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CAMERON
CHISHOLM
NICOL



DEVELOPMENT APPLICATION

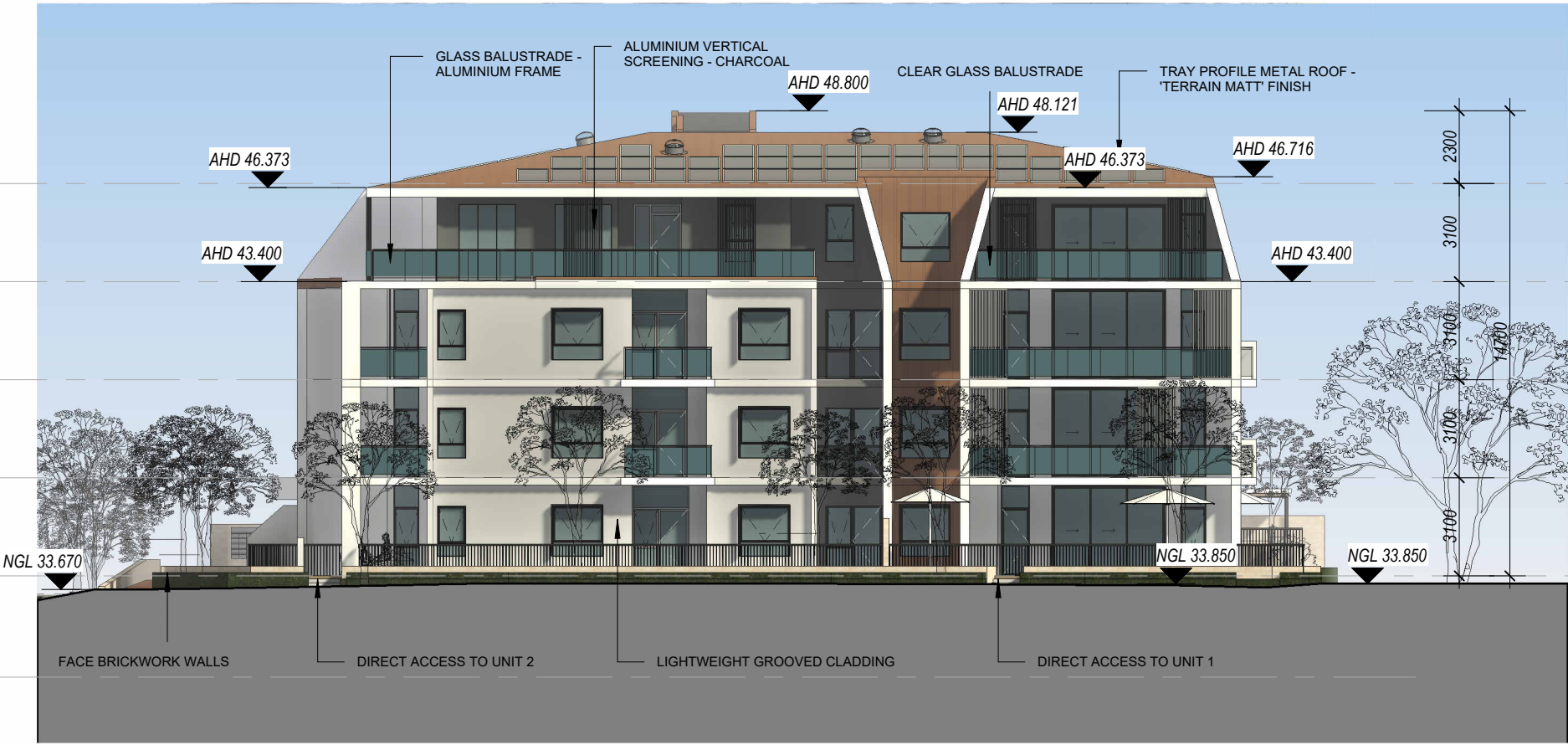
WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT

A000

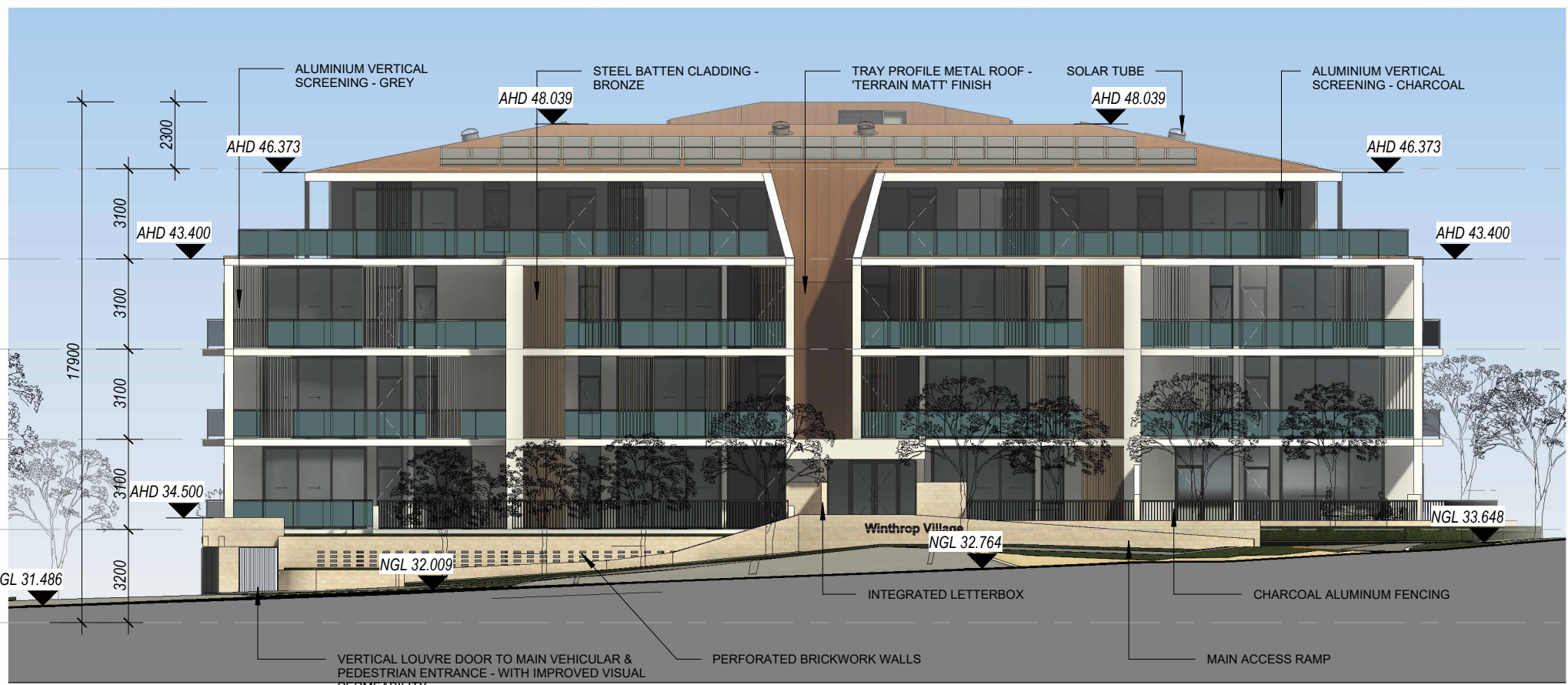
P25037

21/07/2026

SK



1 NORTH ELEVATION
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2 EAST ELEVATION
1 : 200



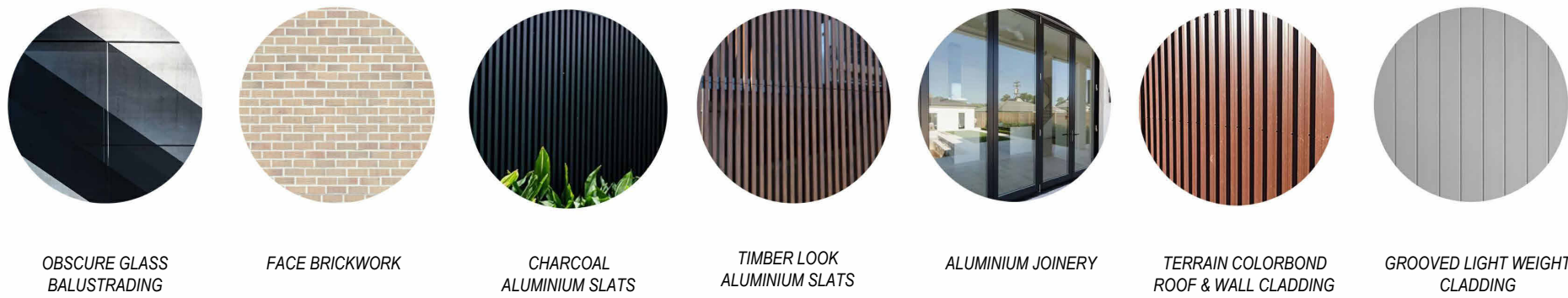
3 SOUTH ELEVATION
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4 WEST ELEVATION
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EXTERNAL ELEVATIONS



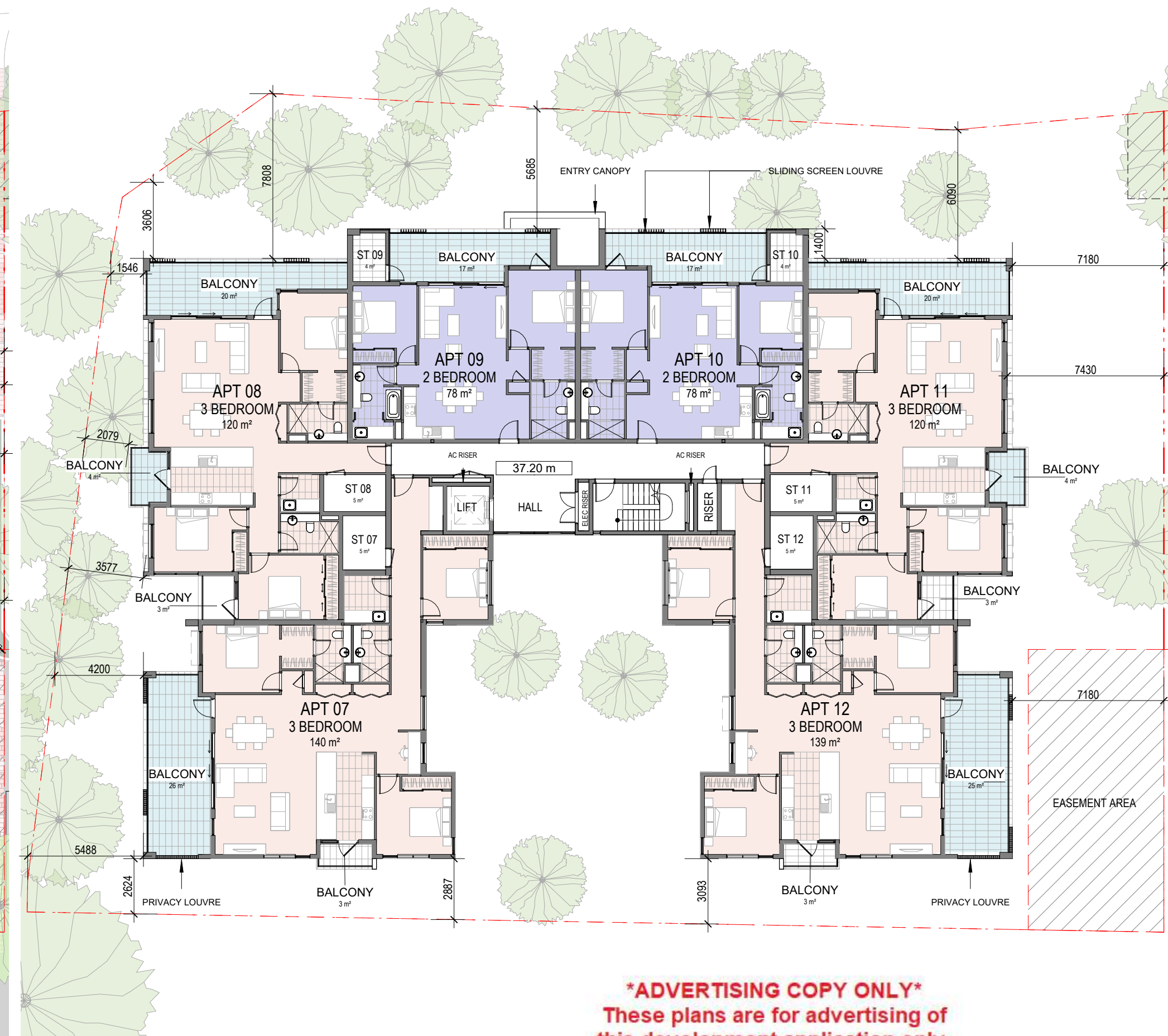
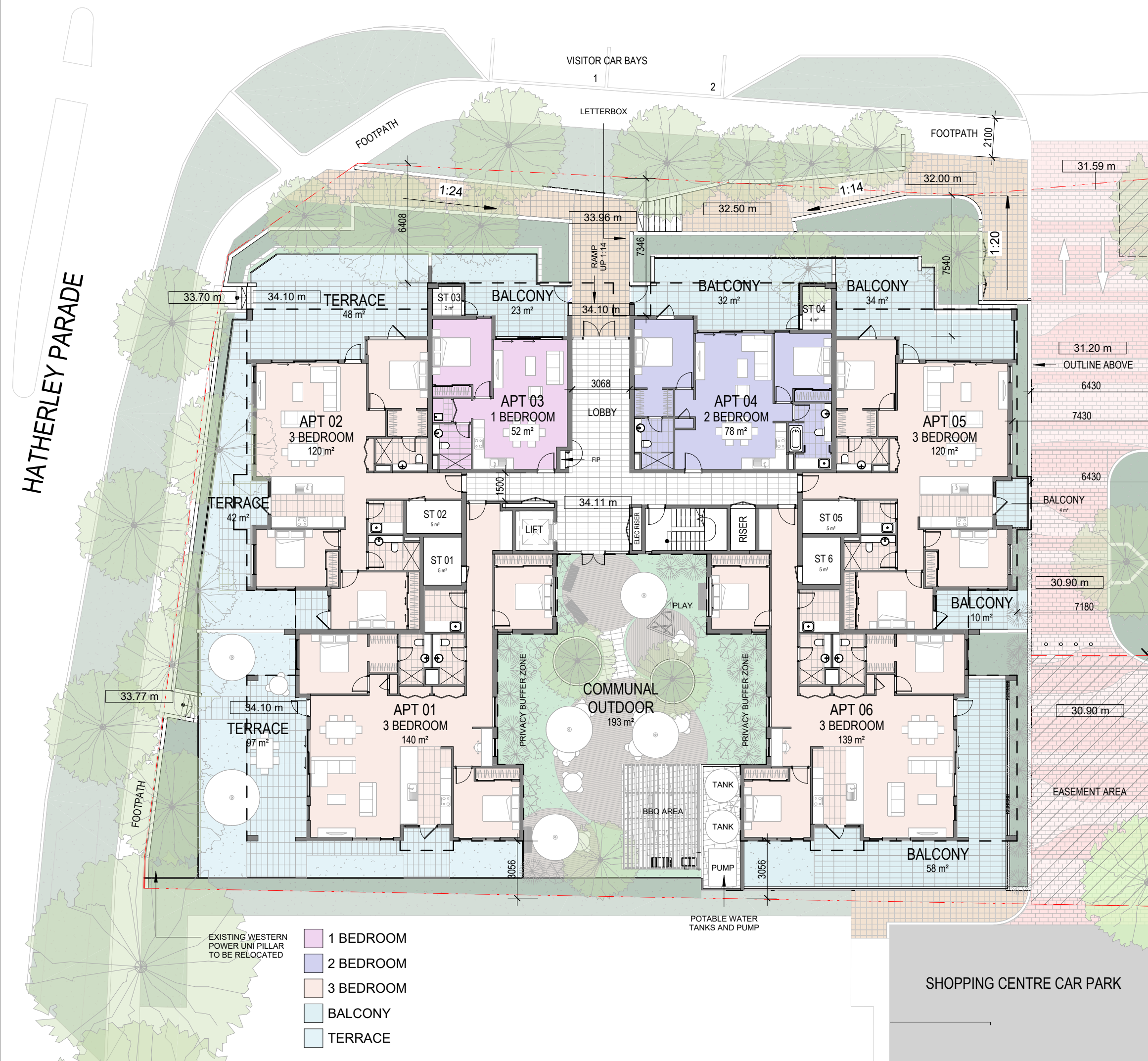
REFER TO LEVEL 1 PLAN
FOR CONTINUATION



LOWER GROUND



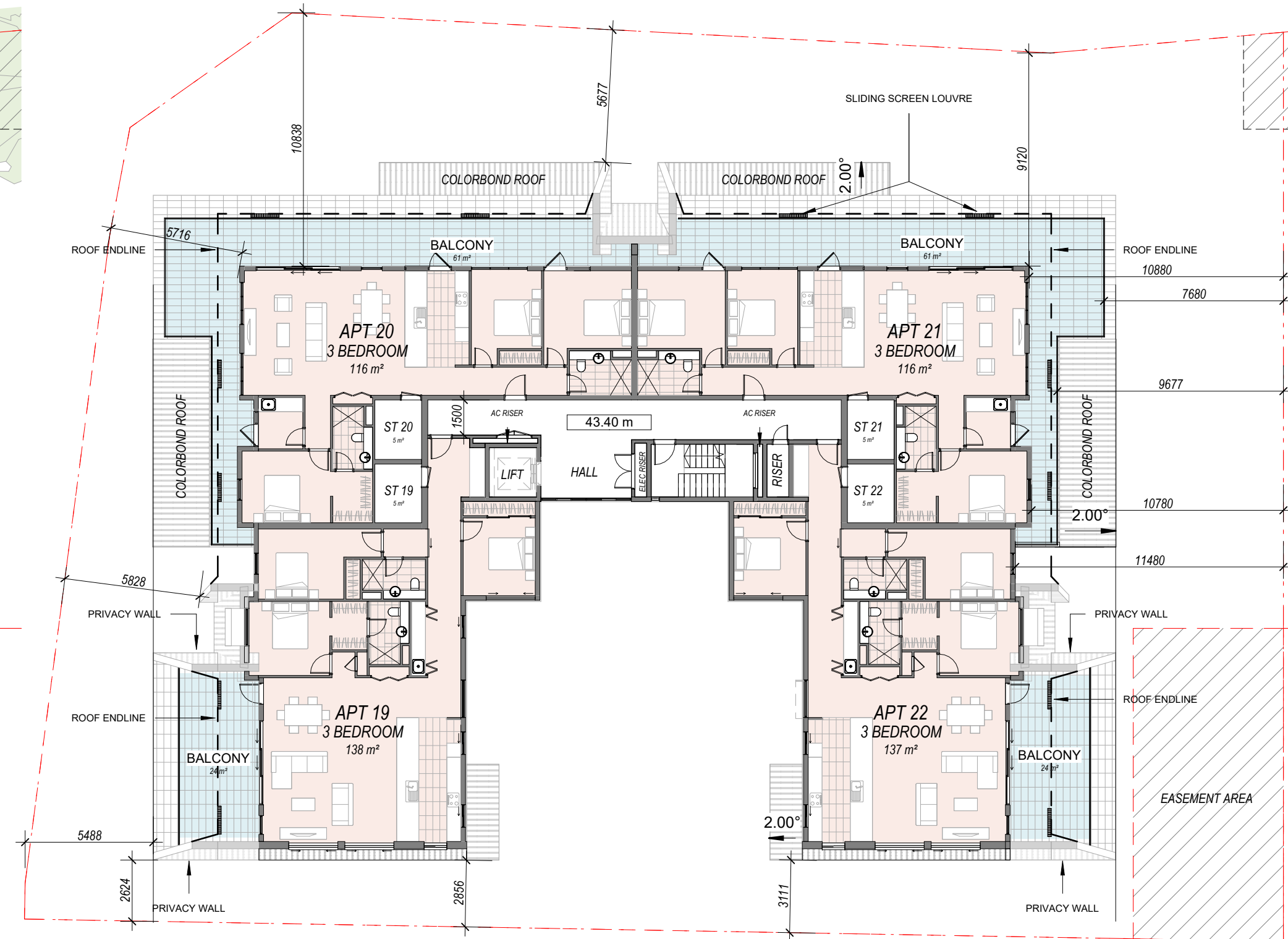
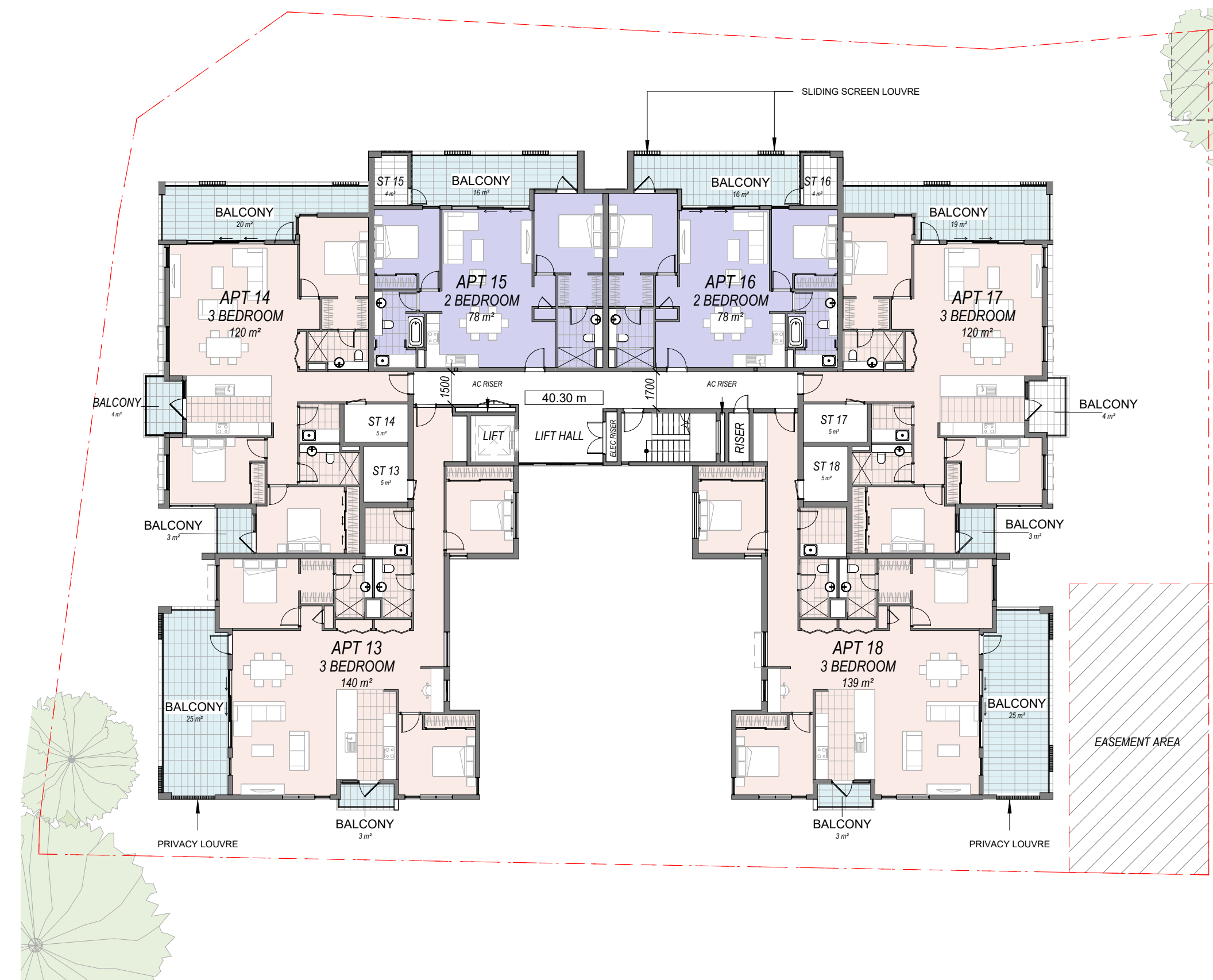
JACKSON AVENUE



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LEVEL 2 / LEVEL 3



WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT

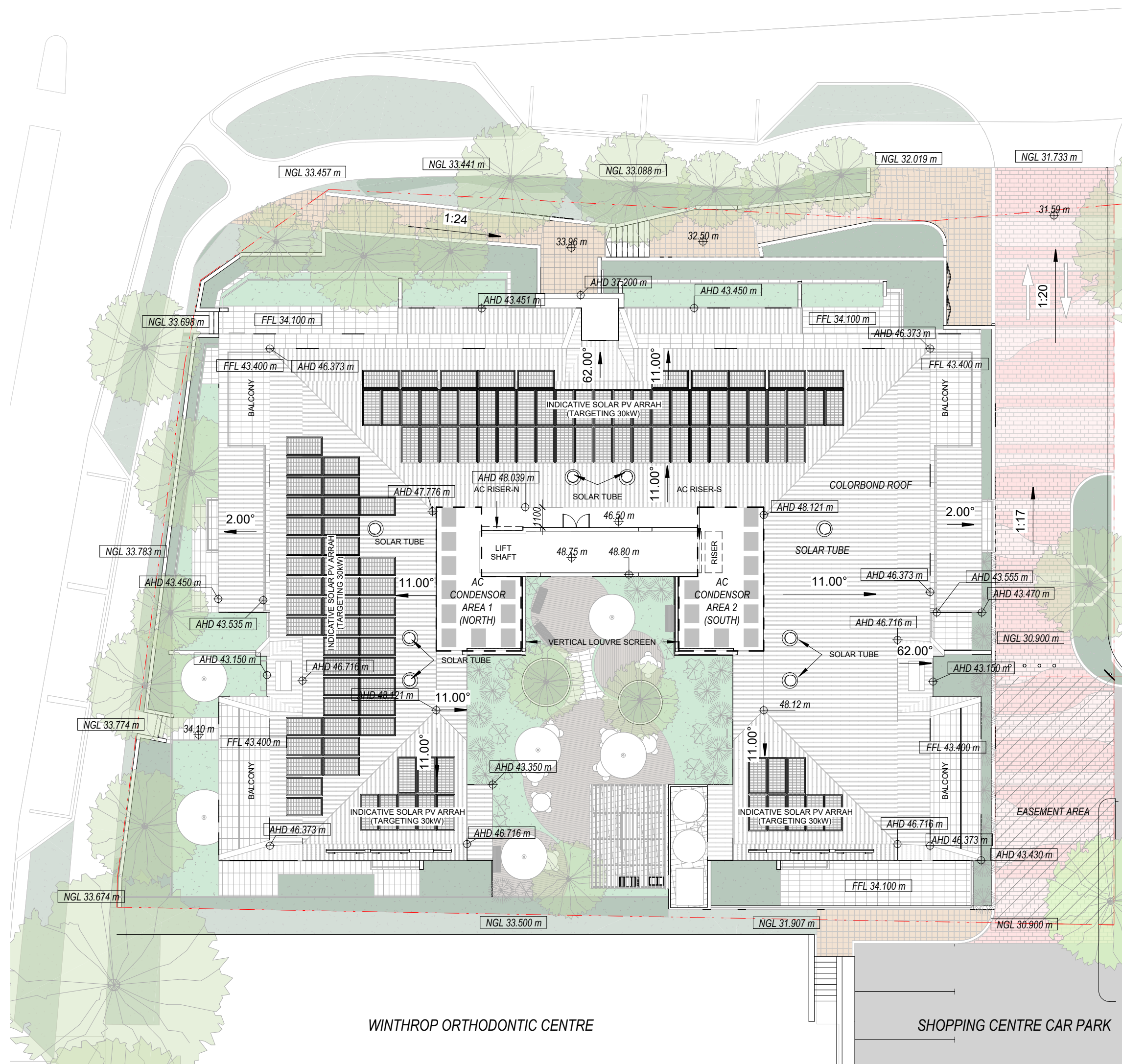
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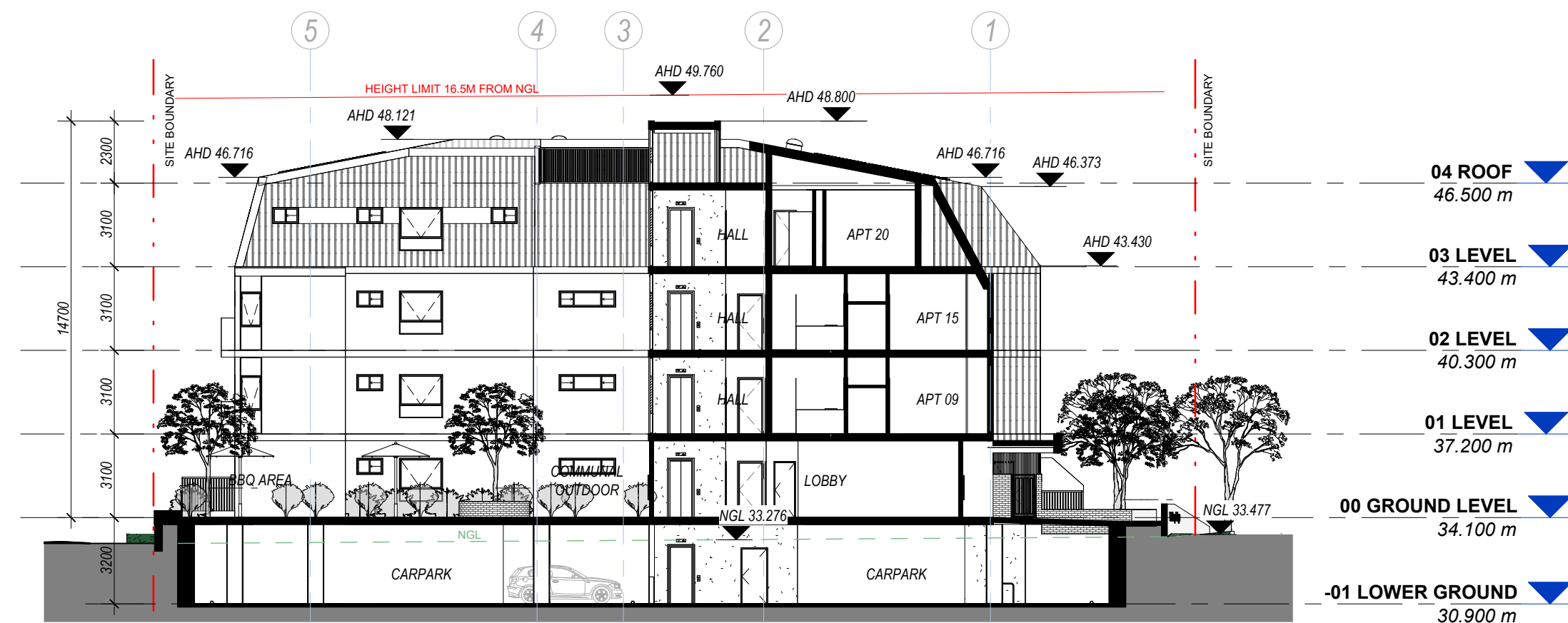
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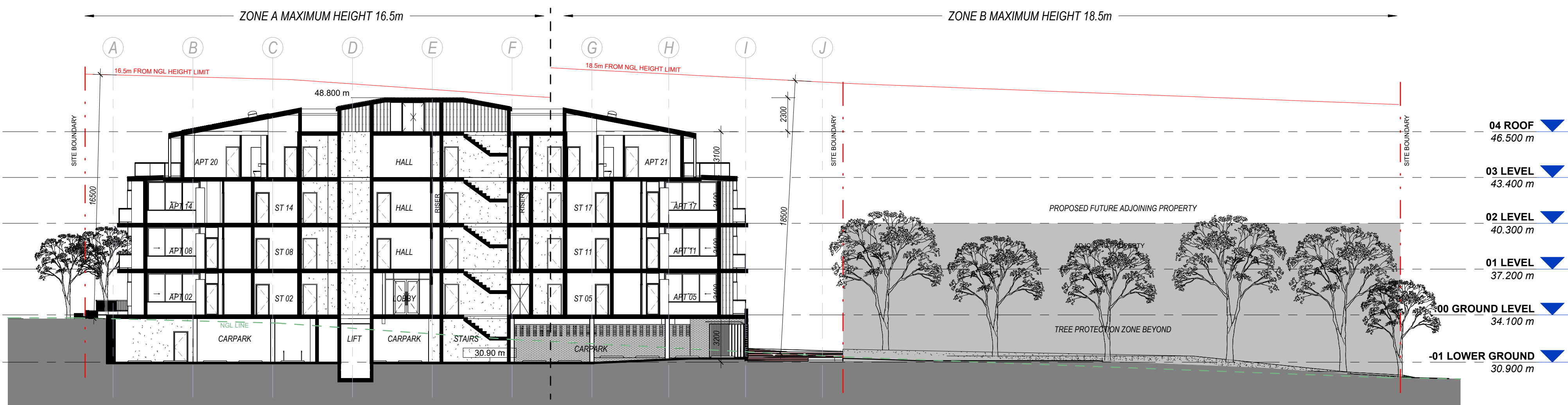
ROOF PLAN



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1 SHORT SECTION
A08.01 1 : 200



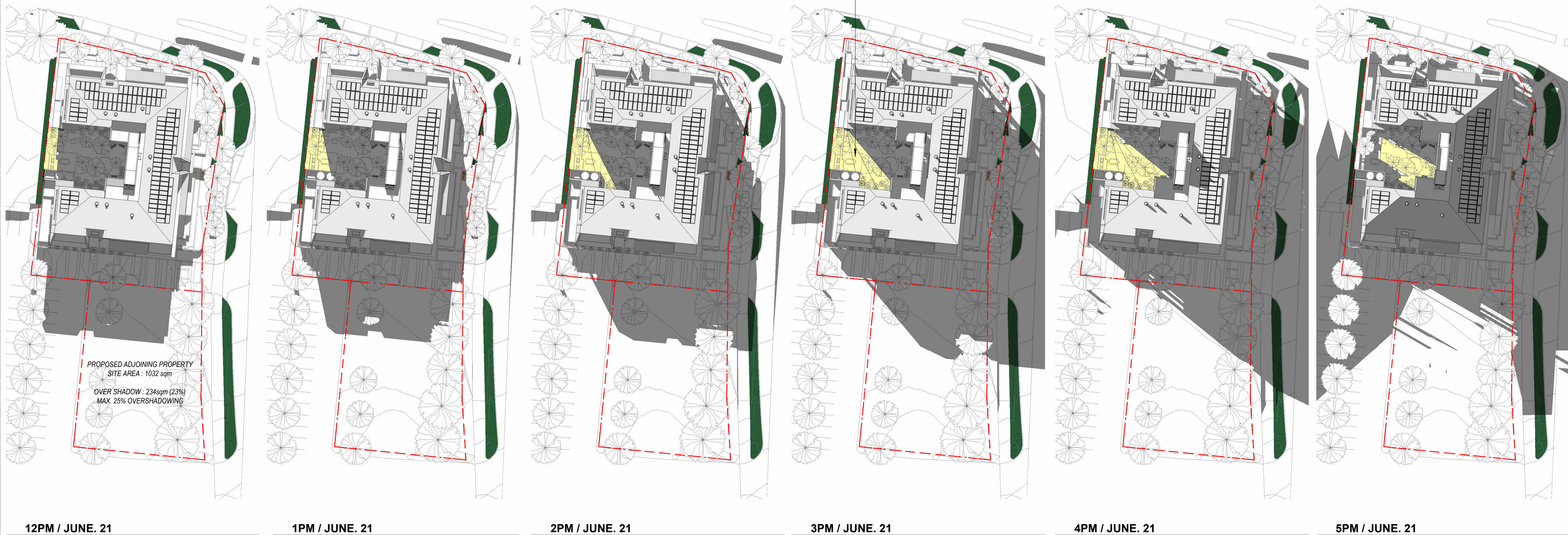
2 LONG SECTION
1 : 200

SECTIONS



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2 HOURS DIRECT SUNLIGHT AREA = 98 m²
TOTAL COMMUNAL OPEN SPACE AREA = 200 m²
THE TOTAL QUALIFYING COMMUNAL OPEN SPACE AREA = 196 m²
MINIMUM REQUIREMENT COS = 6 m² X 22 UNITS = 132 m²



OVERSHADOWING



WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT

A116

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YILED SCHEDULE

22 Units

TYPE (EA)	3BED	2BED	1BED				TOTAL(EA)	NOTE
4F	4						4	
3F	4	2					6	
2F	4	2					6	
1F	4	1	1				6	
GF								
TOTAL NUMBER OF UNITS	16	5	1				22	
BED RATIO	73%	23%	5%				100%	

PLOT RATIO

128%

FLOOR (sqm)	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	TOTAL (sqm)	NOTE
4F	138	116	116	137			514	
3F	140	120	78	78	120	139	675	
2F	140	120	78	78	120	139	675	
1F	140	120	52	78	120	139	648	
GF								
TOTAL GROSS AREA							2512	
SITE AREA							1966	
PLOT RATIO							127.77%	

COMMUNAL OPEN SPACE

Compliant

COMMUNAL OPEN SPACE	DETAILS / CALCULATION	AREA	NOTE
PROPOSED AREA	Planned C.O.S	196	Req : 132(22units x 6sqm)

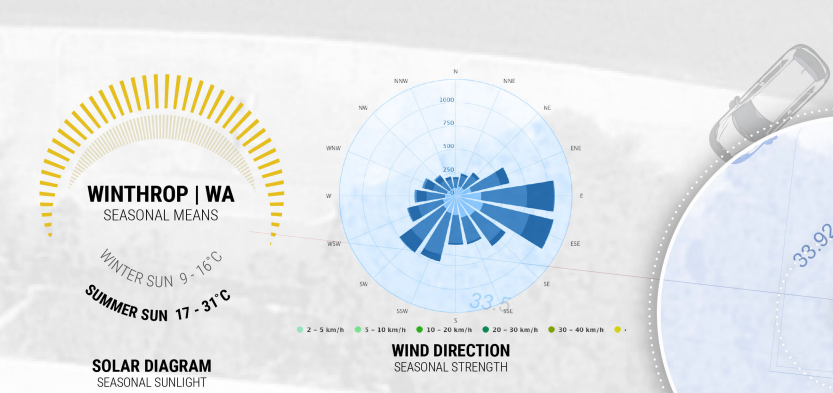
PARKING SCHEDULE

Compliant

CATETORY	MIN. REQUIREMENT	GROUND FLOOR	ROAD OR MALL PARKING	TOTAL (sqm)	NOTE
CAR BAYS - RISIDENT	22	43		43	CAR PARKING RATIO 1.95% 1BED 1 X 1BAY = 1BAY 2BED 5 X 2BAY = 10BAYS 3BED 16 X 2BAY = 32 BAYS TOTAL 43 BAYS, EXCLUDE VISITOR & ELECTRIC VEHICLE BAYS
CAR BAYS - VISITOR	5		5	5	
CAR BAYS - ELECTRIC VEHICLE	0		5	5	
BICYCLE - RESIDENT	11	11		11	
BICYCLE - VISITOR	3	4		4	
TOTAL BICYCLE RACK	14	15		15	
MOTORCYCLE / SCOOTER	3	3		5	

YIELD, PLOT RATIO, DEEP SOIL AREA, COMMUNAL OPEN SPACE, PARKING SCHEDULE





TREE RETENTION SCHEDULE

REFER ARBORIST REPORT FOR DETAILS OF TREES RETAINED ON THE SITE TO THE SOUTH (SHOWN AS GREY TEXT BELOW)

Retain	Tree No.	Species	Height (m)	Spread (m)	Comments	Stems	DBH (mm)	DAB (mm)	NRZ Radius (m)	NRZ Area (m²)	SRZ Radius (m)	SRZ Area (m²)
□	1	Corymbia maculata	18.0	11.0	Good specimen. Shows good health and structural condition and no issues or concerns visible. Position likely to be deleteriously impacted by development and services.	Single Stem	859	907	10.3	334.1	3.2	31.7
✓	2	Corymbia maculata	14.0	10.0	Reasonably good specimen. Canopy slightly sparse. Remaining leaf still good condition and no issues	Single Stem	370	400	4.4	61.9	2.4	17.9
✓	3	Corymbia maculata	15.0	9.0	Good specimen. Shows good health and structural condition and no issues or concerns visible	Single Stem	480	570	5.8	104.2	2.6	21.5
✓	4	Corymbia maculata	15.0	9.0	Good specimen. Shows good health and structural condition and no issues or concerns visible	Single Stem	450	510	5.4	91.6	2.5	19.5
✓	5	Corymbia maculata	15.0	7.000	Good specimen. Shows good health and structural condition and no issues or concerns visible	Single Stem	520	600	6.240	122.3	2.7	22.4
✓	6	Corymbia maculata	17.0	7.0	Good specimen. Shows good health and structural condition and no issues or concerns visible	Single Stem	560	670	6.7	141.9	2.9	24.078
✓	7	Corymbia maculata	14.0	10.0	Good specimen. Shows good health and structural condition and no issues or concerns visible	Single Stem	859	859	10.3	334.1	3.1	30.3
□	8	Corymbia maculata	13.0	9.5	Position likely to be deleteriously impacted by development	Single Stem	446	573	5.3	89.8	2.6	21.6
□	9	Corymbia maculata	12.0	6.0	Position likely to be deleteriously impacted by development	Single Stem	509	573	6.1	117.3	2.6	21.6
□	10	Corymbia maculata	9.0	6.0	Position likely to be deleteriously impacted by development	Single Stem	382	446	4.6	66.0	2.4	17.5
✓	11	Tipuana tipu	12.0	14.0	Positioned on neighbouring lot with 2m overhang to boundary. Minor encroachment to NRZ with minimal impact expected from development activities	Single Stem	573	605	6.9	148.5	2.7	22.6

TYPICAL UNDERSTOREY PLANTING PALETTE



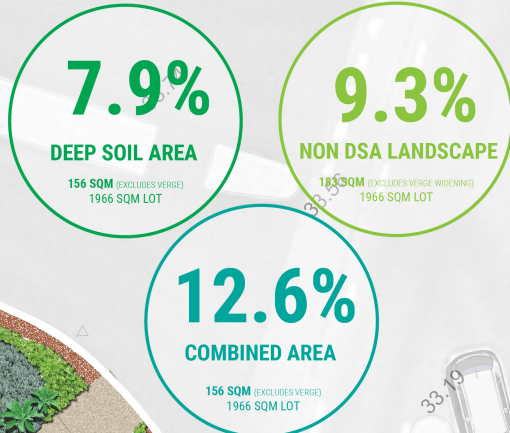
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LANDSCAPE DESIGN RATIONALE

Initial site investigations reveal a cleared residential lot with a combined area of 1966m² at the corner of Hatherley Parade and Jackson Avenue in Winthrop, WA. The site has a north-east facing frontage. Streetscapes are typically paved with natural grey concrete paths on this side of the street and predominated by mature Spotted Gums (Corymbia maculata) further down the street that are earmarked for retention. There are no overhead powerlines on this side of George Street with a generous verge that could accommodate verge plantin, some embayed parking and new street trees.

The design of the driveway has been maintained to as an entry into the shopping centre carpark and to provide access throughout the complex with carpark trees retained on site to maximise shade and habitat canopy. Street tree species shown are a suggestion only and subject to local council selections - Angophora costata and Eucalyptus victrix nana are proposed in 100L pot size to tie in with the smooth trunks of the spotted gums already established around the site.

No turf will be incorporated but rather planted and irrigated by the development to soften the presentation to the street. The landscape design for this project will consist of plants and materials sourced locally using the toughest native species adapted to this location. The soft works designs are inspired by local vegetation complexes punctuated with small and medium-sized ornamental trees to create a flowering and scented, textured native garden setting to the complex and enhance local streetscapes.



- LEGEND
- TREES TO BE RETAINED
to be protected to AS 4970 - 2025
 - TREE TO BE REMOVED
stumps + roots to be removed
 - PROPOSED TREE
refer schedule for selections & sizes
 - FEATURE PLANTING
accent species | succulent or vertical accent
 - MASS PLANTING
75mm organic mulch | 3 plants/sqm | 130mm pots
 - INTERNAL DRIVEWAY
red asphalt | flush kerbs or line marking
 - TIMBER DECKING
Hardwood decking | to AS 1684 timber framing code
colour: MERBAU (potential timber-look tiles on podium)
 - PEDESTRIAN PAVEMENT
200 x 200 x 50mm unit paving | haunch to edges
stretcher bond | colour: LIMESTONE
 - PREMIUM CONCRETE PAVING
no float framing | sawn joints | honed finish
 - GRANULAR | Permeable | Bluestone Steppers
75 thick | 3-5mm crushed pea gravel | compacted
Dichondra repens seeding (7g/sqm)

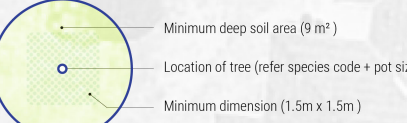
IRRIGATION RATIONALE

Irrigation will be a series of smart, automatic irrigation systems that will provide subsurface watering to verge planting for establishment from each individual lot.

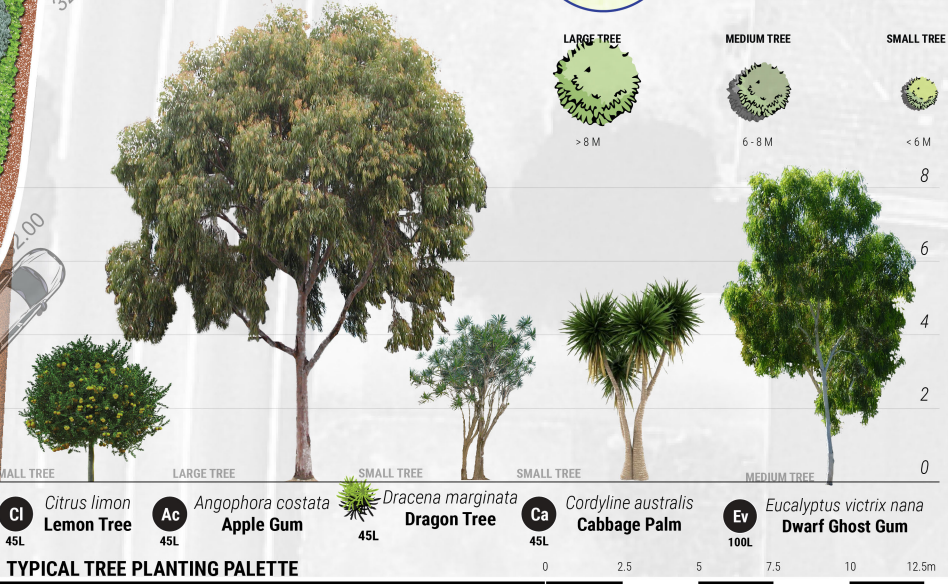
- DRIP IRRIGATION THROUGHOUT
in-line drip system | subsurface
- BUBBLERS TO TREES
1 - 3 bubblers per tree dependent on size
- NO OVERHEAD SPRAY SPRINKLERS
minimise water use, overspray & evaporation
- HYDROZONING
designed with water demand calibrated stations
- SOIL MOISTURE SENSORS
smart system to respond to soil moisture levels
- RAIN SENSORS
smart system to respond to prevailing weather
- PASSIVE IRRIGATION
direct storm water to gardens before drains

TREE SYMBOL DIMENSIONS

note: symbols on plan are drawn to scale to demonstrate the following areas and dimensions:



PEDESTRIAN-PRIORITY LANEWAY
PAINTED PATTERN TO DRIVEWAY
RESURFACE AS RED ASPHALT



WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT

Architectural Statement

Prepared in support of the 22-apartment Development Application located on the corner of Jackson Ave and Hatherly Pde, Winthrop.

1. Context and Character

The proposed Winthrop Village Residential Development has been carefully designed to respond to the established suburban character of Winthrop, while supporting the evolving role of the Winthrop Village activity centre as a local community hub. The site occupies a prominent corner position adjoining the Winthrop Shopping Centre, Hatherley Parade and Jackson Avenue, directly adjacent to existing residential development and significant landscape elements including the established Tree Protection Zone to the west.

The design approach draws from several contextual influences identified through the design analysis process, including the surrounding suburban residential scale, the varied pitched roof forms of the local streetscape, the gently sloping topography, and the established landscape character of the area. The proposal seeks to mediate between the larger-scale commercial context of the shopping centre and the lower-scale residential neighbourhood through a built form that breaks down massing into articulated volumes with varied roof forms.

The development has also been informed by the demographic profile of Winthrop, which demonstrates a higher proportion of families and older residents compared to Greater Perth. In response, the proposal prioritises larger two and three-bedroom apartments suited to ageing in place, downsizers and family living within the local community.

The project aligns with the Approved Local Development Plan for the site, which anticipates a four-storey residential development with sustainability bonuses and recognises the strategic importance of the site within the neighbourhood activity centre.

2. Landscape Quality

Landscape has been integrated as a fundamental component of the architectural and public realm response, creating a strong relationship between built form, communal spaces and the surrounding landscape character. The proposal retains the existing Lemon Scented Gum tree adjacent to the site and responds sensitively to the adjoining Tree Protection Zone.

A generous landscaped communal courtyard is centrally located within the development, providing deep planting, passive recreation opportunities, seating, play spaces and BBQ facilities for residents. This landscaped open space forms the social heart of the development while improving outlook, passive surveillance and environmental performance.

The perimeter landscape treatment softens the interface with the public realm through tiered planting, privacy buffers and street trees along Jackson Avenue and Hatherley Parade. The proposal also introduces landscaped planters and integrated planting opportunities throughout the development to reinforce the garden character of Winthrop.

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3. Built Form and Scale

The built form has been developed through a rigorous massing and refinement process that responds to the site's strategic location, adjoining residential interfaces and the approved Local Development Plan framework. The development comprises a four-storey residential building over a semi-open undercroft parking level, achieving a maximum height within the prescribed planning framework.

The building mass is articulated through setbacks, vertical modulation and varied roof forms to reduce perceived bulk and create a finer-grain residential expression. The design process intentionally avoided a monolithic form, instead introducing separation between apartment groupings and draping roof forms that establish a dynamic skyline reflective of surrounding residential roofscapes.

The proposal adopts a U-shaped configuration orientated toward Jackson Avenue, creating an internal communal courtyard while maximising street activation and passive surveillance. The upper-level setbacks and articulated façades assist in transitioning the scale of the development toward adjoining residential properties and reduce visual bulk when viewed from the public realm.

The development delivers a residential yield of 22 apartments, comprising predominantly three-bedroom dwellings, reinforcing the downsizer and family-oriented character of the proposal.

4. Functionality and Build Quality

The proposal has been designed to achieve a high standard of residential functionality, accessibility and long-term durability. All apartments comply with Silver Liveable Housing standards to support ageing in place and universal accessibility outcomes consistent with Design WA objectives.

Apartment layouts are efficient and highly functional, with generous living spaces, large balconies, dedicated storage areas and strong access to daylight and ventilation. The predominance of two and three-bedroom dwellings responds to a flexible long-term occupancy and changing household needs, but also to a demand from older families looking to downsize in the area.

The building structure has been rationalised to minimise transfer structures into the parking levels and improve construction efficiency and long-term performance. Centralised service cores consolidate exhaust, mechanical and electrical risers to simplify maintenance and maximise structural stability.

Material selection focuses on durability, low maintenance and contextual appropriateness. The proposal incorporates face brickwork, lightweight cladding, aluminium screening elements, perforated brick detailing and Colorbond roof cladding to create a robust and enduring architectural expression.

5. Sustainability

The development incorporates a range of passive and active sustainability initiatives aimed at improving environmental performance and resident comfort. The proposal targets a 4 Star Green Star equivalency commitment and has been designed to maximise natural ventilation, daylight access and energy efficiency.

Approximately 73% of apartments achieve natural cross ventilation, exceeding Design WA requirements, while all apartments achieve a minimum of two hours of direct solar access. Upper-level apartments utilise skylights and solar tubes to improve internal daylight penetration and reduce reliance on artificial lighting. Double glazing is

proposed throughout for improved energy efficiency and resident comfort throughout the year.

The roof design incorporates indicative solar photovoltaic arrays targeting approximately 30kW of renewable energy generation capacity for common area services and improved operational sustainability. The development will also be fully electrified.

The proposal also supports sustainable transport outcomes through the provision of secure bicycle parking, proximity to public transport routes and integration with the surrounding pedestrian and cycling network. Provision is also made for future installation of EV charging to all resident car bays. EV chargers are proposed to be installed for the visitor bays which will be shared with the shopping centre.

Landscaping, deep soil planting and communal open space further contribute to urban cooling, biodiversity and improved microclimatic performance across the site.

6. Amenity

The development delivers a high level of residential amenity for occupants through generous apartment sizing, quality communal spaces and strong environmental performance. Apartments are designed with open-plan living arrangements, generous balconies and carefully considered layouts that maximise daylight, outlook and cross ventilation.

The communal courtyard provides substantial shared open space incorporating BBQ facilities, landscaped seating areas, play opportunities and flexible recreation space for residents.

Parking provision exceeds minimum requirements, with resident car bays, visitor bays, motorcycle parking and secure bicycle storage integrated within the undercroft parking arrangement.

Ground floor apartments benefit from direct entries and landscaped terraces that strengthen the relationship between private dwellings and the public realm while improving residential amenity and passive surveillance.

The development also benefits from direct pedestrian connectivity to the adjoining shopping centre and surrounding neighbourhood amenities.

7. Legibility

The proposal establishes clear and legible circulation paths for residents and visitors through distinct pedestrian and vehicular access arrangements. The primary residential entry is clearly expressed through a recessed entry canopy, raised lobby and direct pedestrian approach from Jackson Avenue.

Vehicular access is consolidated to a single controlled entry point leading to secure undercroft parking, while visitor parking is clearly identifiable and conveniently located. Pedestrian movement through the development is intuitive, with a central circulation spine connecting lifts, stairs and communal areas.

Wayfinding opportunities are reinforced through architectural articulation, lighting, material changes and coloured wayfinding strategies within common areas. Bicycle storage has also been positioned adjacent to the main circulation core to improve accessibility and ease of use.

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8. Safety

The development has been designed in accordance with Crime Prevention Through Environmental Design principles to maximise resident safety and passive surveillance. Apartments and balconies are orientated toward Jackson Avenue, Hatherley Parade and communal open spaces to provide continuous overlooking of the public realm and shared spaces.

The communal courtyard and pedestrian accessways are highly visible from internal circulation areas and surrounding apartments, reducing opportunities for concealed spaces or anti-social behaviour. Secure undercroft parking is controlled through gated access arrangements, while visitor and pedestrian pathways are clearly delineated and well lit.

Landscape design has also been carefully considered to balance privacy and surveillance outcomes, with low-level planting and clear sightlines maintained along pedestrian routes and building entries.

9. Community

The proposal contributes positively to the evolving Winthrop Village activity centre by introducing a diverse residential community within walking distance of shops, medical services, public transport and recreational facilities. The predominance of larger apartments supports families, downsizers and older residents wishing to remain within the Winthrop community.

Communal spaces have been deliberately designed to foster social interaction and support a range of resident activities, including quiet reading spaces, informal recreation areas, BBQ facilities and landscaped gathering spaces.

The integration of communal outdoor spaces, shared amenities and strong pedestrian connectivity encourages opportunities for neighbour interaction and community formation within the development while strengthening the activity centre environment more broadly.

10. Aesthetics

The architectural expression of the proposal is contemporary while remaining grounded in the established residential character of Winthrop. The built form utilises pitched roof elements, articulated façades and a warm material palette to create a development that references local suburban roofscapes while establishing a strong identity appropriate for its prominent corner location.

The façade composition balances horizontal and vertical articulation through the use of expressed framing elements, vertical aluminium screening, perforated brickwork and recessed balconies. The draped mansard roof form creates a continuous architectural language between roof and wall planes, reinforcing the sculptural quality of the development.

The material palette of brickwork, textured lightweight cladding, charcoal and timber-look aluminium screening and glazed balustrades contributes warmth, texture and visual depth to the streetscape.

Overall, the proposal delivers a refined and contextually responsive architectural outcome that contributes positively to the character and identity of the Winthrop Village activity centre.

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Urbii



Reduce. Reuse. Recycle

Lot 369 Somerville Boulevard, Winthrop Proposed Residential Development

Waste Management Plan



Prepared for:
Nostoc Pty Ltd

August 2026

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Lot 369 Somerville Boulevard, Winthrop

Prepared for: Nostoc Pty Ltd
Prepared by: Paul Ghantous
Date: 5 August 2026
Project number: U26.035

Version control

Version No.	Date	Prepared by	Revision description	Issued to
U26.035.r02	14/05/26	Paul Ghantous	DRAFT	CCN
U26.035.r02a	22/05/26	Paul Ghantous	FINAL	CCN
U26.035.r02b	05/08/26	Paul Ghantous	REVISED FINAL	CCN

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1 Introduction

This Waste Management Plan has been prepared by **Urbii** on behalf of **Nostoc Pty Ltd** in support of the proposed residential development, located at Lot 369 Somerville Boulevard, Winthrop.

The subject site is located within the north-eastern corner of the broader Winthrop Village landholding, with frontage to Jackson Avenue and Hatherley Parade, as shown in Figure 1.

It is proposed to develop the site into a four-storey residential apartment building comprising 22 dwellings, with associated communal open space, landscaping, bicycle parking, motorcycle parking and lower-ground resident car parking. The proposed dwelling mix comprises 1 one-bedroom apartment, 5 two-bedroom apartments and 16 three-bedroom apartments.

The key issues addressed in this WMP include calculation of waste generation for the development, assessment of waste storage provisions, and documentation of the waste collection arrangements.

This WMP has been updated following consultation with the City of Melville during the development assessment process. The revised plan adopts the City's waste generation rates prescribed by Local Planning Policy 1.3 and provides further detail regarding the waste storage, bulk waste provision, collection and vehicle access arrangements.

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Figure 1: Subject site

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2 Objectives

The objectives of this WMP are adapted from WALGA:

- Ensure that the long-term waste management needs for the development are met in an efficient and sustainable manner.
- Minimise the impact of waste services and facilities on the streetscape and surrounds, in relation to both the footpath/public realm and the frontage of the development.
- Reduce the impact of waste collection services and facilities on the amenity of the locality particularly in terms of noise and odour.
- Maximise safety for both waste collection staff and the public.
- Minimise traffic and footpath obstruction.

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3 Referenced documents

The documents referenced in preparing this WMP may include, but are not limited to:

- City of Melville Local Planning Policy 1.3 – *Waste and Recyclables Collection for Multiple Dwellings, Mixed Use Developments and Non-Residential Developments*;
- WALGA *Multiple Dwelling Waste Management Plan Guidelines*;
- WALGA *Subdivision Waste Management Plan Guidelines*; and,
- Waste Authority WA *Waste Avoidance and Resource Recovery Strategy for 2030*.

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4 Guiding concepts

Urbii adopts the guiding concepts of the State's Waste Strategy and encourages these concepts to be considered in all developments to the furthest extent feasible.

4.1 Waste hierarchy

The *Waste Avoidance and Resource Recovery Strategy 2030* applies the waste hierarchy (Figure 2), which is a widely accepted decision-making tool. The waste hierarchy ranks waste management options in order of their general environmental desirability. Waste avoidance is the most preferred option in the hierarchy.

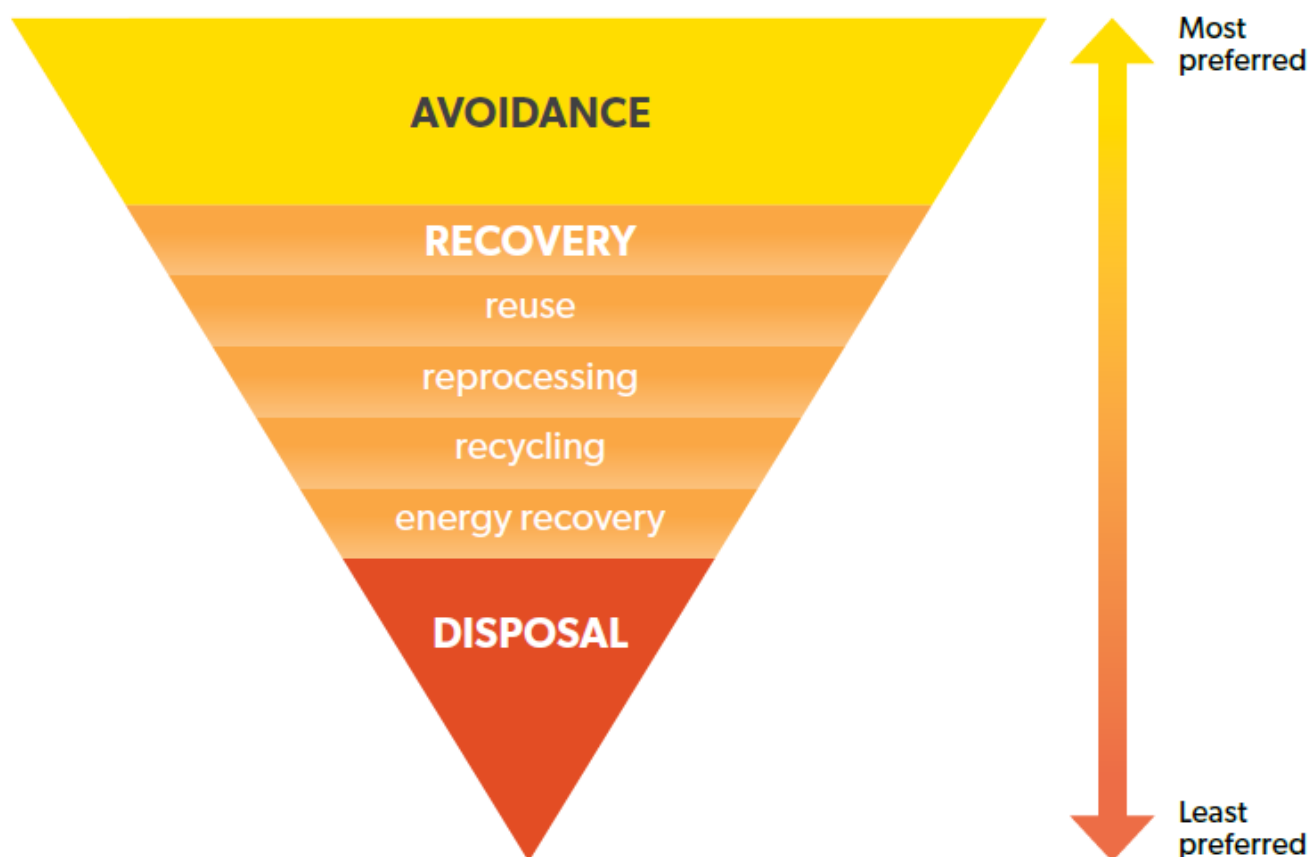


Figure 2: Waste hierarchy

Source: Waste Authority WA *Waste Avoidance and Resource Recovery Strategy for 2030*.

Resource recovery options recover value from materials, thereby offsetting the environmental impacts of extracting and processing raw materials. Energy recovery is the least preferred recovery option. Disposal is the least preferred option. Disposal generally recovers the least value from materials and delivers the least environmental benefit.



4.2 Circular economy

A circular economy (Figure 3) makes use of established sustainability concepts, including life cycle thinking and resource efficiency. A circular economy should consider the flow of both materials and energy. It moves away from the linear ‘take, make, use and dispose’ model, to one which keeps materials and energy circulating in the economy for as long as possible.

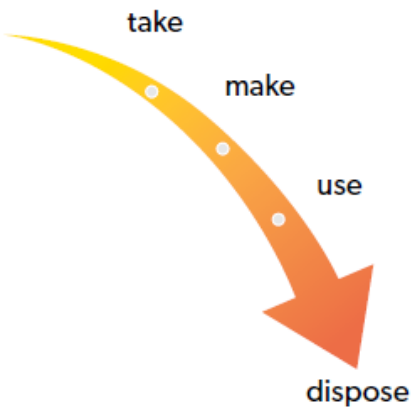
Current approach	Circular economy
	
Linear flow of materials – ‘take, make, use and dispose’ model.	Circular flow of materials – materials sorted and retained in the economy for as long as possible.
Limited use of renewable materials and energy.	Preference for renewable materials and energy.
Significant volumes of materials disposed of and lost to the economy. Loss of embodied materials, energy and water.	Materials recovered as high up the waste hierarchy as possible. Embodied materials, energy and water retained in the economy. Organic materials re-enter and regenerate the environment safely (for example, as compost).
Materials managed locally and globally.	Preference to manage materials locally to reduce the costs and impacts of transport, and to provide local employment and investment opportunities.
Economic value of materials, employment and investment not fully accounted for.	Economic value of materials, employment and investment accounted for.
Limited focus on life cycle thinking.	Products designed and manufactured to minimise environmental impact through whole of life.

Figure 3: Transitioning to a circular economy

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5 Proposed development

The proposal for the subject site is for a residential development comprising:

- 22 residential apartment dwellings, including:
 - 1 x 1-bedroom dwelling;
 - 5 x 2-bedroom dwellings; and
 - 16 x 3-bedroom dwellings;
- 43 resident car parking bays;
- 2 on-street visitor car parking bays;
- 5 motorcycle parking bays;
- 15 bicycle parking spaces, comprising:
 - 11 resident bicycle parking spaces; and
 - 4 visitor bicycle parking spaces; and
- a communal bin store, bulk waste storage room and associated service infrastructure.

Vehicle access to the site is proposed via a single ramped crossover on Jackson Avenue, providing access to the lower-ground parking level.

The access roadway connecting to Jackson Avenue will be constructed as a shared zone for walking, cycling and driving. This will provide a low-speed environment and reinforce pedestrian priority through the access area. Retractable remotely operated bollards will be provided within the shared zone to prevent through traffic associated with the adjoining shopping centre from using the residential access roadway as a shortcut. The bollards will allow controlled access for residents, authorised users and service vehicles, including the City's waste collection vehicle.

A single communal bin store is provided within the lower-ground parking level, located adjacent to the western garage door and the proposed waste collection point within the shared zone. This arrangement allows bins to be moved directly from the bin store to the rear of the waste collection vehicle for servicing and returned immediately after collection.

A separate 11 m² bulk waste storage room is also provided within the lower-ground level. This room will be used for the temporary storage of bulky household items pending collection or disposal and will be managed by the building or strata manager.

The proposed development plans are included for reference in Appendix A.

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6 Waste stream composition and generation

6.1 Waste composition

Residential developments typically generate several distinct waste streams that require separate collection and management systems. Understanding the expected composition of these waste streams is essential for determining appropriate storage volumes, collection frequencies, and servicing arrangements.

Table 1 summarises the common waste streams associated with medium- and high-density residential developments and provides indicative commentary on their characteristics and management considerations.

Table 1: Types of waste generated by multiple dwelling developments

Waste Stream	Comment
General Waste	General waste usually includes non-recyclable materials, such as non-recyclable plastic packaging, paper packaging contaminated with food waste and organic materials, such as garden trimmings and food waste. Batteries, hazardous waste (chemicals, paints, cleaning products, medicines or flammable liquids) should not be included in the general waste stream.
Comingled recyclables	Comingled recyclables consist of the assortment of recyclable materials generated in households. Materials collected for recycling may vary between Local Governments, but generally include plastic and glass containers, paper, cardboard and steel and aluminium cans.
Organic waste	Organic waste, includes garden waste, food scraps, compostable paper (tissues, serviettes, soiled paper, paper plates, etc.) and can make up a significant percentage of the general waste stream.
Household Hazardous Waste	Household hazardous waste (HHW) is broadly defined as leftover household products that are corrosive, toxic, flammable or reactive. If improperly used or disposed of, HHW can be harmful to human health and the environment. HHW includes chemical waste and other hazardous materials, such as batteries, fluorescent lamps, and gas cylinders.
Bulky Waste	Bulky waste can include old and broken furniture and electronic items/white goods and materials generated. Bulky waste can be a significant issue within developments with a high residential turnover, such as rental unit complexes, where tenants are required to dispose of various unwanted household items.

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6.2 Waste generation rates

The waste generation rates for general waste, recycling and FOGO have been adopted from the City of Melville Local Planning Policy 1.3 – *Waste and Recyclables Collection for Multiple Dwellings, Mixed Use Developments and Non-Residential Developments*.

The applicable residential waste generation rates are based on dwelling size and are summarised in Table 2.

Table 2: Residential waste generation rates

Dwelling size	General waste	Recycling	FOGO	Metric
1-bedroom dwelling	40	60	10	L/week/dwelling
2-bedroom dwelling	60	80	20	L/week/dwelling
3-bedroom dwelling or greater	70	120	30	L/week/dwelling

6.3 Waste generation calculations

The estimated waste generation for the development is:

- General Waste: 1,460 L per week.
- Commingled recyclables: 2,380 L per week.
- FOGO: 590 L per week.

Detailed waste generation calculations are provided in Appendix D.

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7 Design considerations

7.1 Noise

The relevant better practice principles which have been adopted for this development to reduce noise include:

☒	Locating bin bays and collection points far enough away from residents to reduce the impact of the noise of bin use and waste collection
☒	Eliminating the need for collection vehicles to reverse
☐	Chutes, if installed, should be well insulated to avoid noise disturbing neighbouring units
☒	Select appropriate surfacing materials that will assist in minimising noise for pathways and driveways that bins will need to be wheeled over
☒	Consider how material will be transferred into bins or static compactors at storage points

7.2 Odour

Odour problems can be minimised by having well-ventilated waste storage areas. For enclosed storage and service areas, the air flowing from any storage areas should not exit close to residences. Ventilation openings should be protected against flies and vermin and located as near the ceiling and floor as possible, but away from the windows of dwellings.

The proposed odour control for the waste storage area includes:

☐	The waste storage area is uncovered
☒	The waste storage area is covered. The design of the bin store will provide for adequate natural ventilation through ventilated doors or an alternative method which will be permanent, unobstructed natural ventilation openings direct to the external air, not less than one-twentieth i.e. 5% of the floor area.
☐	The waste storage area is completely enclosed with no natural ventilation. A mechanical ventilation system is required, with the following features: • It should be in accordance with the ventilation requirements of the Building Code of Australia and Australian Standard AS 1668.2 <i>The use of Ventilation and Air Conditioning in Buildings</i>. • It should not be connected to the same ventilation system supplying air to the units.

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7.3 Hygiene and vermin

Waste not sealed in containers attracts vermin and is potentially unhygienic. To minimise the potential for this, keep waste collection and storage areas free of clutter and dumped waste, do not allow bins to sit open for extended periods of time and **as far as possible, prevent vermin getting into waste collection and storage areas.**

Communal bin storage areas need to be easy to clean, with access to water (a tap and a hose) and **correct drainage to the sewer.** The disposal of water from washing bins and/or waste storage areas to stormwater drains **should be avoided**, wash-down areas having **drainage connected to the sewer.**

Drains to sewer should be located under cover to prevent rainwater inflows. Ideally, having covered floor junctions at walls helps with cleaning and avoids the build-up of dirt/spills. To maintain hygiene wash bins, floors and walls of waste bays and rooms regularly.

The development bin store includes the following features:

☒	Self-closing doors to control vermin
☒	Bin store doors can be locked open while moving bins
☒	Impermeable walls and floor with a tap and hose to facilitate washing of bins and the bin store
☒	Suitably graded floor with a waste drain that is connected to sewer
☒	Designed to prevent storm water from entering the drain

7.4 Security

As far as practicable, the design of waste storage areas should:

- Maximise everyday surveillance by other residents
- Allow and encourage easy access for residents and building management whilst barring access by the public.

Some examples of how this could be done include:

- Locate the bin storage area away from public thoroughfares
- Design bin storage areas that can be locked
- For communal bin areas, ensure they are sufficiently open and well-lit to allow their use after dark.

The bin store will be located within the secured on-site parking area and will benefit from lighting and passive surveillance.

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8 Waste storage

8.1 Bin storage area design summary

The proposed development incorporates the following design elements which are applicable:

☒	The bin store is large enough for the bins to sit next to each other, not behind each other, as residents may not take responsibility for rotating bins
☒	The height of the bin store is sufficient for the residual waste bin lids to be opened
☒	Bins are located on-site (not on the verge), and they are screened from any street frontage
☒	Adequate lighting will be provided to allow the usage of the bin store after dark
☒	Internal waste rooms are well ventilated and have a smooth, easily cleanable floor
☒	Suitable drainage, with water discharging into a sewer drain, will be installed to allow the washing of bins
☒	A tap with hose will be available for use by residents/cleaners to wash out domestic bins and transport containers
☐	CCTV will be fitted inside the bin room.

8.2 Bin storage within residences

Designers should aim to incorporate sufficient space within the kitchen, laundry room, or other convenient location within the dwelling for the temporary storage of waste. Space should be sufficient to allow for the separate storage of recyclables and general waste, as well as organic waste where applicable. Ways to encourage recycling and minimise contamination include:

- Provision of adequate internal storage space within dwellings (kitchen or laundry) to accommodate the temporary storage of at least 2 days' worth of general waste, organics (where applicable), and recycling. This should comprise:
 - A minimum 30L general waste bin
 - A minimum 30L commingled recyclables bin
 - A 10L organic waste bin
- Provision of reusable, robust containers to assist residents in transporting recyclable materials from their dwelling to recycling bins without resorting to plastic garbage bags e.g. reusable, washable tote bags
- Posting signage in public areas of the building to educate residents/tenants about the location and use of the waste management system, including what materials are suitable for recycling and composting.

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8.3 External bin storage areas

Bin storage areas for this development must be adequate to contain all waste streams generated on the premises for the proposed waste collection frequency.

8.3.1 Bin size, quantity and colour

It is proposed to provide the following bins within a single communal bin store located near the waste collection point:

- 3 x 660L General waste (red lid bin).
- 4 x 660L Commingled recycling (yellow lid bin).
- 3 x 240L FOGO (lime green lid bins).

The proposed bin quantities provide sufficient capacity for the calculated weekly waste generation, based on weekly collection of each waste stream. The use of 660 L bins is subject to confirmation by the City of Melville waste services team.

The number of bins required for the development is detailed in Appendix D.

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8.3.2 Bin storage area size

As detailed in Table 3, each 240L and 660L bin has a footprint area of 0.43m² and 1.16m², respectively. A 50mm gap is allowed between the bins to allow easy pull movement, and suitable clearance allowed between opposite bins and in walkways to maintain convenient walking access. The proposed bin store is sufficiently sized to accommodate the required bins, associated clearances and access paths, as indicated in Appendix B.

Table 3: Mobile Garbage Bin (MGB) dimensions

Bin capacity	80L	120L	140L	240L	360L
Height (mm)	870	940	1065	1080	1100
Depth (mm)	530	560	540	735	885
Width (mm)	450	485	500	580	600
Approximate footprint (m ²)	0.24	0.27	0.27	0.43	0.53

Bin capacity	660L	770L	1,100L	1,300L	1,700L
Height (mm)	1250	1425	1470	1408	1470
Depth (mm)	850	1100	1245	1250	1250
Width(mm)	1370	1370	1370	1770	1770
Approximate footprint (m ²)	1.16	1.5	1.7	1.21	1.27

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8.3.3 Bin storage area use

Waste and recycling storage facilities are located in positions that:

☒	Permit easy, direct and convenient access for the users of the facility
☒	Permit easy transfer of bins to the presentation point
☒	Permit easy, direct and convenient access for collection service providers
☒	Are well screened and do not reduce amenity
☒	Are secure and provide protection against potential vandalism
☒	Reduce potential noise pollution and disturbance of residents
☒	Are close to building exits.

Where bins of up to, and including, **360L** in capacity need to be wheeled to the collection point **by residents** (such as within unit complexes and townhouses):

☐	The distance should not exceed 75m in all circumstances
☐	For aged persons or persons with a disability, the distance should be limited to 50m
☐	The bin transfer grade should not exceed 1:14
☐	Bins should not need to be wheeled over steps (neither up nor down).

For bins **greater than 360L capacity**, if relocation of bins is required:

☐	Bins should not be wheeled over steps (neither up nor down)
☐	If less than or equal to 1.0m ³ in capacity, bins should not need to be wheeled more than 5m from the interim storage point to the collection point
☐	If greater than 1.5m ³ in capacity, manual manoeuvring of bins should be avoided wherever possible. Where it cannot be avoided (for example if bins are stored in a room or enclosure), the bins should not need to be wheeled more than 3m from the interim storage point to the collection point
☐	The bin-transfer grade should not exceed 1:30.

☒	Note: The above requirements are not applicable as residents will not be wheeling bins to the collection point. Bins will be transferred by building caretakers or waste contractor staff.
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9 Waste collection

9.1 Waste vehicle types

Waste collection will be serviced by:

☒	Local government collection service: City of Melville A rear loader waste truck will be used to collect waste from the communal bin store.
☐	Private contractor collection service:

9.2 Waste collection frequency

The following waste collection frequency is proposed:

☒	General waste	Once per week
☒	Commingled recyclables	Once per week
☒	FOGO	Once per week

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9.3 Waste collection method and presentation points

The proposed waste collection method and presentation point is:

☐	Standard kerbside service by placing bins on the verge (maximum 360L bin size)
☐	Street collection directly from the bin store
☒	On-site waste collection

Waste collection will occur from the designated collection point within the development private shared zone. The collection point is located near the communal bin store, allowing bins to be wheeled directly from the store to the rear of the waste collection vehicle for emptying.

All general waste, recycling and FOGO bins will be stored within the single communal bin store. No transfer of bins between separate storage areas will be required.

On collection day, the City of Melville waste collection service, or its appointed contractor, will service the bins from the shared zone collection point. Bins will be wheeled from the communal bin store to the rear of the waste collection vehicle, emptied and returned to the bin store immediately after servicing.

This arrangement minimises the distance over which bins must be moved, avoids the need for bins to be presented on the external road verge and keeps waste collection activities within a controlled on-site location.

A separate 11 m² bulk waste storage room is provided within the lower-ground level. This room will be used for the temporary storage of bulky household items pending collection or disposal and will be managed by the building or strata manager.

Overall, the proposed collection method is considered appropriate for the development and provides a safe, efficient and well contained waste servicing arrangement.

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9.4 Vehicle access and maneuvering

Waste collection is proposed to be undertaken by the City of Melville waste collection service using a rear-loader waste collection vehicle.

The waste vehicle will enter via the existing southern Jackson Avenue crossover serving the Winthrop Village Shopping Centre. It will then circulate clockwise through the shopping centre car park before entering the development private shared zone in an eastbound direction.

During collection, the rear of the waste vehicle will be positioned near the communal bin store and western garage door. This allows bins to be wheeled directly from the store to the rear of the vehicle for emptying and returned immediately after servicing.

The waste vehicle will stop entirely within the private shared zone and only for the time required to service the bins. The stopping position will not obstruct the adjoining shopping centre parking aisles or parking bays. Access to both development garage doors and the lower-ground resident parking areas will also remain available during collection.

Following collection, the waste vehicle will continue eastbound through the shared zone and exit via the northern Jackson Avenue crossover. This arrangement enables the vehicle to enter, service and exit the site in a forward gear and avoids reversing movements within the shared zone.

Access for the waste collection vehicle will be managed through the proposed access-control system. Access remotes and/or PIN codes will be provided to the City or its appointed contractor to operate the retractable bollards and any relevant access-controlled gates or doors. This will allow authorised service vehicle access while preventing general shopping centre traffic from using the residential shared zone as a through-route.

Where practicable, waste collection will be scheduled during lower-activity periods for the shopping centre to minimise interaction with customer vehicles and people moving through the car park.

The proposed arrangement represents an improvement over the waste collection strategy approved under the previous development approval. Under the earlier arrangement, the waste vehicle circulated through and stopped within the shopping centre car park, temporarily obstructing access to several parking bays. Under the current proposal, the waste vehicle will stop within the development private shared zone, avoiding obstruction of the shopping centre aisles and parking bays.

Overall, the proposed servicing arrangement is considered safe and appropriate for the development. Waste collection will occur entirely on-site, bins will be stored and managed within the communal bin store, and no bins will be presented on the external road verge.

Swept path analysis for a 10.6m rear loader waste truck was undertaken and is provided in Appendix C of this report.

The analysis confirms that the vehicle can safely enter, service and exit the site in a forward gear.

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10 Additional waste requirements

10.1 Bulk waste

A dedicated 11m² bulk waste storage room is provided within the lower-ground level of the development. The room will be used for the temporary storage of bulky household items pending collection or disposal.

Access to the bulk waste storage room will be managed by the building or strata manager. Residents will be required to arrange the placement of items within the room in accordance with the building's waste management procedures.

Bulk waste will be removed by a private waste contractor or through an available on-demand collection service provided by the City of Melville. The building or strata manager will coordinate collections to ensure items are not stored within common accessways, parking areas or the external road verge.

10.2 E-Waste

E-waste will be temporarily stored within individual dwellings or designated storage areas prior to disposal. E-waste will be disposed of via appropriate off-site facilities, local recycling centres, public battery recycling points, or other approved collection services where available.

10.3 Garden organics

Garden organic waste associated with landscape maintenance will be managed by the site caretaker or strata management.

Where feasible, garden waste will be placed within FOGO bins, subject to available capacity. Alternatively, garden waste will be removed from the site via trailer and disposed of at an appropriate off-site facility.

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11 Response to City of Melville feedback

Following consultation with the City of Melville during the development assessment process, the WMP has been revised to address the matters raised in relation to waste generation, bin storage, bulk waste provision and the proposed on-site collection arrangement. The following sections summarise the key amendments and demonstrate how the revised proposal responds to the City's feedback and the relevant requirements of LPP 1.3.

11.1 Waste generation, bin provision and storage

The WMP has been updated to adopt the City of Melville LPP 1.3 waste generation rates for general waste, recycling and FOGO. Based on these rates, the development is estimated to generate 1,460 L of general waste, 2,380 L of recycling and 590 L of FOGO per week.

The proposed bin schedule comprises:

- 3 × 660 L general waste bins;
- 4 × 660 L recycling bins; and
- 3 × 240 L FOGO bins.

The proposed weekly storage capacity exceeds the calculated generation for each waste stream.

The previous two-store arrangement has also been revised. All bins will now be accommodated within a single communal bin store located near the waste collection point, removing the need to transfer bins between separate storage areas.

The former satellite bin store has been converted into a dedicated 11 m² bulk waste storage room for the temporary storage of bulky household items pending collection or disposal.

11.2 On-site collection and compliance with LPP 1.3

The proposed on-site collection arrangement has been reviewed against the requirements of Section 8.2 of the City of Melville Local Planning Policy 1.3. Compliance is summarised in Table 4.

The assessment confirms that the proposed on-site collection arrangement satisfies the requirements of Section 8.2 of LPP 1.3, subject to the waste vehicle pavement route being certified by the project civil or structural engineer as suitable for a 25-tonne vehicle.

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Table 4: Compliance with LPP 1.3 Section 8.2

LPP 1.3 requirement	Proposed response	Compliance
Suitable location for collection	The waste vehicle will stop within the development private shared zone, near the communal bin store. The vehicle will not obstruct the adjoining shopping centre aisles, shopping centre parking bays or access to either development garage door.	Complies
Minimum 4.0 m vertical clearance, where applicable	The waste collection point and vehicle route through the shared zone are located in an open-air area with no overhead building elements. The minimum vertical clearance requirement is therefore not restrictive at the collection point. Any overhead services along the vehicle route will be maintained clear of the required operating envelope.	Complies
Minimum access-way width of 4.0 m	The shopping centre circulation aisles and private shared zone provide a minimum clear width exceeding 4.0 m along the waste vehicle route.	Complies
Structural capacity for a 25-tonne waste collection vehicle	The waste vehicle route and collection point will be designed and constructed to support a 25-tonne waste collection vehicle. Structural pavement capacity is to be confirmed by the project civil or structural engineer before construction.	Complies, subject to engineering certification
Entry and egress in a forward direction for a truck at least 10.5 m long	Swept path analysis has been undertaken using a 10.6 m rear-loader waste vehicle. The vehicle enters via the southern Jackson Avenue crossover, services the bins within the shared zone and exits via the northern crossover in a forward direction.	Complies
Maximum three-point turn permitted	The proposed waste vehicle movement does not require a three-point turn or reversing manoeuvre. Forward circulation is maintained throughout. Swept paths are included in Appendix C.	Complies
Ramps and driveway gradients suitable for a vehicle at least 10.5 m long	The waste vehicle remains on the shopping centre circulation aisles and private shared zone and does not enter the lower-ground car park ramp. The proposed route has been assessed through swept path analysis for a 10.6 m vehicle.	Complies
Suitable access arrangements for the City or its contractor	The City or its appointed contractor will be provided with remotes and/or PIN codes to operate the retractable bollards and any relevant access-controlled gates or doors.	Complies
Bin collection point within 20 m of the truck laydown area	The communal bin store is located near the waste vehicle stopping position. The bin movement distance will be substantially less than 20m.	Complies

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11.3 Waste vehicle access and movements

The waste collection vehicle will enter the Winthrop Village Shopping Centre car park via the existing southern Jackson Avenue crossover. It will circulate clockwise through the shopping centre aisles before entering the development private shared zone in an eastbound direction.

The vehicle will stop within the shared zone adjacent to the communal bin store. Bins will be wheeled directly to the rear of the vehicle, emptied and returned to the store immediately following servicing.

The stopping position has been selected to ensure that:

- the waste vehicle remains clear of the shopping centre circulation aisles and parking bays;
- access to both development garage doors is maintained;
- resident access to and from the lower-ground car park remains available; and
- bin movement distances are minimised.

Following collection, the vehicle will continue eastbound through the shared zone and exit via the northern Jackson Avenue crossover. No reversing movement or three-point turn is required.

11.4 Improvement over the previous approval

The subject site has an existing development approval that included on-site waste collection. Under the previously approved arrangement, the waste vehicle entered and exited through the shopping centre car park and stopped within a shopping centre circulation aisle to service the development. The approved swept path assessment identified that one parking bay would need to be removed and access to four additional bays would be temporarily restricted during collection.

The current proposal retains the established principle of on-site collection but provides an improved operational outcome. The waste vehicle will now stop entirely within the development private shared zone rather than within the shopping centre aisle.

Accordingly, the revised arrangement:

- avoids obstruction of shopping centre circulation aisles;
- avoids temporary impacts on shopping centre parking bays;
- maintains access to both development garage doors;
- provides a collection point near the communal bin store; and
- allows the waste vehicle to enter and exit in a forward direction.

The revised proposal therefore reduces the operational impacts of waste collection compared with the previously approved arrangement.

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11.5 Access control and collection management

Access for the City's waste collection vehicle will be managed through the development's access control system. Remotes and/or PIN codes will be provided to the City or its appointed contractor to operate the retractable bollards and any relevant controlled gates or doors.

Waste collection will be scheduled during lower-activity periods for the shopping centre, where practicable, to minimise interaction with customer vehicles and people moving through the car park.

The building or strata manager will be responsible for:

- maintaining clear access to the communal bin store and collection point;
- ensuring that bins are available for servicing on collection day;
- preventing vehicles or stored items from obstructing the waste vehicle route;
- coordinating bulk waste and specialised waste collections; and
- liaising with the City or its contractor regarding access arrangements and collection requirements.

11.6 Compliance summary

The revised waste management strategy directly addresses the matters raised by the City during its assessment of the development application.

The WMP now:

- adopts the waste generation rates prescribed by LPP 1.3;
- provides sufficient bin capacity for all three waste streams;
- consolidates all mobile bins within one communal bin store near the collection point;
- provides a dedicated 11 m² bulk waste storage room;
- demonstrates compliance with the on-site collection requirements of Section 8.2 of LPP 1.3;
- provides forward entry and exit for a 10.6 m waste vehicle; and
- relocates the collection activity away from the shopping centre parking aisles and into the development private shared zone.

Subject to final engineering certification of the pavement for a 25-tonne waste vehicle, the proposed waste management and collection arrangements are considered suitable for the development and consistent with the applicable requirements of City of Melville LPP 1.3.

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12 Waste management

The building caretaker (or strata management) will be responsible for:

- Cleaning and maintaining bin storage areas and associated facilities; and
- Ensuring bins are regularly cleaned and kept in a hygienic condition.

Residents will dispose of waste within the designated bin store and are required to comply with waste separation requirements. Only permitted materials are to be placed in each respective bin stream. Waste that cannot be accommodated within the provided bins is to be disposed of via an appropriate alternative method.

A copy of this Waste Management Plan will be retained on site and within strata records for reference.

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13 Signage and education

Ongoing education, to support the waste management service, is one of the most important factors in encouraging residents to continue to utilise services and systems as originally intended. The following recommendations have been adapted from the WALGA Guidelines.

- *Install signage to clearly identify what items are and are not accepted in the general waste and recycling systems. **If signage within the bin store is not possible due to space or other restrictions, bin stickers may be appropriate.***
- *Outline appropriate waste management behaviour i.e. placing refuse/recyclables inside as opposed to adjacent to bins, placing mixed recyclables into the bin loose (not in a plastic bag), closing bin lids etc.*
- *Where the strata body/building management holds tenants' induction schemes, these should include the use of waste and recycling facilities. The strata body/building management, in conjunction with the Local Government, should issue a leaflet on the correct use of the waste and recycling facilities and the materials recycled. Tenants' handbooks should include a section on the correct use of general waste and recycling facilities.*
- *Ensuring education is 'ongoing' is beneficial because it tackles the transient nature of residents and differences between different Local Government services. All waste and recycling bins or receptacles should be clearly and correctly labelled and signage should be erected in bin storage areas to instruct residents as to the correct separation of recyclables from general waste.*
- *Any hazards or potential dangers associated with the waste facilities, including those from the use of any waste handling equipment, should also be clearly identified. It is recommended that building managers post information in communal areas which clearly identifies the relevant points of contact regarding recycling and/or other services within the development. As part of the ongoing education program, welcome packs should be produced and provided to all new residents. These packs should contain information outlining the developments waste management system, required actions and appropriate waste management behaviours.*
- *Signage should be provided to demonstrate to users how to use the waste system and to identify any hazards or potential dangers within Bin Storage Areas, including those from the use of waste handling equipment. Signage should conform to the relevant Australian Standard (AS4123) bins, (AS4123.7) bin colours and (AS1319) safety signs.*
- *Consistent and clear signage is a key element of effective source separation and minimising incorrect disposal and it is important that signage is consistent throughout the whole of the development.*
- *In addition, there is benefit in using visual aids and colour consistency to re-enforce messaging. Below gives examples of bin stores where bins for various waste streams are stored against colour coded walls. This enables easy identification of what materials should be placed in each bin and to ensure bins are always returned to the same position to maintain consistency.*

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Figure 4: Example bin store signage

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14 Conclusion

As demonstrated in this Waste Management Plan, the proposed development provides sufficient storage capacity for the calculated general waste, recycling and FOGO generation, based on the waste generation rates prescribed by City of Melville LPP 1.3.

All mobile bins will be accommodated within a single communal bin store located near the on-site collection point. A separate 11 m² room will provide temporary storage for bulk waste.

The proposed collection arrangement satisfies the relevant on-site collection requirements of Section 8.2 of LPP 1.3, subject to final engineering confirmation that the waste vehicle route can support a 25-tonne collection vehicle. The arrangement provides forward entry and exit for the nominated 10.6 m rear-loader vehicle and avoids obstruction of the shopping centre parking aisles, parking bays and development garage doors.

Overall, the proposed waste storage, management and collection arrangements are considered appropriate for the development.

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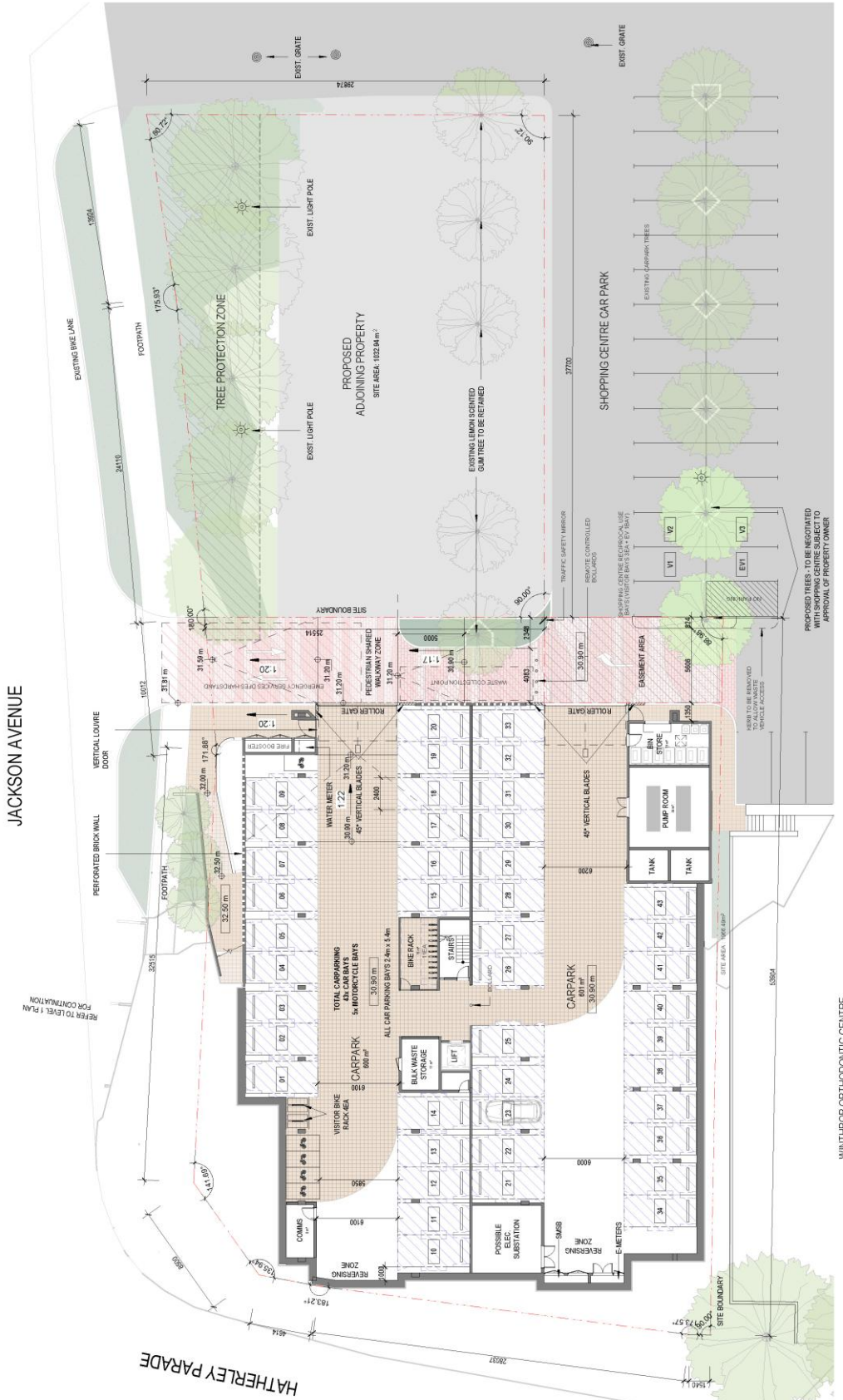
Appendices

Appendix A: Proposed development plan

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LOWER GROUND



WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT A100
P25037 21/07/2026 SK

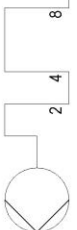


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JACKSON AVENUE



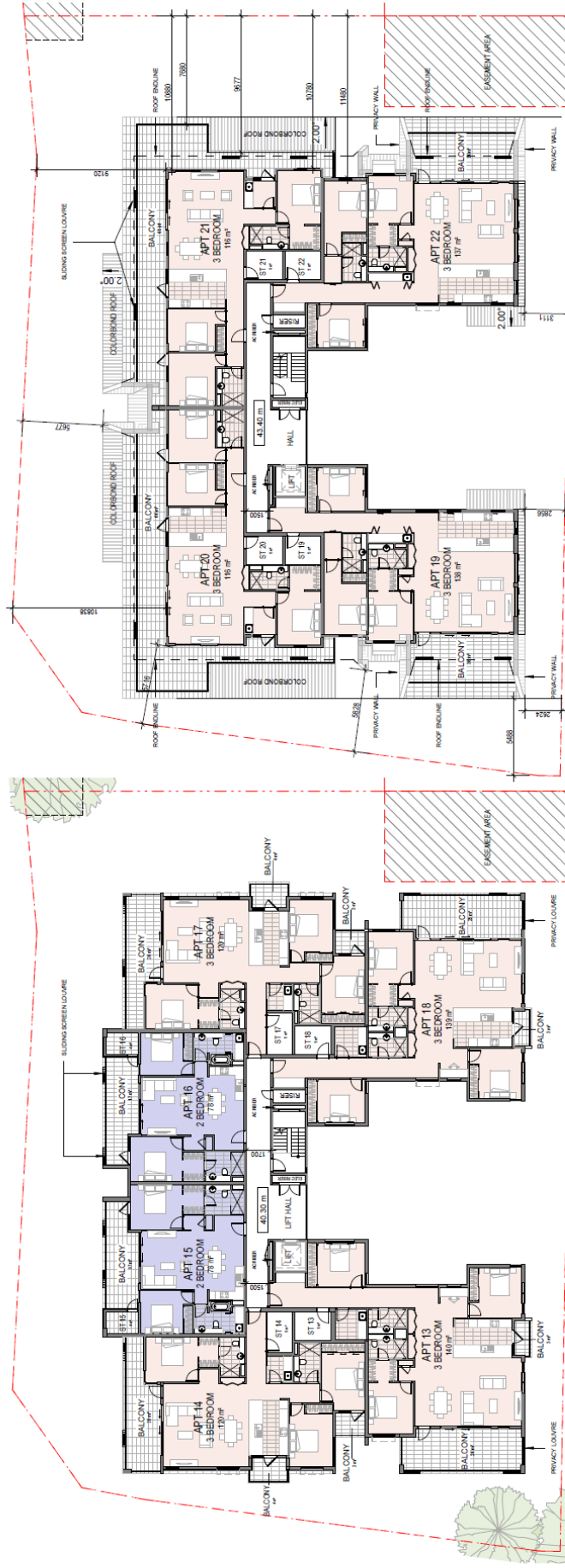
GROUND FLOOR / LEVEL 1



SCALE 1 : 200 (A2)

WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT A101
P25037 21/07/2026 SK

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3 BEDROOM

2 DA - 03 LEVEL
A102 1:200

2 BEDROOM
3 BEDROOM

1 DA - 02 LEVEL
A102 1:200

LEVEL 2 / LEVEL 3

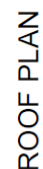


16 m SCALE 1:200 (A2)

WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT A102
P25037 08/05/2026 SK



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SCALE 1 : 200 (A2)

WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT

25037

08/05/2026

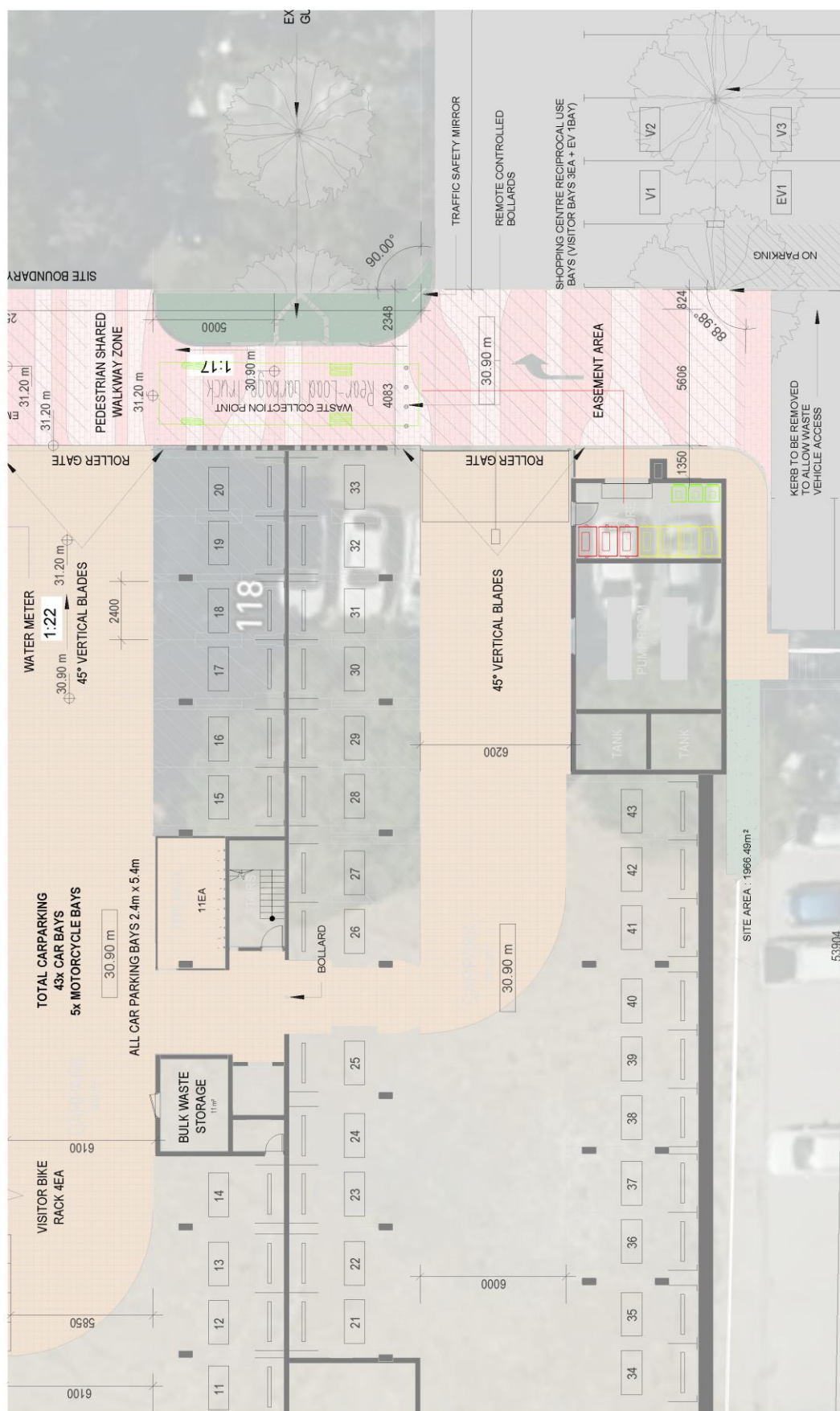
A105

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Revision notes:			
Rev:	Date:	Notes:	
1	09/08/2028	3 x 600 L General Waste Bins 4 x 600 L Recycling Bins 3 x 240 L FOGO Bins	
Drawn by: Paul Gharibou		Project: U28.035 - Withrop Village Apartments Proposed Residential Development	
Client: Nostoc Pty Ltd		Drawing Title: Bin storage and presentation plan General Waste, Recycling & FOGO	
		Scale @ A3:	Date:
		1:150	09/08/2028
		Revision:	#M32b

Appendix C: Swept path diagrams

Swept path diagrams are included in this section of the report. Different coloured lines are employed to represent the various envelopes of the vehicle swept path, as described below:

Cyan represents the wheel path of the vehicle

Green represents the vehicle body envelope

Blue represents a 500mm buffer line, offset from the vehicle swept path

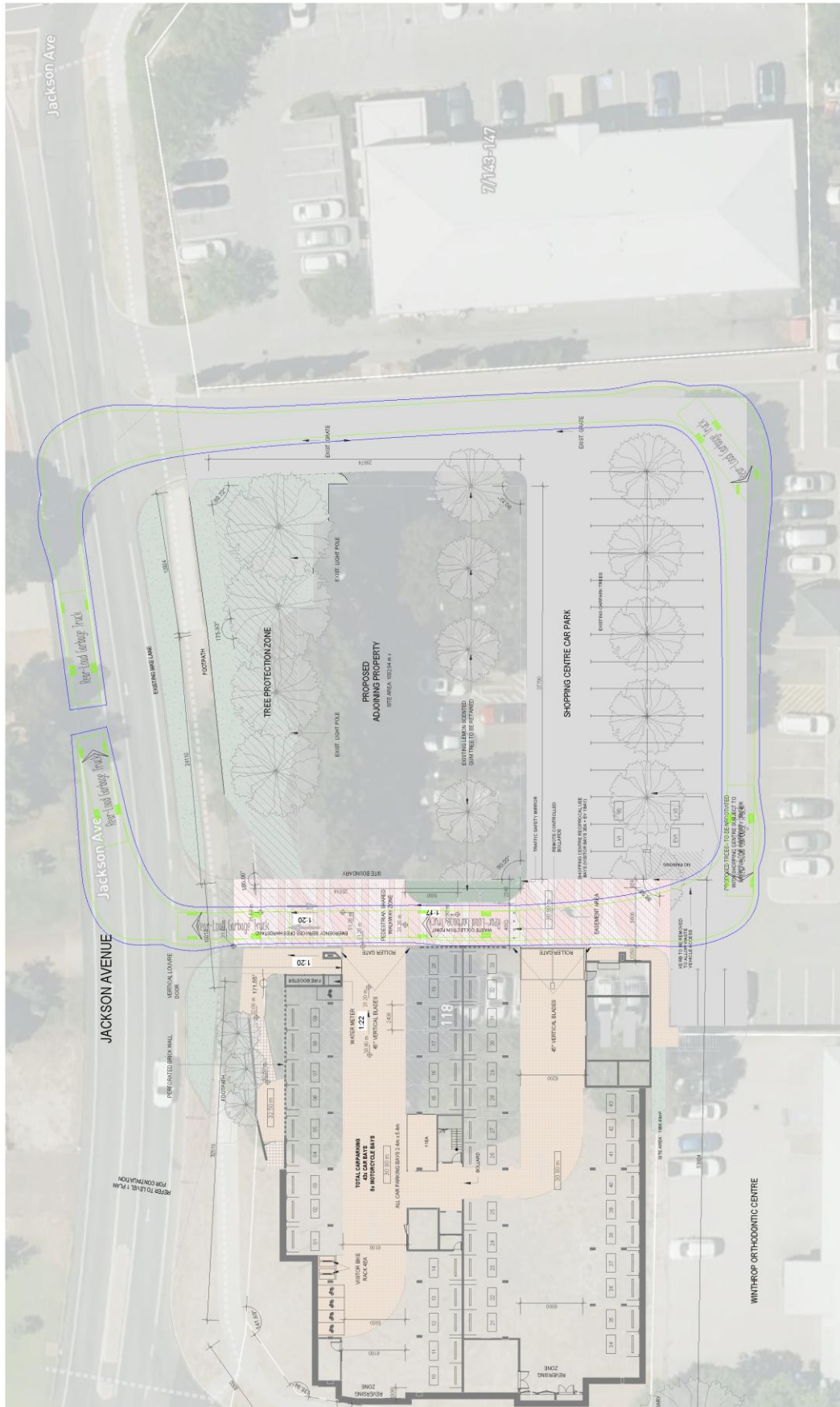
The swept path diagrams are also provided separately in high-quality, A3 PDF format.

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Revision notes:		Notes:	
Rev:	Date:	Rev:	Date:
1	14/05/2026		Dark blue swept path line represents a 500mm buffer.

Project:		Drawing Title:	
U26-035 - Winthrop Village Apartments Proposed Residential Development		Swept path analysis - Waste Truck Circulation 10.6 m Rear Loader Waste Truck	

Drawn by:		Client:	
Paul Ghantous		Norsoo Pty Ltd	

Date:		Scale:	
05/06/2026		A3	

Revision:		Revision:	
1350		s401b	

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Table 5: Weekly waste generation and collection – Residential 3-bin system

Land use	Description	Units	General waste rate	Recyclables rate	FOGO rate	Weekly General Waste (L)	Weekly Recyclables (L)	Weekly FOGO (L)
Residential	Residential 1-bed apartments	1	40L/week/unit	60L/week/unit	10L/week/unit	40	60	10
Residential	Residential 2-bed apartments	5	60L/week/unit	80L/week/unit	20L/week/unit	300	400	100
Residential	Residential 3-bed apartments	16	70L/week/unit	120L/week/unit	30L/week/unit	1120	1920	480
Total		22				1460	2380	590

General Waste

Weekly generation (L)	Bin size (L)	Number of bins	Weekly collection frequency	Weekly capacity (L)
1460	660	3	1	1980

Recycling

Weekly generation (L)	Bin size (L)	Number of bins	Weekly collection frequency	Weekly capacity (L)
2380	660	4	1	2640

FOGO

Weekly generation (L)	Bin size (L)	Number of bins	Weekly collection frequency	Weekly capacity (L)
590	240	3	1	720

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Sustainable Transport. Safe Solutions

Lot 369 Somerville Boulevard, Winthrop Proposed Residential Development

TRANSPORT IMPACT STATEMENT



Prepared for:
Nostoc Pty Ltd

August 2026

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Lot 369 Somerville Boulevard, Winthrop

Prepared for: Nostoc Pty Ltd
Prepared by: Paul Ghantous
Date: 5 August 2026
Project number: U26.035

Version control

Version No.	Date	Prepared by	Revision description	Issued to
U26.035.r01	14/05/26	Paul Ghantous	DRAFT	CCN
U26.035.r01a	21/05/26	Paul Ghantous	FINAL	CCN
U26.035.r01b	05/08/26	Paul Ghantous	REVISED FINAL	CCN

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1 Introduction

This Transport Impact Statement has been prepared by Urbii on behalf of Nostoc Pty Ltd in support of the proposed residential development, located on a portion of Lot 369 (No. 109–141) Somerville Boulevard, Winthrop.

The subject site is located within the north-eastern corner of the broader Winthrop Village landholding, with frontage to Jackson Avenue and Hatherley Parade (Figure 1). The broader parent lot accommodates the existing Winthrop Village Shopping Centre, associated car parking, landscaping and adjoining commercial and medical uses, while the development site itself is presently vacant and undeveloped (Figure 2).

It is proposed to develop the site into a four-storey residential apartment building comprising 22 dwellings, with associated communal open space, landscaping, bicycle parking, motorcycle parking and lower-ground resident car parking. The proposed dwelling mix comprises 1 one-bedroom apartment, 5 two-bedroom apartments and 16 three-bedroom apartments.

Vehicle access to the development is proposed via a single ramped entry from Jackson Avenue to the lower-ground parking level. The lower-ground level accommodates 43 resident car parking bays, together with motorcycle parking, bicycle parking, bin stores and associated service infrastructure. A further 2 visitor car parking bays are proposed on-street along the Jackson Avenue frontage, located conveniently adjacent to the development site. The proposal also includes four EV reciprocal use bays, located within the shopping centre car park adjacent to the site.

The surrounding area includes a mix of residential, commercial, retail, medical and community land uses. The site forms part of the established Winthrop Village neighbourhood centre and is located near a range of community facilities and services, including Murdoch University, Corpus Christi College, Winthrop Primary School, Somerville Park and Fiona Stanley Hospital. Existing footpath connections are provided along both street frontages, and Jackson Avenue is identified as having an existing bike lane.

Overall, the site is located within a well-serviced urban setting supported by residential, commercial, retail, education, health and recreation land uses.

This report considers the transport implications of the proposed development, including traffic generation, vehicle access arrangements, car parking provision, bicycle parking provision, servicing and waste collection arrangements, and accessibility to and from the site by other modes of travel.

Following the City's review of the development application, the proposed development has been subject to a number of refinements. This updated Transport Impact Statement reflects the revised development plans, including the amended visitor parking arrangement, and provides additional technical justification addressing matters raised during the assessment process, including the proposed on-street visitor parking and the operation of the on-site waste collection arrangements.



Figure 1: Subject site

Source: TBB Planning, annotated by Urbii



Figure 2: Existing site

Source: Google Streetview Image

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2 Scope of work

The WAPC *Transport Assessment Guidelines (2016)* identify the proposed development as having a 'low' impact (refer Figure 3). Notwithstanding the relatively low forecast trip generation, a Transport Impact Statement has been prepared to support the Development Application and to document the access, parking and transport context of the proposal.

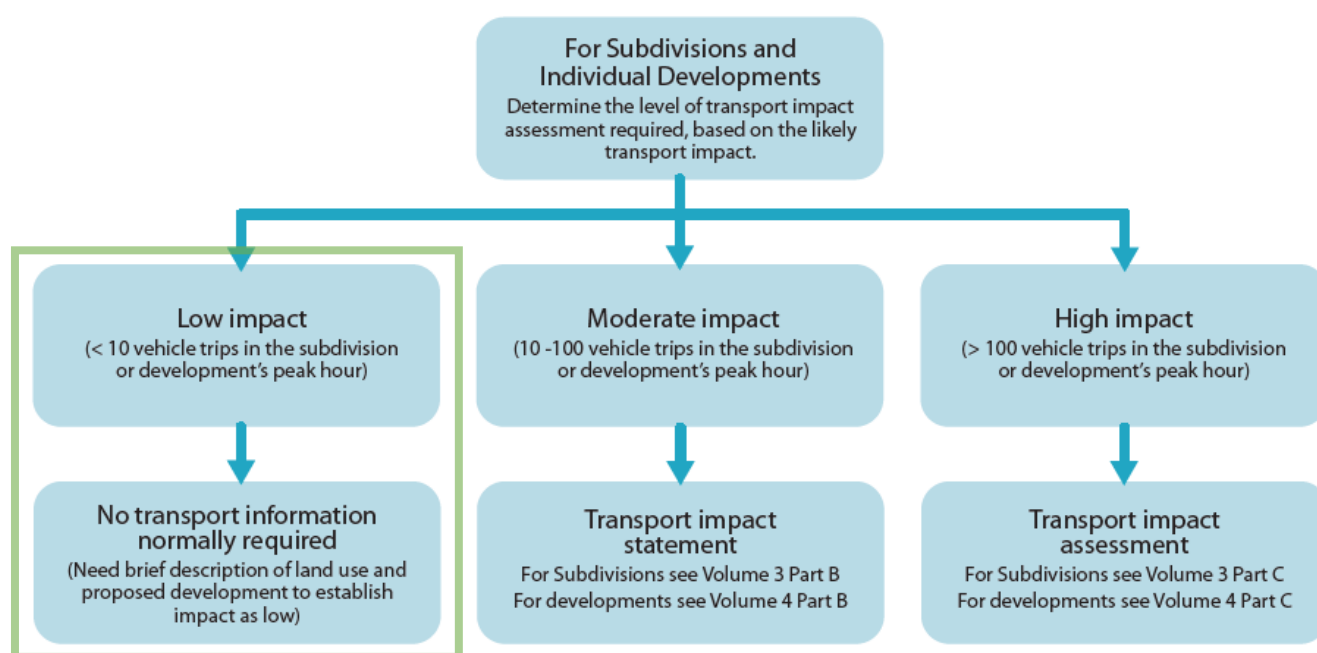


Figure 3: WAPC Transport Assessment Guidelines – reporting requirements

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3 Proposed development

The proposal for the subject site is for a residential development comprising:

- 22 residential apartment dwellings, including:
 - 1 x 1-bedroom dwelling;
 - 5 x 2-bedroom dwellings; and
 - 16 x 3-bedroom dwellings;
- 43 resident car parking bays;
- 2 on-street visitor car parking bays;
- 5 motorcycle parking bays;
- 4 EV reciprocal-use parking bays within the adjoining shopping centre car park;
- 15 bicycle parking spaces, comprising:
 - 11 resident bicycle parking spaces; and
 - 4 visitor bicycle parking spaces; and
- bin stores and associated service infrastructure.

Vehicle access to the site is proposed via a single ramped crossover on Jackson Avenue, which provides access to the lower-ground parking level. The lower-ground car park is divided into two separate parking areas, each accessed via its own roller door. The two parking areas are connected internally by a shared pedestrian and bicycle access. However, there is no internal vehicular connection between them.

The access roadway connecting to Jackson Avenue will be constructed as a shared zone for walking, cycling and driving. This will provide a low-speed environment and reinforce pedestrian priority through the access area. Retractable remotely operated bollards will be provided within the shared zone to prevent through traffic associated with the adjoining shopping centre from using the residential access roadway as a shortcut. The bollards will allow access to be controlled for residents, authorised users and service vehicles as required.

The lower-ground parking level accommodates the resident car parking bays, motorcycle parking, bicycle parking, bin stores, pump room and associated service infrastructure.

Two visitor parking bays are proposed to be provided on-street along the Jackson Avenue frontage, immediately adjacent to the development. The bays provide convenient short-stay parking for visitors while maintaining direct pedestrian access to the development.

The development is well connected to the surrounding walking and cycling network. Existing footpaths are provided along both Jackson Avenue and Hatherley Parade, while Jackson Avenue includes an existing on-road bicycle lane that provides convenient cycling access to and from the site.

Waste collection is proposed to occur from within the internal shared zone, with access provided for local government waste collection vehicles via the controlled access system.

The proposed development plans are included for reference in Appendix A.

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4 Vehicle access and parking

4.1 Existing vehicle access

The existing Winthrop Village Shopping Centre is served by multiple vehicle access points, including access from Jackson Avenue, Hatherley Parade and Somerville Boulevard, as shown in Figure 4.

There are two existing crossovers on Jackson Avenue which provide access to the eastern side of the shopping centre car park. Both crossovers currently operate as shopping centre access points and provide vehicle connectivity between Jackson Avenue and the internal shopping centre car park circulation network.

As part of the proposed development works, the function of the northern Jackson Avenue crossover will change. This crossover will be modified to provide private vehicle access to the proposed residential development and will no longer operate as a general shopping centre access point. The northern crossover will connect to the development access roadway and lower-ground residential car park.

The southern Jackson Avenue crossover will be retained to continue servicing the shopping centre car park. This arrangement maintains access to the shopping centre from Jackson Avenue, while separating general shopping centre traffic from the proposed residential access arrangement.

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Figure 4: Existing vehicle access

Source: Metromap aerial, annotated by Urbii

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4.2 Proposed vehicle access

As detailed in the proposed development plans and in Figure 5, vehicle access to the proposed residential development will be provided via the existing northern crossover on Jackson Avenue, which will be modified as part of the proposed development.

The northern Jackson Avenue crossover will be modified as part of the development works to provide private access to the residential development. This crossover will connect to a proposed access roadway extending west from Jackson Avenue towards the lower-ground car park. The access roadway will no longer operate as a general shopping centre access route.

The proposed access roadway will be constructed as a shared zone for walking, cycling and driving. This treatment will provide a low-speed environment and reinforce priority for people walking and cycling through the access area. The shared zone will also provide pedestrian and bicycle connectivity between Jackson Avenue, the proposed development and the adjoining shopping centre interface. The shared zone will also accommodate controlled access for authorised service vehicles, including local government waste collection vehicles.

Access to the lower-ground car park will be controlled by two garage roller doors, with each roller door providing access to a separate section of the car park. The two parking areas are connected internally by a shared pedestrian and bicycle access only, with no internal vehicular connection provided.

Visually permeable treatments will be provided on either side of the garage doors, including 45-degree vertical blades, to assist outbound drivers in observing people walking and cycling through the adjoining shared zone. These treatments will improve intervisibility at the garage interfaces while maintaining appropriate screening of the lower-ground parking areas.

Retractable remotely operated bollards will be installed within the shared zone to prevent general shopping centre traffic from using the residential access roadway as a through-route. This will assist in separating residential access movements from shopping centre circulation movements, while still allowing controlled access for residents, authorised users and service vehicles as required, including local government waste collection vehicles. A “*PRIVATE ROAD NO THROUGH TRAFFIC*” sign will be installed at the entry crossover, to ensure that shopping centre traffic does not enter the shared zone.

The western portion of the proposed access roadway will be subject to an easement to facilitate limited vehicle connectivity to one adjoining shopping centre parking aisle. This connection is required to maintain functional circulation for that parking aisle and avoid creating a blind aisle requiring a turnaround area. The easement connection will be limited in function and will not allow general shopping centre traffic to pass through the residential access roadway to Jackson Avenue, with the proposed retractable remotely operated bollards managing access through the shared zone.

A traffic safety mirror is proposed to be installed within the easement area to assist vehicles exiting from the western garage door. The mirror will improve visibility between outbound residential vehicles and shopping centre traffic accessing the easement connection, supporting safe and controlled vehicle movements at this interface.

The existing southern Jackson Avenue crossover will be retained to continue servicing the shopping centre car park. This arrangement maintains vehicle access to the shopping centre from Jackson Avenue while providing a separate and controlled access arrangement for the proposed residential development.

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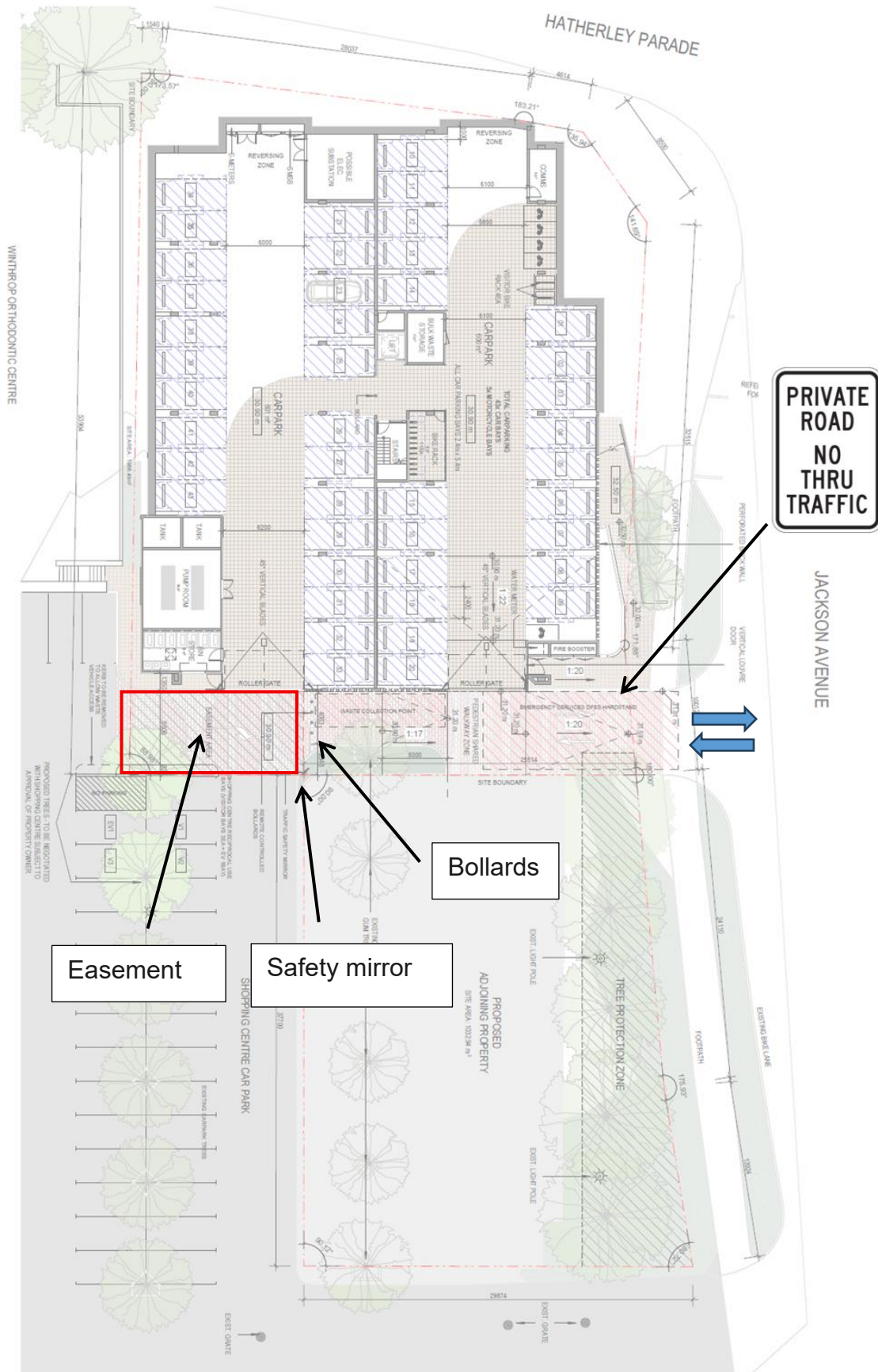


The proposed access arrangement also facilitates waste collection by allowing the local government rear-loader waste vehicle to enter the site via the existing southern Jackson Avenue crossover, circulate through the adjoining shopping centre car park in a clockwise direction and enter the shared zone in an eastbound direction. Following collection, the vehicle will continue eastbound through the shared zone and exit via the northern Jackson Avenue crossover, maintaining forward vehicle movements throughout the collection operation.

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Figure 5: Proposed vehicle access

Source: CCN, annotated by Urbii

4.3 Movement and place analysis

The philosophy of movement and place recognises that streets perform multiple functions. Transport links not only move people from point A to B, but they can also function as key places. There is a natural tension between these two functions. As a movement corridor, every link aims to minimise travel time and keep people and goods moving. On the other hand, as a place, streets aim to increase visitor dwell time.

Not all streets can be popular destinations, just as not all streets can prioritise vehicle movement. It is important to recognise the roles of movement and place on our roads and streets. Finding an appropriate balance is key for integrated transport planning.

The movement and place framework categorises roads and streets as a function of their role in moving people and being a place (Figure 6).



Figure 6: Movement and place – road and street categories

Source: *Movement and Place in Victoria*, Department of Transport Victoria, 2019

Based on the movement and place categories, the proposed shared zone access roadway can be defined as a Local Street. Successful Local Streets should provide quiet, safe and desirable residential access for all ages and abilities that foster community spirit and local pride. They are part of the fabric of our neighbourhoods, where we live our lives and facilitate local community access.

The Main Roads WA *Speed Zoning - Policy and Application Guidelines - May 2021* recommends a speed limit of 10km/h in confined areas where movement of pedestrians and cyclists has priority over motor vehicles. Generally, the volume of traffic is very low. This definition is appropriate for the proposed development roadway.

It is therefore recommended that a 10km/h speed limit apply internally. This speed limit applies equally for all modes of transport and can be reinforced through installation of shared zone signs.

The Australian Standard AS 1742.4-2008: *Manual of uniform traffic control devices - Speed controls*, provides guidance on the use of shared zones. Signs shall be used at the start and end of shared zones as specified in Clause 3.2.6 and shown in Figure 7. A typical shared zone treatment is shown in Appendix B.

SHARED ZONE (R4-4)

END SHARED ZONE (R4-5)



R4-4



R4-5

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Figure 7: Signs for shared zones

The Austroads *Guide to Traffic Management Part 8: Local Area Traffic Management*, provides the following guidance on the use of shared zones:

“A shared zone is an area utilised by both pedestrians and vehicular traffic in which drivers must give way to pedestrians at all times, and where the street environment has been adapted for very low-speed vehicles. Shared zones should aim to change the image and character of a street so that drivers are made aware that they are entering a street environment with driving conditions that are quite different to other more common situations. This can be achieved by the use of different coloured and/or textured pavement surfaces, by the use of full width flush paving between property lines and through landscaping. Shared zones must be designed in such a way that the low-speed environment is reinforced through the physical layout and treatment. A speed limit of 10 km/h is considered appropriate in shared zones to compliment these speed environment changes.”

The proposed internal access roadway incorporates several design elements that support its function as a shared zone and local street environment, rather than a conventional vehicle access driveway.

The roadway will have a short internal length and will serve a limited access function, primarily providing access to the residential car park and controlled access to the adjoining shopping

centre parking aisle via the easement. Traffic volumes are therefore expected to be low, which is consistent with a local street / shared zone environment.

The roadway will be constructed with a flush paved surface, with no formal kerb separation between vehicle movement areas and paths for walking and cycling. This treatment will reinforce that the space is shared by all users and will encourage drivers to travel slowly and cautiously through the access area.

The proposed shared zone will also include walking and cycling connectivity between Jackson Avenue, the residential development and the adjoining shopping centre interface. This will make the access roadway part of the local access network for walking and cycling.

The internal roadway alignment is constrained and relatively narrow, with garage doors, bollards, landscaping, building edges and the adjoining easement interface all contributing to a low-speed environment. These elements will naturally discourage higher vehicle speeds and reinforce the intended 10km/h operating environment.

Retractable remotely operated bollards will be installed within the shared zone to prevent general shopping centre traffic from using the residential access as a through-route to Jackson Avenue. This will reduce through-movement demand and support the local access function of the roadway.

Overall, the internal roadway has been designed as a low-speed, low-volume access space with pedestrian-priority characteristics. The combination of flush paving, shared use, controlled vehicle access, short length, constrained geometry, intervisibility treatments and proposed shared zone signage supports its classification as a shared zone / local street environment.

4.4 Car parking layout

The dimensions of the parking aisles and bays are compliant with AS 2890.1. The on-site parking bays are 2.4 m wide and 5.4 m long, with a 6.0 m aisle width provided. A 1.1 m blind aisle extension is provided at the end of the parking aisle.

Swept path analysis for the car park access and internal circulation is provided in Appendix C.

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4.5 Parking requirements

Reference has been made to the Residential Design Codes for applicable parking requirements. The site is located within 'Location A', with applicable parking rates set out in Table 1.

Table 1: R-Codes Volume 2 – Residential parking rates

Table 3.9 Parking ratio

Parking types		Location A	Location B
Car parking ¹	1 bedroom dwellings	0.75 bay per dwelling	1 bay per dwelling
	2+ bedroom dwellings	1 bay per dwelling	1.25 bays per dwelling
	Visitor	1 bay per four dwellings up to 12 dwellings 1 bay per eight dwellings for the 13th dwelling and above	
Bicycle parking ¹	Resident	0.5 space per dwelling	
	Visitor	1 space per 10 dwellings	
Motorcycle/ Scooter parking ²		Developments exceeding 20 dwellings provide 1 motorcycle/scooter space for every 10 car bays	

¹ Calculations of parking ratios shall be rounded up to the next whole number.

² For each five motorcycle/scooter parking bays provided in accordance with Table 3.9, car parking bays may be reduced by one bay.

Definitions:

Location A: includes all land located within:

- 800m of a train station on a high-frequency rail route, measured in a straight line from the pedestrian entry to the train station platform to any part of a lot;
- 250m of a high-frequency transit route, or multiple transit routes that if combined have timed stops every 15 minutes during weekday peak periods (7 –9am and 5–7pm), measured in a straight line from along any part of the transit route to any part of the lot; and/or
- within the defined boundaries of an activity centre.

Location B: not within Location A.

The calculated parking requirements for the development are presented in Table 2.

Table 2: Development parking requirements

Parking	Min
Ancillary dwelling	0
Studio and 1 bedroom dwelling	1
2 bedroom dwelling	5
3+ bedroom dwelling	16
Total occupant car parking	22
Visitor car parking	5
Total car parking	27
Bicycle parking	
Occupant	11
Visitor	3
Total bicycle parking	14
Total motorcycle parking	5

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4.6 Parking supply

The proposed development provides the following parking supply:

- 43 resident car parking bays within the lower-ground car park;
- 2 on-street visitor car parking bays along the Jackson Avenue frontage;
- 15 bicycle parking spaces, comprising:
 - 11 resident bicycle parking spaces; and
 - 4 visitor bicycle parking spaces; and
- 5 motorcycle parking bays.

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The proposed car parking supply is summarised in Table 3.

Table 3: Proposed parking supply and requirement

Parking type	Requirement	Proposed supply	Difference
Resident car parking	22	43	Complies
Visitor car parking	5	2	-3
Total car parking	27	45	Complies
Resident bicycle parking	11	11	Complies
Visitor bicycle parking	3	4	+1
Total bicycle parking	14	15	+1
Motorcycle parking	5	5	Complies

The proposed development provides 43 resident car parking bays within the secure lower-ground car park and 2 on-street visitor parking bays along the Jackson Avenue frontage. The resident parking provision exceeds the minimum requirement of 22 bays by 21 bays.

The proposed visitor parking supply is 3 bays below the calculated requirement of 5 bays. This represents a minor shortfall in the allocation of visitor parking rather than a shortfall in the overall parking capacity available to the development. Although the dedicated visitor supply is below the calculated requirement, the overall development parking provision substantially exceeds the aggregate car parking requirement.

The proposed visitor parking demand is also expected to be moderated by the site location within the established Winthrop Village neighbourhood centre. The development is within convenient walking distance of retail, medical and community services and is connected to the surrounding walking, cycling and public transport networks. The adjoining shopping centre car park also provides publicly accessible short-stay parking in close proximity to the development, including 4 proposed reciprocal-use EV bays opposite the site.

The 2 proposed on-street visitor bays will provide convenient and readily identifiable short-stay parking immediately adjacent to the development entrance. The reduced number of on-street bays also enables the Jackson Avenue frontage to retain a high-quality landscaped interface and avoids excessive interaction with the existing walking and cycling path, street trees, development access and nearby intersection.

Having regard to the substantial surplus of resident parking, the availability of nearby reciprocal and public parking, the site accessibility by other modes of travel, and the limited scale of the shortfall, the provision of 2 dedicated visitor bays is considered appropriate for the proposed development.

The proposed bicycle parking supply comprises 15 spaces, exceeding the calculated requirement of 14 spaces. The development also provides 5 motorcycle parking bays, satisfying the applicable requirement.

Overall, the proposed parking supply is considered appropriate for the scale, nature and location of the development.

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Overall, the proposed servicing arrangement represents an improvement over the previously approved development. It retains the benefits of on-site waste collection while relocating the waste collection activity entirely within the development private shared zone, thereby removing temporary impacts on shopping centre parking aisles and improving the overall safety and efficiency of waste collection operations.

Swept path analysis for a 10.6m rear loader waste truck was undertaken and is provided in Appendix C of this report. The analysis confirms that the waste collection vehicle can safely enter, service and exit the site in a forward gear.

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6 Hours of operation

For residential developments, peak traffic periods typically coincide with the weekday commuter AM and PM peak periods on the surrounding road network.

In the Perth Metropolitan Area, the weekday AM peak period occurs between 7:00 am and 9:00 am, while the PM peak period typically occurs between 4:00 pm and 6:00 pm. Traffic associated with the proposed development is expected to align with these periods.

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7 Daily traffic volumes and vehicle types

7.1 Traffic generation

The traffic volume that will be generated by the proposed development has been estimated using trip generation rates derived with reference to the following sources:

- Transport for New South Wales (TfNSW) *Guide to Transport Impact Assessment* (2024).
- WAPC *Transport Impact Assessment Guidelines* (2016).

The trip generation rates adopted are detailed in Table 4.

Table 4: Adopted trip rates for traffic generation

Land use	Trip rate source	Daily rate	AM rate	PM rate	AM-in	AM-out	PM-in	PM-out
Residential	TfNSW - Medium density residential (Metro)	2.72	0.39	0.37	25%	75%	65%	35%

The estimated traffic generation of the proposed development is summarised in Table 5. The development is expected to generate approximately 60 vehicle trips per day (vpd), including approximately 9 and 8 vehicle trips during the weekday AM and PM peak hours, respectively.

The estimated trips include both inbound and outbound vehicle movements. It is anticipated that the majority of vehicles will comprise passenger cars.

Table 5: Traffic generation – Weekday AM and PM peak hours

Land use	Quantity	Daily Trips	AM Trips	PM Trips	AM Peak Trips		PM Peak Trips	
					IN	OUT	IN	OUT
Residential	22	60	9	8	2	7	5	3

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7.2 Impact on surrounding roads

The WAPC Transport Impact Assessment Guidelines for Developments (2016) provides the following guidance on the assessment of traffic impacts:

“As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road but increases over 10 percent may. All sections of road with an increase greater than 10 percent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis.”

The proposed development will not increase traffic flows on any roads adjacent to the site by the quoted WAPC threshold of +100vph to warrant further analysis. Therefore, the impact on the surrounding road network is acceptable.

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8 Traffic management on the frontage roads

Information from online mapping services, Main Roads WA, Local Government, and/or site visits was collected to assess the existing traffic management on frontage roads.

8.1 Jackson Avenue

Jackson Avenue near the subject site is an approximately 10.0m wide, two-lane divided road, with a 1.8m wide painted median. A path for walking and cycling is provided along the western side of the road, in addition to marked on-street cycling lanes on both sides of the road.

Jackson Avenue is classified as a *Local Distributor* road in the Main Roads WA road hierarchy (Figure 8) and operates under a speed limit of 50km/h (Figure 9). Local Distributor roads are the responsibility of Local Government and are for the movement of traffic within local areas and connect access roads to higher order Distributors (Figure 10).

Based on traffic data obtained from the City of Melville, Jackson Avenue is estimated to carry around 4,000 vehicles per day adjacent to the site. 85th percentile speeds are estimated to be around 48 km/h.

8.2 Hatherley Parade

Hatherley Parade near the subject site is an approximately 7.5m wide, two-lane undivided road. A path for walking and cycling is provided along the southern side of the road, in addition to on-street parking embayments.

Hatherley Parade is classified as an *Access* road in the Main Roads WA road hierarchy (Figure 8) and operates under a speed limit of 50km/h (Figure 9). Access roads are the responsibility of Local Government and are for the provision of vehicle access to abutting properties (Figure 10).

Based on analysis of TomTom vehicle traffic statistics, Hatherley Parade is estimated to carry under 1,500 vehicles per day adjacent to the site. 85th percentile speeds are estimated to be around 35 km/h.

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Figure 8: Main Roads WA road hierarchy plan

Source: Main Roads WA Road Information Mapping System (RIM)



Figure 9: Main Roads WA road speed zoning plan

Source: Main Roads WA Road Information Mapping System (RIM)

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**ROAD HIERARCHY FOR WESTERN AUSTRALIA
ROAD TYPES AND CRITERIA (see Note 1)**

CRITERIA	PRIMARY DISTRIBUTOR (PD) (see Note 2)	DISTRICT DISTRIBUTOR A (DA)	DISTRICT DISTRIBUTOR B (DB)	REGIONAL DISTRIBUTOR (RD)	LOCAL DISTRIBUTOR (LD)	ACCESS ROAD (A)
Primary Criteria						
1. Location (see Note 3)	All of WA incl. BUA	Only Built Up Area.	Only Built Up Area.	Only Non Built Up Area. (see Note 4)	All of WA incl. BUA	All of WA incl. BUA
2. Responsibility	Main Roads Western Australia.	Local Government.	Local Government.	Local Government.	Local Government.	Local Government.
3. Degree of Connectivity	High. Connects to other Primary and Distributor roads.	High. Connects to Primary and/or other Distributor roads.	High. Connects to Primary and/or other Distributor roads.	High. Connects to Primary and/or other Distributor roads.	Medium. Minor Network Role Connects to Distributors and Access Roads.	Low. Provides mainly for property access.
4. Predominant Purpose	Movement of inter regional and/or cross town/city traffic, e.g. freeways, highways and main roads.	High capacity traffic movements between industrial, commercial and residential areas.	Reduced capacity but high traffic volumes travelling between industrial, commercial and residential areas.	Roads linking significant destinations and designed for efficient movement of people and goods between and within regions.	Movement of traffic within local areas and connect access roads to higher order Distributors.	Provision of vehicle access to abutting properties
Secondary Criteria						
5. Indicative Traffic Volume (AADT)	In accordance with Classification Assessment Guidelines.	Above 8 000 vpd	Above 6 000 vpd.	Greater than 100 vpd	Built Up Area - Maximum desirable volume 6 000 vpd. Non Built Up Area - up to 100 vpd.	Built Up Area - Maximum desirable volume 3 000 vpd. Non Built Up Area - up to 75 vpd.
6. Recommended Operating Speed	60 – 110 km/h (depending on design characteristics).	60 – 80 km/h.	60 – 70 km/h.	50 – 110 km/h (depending on design characteristics).	Built Up Area 50 - 60 km/h (desired speed) Non Built Up Area 60 – 110 km/h (depending on design characteristics).	Built Up Area 50 km/h (desired speed). Non Built Up Area 50 – 110 km/h (depending on design characteristics).
7. Heavy Vehicles permitted	Yes.	Yes.	Yes.	Yes.	Yes, but preferably only to service properties.	Only to service properties.
8. Intersection treatments	Controlled with appropriate measures e.g. high speed traffic management, signing, line marking, grade separation.	Controlled with appropriate measures e.g. traffic signals.	Controlled with appropriate Local Area Traffic Management.	Controlled with measures such as signing and line marking of intersections.	Controlled with minor Local Area Traffic Management or measures such as signing.	Self controlling with minor measures.
9. Frontage Access	None on Controlled Access Roads. On other routes, preferably none, but limited access is acceptable to service individual properties.	Prefer not to have residential access. Limited commercial access, generally via service roads.	Residential and commercial access due to its historic status. Prefer to limit when and where possible.	Prefer not to have property access. Limited commercial access, generally via lesser roads.	Yes, for property and commercial access due to its historic status. Prefer to limit whenever possible. Side entry is preferred.	Yes.
10. Pedestrians	Preferably none. Crossing should be controlled where possible.	With positive measures for control and safety e.g. pedestrian signals.	With appropriate measures for control and safety e.g. median/islands refuges.	Measures for control and safety such as careful siting of school bus stops and rest areas.	Yes, with minor safety measures where necessary.	Yes.
11. Buses	Yes.	Yes.	Yes.	Yes.	Yes.	If necessary (see Note 5)
12. On-Road Parking	No (emergency parking on shoulders only).	Generally no. Clearways where necessary.	Not preferred. Clearways where necessary.	No – emergency parking on shoulders – encourage parking in off road rest areas where possible.	Built Up Area – yes, where sufficient width and sight distance allow safe passing. Non Built Up Area – no. Emergency parking on shoulders.	Yes, where sufficient width and sight distance allow safe passing.
13. Signs & Linemarking	Centrelines, speed signs, guide and service signs to highway standard.	Centrelines, speed signs, guide and service signs.	Centrelines, speed signs, guide and service signs.	Centrelines, speed signs and guide signs.	Speed and guide signs.	Urban areas – generally not applicable. Rural areas - Guide signs.
14. Rest Areas/Parking Bays	In accordance with Main Roads' Roadside Stopping Places Policy.	Not Applicable.	Not Applicable.	Parking Bays/Rest Areas. Desired at 60km spacing.	Not Applicable.	Not Applicable.

Figure 10: Road types and criteria for Western Australia

Source: Main Roads Western Australia D10#10992

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9 Public transport access

Information was collected from Transperth, PTA and site visits to assess the existing public transport access to and from the site.

The subject site has access to multiple bus services within walking distance, as detailed in Table 6.

Table 6: Bus routes servicing the subject site

Route Number	Route Description
115	Perth - Hamilton Hill via Booragoon Bus Stn (Figure 12)
504	Bull Creek Stn - Murdoch Stn via Jackson Av (Figure 13)
511	Murdoch Stn - Fremantle Stn via Somerville Bvd & McCombe Av (Figure 14)

Public transport services provide a viable alternative mode of transport for residents and visitors to the proposed development.

The closest bus stops are located on Somerville Boulevard, within 250 m walking distance of the site (Figure 11). A pedestrian crossing facility including kerb ramps and a median refuge is provided at the roundabout intersection of Somerville Boulevard / Jackson Avenue, near the bus stops.

Bus services provide excellent coverage and connectivity to the rail network and connecting bus services via Murdoch, Bull Creek and Fremantle Train Stations.

The existing public transport network plans are shown in Figures 12 to 14.

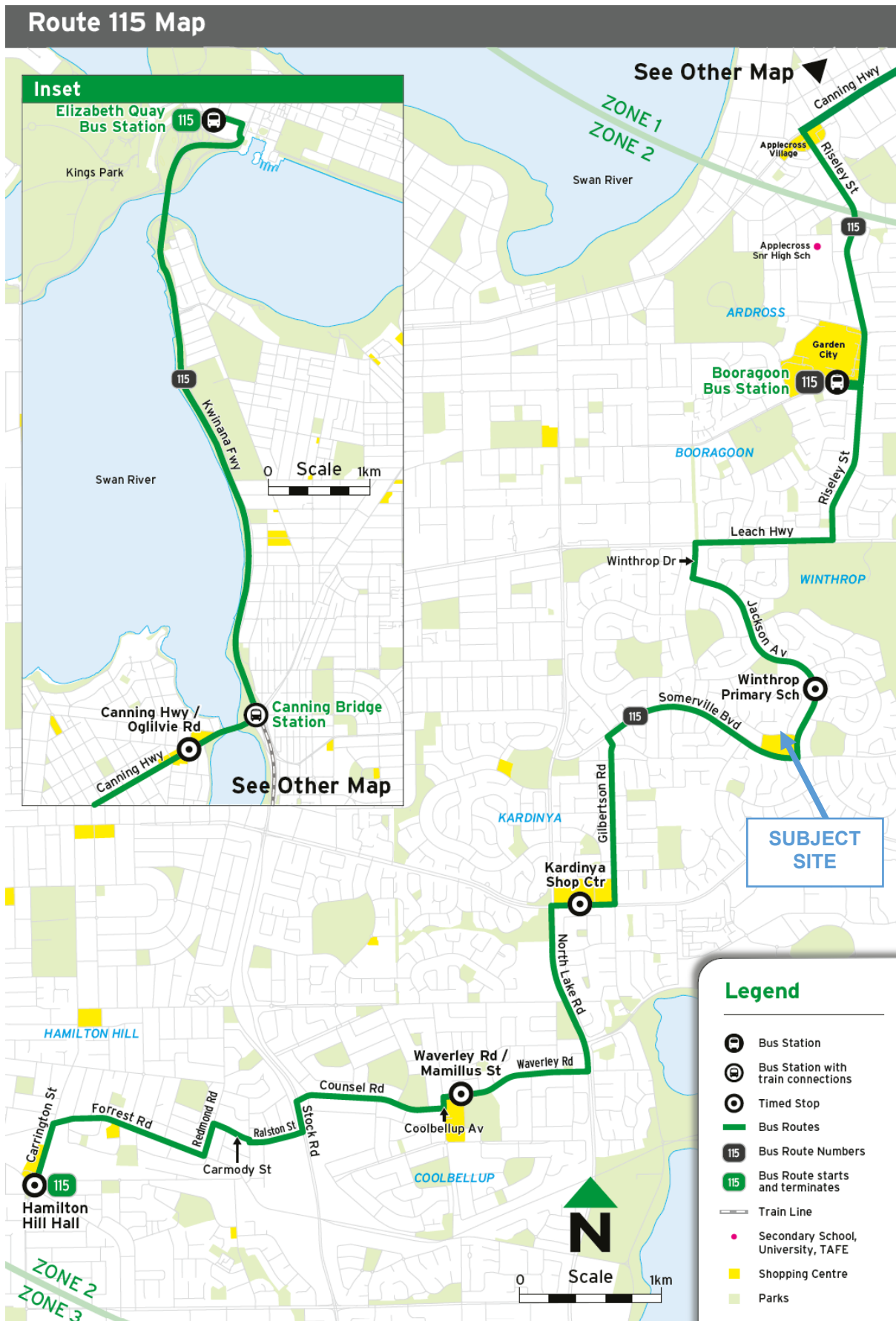
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Figure 11: Closest bus stops serving the proposed development

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Figure 12: Transperth public transport plan (route 115)

Source: Transperth

Route 503, 504, 505 Map

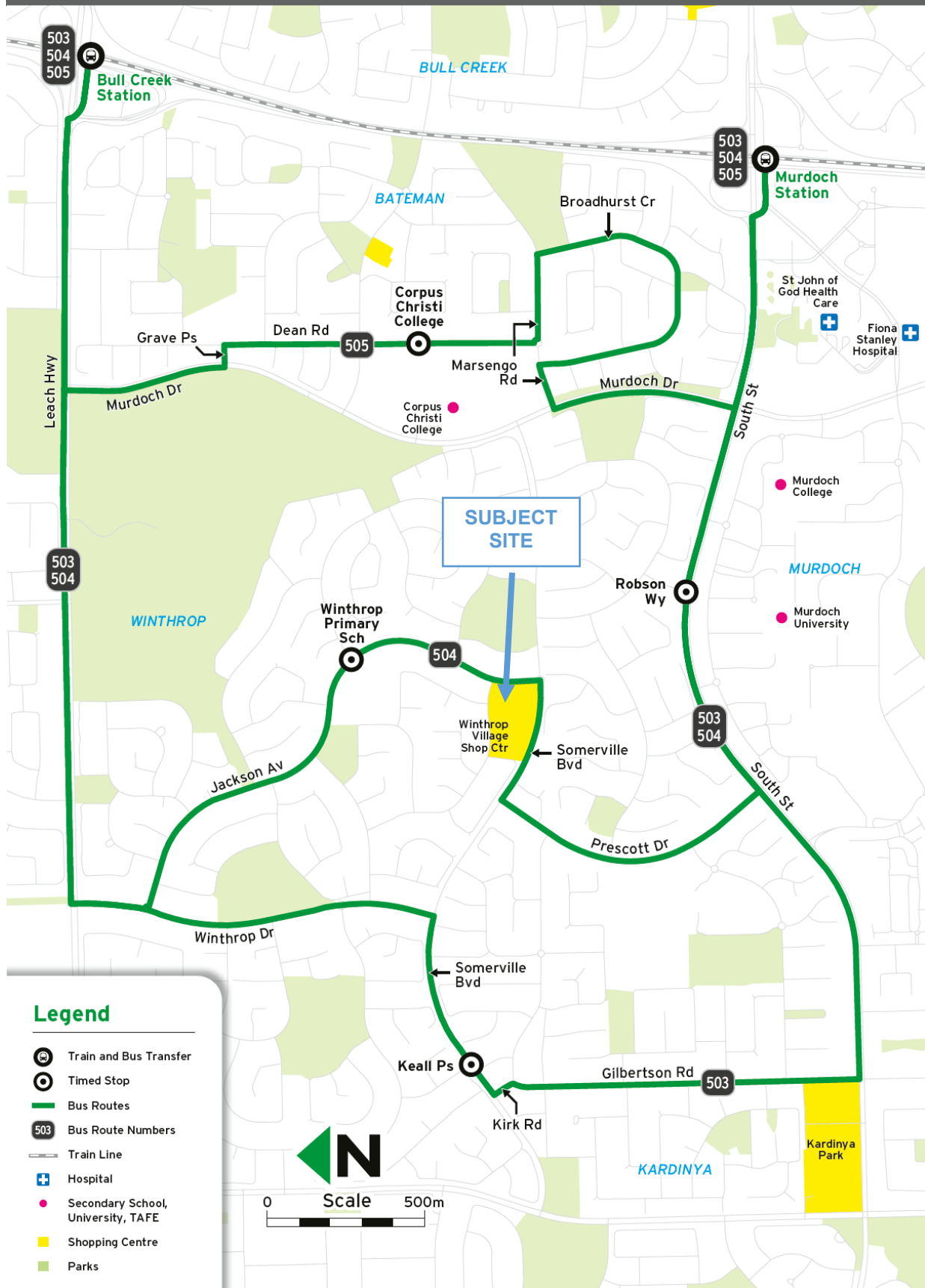


Figure 13: Transperth public transport plan (route 504)

Source: Transperth

Route 511, 512, 513 Map

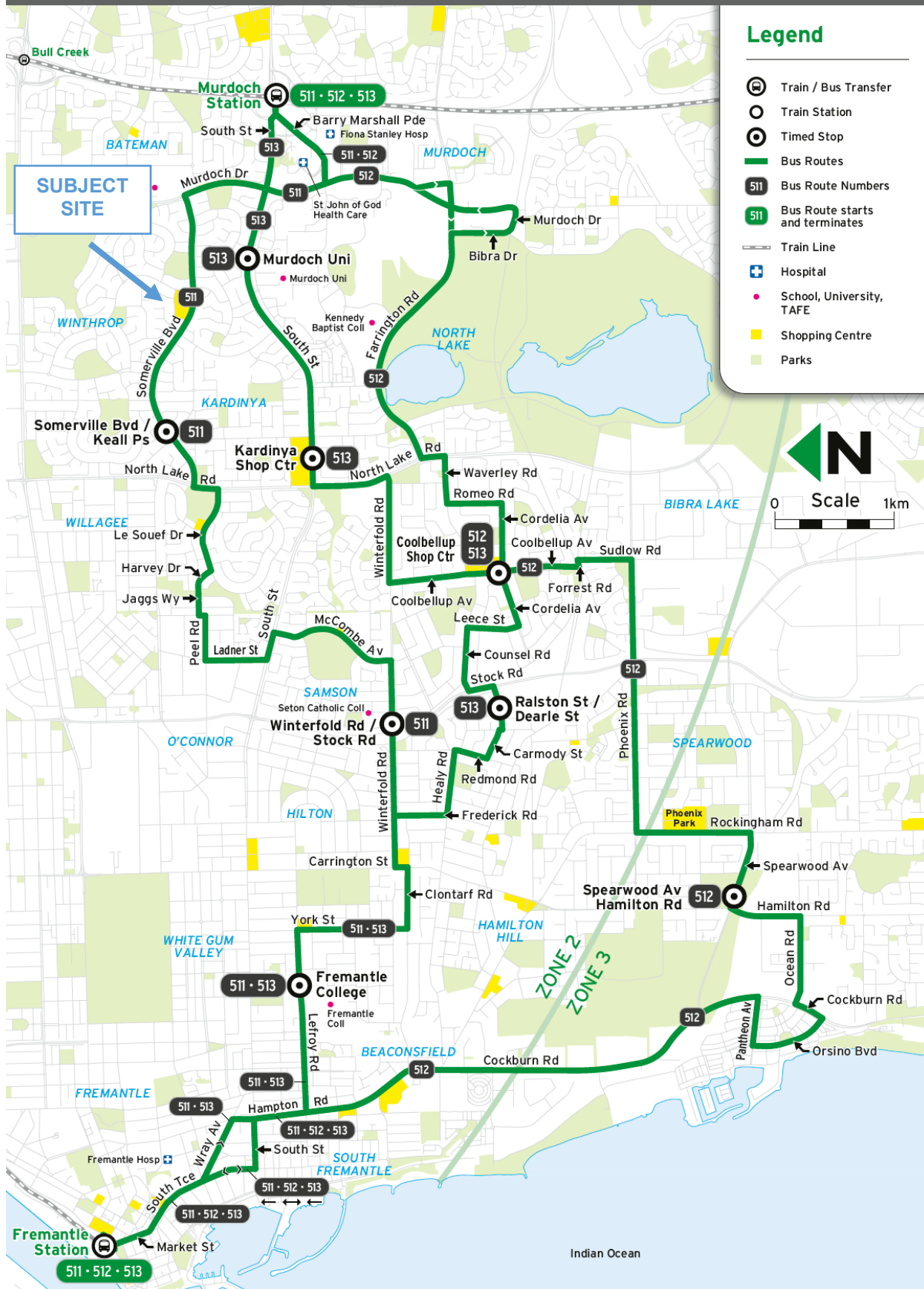


Figure 14: Transperth public transport plan (route 511)

Source: Transperth

10 Walking access

Information from online mapping services, Main Roads WA, Local Government, and site visits was collected to assess the walking access for the proposed development.

10.1 Walking facilities

The subject site is located within the established Winthrop Village neighbourhood centre, with existing walking infrastructure provided throughout the surrounding area.

Existing footpaths are provided along both site frontages, including Jackson Avenue and Hatherley Parade. These footpaths provide direct connectivity between the subject site, the adjoining Winthrop Village Shopping Centre, nearby residential areas and surrounding local streets.

The proposed development includes a clear and legible walking connection from Jackson Avenue to the main residential lobby. The access roadway between Jackson Avenue and the lower-ground parking area is proposed to operate as a shared zone for walking, cycling and driving, providing a low-speed environment and maintaining walking connectivity through the eastern side of the site.

Walking access will also be available between the development and the adjoining shopping centre car park / internal pedestrian network. This will support convenient access to the retail, commercial and medical uses within Winthrop Village without requiring residents or visitors to rely on private vehicle trips for short local journeys.

The broader walking network provides access to nearby community facilities and local destinations, including Winthrop Village Shopping Centre, Winthrop Primary School, Somerville Park and nearby residential streets. The local street environment is conducive to walking, with low-speed residential streets, established verges and existing paths supporting access through the surrounding neighbourhood.

Overall, the site is considered to have a good level of walking accessibility. The proposed development will maintain and enhance walking connections along Jackson Avenue and Hatherley Parade, while providing direct internal access between the residential entry, shared zone, visitor parking areas and adjoining neighbourhood centre.

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11 Bicycle access

Information from online mapping services, Department of Transport, Local Government, and/or site visits was collected to assess bicycle access for the proposed development.

11.1 Bicycle network

The subject site is located within an established bicycle network, with cycling facilities and low-speed local streets providing connectivity to the surrounding residential catchment, neighbourhood centre uses and nearby activity destinations.

Jackson Avenue, which forms the eastern frontage of the site, includes existing cycling lanes on both sides of the road. This provides direct bicycle access past the subject site and connects to the broader local street network. Hatherley Parade also provides a local street connection along the northern frontage of the site and forms part of the surrounding low-speed residential street environment.

Somerville Boulevard, located to the south of the site, forms a key east-west cycling route through the locality. This corridor provides connectivity towards Winthrop Drive to the west and Murdoch Drive to the east, including access towards Murdoch University, Fiona Stanley Hospital and other regional activity destinations. South Street, further south of the site, also forms part of the broader cycling network, providing higher-order east-west connectivity through the area.

The Strava cycling heatmap shown in Figure 15 indicates that cycling activity is concentrated along the higher-order road corridors, including Somerville Boulevard, Murdoch Drive and South Street. Moderate activity is also evident on several local connector streets within the surrounding residential area. This indicates that the site is located within an area where cycling is already occurring, particularly for movements along the surrounding distributor road network and connections to nearby activity centres.

Cycling access to the proposed development will be available via Jackson Avenue, Hatherley Parade and the surrounding local street network. The proposed internal shared zone will support bicycle access between Jackson Avenue, the residential development and the adjoining Winthrop Village interface. Bicycle parking is proposed within the development.

Overall, the site is considered to have a good level of cycling accessibility. The existing on-road bicycle lanes on Jackson Avenue, nearby cycling facilities on Somerville Boulevard and the surrounding local street network provide practical bicycle connections to local shops, schools, open space, public transport and nearby employment / education destinations.

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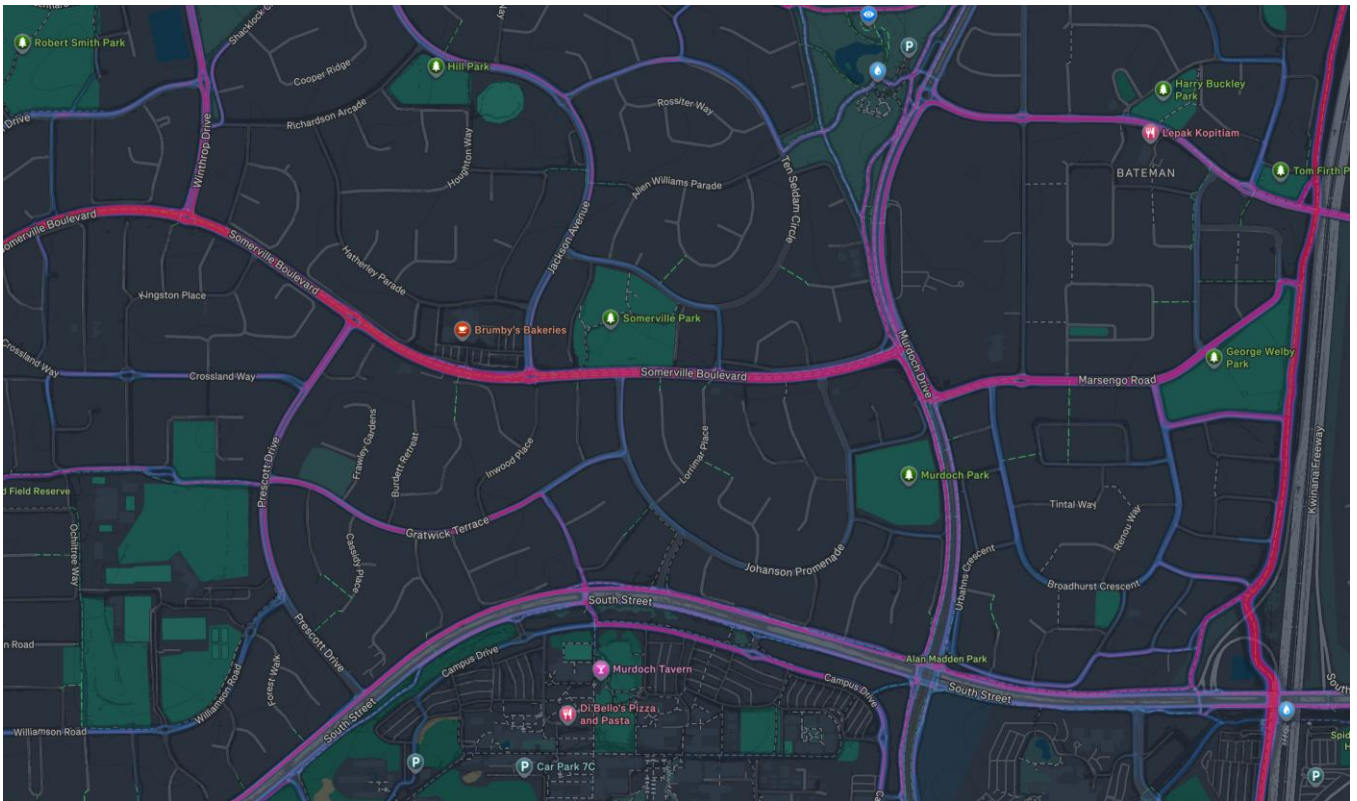


Figure 15: Strava cycling heatmap

11.2 Bicycle parking and end of trip facilities

Bicycle parking is proposed to be provided on-site in accordance with the requirements of the Residential Design Codes (R-Codes). A total of 15 bicycle parking spaces are proposed, comprising 11 spaces for residents and 4 spaces for visitors.

Resident bicycle parking will be provided within the lower-ground parking level, in a secure and convenient location close to the lift and stair core. This will support longer-term bicycle storage for residents and provide direct access between the bicycle parking area, resident car park and apartment levels.

Visitor bicycle parking will be provided in an accessible location within the development car park for short-term use by visitors. The visitor bicycle parking will be located to provide convenient access from the surrounding path network and the development entry. Visitors can gain access to bicycle parking through intercom access.

Given the residential nature of the development, dedicated end-of-trip facilities such as showers and change rooms are not typically required.

Overall, the proposed bicycle parking provision exceeds the calculated R-Codes requirement of 14 spaces and is considered appropriate for the scale and nature of the development.

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12 Site specific issues

During the City's assessment of the amended development application, two matters were raised regarding the proposed on-street visitor parking bays on Jackson Avenue:

- the interface between parked vehicles and the adjoining shared path; and
- the suitability of providing on-street parking on Jackson Avenue.

These matters have been reviewed as part of this updated Transport Impact Statement and are addressed below.

12.1 Pedestrian interface

The landscape plan has been revised to improve the interface between the proposed visitor parking bays and the adjoining pedestrian environment.

The footpath adjacent to the proposed parking bays has been increased to a minimum width of approximately 2.1 m. This provides additional clearance adjacent to parked vehicles, allowing for door opening while maintaining a generous continuous path of travel for people walking, using mobility devices and pushing prams. The resulting footpath width remains suitable for two-way pedestrian movements and comfortably exceeds the space required for a continuous accessible path of travel.

Providing paved footpaths immediately adjacent to kerbside parking is also a common and well-established streetscape treatment throughout metropolitan activity centres. Figure 16 illustrates a comparable example on Angelo Street, South Perth, where parallel on-street parking is provided directly adjacent to the footpath without landscaped verge separation. Similar arrangements exist throughout many established town centres across Perth.

Accordingly, the proposed interface is considered appropriate for the urban context of Jackson Avenue and provides a safe and practical arrangement for all road users.



Figure 16: Example path abutting street parking – Angelo Street, South Perth

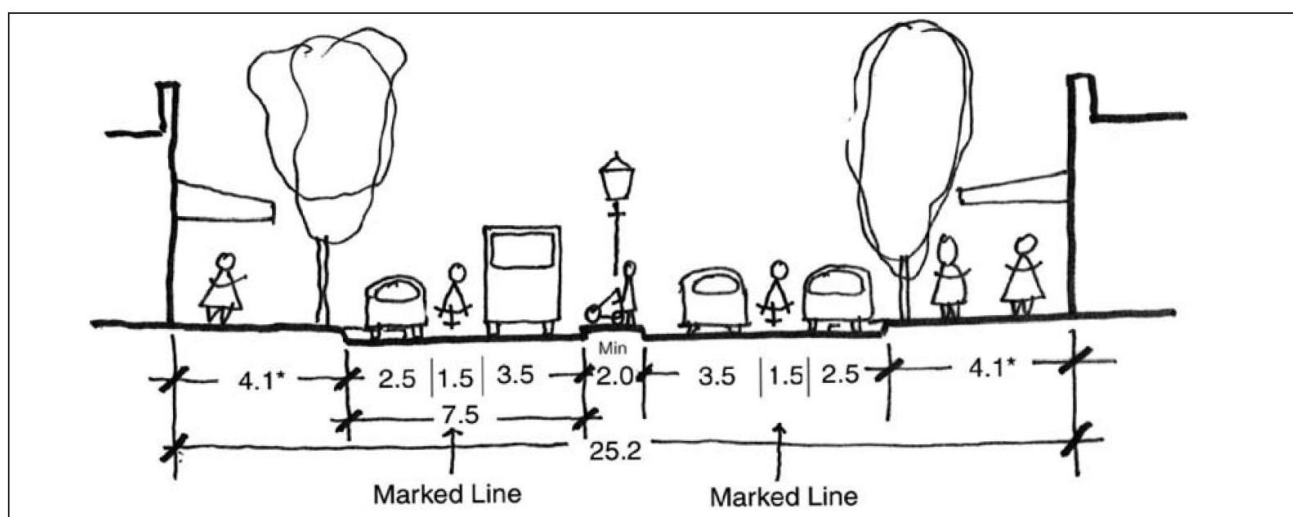
12.2 Consistency with Liveable Neighbourhoods

The proposed on-street visitor parking arrangement is also consistent with the design intent of *Liveable Neighbourhoods*.

The *Liveable Neighbourhoods* road hierarchy identifies Integrator B roads within town centres as accommodating parallel on-street parking, footpaths immediately adjacent to the kerb, and on-road cycling facilities within the same cross-section (Figure 17). These streets are intended to support mixed-use activity and typically accommodate traffic volumes of up to approximately 15,000 vehicles per day.

Jackson Avenue exhibits the characteristics of an Integrator B town centre street. It provides frontage to the Winthrop Village neighbourhood centre, includes an existing bicycle lane and pedestrian facilities, operates within a 50 km/h speed environment, and carries approximately 4,000 vehicles per day. This traffic volume is substantially below the upper operating range contemplated by *Liveable Neighbourhoods* for this road type.

Accordingly, the provision of parallel on-street visitor parking is entirely consistent with contemporary Western Australian street design guidance and is not expected to adversely affect traffic operations or road safety.



Integrator B – town centre main street – 40-50 km/hr (up to 15 000 vehicles per day).

Figure 17: Liveable Neighbourhoods – Integrator B road section

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12.3 Previous approval and sight distance

The subject site benefits from an existing development approval that incorporated on-street visitor parking as part of the approved traffic engineering assessment.

The previous Transport Impact Statement identified approximately 69 m of sight distance in each direction from the development crossover and confirmed that street parking complied with the relevant intersection setback and driveway sightline requirements, as shown in Figure 18. The revised street parking arrangement does not reduce the previously demonstrated sight distance.

The current proposal also provides a wider pedestrian path adjacent to the parking bays, representing an improvement over the previously assessed arrangement.



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Figure 18: Development crossover sight distance

Source: Winthrop Village Residential Development Technical Note, Flyt 2020

12.4 Overall assessment

The proposed visitor parking bays represent a minor variation to the applicable R-Codes visitor parking requirement, with two visitor bays proposed in lieu of five.

From a transport engineering perspective, the proposed arrangement is appropriate having regard to:

- the site location within an established neighbourhood activity centre;
- the availability of substantial adjoining shopping centre parking;
- the revised 2.1 m footpath providing improved pedestrian clearance;
- consistency with *Liveable Neighbourhoods* guidance for Integrator B town centre streets;
- the relatively low traffic volumes on Jackson Avenue (approximately 4,000 vehicles per day);
- the demonstrated compliance with sight distance requirements for both the nearby intersection and the proposed development crossover.

Overall, the proposed on-street visitor parking is considered to provide a safe, functional and appropriate outcome and is not expected to adversely affect traffic operations, road safety or pedestrian accessibility. It therefore remains suitable to support the proposed development.

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13 Safety issues

A review of reported crash data in the vicinity of the site was undertaken using Main Roads Western Australia crash records for the five-year period 2021 to 2025. The recorded crash locations are shown in Figure 19, with a summary of the crash history provided in Table 7.

A total of 4 crashes were recorded within the assessed locality during the five-year review period. Of these crashes, 3 resulted in medical treatment and 1 was recorded as property damage only. No fatal or hospital crashes were recorded.

The majority of crashes were right-angle crashes, with 3 right-angle crashes recorded, representing 75% of the total crash history.

All recorded crashes occurred during daylight conditions. Three crashes occurred in dry conditions, with the remaining crash recorded as other / unknown conditions. The crashes were distributed across the review period, with 1 crash recorded in 2022, 2 crashes recorded in 2023 and 1 crash recorded in 2025.

The crash map in Figure 19 indicates that the recorded crashes were generally associated with the surrounding road network and intersection environments, rather than being concentrated at the proposed development access location. Based on the low number of crashes recorded over the five-year period, and the absence of any fatal or hospital crashes, the crash history does not indicate an existing road safety issue that would be materially affected by the proposed residential development.

The proposed development access arrangements include several design measures to support safe operation, including the use of a low-speed shared zone, controlled access via retractable bollards, visually permeable treatments adjacent to the garage doors, and a traffic safety mirror to assist intervisibility between vehicles exiting the western garage and shopping centre traffic using the easement connection.

Overall, based on the crash history summarised in Table 7 and the proposed access design measures, the development is not expected to create or exacerbate any road safety issues on the surrounding road network.

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Figure 19: 5-year crash map in the locality (2021-2025)

Source: MRWA crash mapping tool

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Table 7: 5-year crash history in the locality (2021-2025)

Severity	No.	%
Fatal	0	0
Hospital	0	0
Medical	3	75.00
PDO Major	0	0
PDO Minor	1	25.00
Year	No.	%
2022	1	25.00
2023	2	50.00
2025	1	25.00
Nature	No.	%
Head On	0	0
Hit Animal	0	0
Hit Object	1	25.00
Hit Pedestrian	0	0
Non Collision	0	0
Not Known	0	0
Rear End	0	0
Right Angle	3	75.00
Right Turn Thru	0	0
Sideswipe Opposite Dirn	0	0
Sideswipe Same Dirn	0	0

Light	No.	%
Dark - Street Lights Not Provided	0	0
Dark - Street Lights Off	0	0
Dark - Street Lights On	0	0
Dawn Or Dusk	0	0
Daylight	4	100.00
Not Known	0	0
Conditions	No.	%
Dry	3	75.00
Not Known	0	0
Other / Unknown	1	25.00
Wet	0	0
Alignment	No.	%
Curve	0	0
Not Known	0	0
Other / Unknown	3	75.00
Straight	1	25.00
Total	4	

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14 Conclusion

This Transport Impact Statement has been prepared by Urbii on behalf of Nostoc Pty Ltd in support of the proposed residential development located on a portion of Lot 369 (No. 109–141) Somerville Boulevard, Winthrop.

The proposed development comprises 22 residential apartments, consisting of one one-bedroom dwelling, five two-bedroom dwellings and sixteen three-bedroom dwellings. The development provides 43 resident car parking bays within the lower-ground car park, two on-street visitor parking bays, five motorcycle parking bays and 15 bicycle parking spaces.

Vehicle access to the development is proposed via the modified northern Jackson Avenue crossover. The access roadway will operate as a low-speed shared zone for walking, cycling and driving, with access controlled by retractable remotely operated bollards. The existing southern Jackson Avenue crossover will continue to service the adjoining shopping centre, maintaining separation between shopping centre traffic and residential access movements.

The proposed visitor parking arrangement represents a minor variation to the applicable planning policy requirements. However, the reduced provision is considered appropriate having regard to the site location within the Winthrop Village neighbourhood centre, the availability of adjoining public parking, the revised 2.1 m wide footpath adjacent to street parking bays, compliance with sight distance requirements, and consistency with the principles of Liveable Neighbourhoods for town centre streets.

Waste collection is proposed to occur on-site within the private shared zone using the City of Melville waste collection service. Compared with the previously approved development, the revised arrangement provides an improved operational outcome by enabling waste collection to occur within the development site rather than within the shopping centre parking aisles. This eliminates obstruction of shopping centre parking bays during collection while maintaining forward entry and exit for the waste vehicle.

The proposed development is forecast to generate approximately 60 vehicle trips per day, including approximately 9 trips during the weekday AM peak hour and 8 trips during the weekday PM peak hour. This level of traffic generation is low and will not materially affect the operation of the surrounding road network.

A review of reported crash data did not identify any existing road safety issues that would be materially affected by the proposal. The access arrangements, sight distances, shared zone treatment and low traffic generation are expected to support safe and efficient operation of the development.

Overall, the proposed development is considered acceptable from a transport planning and traffic engineering perspective. The proposed access arrangements, parking provision and servicing strategy are appropriate for the site and represent a practical improvement over the previously approved development while remaining consistent with the surrounding activity centre context and applicable planning and engineering guidance.

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15 Appendices

Appendix A: Proposed development plans

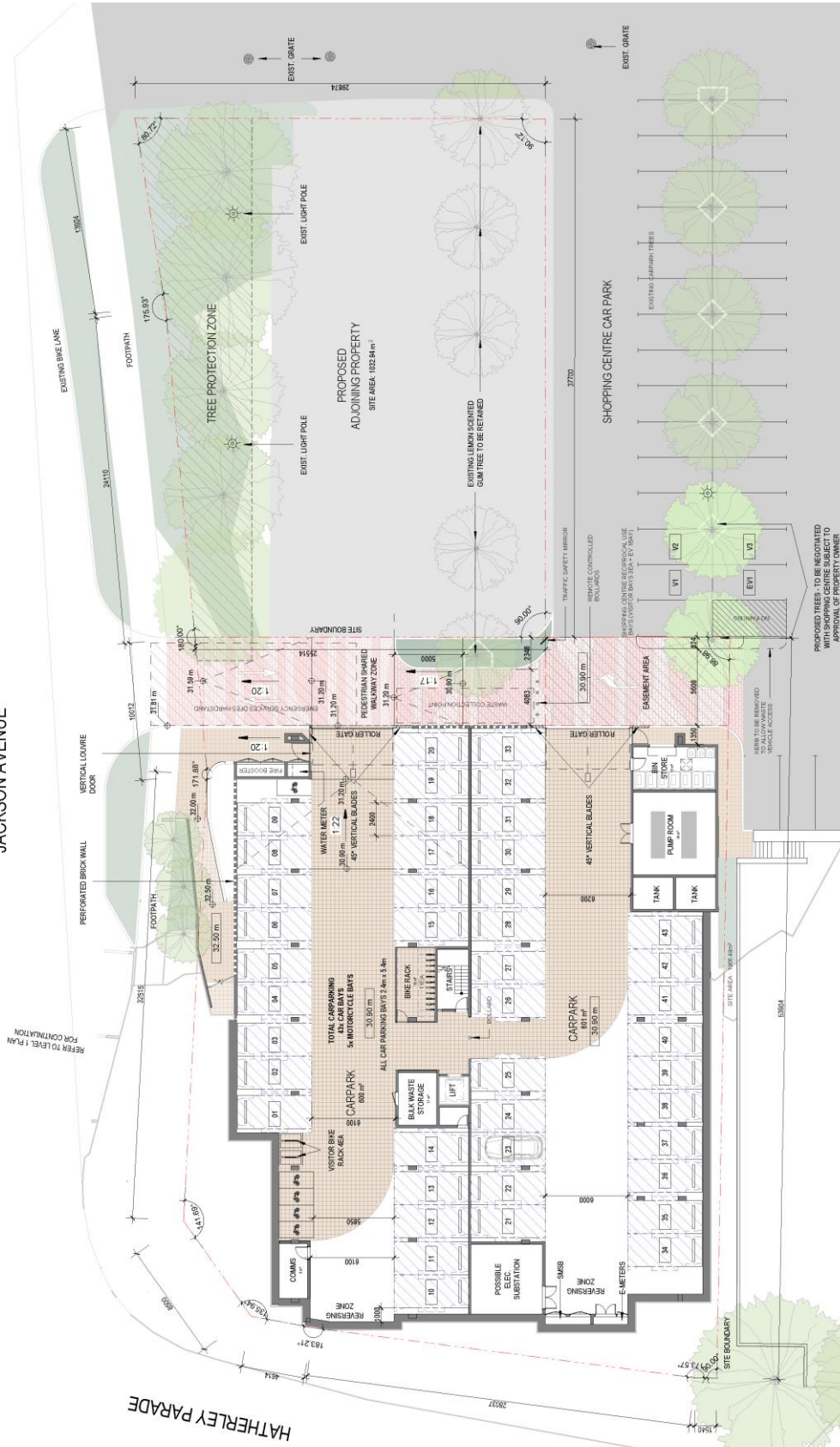
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JACKSON AVENUE



LOWER GROUND



SCALE 1 : 200 (A2)

A100
SK

WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT
P25037
21/07/2026



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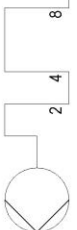
JACKSON AVENUE



1 DA - 00 GROUND LEVEL
A002 1 : 200

GROUND FLOOR / LEVEL 1

2 DA - 01 LEVEL
A002 1 : 200



SCALE 1 : 200 (A2)

A101 SK

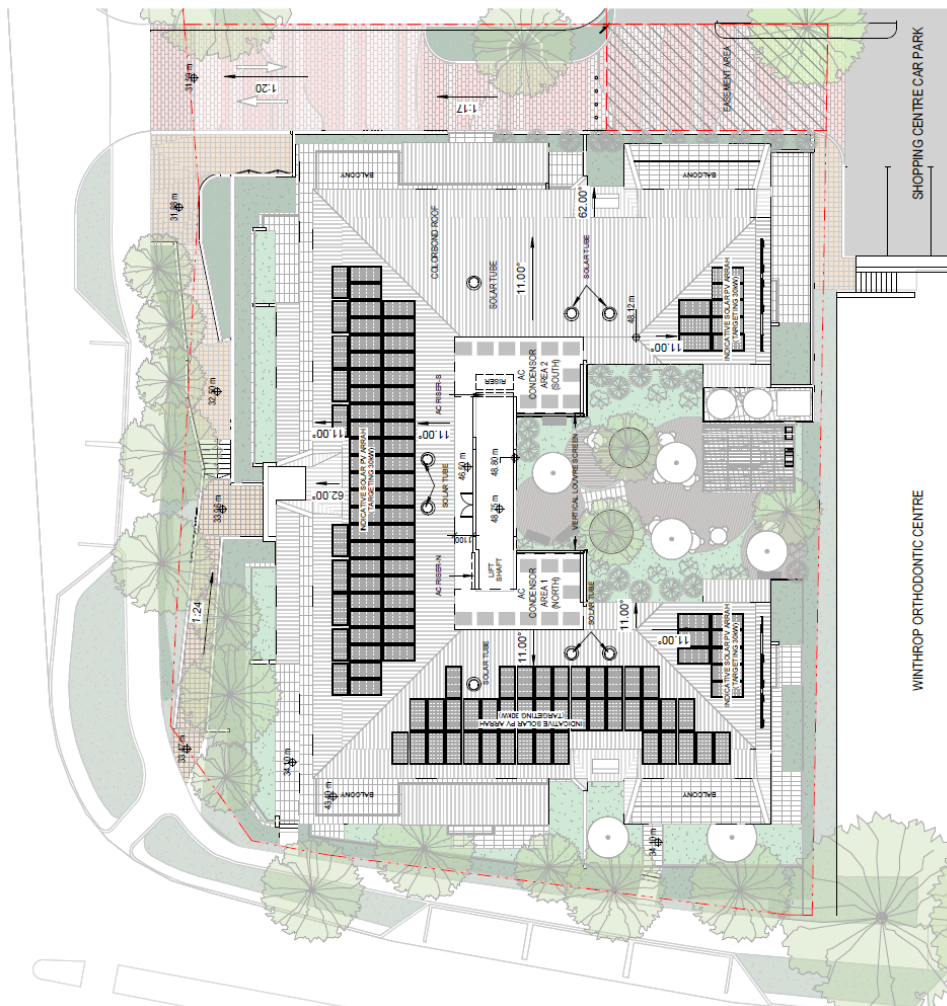
WINTHROP VILLAGE RESIDENTIAL DEVELOPMENT

P25037

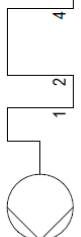
21/07/2026

CAMERON
CHISHOLM
NICOL

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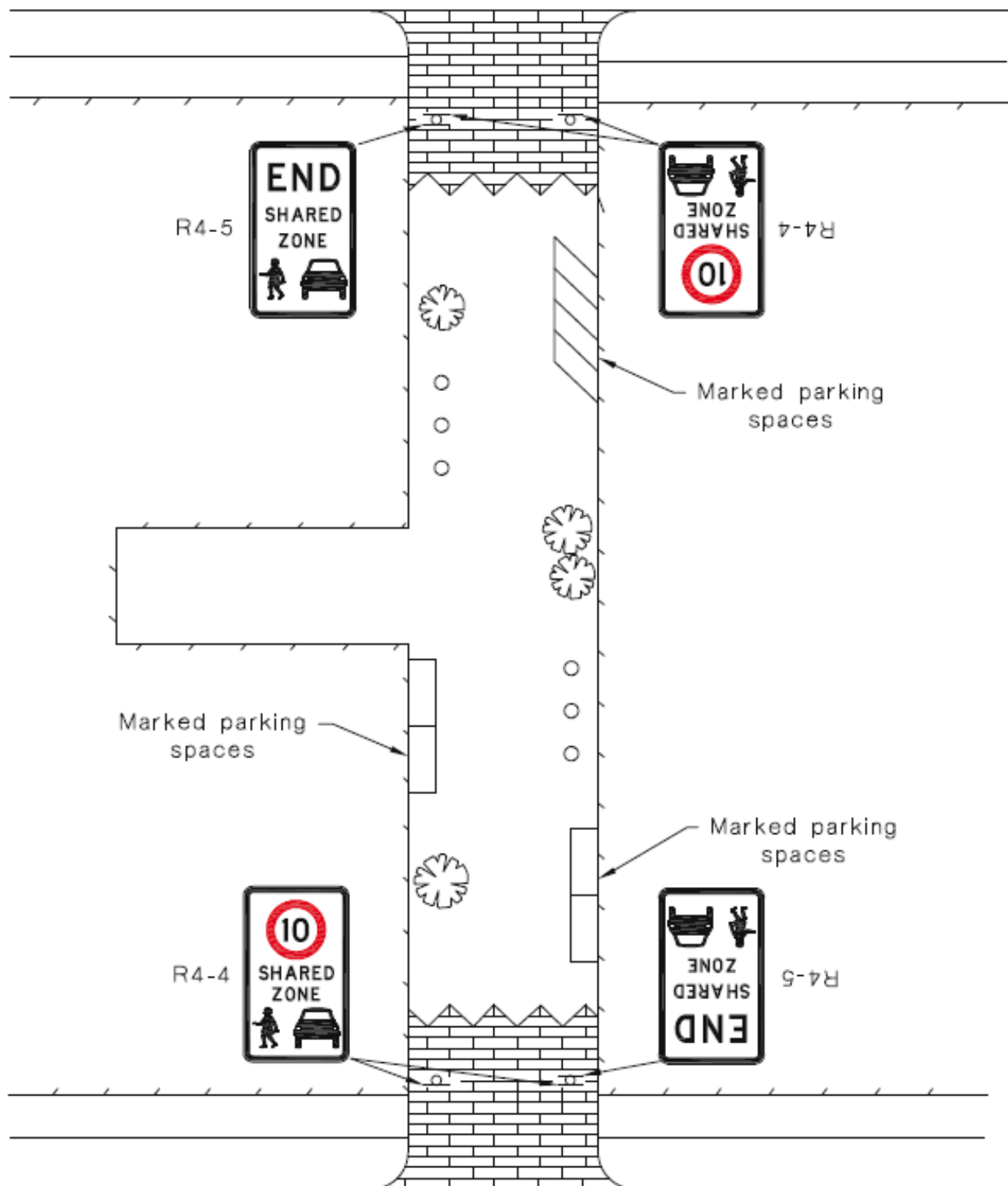


ROOF PLAN



Appendix B: Typical shared zone treatment

Source: AS 1742.4 – 2008



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Appendix C: Swept path diagrams

Swept path diagrams are included in this section of the report. Different coloured lines are employed to represent the various envelopes of the vehicle swept path, as described below:

Cyan represents the wheel path of the vehicle

Green represents the vehicle body envelope

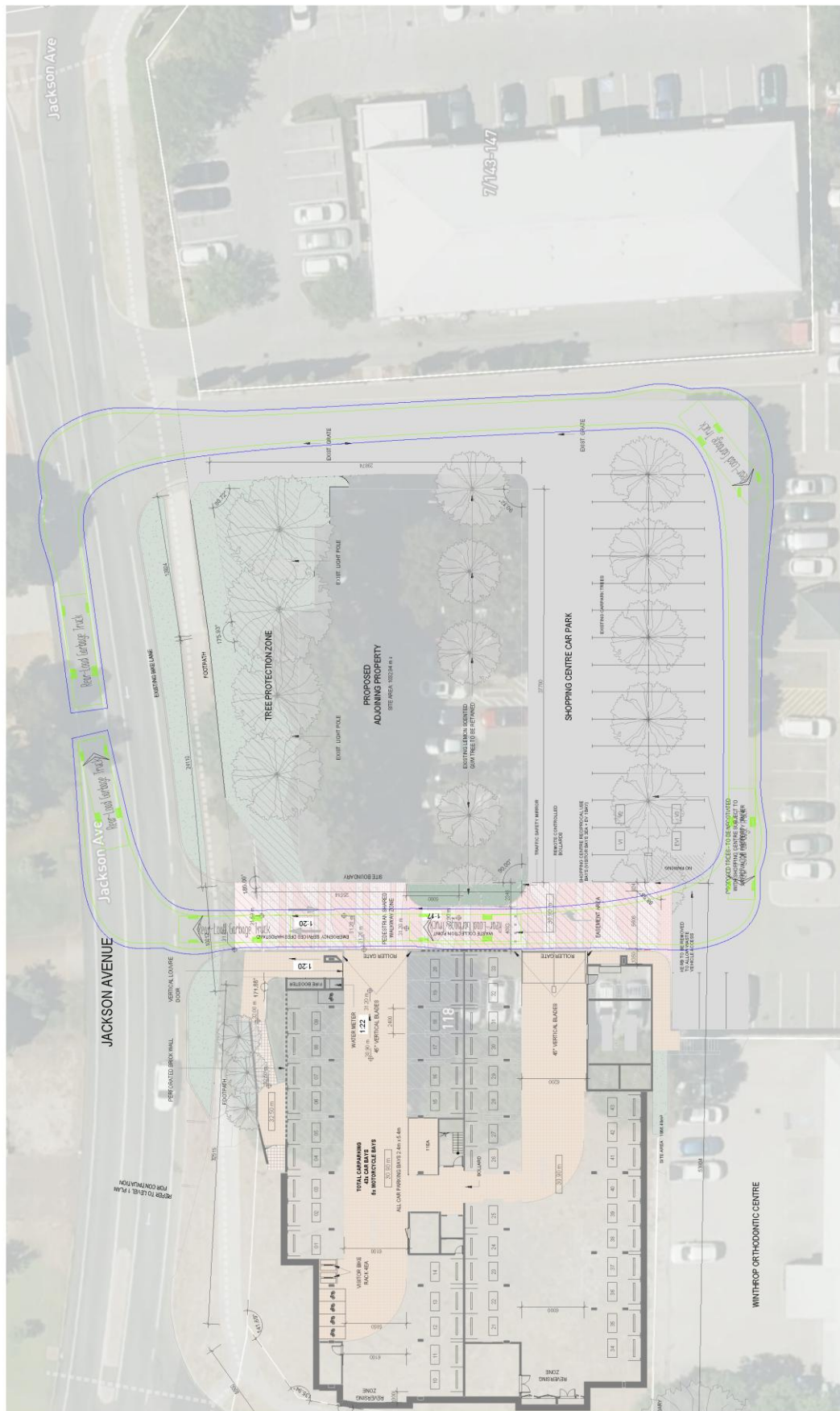
Blue represents a 300mm / 500mm buffer line, offset from the vehicle swept path

The swept path diagrams are also provided separately in high-quality, A3 PDF format.

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Revision notes:		Notes:	
Rev:	Date:	Rev:	Date:
1	14/05/2026	1	14/05/2026
Dark blue swept path line represents a 500mm buffer.			
Project:		Project:	
U20.035 - Winthrop Village Apartments		U20.035 - Winthrop Village Apartments	
Proposed Residential Development		Proposed Residential Development	
Drawing Title:		Drawing Title:	
Swept path analysis - Waste Truck Circulation		Swept path analysis - Waste Truck Circulation	
10.6 m Rear Loader Waste Truck		10.6 m Rear Loader Waste Truck	
Client:		Client:	
Norfolk Pty Ltd		Norfolk Pty Ltd	
Drawn by:		Drawn by:	
Paul Ghantous		Paul Ghantous	
Date:		Date:	
05/06/2026		05/06/2026	
Scale @ A3:		Scale @ A3:	
1:350		1:350	
Revision:		Revision:	
s401b		s401b	

**urbii**

Sustainable Transport. Safe Solutions

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info@urbii.com.au



[illegible]

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Project: U28.035 - Wethrop Village Apartments Proposed Residential Development	Drawing Title: Swept path analysis - Car Park Entry and Exit AS 2890.1 - B85 Vehicle
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Drawn by: Paul Ghanious	Client: Nortec Pty Ltd
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Revision notes:	
Rev:	Date:
1	14/05/2026
Notes: Dark blue swept path line represents a 300mm buffer.	