HERRING STORER ACOUSTICS

WHITEHAUS ARCHITECTS

INDIGO JUNCTION CORE & CLUSTER ACCOMMODATION
17 AMHERST ROAD, SWAN VIEW

DEVELOPMENT APPLICATION
ACOUSTIC REPORT

MARCH 2025

OUR REFERENCE: 34268-1-25086

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
P.O. Box 219, Como, W.A. 6952
(08) 9367 6200
hsa@hsacoustics.com.au

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DA ACOUSTIC REPORT

INDIGO JUNCTION CORE & CLUSTER ACCOMMODATION
SWAN VIEW

Job No: 25086

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FOR

WHITEHAUS

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APPENDICIES

1.0 INTRODUCTION

Herring Storer Acoustics was commissioned by Whitehaus Architects to conduct a preliminary review of the proposed development at 17 Amherst Road, Swan View.

This report has been based on the Development Application drawings provided.

2.0 PROPOSED DEVELOPMENT

The proposed development site is located at 17 Amherst Road, Swan View.

The development consists of 10 two storey units and 1 single storey unit, with an administration building and multi-purpose activity unit.

3.0 CRITERIA

The proposed accommodation units within the development are considered likely to be classified as "Class 1b", hence, Part 3.8.6 of the NCC/BCA is applicable to the separation requirements for these areas.

The requirements of these units are summarised below.

3.1 WALLS

"3.8.6.2 Sound Insulation Requirements

(a) To provide insulation from airborne and impact sound, a separating wall between two or more Class 1 buildings must –

(i) Achieve the weighted sound reduction index with spectrum adaptation term (R_w + C_{tr}) and discontinuous construction requirements, as required by Table 3.8.6.1; and
(ii) Be installed in accordance with the appropriate requirements of 3.8.6.3 and 3.8.6.4.

(b) For the purpose of this Part, the R_w + C_{tr} must be determined in accordance with AS/NZS 1276.1 or ISO 717.1, using results from laboratory measurements.

TABLE 3.8.6.1 REQUIRED R_W AIRBORNE AND IMPACT SOUND LEVELS FOR SEPARATING WALLS

SEPARATING WALL – LOCATION AND PENETRATIONS	*DISCONTINUOUS CONSTRUCTION REQUIRED*	*$R_w + C_{tr}$ (As per Table 3.8.6.2)*
Between a bathroom, sanitary compartment, laundry or kitchen and a habitable room (other than a kitchen) in an adjoining Class 1 building (dwelling) (see Figure 3.8.6.1)	*YES*	*50*
In all other cases to those listed above (See Figure 3.8.6.1)	*NO*	*50*
DUCT, SOIL, WASTE AND WATER SUPPLY PIPES AND STORM WATER PIPES *A duct, soil, waste, or water supply pipe or storm water pipe that passes through a separating wall between Class 1 buildings –* *a) If the adjacent room is a habitable room (other than a kitchen);or*	*NO*	*40*
b) If the room is a kitchen or any other room	*NO*	*25*

Note :
Discontinuous construction means a wall system having a minimum 20mm cavity between two separate leaves, with –
a) For masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and
b) For other than masonry, there is no mechanical linkage between leaves except at the periphery.
A stagger stud wall is not deemed to be discontinuous construction.

3.2 SERVICES

"3.8.6.4 Services

(a) Services must not be chased into concrete or masonry separating walls

(b) If a duct, soil, waste, water supply or storm water pipe serves or passes through a separating wall or is located in a separating wall –

(i) A door or panel providing access to a duct or pipe required to be separated must –

i. Not open into any habitable room, other than a kitchen; and

ii. In any other part must be firmly fixed so as to overlap the frame or rebate of the frame by not less than 10mm and be constructed of –

(C) other suitable material with a mass per unit area not less than 24.4 kg/m2; and

(ii) In the case of a water supply pipe, it must –

i. Only be installed in a discontinuous construction; and

ii. In the case of a water supply pipe that serves one dwelling, not be fixed to the wall leaf on the side of other dwelling and have a clearance not less than 10mm to the other wall leaf.

(c) Electrical outlets must be offset from each other –

(i) In masonry walling, not less than 100mm; and

(ii) In timber or steel framed walling, not less than 300mm.

3.3 ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

The *Environmental Protection (Noise) Regulations 1997* stipulate the allowable noise levels at any noise sensitive premises from other premises. The allowable or assigned noise levels for noise sensitive premises are determined by the calculation of an influencing factor, which is added to the baseline criteria set out in Table 1 of the Regulations. The baseline assigned noise levels are listed in Table 3.1.

TABLE 3.1 – ASSIGNED NOISE LEVELS

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35 + IF	45 + IF	55 + IF

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} noise level is the maximum noise level recorded.

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9.

"impulsiveness" means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax\ Slow}$ is more than 15dB when determined for a single representative event;

"modulation" means a variation in the emission of noise that –

(a) is more than 3dB $L_{A\ Fast}$ or is more than 3dB $L_{A\ Fast}$ in any one-third octave band;
(b) is present for more at least 10% of the representative assessment period; and
(c) is regular, cyclic and audible;

"tonality" means the presence in the noise emission of tonal characteristics where the difference between –

(a) the A-weighted sound pressure level in any one-third octave band; and
(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 3.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5 dB	+ 5 dB	+ 10 dB

From a review of the development, the influencing factor for this development and the surrounding noise sensitive premises would be 2 dB, based on the following:

Sporting venue within inner circle;
Swan View Cricket Club + 2 dB

Total IF **+ 2 dB**

Hence, the influencing factor would be + 2 dB and the assigned noise levels would be as listed in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	47	57	67
	0900 - 1900 hours Sunday and Public Holidays	42	52	67
	1900 - 2200 hours all days	42	52	57
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	37	47	57

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.

We note that noise emissions from the premises need to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This consists of mechanical services associated with the development.

3.4 STATE PLANNING POLICY 5.1

Due to the location of this development, the acoustic criteria relating to noise ingress due to the proximity of Perth airport, outlined in State Planning Policy 5.1 *"Land Use Planning in the Vicinity of Perth Airport"* (SPP5.1) needs to be considered.

This policy dictates the application of AS2021:2015, which lists the building types compared to the acceptable ANEF contour in Table 2.1 of AS2021:2015.

The applicable building types are reproduced in Table 2.1.1 below.

TABLE 2.1.1 – BUILDING TYPE ACCEPTABILITY

Building Type	ANEF zone of Site		
	Acceptable	Conditionally Acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF

AS2021:2015 *"Acoustics – Aircraft Noise Intrusion-Building Siting and Construction"* provides guidelines for determining the type of building construction necessary to provide a given noise reduction, given that external windows and doors are closed.

Indoor design sound levels for determination of aircraft noise reductions are given as follows:

Houses, home units, flats caravan parks

Sleeping areas, dedicated lounges	-	50 dB(A)
Other habitable spaces	-	55 dB(A)
Bathrooms, toilets, laundries	-	60 dB(A)

We note that the above noise levels are maximum noise levels.

3.5 STATE PLANNING POLICY 5.4

Traffic noise impact for the proposed development will need to be assessed in accordance with WAPC State Planning Policy 5.4.

The aim of the planning policy is to design the residential building façade to achieve the following internal sound levels :

- L_{eq} 35 dB(A) in sleeping areas (bedrooms); and
- L_{eq} 40 dB(A) in living/work areas and other habitable rooms.

4.0 BCA REQUIRMENTS

The proposed development will be constructed to comply with the requirements of Part F5 of the NCC.

It is noted that adopting the flooring criteria of not more than 55 $L_{nT,w}$ dB provides greater amenity than basic BCA compliance.

5.0 NOISE INGRESS

State Planning Policy 5.1

The location of the development, and the associated ANEF contour that may be applicable, was ascertained from the WA Stage Government “PlanWA” website.

An extract, showing the development location and the relevant ANEF contour is shown below in Figure 1 for State Planning Policy 5.1.

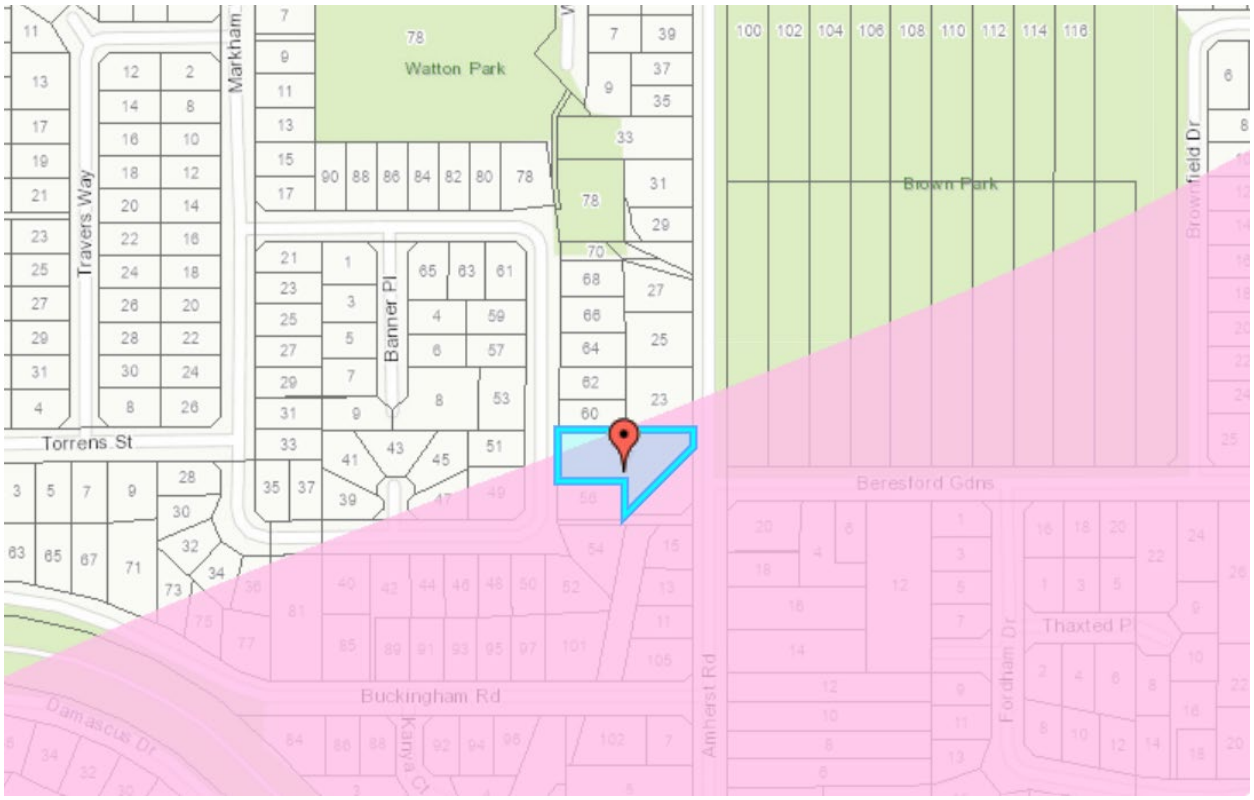

FIGURE 1 – PlanWA EXTRACT SHOWING ANEF CONTOURS

The contours above indicate that the development site is with the ANEF 20 – 25 contour, and as a result, the proposed development is considered "conditionally acceptable" in accordance with AS2021 and SPP 5.1.

The relevant aircraft types utilised by the airport need to be identified, and the associated noise levels attributable to the take off/landings determined for the site. The types of aircraft using the airport and the associated noise levels at the proposed site were determined in accordance with AS2021:2015. The design noise level for the proposed site was determined to be 81 dB(A), based on a Boeing 767-300 on take off.

The required aircraft noise reduction for the two areas considered was determined to be 31 dB(A) sleeping areas, 26 dB(A) for other habitable spaces and 21 dB(A) for bathrooms, toilets and laundries.

The design of the accommodation sections of the development will need to include façade construction measures to meet these reduction requirements. This would include the glazing, wall and roof constructions.

Hence, it is recommended that the development approval for the project be conditioned such that an assessment in accordance with SPP 5.1 is undertaken prior to the issue of building permit.

6.0 NOISE FROM DEVELOPMENT

The main source of noise from the proposed development will be from mechanical services consisting of air-conditioning plant. Noise received at neighbouring premises, and premises within the development, from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

6.1 MECHANICAL SERVICES

The main source of noise from the proposed development will be from mechanical services consisting of air-conditioning plant and condenser units. Noise received at residence (neighbours and residence within the development) from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

As the mechanical services could operate during the night, noise emissions from the development needs to comply with the assigned L_{A10} night period noise level of 37 dB(A) at residential premises. Potentially, noise emissions from mechanical services could be tonal, in which case an +5 dB(A) penalty for a tonal component could be applied to the resultant noise levels. Therefore, the design level at the neighbouring residential premises would be 32 L_{A10} dB.

APPENDIX A

DEVELOPMENT APPLICATION PLANS

GENERAL NOTES

THIS DRAWING IS TO BE PRINTED IN **COLOUR**. FAILURE TO DO SO MAY RESULT IN LOSS OF INFORMATION.

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5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK.

Rev	Description	Date
B	Issue to Consultants	12/03/25
A	Preliminary Development Approval Set - For Review	17/01/25

WHITEHAUS
architecture | interior design | drafting
2 Church Street PERTH 6000 | (08) 9226 3236
admin@whitehaus.com.au | ABN: 66 159 398 428

Client: Government of Western Australia, Department of Communities, Housing

Project: Indigo Junction Core & Cluster Accomodation
17 Amherst Rd, Swan View, WA 6056

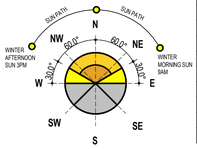
Drawing title: **Ground Floor Plan**

Project No.	Drawn	Approved	Scale @ A1:
23052	JM	CW	1 : 100

Status: Development Approval

Drawing No: **A100** Rev: **B**

1 Ground Floor - Sun and Ventilation Diagram
1 : 100



HOURLY SOLAR ANALYSIS

APARTMENT NO./TYPE	FLOOR	HOURS	DESIGN WA
UNIT 01 - 2 BED	GROUND	8+	PASS
UNIT 02 - 2 BED	GROUND	8+	PASS
UNIT 03 - 2 BED	GROUND	8+	PASS
UNIT 04 - 2 BED	GROUND + 1	8+	PASS
UNIT 05 - 2 BED	GROUND + 1	8+	PASS
UNIT 06 - 3 BED	GROUND + 1	4 - 5	PASS
UNIT 07 - 3 BED	GROUND + 1	2 - 3	PASS
UNIT 08 - 3 BED	GROUND + 1	2 - 3	PASS
UNIT 09 - 3 BED	GROUND + 1	3 - 4	PASS
UNIT 10 - ACCESSIBLE	GROUND + 1	2 - 3	PASS

1:200 When Printed at A3
0m 2m 6m 12m 20m

NORTH

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architecture | interior design | drafting
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admin@whitehaus.com.au | ABN: 66 159 398 428

Client: Government of Western Australia, Department of Communities, Housing

Project: Indigo Junction Core & Cluster Accomodation
17 Amherst Rd, Swan View, WA 6056

Drawing title: Ground Floor - Sun and Ventilation Diagram

Project No.	Drawn	Approved	Scale @ A1:
23052	JM	CW	As indicated

Status: Development Approval

Drawing No: A101 | Rev: B

0

LOT 97 (NO. 60) MARKHAM WAY
ADJACENT RESIDENTIAL LOT
736m²

LOT 23 (NO. 98) AMHERST RD
ADJACENT RESIDENTIAL LOT
1468m²

LOT 79 (NO. 56) MARKHAM WAY
ADJACENT SITE
897m²

EXTERNAL DETACHED WALKWAY COVER
COLORBOND MONOPITCH

ADMINISTRATION
PROFILED COLORBOND ROOF SHEETING

GARDEN AND BIN STORE
PROFILED COLORBOND ROOF SHEETING

MULTIPURPOSE
PROFILED COLORBOND ROOF SHEETING

UNIT 10
PROFILED COLORBOND ROOF SHEETING

MULTIPURPOSE
PROFILED COLORBOND ROOF SHEETING

ENTRY CANOPY
MONOPITCH

ENTRY CANOPY
MONOPITCH

2 BED - LEVEL 1
49 m²

3 BED - LEVEL 1
54 m²

1:200 When Printed at A3
0m 2m 6m 12m 20m

NORTH

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1 Level 1
1 : 100

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WHITEHAUS
architecture | interior design | drafting
2 Church Street PERTH 6000 | (08) 9226 3226
admin@whitehaus.com.au | ABN: 66 159 398 428

Client: Government of Western Australia Department of Communities Housing

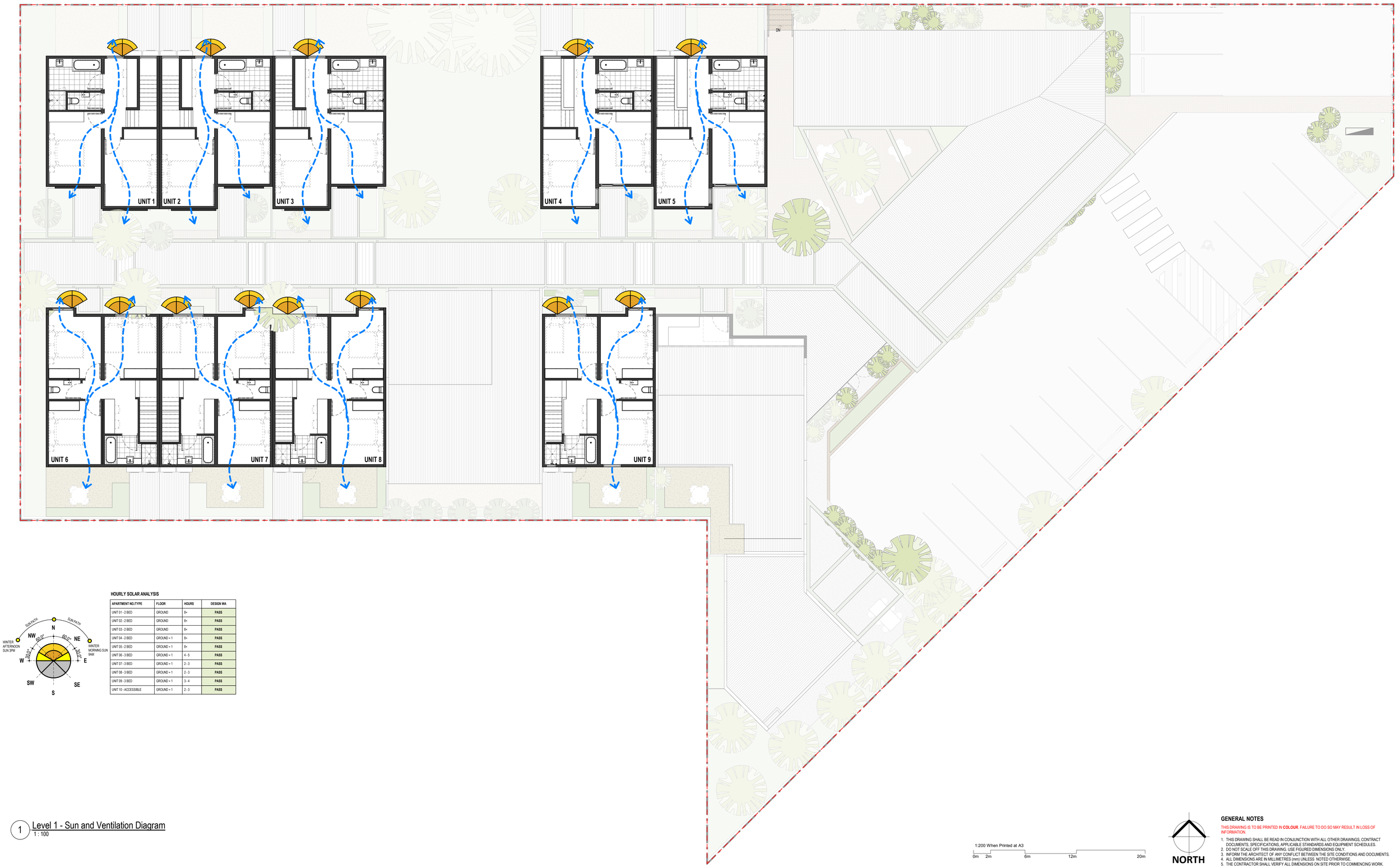
Project: Indigo Junction Core & Cluster Accomodation
17 Amherst Rd, Swan View, WA 6056

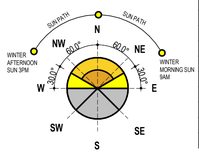
Drawing title: Level 1 Plan

Project No.	Drawn	Approved	Scale @ A1:
23052	JM	CW	1 : 100

Status: Development Approval

Drawing No: A110 | Rev: B





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UNIT 02 - 2 BED	GROUND	8+	PASS
UNIT 03 - 2 BED	GROUND	8+	PASS
UNIT 04 - 2 BED	GROUND + 1	8+	PASS
UNIT 05 - 2 BED	GROUND + 1	8+	PASS
UNIT 06 - 3 BED	GROUND + 1	4 - 5	PASS
UNIT 07 - 3 BED	GROUND + 1	2 - 3	PASS
UNIT 08 - 3 BED	GROUND + 1	2 - 3	PASS
UNIT 09 - 3 BED	GROUND + 1	3 - 4	PASS
UNIT 10 - ACCESSIBLE	GROUND + 1	2 - 3	PASS

1 Level 1 - Sun and Ventilation Diagram
1 : 100

1:200 When Printed at A3
0m 2m 6m 12m 20m

NORTH

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Client
Government of Western Australia
Department of Communities
Housing

Project
Indigo Junction Core & Cluster Accomodation
17 Amherst Rd, Swan View, WA 6056

Drawing title
Level 1 - Sun and Ventilation Diagram

Project No.	Drawn	Approved	Scale @ A1
23052	JM	CW	As indicated

Status: Development Approval

Drawing No: A111 | Rev: B

0

1 Site Plan
1 : 100

1:200 When Printed at A3
0m 2m 6m 12m 20m

NORTH

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Client: Government of Western Australia, Department of Communities, Housing

Project: Indigo Junction Core & Cluster Accomodation
17 Amherst Rd, Swan View, WA 6056

Drawing title: **Overall Roof Plan**

Project No.	Drawn	Approved	Scale @ A1:
23052	JM	CW	1 : 100

Status: Development Approval

Drawing No: **A120** Rev: **B**

0