R80 S93 - B14	64	58	Type B
W3 R81 S93 - B15	65	60	Type A
W3 R81 S93 - B16	65	60	Type A
W3 R82 S93 - B17	66	60	Type A
W3 R93 S93 - B18	62	57	Type B
W3 R92 S93 - B19	62	56	Type B
W3 R91 S93 - B20	61	56	Type C
W3 R90 S93 - B21	61	55	Type C
W3 R90 S93 - B22	61	55	Type C
W3 R90 S93 - B23	61	55	Type C
W3 R90 S93 - B24	61	55	Type C
W3 R109 S93 - B25	61	55	Type C
W3 R107 S93 - B26	61	55	Type C
W3 R106 S93 - B27	61	55	Type C

APPENDIX B

NOISE CONTOUR MAP AND
IDENTIFICATION OF 'NOISE AFFECTED'
BLOCKS





Date: 10/19/2020	Prediction Algorithm:
Appendix:	Prediction Height: 1.5m
Map Number: 1	Coordinate System: ACT Stromlo Grid
Client: Calibre Consulting	Author: TJG



**PS115022 - Whitlam Subdivision-3metres dwelling height
Daytime $L_{Aeq, 15\text{-hour}}$, 1.5 meters above ground
including +2.5 dB facade r**

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