ACOUSTIC REPORT FOR

DEVELOPMENT APPROVAL

PROPOSED RESIDENTIAL DEVELOPMENT

4 COLLERAN WAY

BOORAGOON

18 NOVEMBER 2019

Prepared for MP2 Property
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DOCUMENT ISSUE RECORD

Version	Rev	Date	Description	Checked	Approved
1	0	25/11/19	PRELIM REPORT	BLL	
2	1	11/12/19	REV 1	BLL	

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1. INTRODUCTION

The proposed residential development is situated at 4 Colleran Way and is located on a fairly quiet residential location.

The proposed development consists of:

○	Lower Basement:	Car-Parking, Stores,
○	Ground Floor:	2 of 3 bed and 1 of 1 bed residential apartments
○	Level 1:	2 of 3 bed and 1 of 1 bed residential apartments
○	Level 2:	2 of 3 bed and 1 of 1 bed residential apartments
○	Level 3	1 off 3 bed apartment

This brief sets out the developments requirements and overview of the acoustic requirements of the development as set out in various Regulations, Codes and Australian Standards, that are applicable to this project.

The report is to be utilised to establish the acoustic requirements for the project that will need to be addressed in the design development stage of the project that will lead to project certification.

The acoustic issues to be determined include:

- Noise emission from the property to comply with the requirements of the Environmental Protection (Noise) Regulations
- The intrusion of environmental noise into the residential apartments, to be controlled to meet the requirements of the Australian Standard AS 2107 Recommended Design Sound Levels and Reverberation Times for Building Interiors
- Residential units to be designed and constructed to meet the requirements of Section F5 of the Building Code of Australia

2. ENVIRONMENTAL NOISE EMISSION

2.1 Environmental Protection (Noise) Regulations

2.1.1 Assigned Level: The 'Assigned Level' is the maximum permissible sound level at any of the adjoining premises resultant from noise emission from the development.

The site specific 'Assigned Noise Level' criteria relevant to the neighbouring 'noise sensitive' receivers as established by the Environmental Protection (Noise) Regulations 1997. These Regulations set out a procedure for establishing the Assigned Level based on Influencing Factors that impact on the general ambient noise level in the area; e.g. traffic flow and land zoning within a 'inner' 100 metre radius circle and 'outer' 450 metre radius of the relevant receiver locations.

2.1.2 Influencing Factors

2.1.3

Traffic Flow: The 2013/2014 Main Roads traffic data indicates that traffic of less than 400 vehicles per day. General sound levels from vehicular traffic will have minimal impact on this development, though lower level apartments on the ground floor should include sound attenuating doors and glazing.

Land Zoning: The development site is located in an R80 residential zoning precinct. Current zoning to adjoining properties are

- South R40 residential
- West R80 Residential
- East R100 Mixed Use (City Centre Precinct)
- North R100 Mixed Use (City Centre Precinct)

Nearest noise sensitive premises to this property are residential are at distance of approximately between 3- 10 metres from the property and

2.1.4 Determined Assigned Level:
Based on the area locations and using an influencing factor of 10 dB. The preliminary estimated Assigned Levels for this site are set out in Table 1.

Part of premises receiving noise	Time of day	Assigned Level (dB)		
		L_{A10}	L_{A1}	$L_{A\ max}$
Locations within 15 metres of a building directly associated with a Noise sensitive premises: highly sensitive area	0700 to 1900 hours Monday to Saturday	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35 + influencing factor	45 + influencing factor	55 + influencing factor
Locations further than 15 metres from a building directly associated with a noise sensitive use	All hours	60	70	80

TABLE 1: ASSIGNED NOISE LEVELS

The sound level parameters used to describe the noise environment are defined as:

L_{A10} 'A' weighted noise level which is not to be exceeded for more than 10% of the time, e.g. for more than 10 minutes in 100 minutes

L_{A1} 'A' weighted noise level which is not to be exceeded for more than 1% of the time, e.g. for more than 1 minutes in 100 minutes

L_{Amax} 'A' weighted noise level which is not to be exceeded at any time.

2.2 Tonality & Modulation

The Environmental Protection (Noise) Regulations identify that sound with tonal, modulating or impulsive characteristics are more annoying and therefore an adjustment of +5 dB is made to measured level for tonal and modulating characteristics, and +10dB for impulsive characteristics.

2.3 Impact on Project

The main sources that may result in noise emission to adjoining properties include:

- Mechanical air conditioning equipment and exhaust ventilation
- Potential Car parking and car park ventilation

2.3.1 Location of Noise Sensitive Premises:

Adjoining Properties: The adjoining properties are residential buildings. The nearest noise sensitive premises is at a distance of some 5-10 metres. To the north is a major road that is adjacent to a major shopping centre with a bus terminal.

2.3.2 Mechanical Air Conditioning Equipment and Exhaust Ventilation:

Air Conditioning Equipment: The noise emission from mechanical equipment will be addressed in the early design development stage of the project to ensure mechanical acoustic design and specification can achieve the 'Assigned Levels' as established in the Environmental Protection (Noise) Regulations 1997.

The major impact on the project is the design requirement for noise emission to the nearby noise sensitive premises. – see 2.3.1. This issue must be resolved and addressed in early design development stage of the project.

Condensers: The air-conditioning condensers units will be selected on the basis of sound emission as there are limited options for noise control of these units. The units should be inverter type condensing units and the quietest unit on the market will be selected. Options that can be considered includes within the Basement or screened or roof mounted units screen

Mechanical Exhausts: Kitchen and Bathroom exhausts will be via small exhaust fans located within each unit and locally exhaust to the side of the building.

2.3.3 Car parking and Car Park Ventilation:

Any Noise associated with general car parking activities and car park ventilation will be addressed in the early design stage of the project. If mechanical ventilation is required, fans will be provided with CO monitor to minimise run time of the fans, and fitted with attenuators to meet the Assigned Level.

The Riser shafts for the car park exhaust fan will be designed to meet the requirements of the BCA

2.3.4 Mechanical Specification:

The mechanical specification should seek to that the "Assigned Level" as set out in Table 1 must be achieved. In addition the mechanical consultant / supplier will be required to carry out an independent acoustic check once equipment is selected to ensure all selected mechanical equipment fully meets the requirements of the Environmental Protection (Noise) Regulations 1997.

3. ENVIRONMENTAL NOISE INTRUSION

3.1 Environmental Noise Sources

The acceptable level of noise emission from premises is controlled by the Environmental Protection (Noise) Regulations. These Regulations require the break-out noise from all premises including the surrounding facilities to meet the 'Assigned Levels' at adjoining premises, be they commercial or residential. Noise sources such as traffic noise, street occupancy noise and the general noise from nonspecific location that often pervades entertainment are not controlled by the Regulations. The control of noise intrusion from these noise sources is addressed in Section of the report.

3.1.1 Site Location: The main environmental noise source incident on the project is traffic noise, which is expected to be minimal. The site is bound by R100 sites to the north that allow for mixed use in its City Centre Precinct. There is the potential for high level entertainment noise emission from here, however it is considered to be of sufficient distance away that it should not impact on this development.

3.1.2 **Residences and Mechanical Plant**: The adjoining residences have air conditioning condensers however the sound generated from these is considered minimal

3.2 Ambient Noise Measurements

3.2.1 **Measurement Results:** Preliminary ambient noise level measurements should not be required due to the light traffic in the area to be taken. It is considered that the ambient noise levels noted in Table 1: 2.1.3 can be attributed here

3.2.2 **Environmental Noise Levels**: The daytime general ambient noise level is expected to provide similar day time levels to those at night

3.3 Internal Design Standards

3.3.1 **Design Standards**: The building façades will be designed to ensure that environmental noise intrusion is adequately attenuated to meet the recommended ambient design sound levels as set out in Australian / New Zealand Standard AS/NZS 2107 Acoustics- Recommended design sound levels and reverberation times for building interiors. The Standard AS 2107 sets the design sound level inside residential apartment buildings at:

	Near Major roads	Near Minor roads
Apartments		
Living areas	Leq 35 to 45 dB(A)	Leq 30 to 40 dB(A)
Sleeping Areas	Leq 30 to 40 dB(A)	Leq 30 to 35 dB(A)
Work areas	Leq 35 to 45 dB(A)	Leq 35 to 40 dB(A)

TABLE 3 Recommended Design Sound Levels

The 'Leq' level is the 'equivalent sound pressure level' and can be seen as the average sound level over time.

The Australian Standard does not define the terms "Minor and Major Roads". It is generally taken to define a general ambiance of the area. Given the site overlooks major road within 100 metres, we suggest the design standards established for "near major roads" is appropriate.

3.3.1 **Building Requirements**: As noted the ambient noise levels on the site are not particularly high. The building façade can be designed to ensure that environmental noise intrusion is adequately attenuated to meet the recommend ambient design sound levels as set out in AS 2107. Acoustic glazing to windows will be required. The requirements for the façade will be determined during the design development stage of the project.

3.3.2 **Flanking.** Flanking reduces the effectiveness of acoustically rated building elements that separate spaces. Flanking should be minimised to ensure that the element performs to the desired level.

- noise travelling through air conditioning ducting;
- noise travelling through kitchen or toilet exhaust ducting;
- noise passing through gaps and weaknesses around building elements;
- structure-borne noise passing through perimeter building elements, such as floors, ceilings and façade walls which pass across a sound-rated wall;

4. BCA REQUIREMENTS

The Building Code of Australia (BCA) in addition to the Sound Transmission and Insulation in Buildings Handbook (ABCB) establishes design requirements in terms of wall and floor construction and building services for the residential part of the project.

4.1 Wall Acoustic Requirements

The acoustic requirements for perimeter wall to Residential Units as outlined in the Building Code of Australia are:

BCA Requirement	
Party walls between Sole Occupancy Units	R_w+C_{tr} 50 / $D_{nT,w}+C_{tr}$ 45
Party walls between wet and habitable areas Including kitchens /bathrooms against neighbouring living areas	R_w+C_{tr} 50 / $D_{nT,w}+C_{tr}$ 45 + discontinuous construction
Walls to public corridor or lobby, stairs, or parts of different classification	R_w 50 / $D_{nT,w}$ 45
Walls to public corridor or foyers, stairs	R_w 50 / $D_{nT,w}$ 45
Walls to lifts and Plantrooms	R_w 50 / $D_{nT,w}$ 45 + discontinuous construction

TABLE 4 BCA REQUIREMENTS FOR WALLS

Appropriate wall constructions are available in many construction formats. The acoustic requirements for the proposed constructions will be developed in the early stage of the design development to ensure the requirements as set out in Table 2 are achieved. Acoustic issues that will be addressed include:

- Sound reduction performance requirements for various walls
- Walls to structure borne noise sources including lifts and stairs
- Special acoustic requirements for specific selected wall system
- Flanking sound transmission between units as well as from amenities area.
- Requirements for plumbing ducts
- Internal wall performance

4.2 Entry Doors

The BCA requires entry door to apartments to achieve Rw 30. Door will be selected to meet the acoustic and fire requirements as set out in the BCA

4.3 Floor Acoustic Requirements

The BCA acoustic requirement for floors includes both airborne and structure borne noise criteria. The requirements for a floor separating sole occupancy units and also sole occupancy units from Commercial tenancies are:

- Airborne sound insulation rating — $R_w + C_{tr}$ 50 ($D_{nt,w}+C_{tr}$ 45)
- Impact sound insulation rating — $L'_{nT,w}$ not greater than 62 dB on site
- Impact sound insulation rating — $L'_{nt,w}$ not greater than 62 dB on site

Appropriate floor constructions are available in many construction formats. The acoustic requirements for the proposed constructions will be developed in the early stage of the design development to ensure the

requirements as set out in Table 2 are achieved. Acoustic issues that will be addressed include:

- Acoustic Underlay to hard floor surfaces
- Ceiling requirements under slabs for impact noise control
- Management requirements for impact noise control
- Impact noise transmission from stairs
- Impact noise from carpark entry slab and entry gate to units above
- Management requirements for noise attenuation between carpark soffit and units above

4.4 Building Services

The BCA establishes requirements for hydraulics services. The requirements for hydraulic pipes adjoining apartment areas are:

- Adjacent to habitable type spaces: Rw + Ctr of 40, and
- Adjacent to service type spaces: Rw+Ctr of 25

Appropriate constructions to achieve the BCA performance requirements will be developed in the early design development stage of the project. Acoustic issues that will be addressed include:

- Duct wall construction
- Acoustic construction to address hydraulic pipes in ceiling voids
- Specific requirements for location of hydraulic fixture and fittings on party walls
- Detailed requirements for the general hydraulic installation
- Specific requirements for locations where kitchens are located adjacent to bedrooms in neighbouring properties on party walls

5. Overview

The proposed Development on 4 Colleran Way is located on a relatively quiet street, is still in close proximity to what will be a busy high traffic volume road directly adjacent to a major shopping centre road less than 100 metres away.

At this, the Development Approval stage, the major acoustic requirements for the project have been identified, as set out in the

- Environmental Protection Noise Regulations
- Australian standards in terms of Noise Intrusion, and
- Building Code of Australia

Based on this assessment it is concluded that the project can be designed to fully comply with the requirements of the codes, regulations and standards. Acoustic involvement will be required in the early design stage of the project

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Building Designers Association Victoria

SustainabilityWA

Address:
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Postal:
PO Box 4160 Mandurah North WA 6210

Energy Efficiency Report – Class 2 Buildings – HERS Software

Date:	18th December 2019
Our Reference:	19 - 2615
Client Job Number:	N/A
Project Address:	4, Units 1 - 10 Colleran Way, Booragoon WA 6154
BCA Climate Zone:	5
HERS Climate Zone:	13
Report Commissioned By:	Align Built Forms
On Behalf of:	Client as per Plans

Phone: 08 9555 9444 FAX: 08 9200 5654 Email: rate@s-wa.com.au Web: www.s-wa.com.au
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SUMMARY OF REQUIREMENTS:

The Following actions are required to comply with this energy efficiency report:

Construction Type	Insulation/Glazing Actions Required
Roof	Roof insulation is not required for compliance.
Ceiling	R4.0 bulk ceiling insulation to all units except unit 7
Ceiling	R5.0 bulk ceiling insulation to unit 7
External Walls - Brick Veneer	Sisalation + R2.0 bulk wall insulation to all units except unit 7
External Walls - Brick Veneer	Sisalation + R2.5 bulk wall insulation to unit 7
External Walls - Framed	Sisalation + R2.0 bulk wall insulation
Floor - Elevated floors	Floor insulation is not required for compliance.
Glazing	Windows values used in this report:
Thermal Break Requirements	Thermal Break is not required to the Roof (BCA 3.12.1.2(c)). Thermal Break is not required to External Walls (BCA 3.12.1.3(b)).
Other Client Obligations Summary (For full list please see compliance report below):	
Client to ensure documents are amended to comply with the above and full report.	
The client is responsible for verification that the lighting design does not exceed nominated maximum allowances for loss of ceiling insulation and/or artificial lighting wattage.	
Hot water system as per WA2.3.3 and plumbing fixtures and fittings as per WA2.3.1.	
Insulation to be installed as per 3.12.1.1.	
Insulation required must form a continuous barrier/envelope.	
All down lights are to be unvented, all exhaust fans to be self-sealing.	

Windows values used in this report:

Window Type – Aluminium	U Value	SHGC
Standard clear glazing, where used, to have the following values:		
Awning, bifold, Casement, Tilt 'n' turn	6.70	0.57
Double Hung, Fixed, Louvre, Sliding	6.70	0.70
Low E glass, where used, to have the following values:		
Awning, bifold, Casement, Tilt 'n' turn	5.40	0.49
Double Hung, Fixed, Louvre, Sliding	5.40	0.58

For a full specification please see the building elements sheet below.

The following Insulation Penetrations have been included		
Penetration Type	Insulation Penetration(mm)	Number of fittings
Downlights	150	0
Ceiling Exhaust Fans and Ceiling Vents	300	0
Rangehood	150	10

This report has been conducted on the information provided. Assumptions have been made where information is incomplete. This report demonstrates energy loads and compliance under BCA provisions only and does not indicate actual building performance.

Energy Efficiency Compliance Certificate

Issued in accordance with the requirements of
BCA Volume 2 Part 3.12.0.

Certifying Assessor					
Name:	David Barham	Company:	Sustainability WA	BDAV #:	18/1877
Address:	71 Allnutt Street, Mandurah WA 6210				
Phone:	08 9555 9444	Fax:		Email:	rate@s-wa.com.au
Declaration of interest:	None				
Client					
Name:	Chris Hazebroek	Company:	Alijn Built Forms		
Address:	N/A				
Phone:	0405 843 445	Fax:	N/A	Email:	chaze@alijn.com.au
Project					
Address:	4 Colleran Way, Booragoon WA 6154				
Applicant:	Alijn Built Forms			LGA:	City of Melville
Assessment					
Date:	18/12/2019	File ref:	19-2615	Software:	Bers Pro Plus
Version:	v4.3.0.2f (3.13)				
Documentation					

This certifies compliance with BCA Volume TWO Part 3.12.0. The attached energy efficiency specification has been used to assess energy efficiency compliance. This assessment has been conducted as per Western Australian protocols - Building Commission Industry Bulletin number 42. and using NatHERS approved software in regulation mode. The assessor is a suitably qualified person, having completed Certificate IV in NatHERS Assessments.

Professional Indemnity Policy No.:
LPP104128491

AVERAGE STAR RATING: 6.6 STARS

Simulation Details

Project Name:	Align Built Forms - Colleran Apts – Booragoon:U1 – U10
Location:	4 Colleran Way, Booragoon WA 6154
Climate Zone:	13
Adjusted Star Rating (average):	6.6 Stars
Wind Shielding Used:	Suburban
Height Above Ground:	Varies m

Building Elements Report on next page:

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Thermal Performance achieved as per HERS software(mj/m²/p.a)						
Minimum of 5 stars per unit required, Minimum Average for all units of 6 stars required as per J0.2						
Unit Number(s)	Floor Area (m²)		Cooling and Heating Loads			Star Rating
	Conditioned	Unconditioned	Cooling	Heating	Total	
1	121.3	6.0	31.8	31.1	62.9	6.4
2	57.6	1.5	41.8	36.3	77.3	5.6
3	108.4	14.2	23.6	5.7	29.3	8.3
4	103.3	6.9	25.2	17.0	42.2	7.6
5	57.6	1.5	47.3	27.1	74.4	5.8
6	121.1	6.5	30.9	5.3	36.3	7.9
7	57.6	1.5	56.1	30.7	86.0	5.2
8	103.3	6.9	36.3	28.3	65.2	6.3
9	121.3	6.5	31.1	6.1	37.2	7.9
10	130.2	14.5	44.4	31.7	76.1	5.7
Average Star Rating						

Lighting and Ceiling Insulation Penetaration Calulations						
Unit Number	Within Class 2 Building		Verandahs/Balcony >5m²		Number of Downlights included	Number of Exh. Fans included
	Area	Max Watts (5w/m²)	Area	Max Watts (4w/m²)		
1	127.6	638	13	52	-	1
2	65	325	12	48	-	1
3	134	640	24	96	-	1
4	117	585	29	116	-	1
5	65	325	12	48	-	1
6	139	695	21	84	-	1
7	65	325	12	48	-	1
8	117	585	29	116	-	1
9	139	695	21	84	-	1
10	156	624	47	188	-	1

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Energy Rating Specification – Services

Floor Edge Insulation

Water resistant insulation is to be installed as per 3.12.1.5(c) and (d). R1.0 vertical edge perimeter. If the building has a concrete slab on ground with in-slab heating or cooling systems.

Thermal Breaks

Thermal breaks of no less than R0.2 will be installed as per 3.12.1.2(c) if the building has a metal roof fixed to metal purlins, rafters or battens and has no ceiling lining or the ceiling lining is attached to the same metal purlins, rafters or battens.

Thermal breaks of R0.2 will be installed as per 3.12.1.4(b) if the building has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame that does not have a wall lining or has a wall linining attached to the same metal frame.

Building Sealing

(Not applicable to ventilation openings required for the safe operation of gas appliances, buildings that are conditioned only by an evaporative cooler, or buildings used for the accommodation of vehicles).

A building seal is not required if the only means of air-conditioning is by evaporative cooling.

When required, all chimneys, flues and exhaust fans are fitted with dampers or flaps in accoradance with 3.12.3.1.

When required, all roof lights serving habitable rooms or conditioned spaces will be sealed in accordance with 3.12.3.2.

External windows and doors serving habitable rooms or conditioned spaces will be fitted with an air infiltrations seals as per 3.12.3.3.

When required, all exhaust fans serving habitable rooms or conditioned spaces will be sealed as per 3.12.3.4

Roofs, walls and floors that form part of the external fabric or habitable rooms or conditioned spaces will be constructed to minimise air leakage as per 3.12.3.5

When required, all evaporatibe coolers serving habitable rooms or heated spaces be fitted with dampers as per 3.12.3.6.

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Services

Hot water supply system(s) will be designed and installed in accordance with section 8 of AS/NZS 3500.4 or clause 3.38 of AS/NZS 3500.5.

Thermal insulation for central heating water piping and heating and cooling ductwork will be protected from weather and able to withstand temperature within piping or ductwork as per 3.12.5.1.

Central heating water piping that is not within a conditioned space will be insulated to achieve the minimum total R-values as per 3.12.5.1.

Heating and Cooling ductwork is designed and will be installed and insulated as per 3.12.5.3.

Electrical resistance space heating is designed and will be installed as per 3.12.5.4.

Artificial lighting is designed and will be installed as per 3.12.5.5.

The water heater in the hot water supply will comply with 3.12.5.6.

When required, heating for a swimming pool (other than a spa pool) will be by a solar heater not boosted by electric resistance heating and circulation pump as per 3.12.5.7.

When required, heating for a spa pool that shares a water recirculation system with a swimming pool and circulation pump will be as per 3.12.5.7.

Swimming pool covers and blankets

When required, any new outdoor swimming pool or spa will be supplied with a cover that resuces water evaporation and is accredited under the Smart Approved Watermark Scheme.

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Water Use Efficiency

All tap fittings (other than bath outlets and garden taps) to be a minimum 4-star WELS rated.

All showerheads to be a minimum 3-star WELS rated.

All sanitary flushing systems to be a minimum dual-flush, 4-stars WELS rated.

All internal hot water outlets to be connected to a hot water system or a re-circulating hot water system with pipes installed and insulated in accordance with AS/NZS 3500: Plumbing and Drainage, Part 4 Heated Water Services.

The pipe from the hot water system or re-circulating hot water system to the furthest hot water outlet to be less than either 20 m in length or 2 Litres of internal volume.

Hot Water use Efficiency

All internal hot water outlets will be connected to a hot water system or a re-circulating hot water system with pipeds installed and insulated in accordance with AS/NZA 3500: Plumbing and Drainage, Part 4 Heated Water Services.

The pipe from the hot water system or re-circulating hot water system to the furtherest hot water outlet will be less than either 20m in length 2 litres of internal volume.

URBANISTA

TOWN PLANNING

PROPOSED MULTIPLE DWELLINGS

4 COLLERAN WAY BOORAGOON

This report has been prepared by Urbanista Town Planning for planning approval for proposed multiple dwellings at 4 Colleran Way Booragoon.

Petar Mrdja | **Director**

Urbanista Town Planning | admin@urbanistaplanning.com.au |

231 Bulwer Street, Perth

CONTENTS

INTRODUCTION

Urbanista Town Planning are engaged by the owners of the subject site to prepare and submit a planning application for a proposed multiple dwelling development at 4 Colleran Way, Booragoon comprising of three single-bedroom dwellings, and seven three-bedroom dwellings spread over four storeys. The estimated cost of development is $3,000,000 and has therefore been submitted as an 'opt-in' Joint Development Assessment Panel (JDAP) application.

This report provides a detailed assessment of the proposal in accordance with the relevant state and local planning frameworks to demonstrate that the application should be approved.

SUBJECT SITE

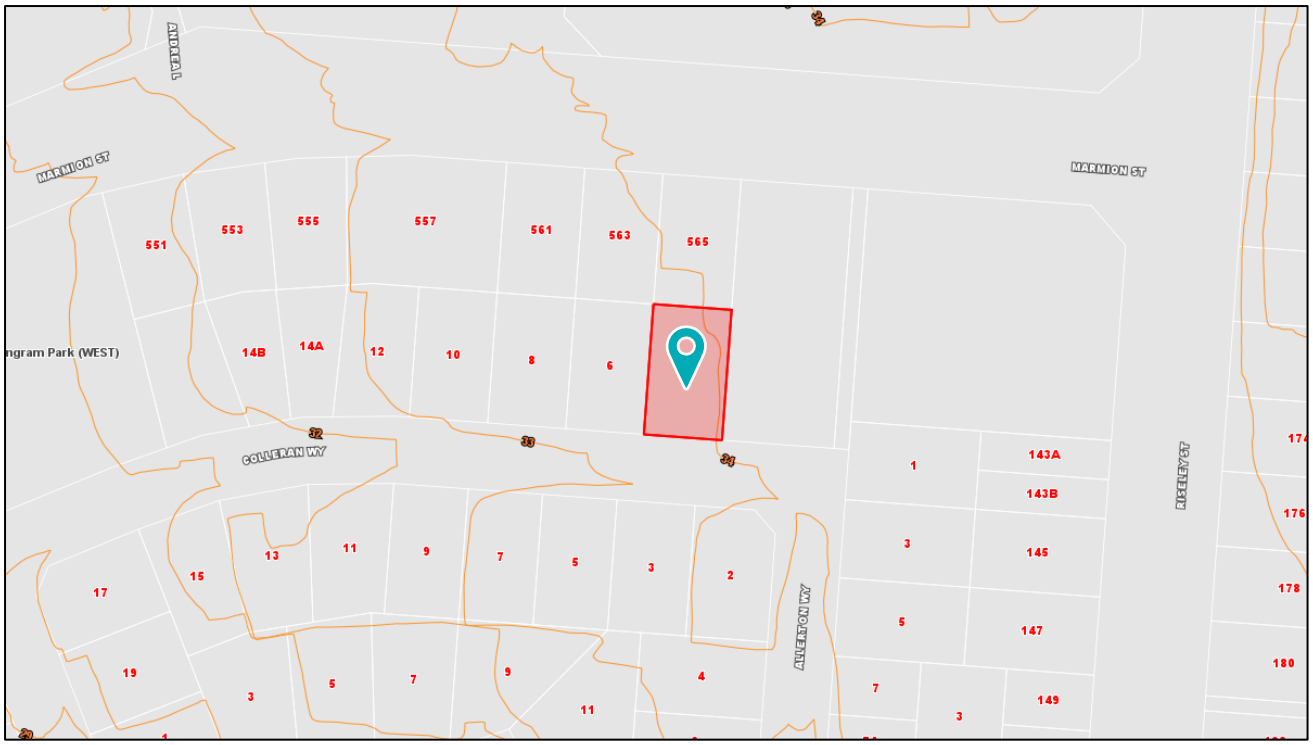
PROPERTY DESCRIPTION

The subject site is located at No. 4 Colleran Way, Booragoon and has a total land area of 735sqm with a frontage of 21.0m and a depth of 35.0m. The site is located on the northern side of Colleran Way and is within the Booragoon Activity Centre; being less than 150m from the Garden City Booragoon Shopping Centre and the associated businesses and services at that location.

The site is situated in a street block which is bounded by Marmion Street, Riseley Street, Neesham Street, and Allerton Way located in an area with a mixed built form comprising of single houses, grouped dwellings, and numerous emerging multiple dwelling developments. The property currently contains an established single storey residential dwelling, which was constructed circa 1980, following initial subdivision of the wider area in the 1970s. The existing dwelling is proposed to be demolished in association with this planning approval. Further detail of the local context of the site is provided in the Local Context Plan on the following pages.

TOPOGRAPHY

The lot slopes upwards from the east to the west by less than half metre (0.5m) as illustrated in the feature survey which has been prepared by McGregor Surveys for this development. It is considered that the topography of the site is generally consistent does not create any notable design constraints which have not been addressed in the building design. No issues in relation to stormwater drainage have been identified as a result of the topography of the site. The development responds to the changing topography by utilising limited retaining to minimise the extent of soil disturbance, cutting, and fill.



Local Topography Map. Source: City of Melville 2019.

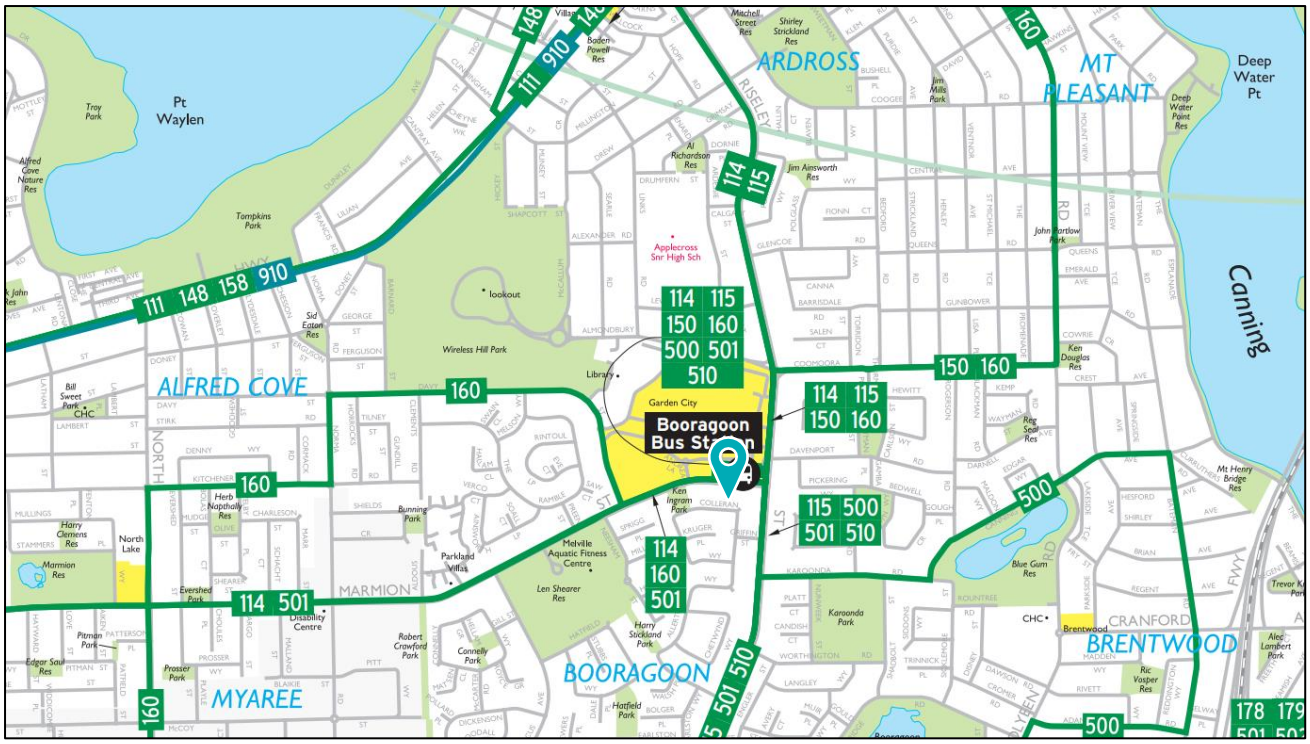
LOCAL CONTEXT

The site is well positioned in terms of services, amenity, and transport options, and presents an excellent opportunity for redevelopment in the Booragoon area to provide additional housing options in a high amenity area. The site is approximately 12km from the Perth CBD and less than 150m walking distance from the Garden City Shopping Centre. The existing pattern of development is mixed. It includes older residential single houses, numerous grouped dwelling developments, and several newer apartment developments approved or under construction following the rezoning under the City's Local Planning Scheme. These site features are detailed in the Wider Context Plans on the following pages.

Transport

The site has excellent public transport links, and is only a short 150m walk from the Booragoon Bus Station. Bus routes which service Booragoon Bus Station include route 114, 115, 150, 160, 500, 501, and 510. These services connect through to Perth, Fremantle, and Bull Creek Train Station. These services include bus routes which provide late-night bus services.

The bicycle infrastructure in the local area is acceptable. Access through to the Kwinana Freeway Principal Shared Path (PSP) is conveniently located close to the subject site. Many roads in the local area include pedestrian access ways which improve the connectivity alongside the linear and regular road network layout. The local cycling infrastructure interconnects to the wider cycling network. The local pedestrian access network is above average, and most roads include high-quality pedestrian paths provided via a clear and legible road layout. The Perth CBD is accessible by the nearby freeway.



Transperth Network Map 5. Source: Transperth 2019.

Schools and education

The site is located less than 1.1km walking distance from Booragoon Primary School and a comparable distance from Brentwood Primary School. Applecross Senior High School (1.0km away) is the nearest secondary school. Numerous other primary and secondary schools and well as childcare services are located within a 2km radius of the site.

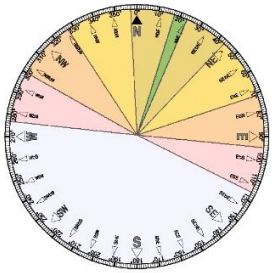
Parks, nature and recreation

The site is located within 150m of Ken Ingram Park, a park with bush suitable for passive recreation. Nearby Len Shearer Reserve (~350m) has large ovals and a recreation centre (Melville Aquatic Fitness Centre / LeisureFit Booragoon) and suitable for active recreation pursuits. The public open space network is above average and provides the local area with several other high amenity large and smaller reserves and parks close to and within 2km of the site. The location of the site with respect to this park, nature, and recreation amenity is excellent.

Shopping, retail, medical, community, and other services

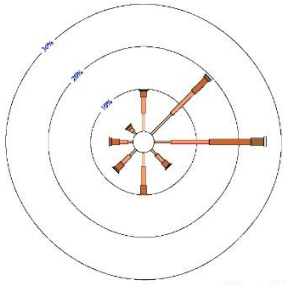
The site is less than 150m from Garden City Booragoon which forms part of a larger activity centre with numerous retail and commercial services and businesses. The activity centre also functions as a large employment centre (alongside nearby Myaree). The Booragoon activity centre includes a wide range of shopping and retail options, as well as take-away and dine-in restaurants, and medical services and practitioners. There are also several community-support services, facilities, and groups located nearby which provide a range of support services and opportunities to the wider local area.

Solar Access
(solar efficiency)

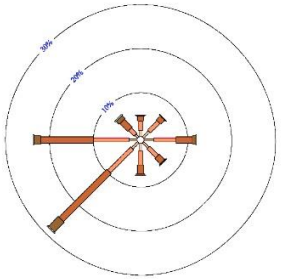


Average Daily Solar Load

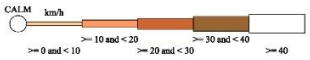
Prevailing Wind
(wind direction & speed)



Average 9:00 Wind Rose



Average 15:00 Wind Rose



Garden City Shopping Centre

Booragoon Bus Station

Marmion Street

Apartments

Colleran Way

Riseley Street

Tenure Type
- RESVE
- STPLN
- SSPLN
- FHOLD
- CROWN
- EASMT

LOCAL CONTEXT PLAN SITE AERIAL

0 5 10 20 30 40 50 m

SCALE 1:1,000 @ A4

4 COLLERAN WAY BOORAGOON

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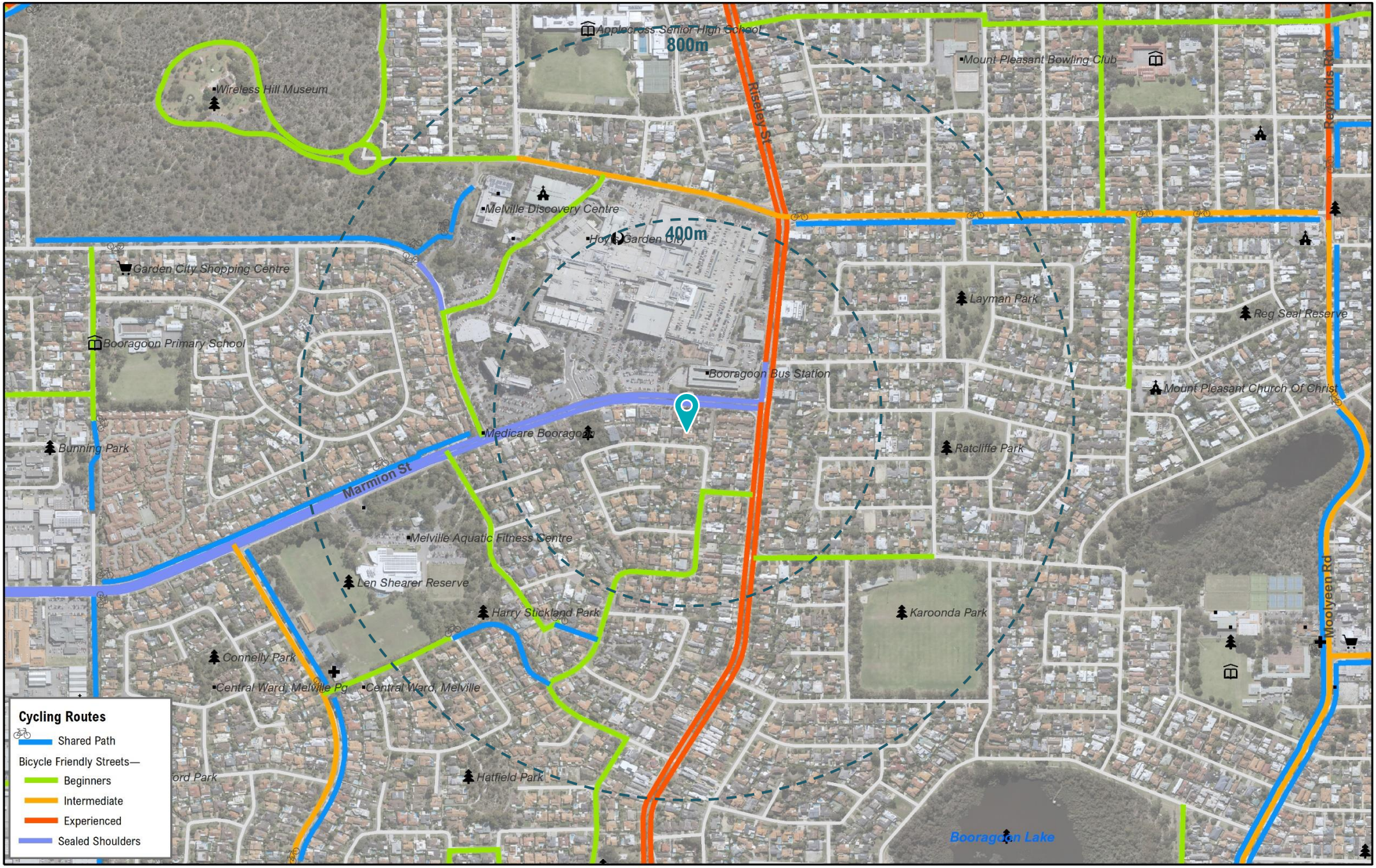
URBANISTA TOWN PLANNING



WIDER CONTEXT PLAN CYCLING NETWORK

0 50 100 200 300 400 500 m

SCALE 1:10,000 @ A4

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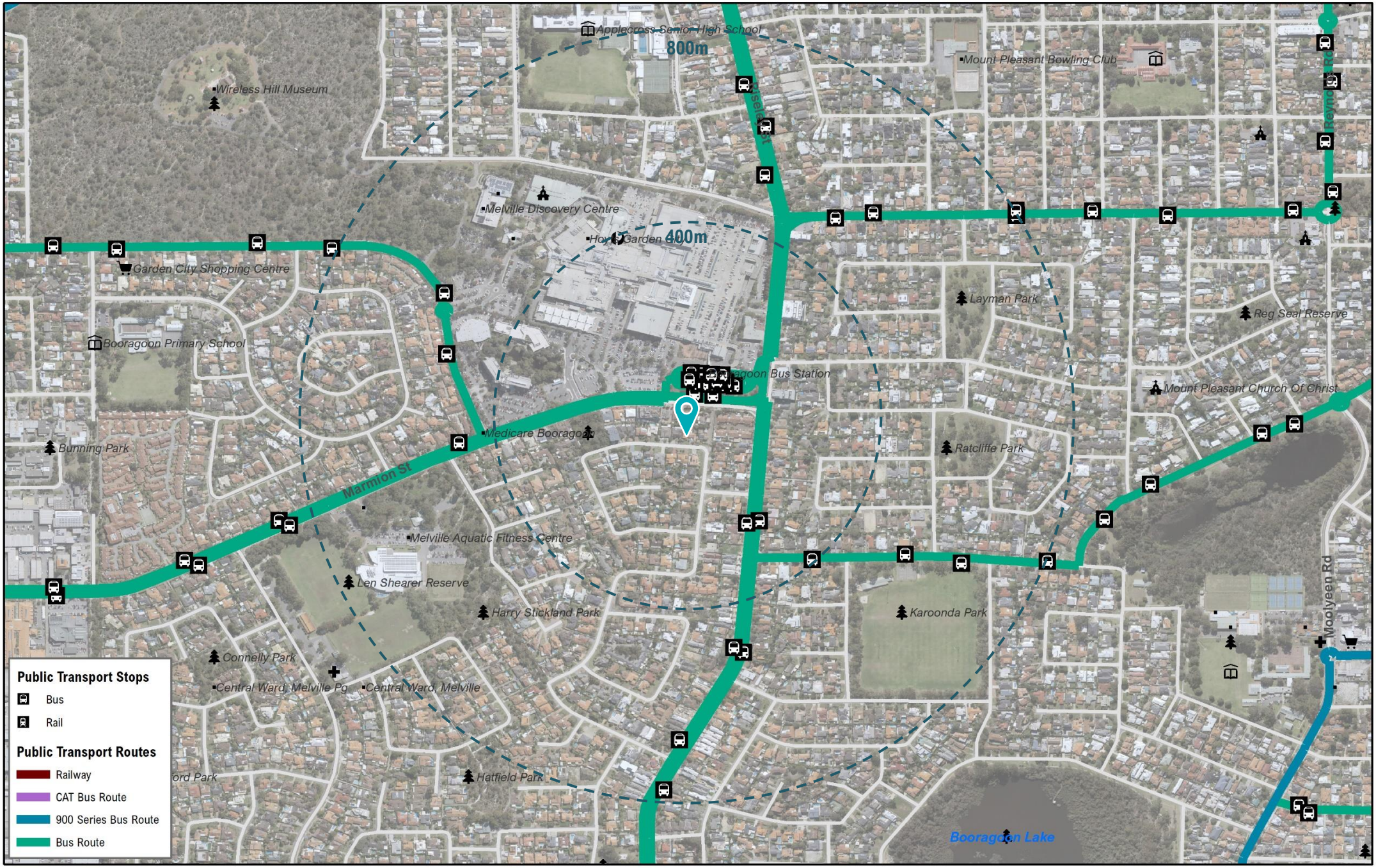

WIDER CONTEXT PLAN PUBLIC TRANSPORT

0 50 100 200 300 400 500 m

SCALE 1:10,000 @ A4

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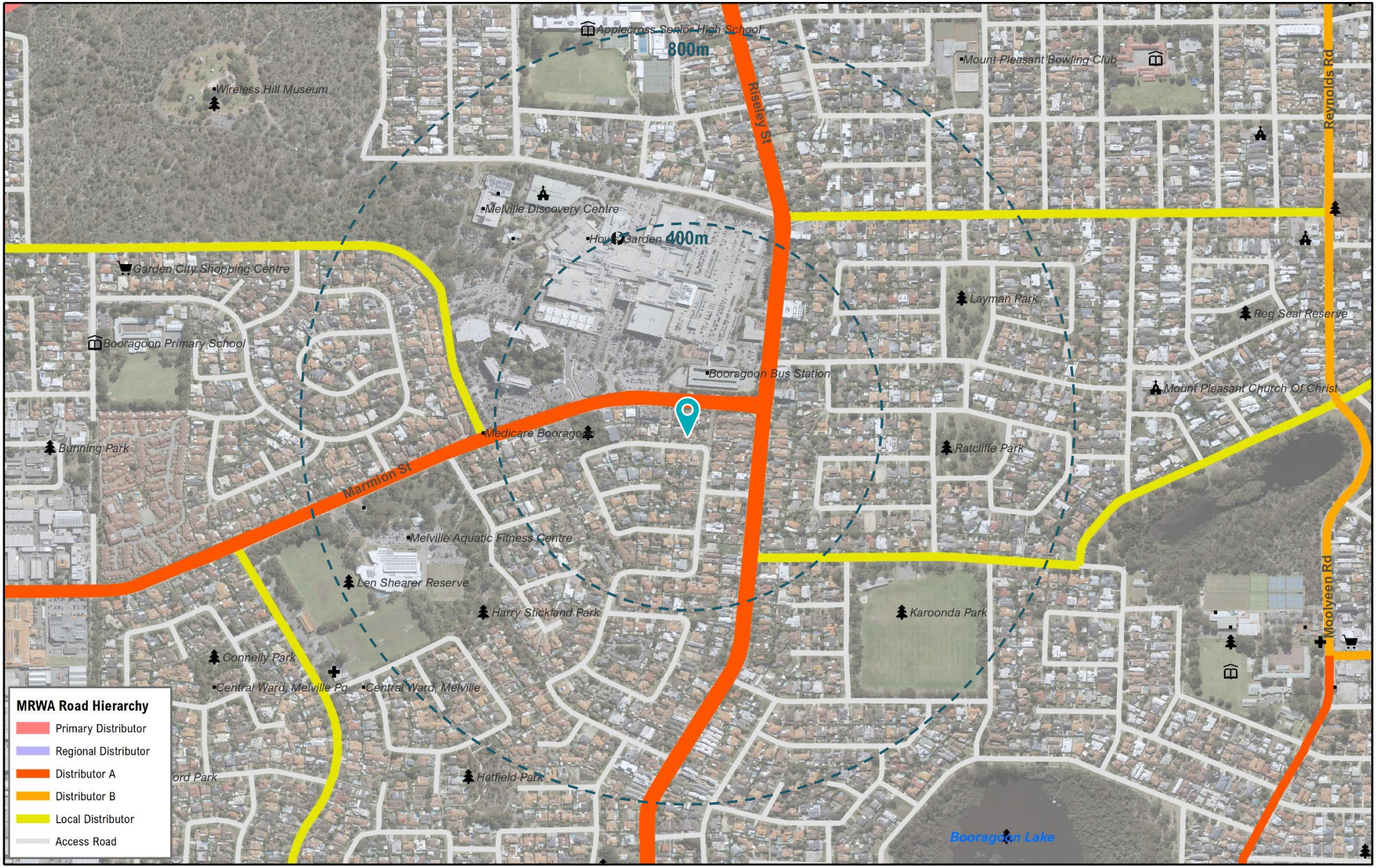

WIDER CONTEXT PLAN ROADS

0 50 100 200 300 400 500 m

SCALE 1:10,000 @ A4

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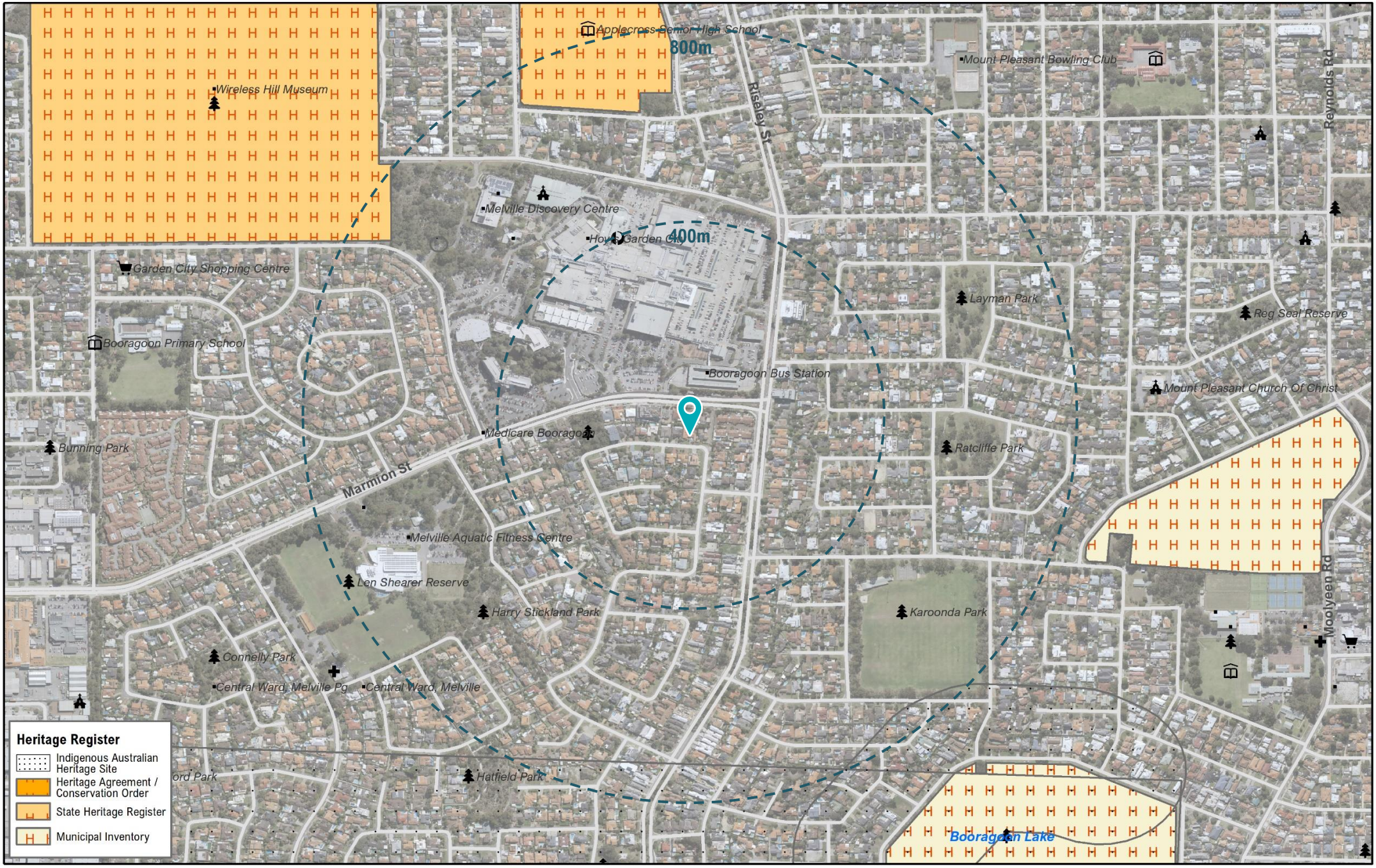
URBANISTA TOWN PLANNING



WIDER CONTEXT PLAN HERITAGE

0 50 100 200 300 400 500 m

SCALE 1:10,000 @ A4

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URBANISTA TOWN PLANNING

THE PROPOSAL

The subject development application is for the construction of a four-storey residential multiple dwelling building comprising of three single-bedroom dwelling, and seven three-bedroom dwellings. The proposed development has been thoughtfully designed by Blocq+ Architecture and has been through a pre-lodgement and Design Review Panel process with the City of Melville.

The proposed design provides indentation and articulation over the building façade to reduce the appearance of bulk. This is complemented through colour and material changes across the façade. The upper floor includes a stepped design and gabled roof form which presents architectural interest and contributes to establishing more human-scale building frontage and interaction with Colleran Way.

The built form also includes a central vertical breeze-way which allows for improved access to natural daylight and airflow to all apartments, and complements the multiple-aspect apartment form which is proposed throughout.

The development proposes vehicular and pedestrian access from Colleran Way and provides a total of 17 conveniently located and secure car parking bays to be shared with and used by residents and visitors of the apartments. The design also includes eight secure bicycle parking spaces within the basement.

Each apartment has been thoughtfully designed and provides access to a comfortable apartment design and layout with ample access and opportunity for outdoor recreation pursuits. The apartment design is complemented by the well refined landscaping solution which includes on-structure landscaping and deep soils zones with numerous trees.

The façade itself includes varied materials and colour palettes such as architectural breezeblocks, darker concrete blockwork, and contrasting feature framing, as well as striking glass and metallic elements, to contribute to creating a cohesive overall design that recognises and responds to the established character of the immediate local area.

There are no expected or identified issues with site servicing (such as those relating to reticulated sewerage, electricity, water, telephony, or waste). An existing east-west gravity fed sewer line is located at the north of the site. The attached plans, documentation, and consultants' reports provide further detailed information on the design proposal.

FLOOR BY FLOOR COMPOSITION

The design and amenities provided on each level are detailed as follows.

Basement

- 17 secure dual use resident / visitor car parking bays accessed from Colleran Way.
- 8 secure resident / visitor bicycle parking spaces conveniently located near the entry to the apartment building.
- Lift, stairs and building servicing infrastructure, allowing for access to apartments by the mobility impaired.
- 6 large and secure dwelling store rooms for apartments 2, 3, 5, 6, 7, & 9.
- A bin store incorporating a three-bin organics, recyclables, and general waste system, including washing-down facilities, a gross pollutant trap, and ventilation / lighting systems.

Ground Floor

- A clear and legible pedestrian entry to the apartments from Colleran Way.
- Units 1, 2, and 3 which include generous open-plan living / kitchen with access to natural sunlight and ventilation accompanied by large private balconies suitable for outdoor living activities which encourages an indoor-outdoor lifestyle. These units are provided with the following design features and amenities:
    - Unit 1: Three-bedroom, two-bathroom, dual east, and south aspect 125sqm apartment. Unit 1 includes a terrace area that overlooks Colleran Street, and an additional east facing outdoor terrace area totalling 39sqm, a walk-in-robe, as well as an internal secure store-room.
    - Unit 2: Single-bedroom dual west and south aspect 59sqm apartment with views to Colleran Street.
    - Unit 3: Three-bedroom, two-bathroom, multiple east, north, and west aspect 124sqm apartment. Unit 3 includes a large north-facing 115sqm outdoor terrace area, a walk-in-robe, and separate laundry.
- Lift, stairs and building servicing infrastructure, allowing for access to apartments by the mobility impaired.
- A weather protected internal lobby area.
- A central vertical breeze-way and planter.
- Highly functional, hardy planting throughout including Jacaranda trees, Lemon trees, Lime, and Avocado as well as complementary trellis and on-structure planting.
- A communal clothes hanging facility allowing for reduced reliance on mechanical drying means, and improved energy efficiency.

First Floor

- Units 4, 5, and 6 which include generous open-plan living / kitchen with access to natural sunlight and ventilation accompanied by large private balconies suitable for outdoor living activities which encourages an indoor-outdoor lifestyle. These units are provided with the following design features and amenities:
    - Unit 4: Three-bedroom, two-bathroom, dual east, and south aspect 108sqm apartment. Unit 4 includes a larger 27sqm balcony area, a walk-in-robe, and internal secure store-room.
    - Unit 5: Single-bedroom dual west and south aspect 59sqm apartment with views to Colleran Street.
    - Unit 6: Three-bedroom, two-bathroom, multiple east, north, and west aspect 129sqm apartment. Unit 6 includes a larger 20sqm north-facing balcony area, and a walk-in-robe.
- Lift, stairs and building servicing infrastructure, allowing for access to apartments by the mobility impaired.

- A weather protected internal lobby area.
- Cascading planters and on-structure landscaping accompanying balconies and private outdoor space.

Second Floor

- Units 7, 8, and 9 which include generous open-plan living / kitchen with access to natural sunlight and ventilation accompanied by large private balconies suitable for outdoor living activities which encourages an indoor-outdoor lifestyle. These units are provided with the following design features and amenities:
    - Unit 7: Three-bedroom, two-bathroom, dual east, and south aspect 108sqm apartment. Unit 8 includes a larger 27sqm balcony area, a walk-in-robe, and internal secure store-room.
    - Unit 8: Single-bedroom dual west and south aspect 59sqm apartment with views to Colleran Street.
    - Unit 9: Three-bedroom, two-bathroom, multiple east, north, and west aspect 129sqm apartment. Unit 9 includes a larger 20sqm north-facing balcony area, and a walk-in-robe.
- Lift, stairs and building servicing infrastructure, allowing for access to apartments by the mobility impaired.
- A weather protected internal lobby area.
- Cascading planters and on-structure landscaping accompanying balconies and private outdoor space.

Third Floor

- Unit 10 which includes a generous open-plan living / kitchen with access to natural sunlight and ventilation accompanied by two large private balconies suitable for outdoor living activities which encourages an indoor-outdoor lifestyle. This unit is provided with the following design features and amenities:
    - Unit 10: Three-bedroom, two-bathroom, multiple 360° aspect 156sqm apartment. Unit 10 includes two balconies (a 13sqm balcony to the north, and 30sqm balcony to the south), as well as a walk-in-robe, internal secure store-room, and separate laundry room.
- Lift, stairs and building servicing infrastructure, allowing for access to apartments by the mobility impaired.
- Cascading planters and on-structure landscaping accompanying balconies and private outdoor space.

SUPPORTING INFORMATION AND REPORTS

Consultant reports and other supporting information has been duly prepared to assist in the assessment of this planning application, and to compliment and assist the planning approval process. The reports and documentation which have been provided are detailed in the table below.

Supporting Information	Author	Dated
Development Plans	Blocq	18 Nov 2019
Transport Impact and Parking Assessment	Move Consultants	10 Dec 2019
Energy Efficiency Report (Class 2 Buildings)	SustainabilityWA	18 Dec 2019
Waste Management Plan	Alijn Built Forms	1 Dec 2019
Acoustic Design Report	B. Lorente Lacasta Consultants and Alijn Built Forms	18 Nov 2019
Feature Survey Plan	McGregor Surveys	18 Apr 2019

Existing property at 4 Colleran Way Booragoon. Source: Google 2015.

PLANNING FRAMEWORK

The planning framework comprises of numerous state and local laws, policies, regulations, and reports. Critical key planning framework documents have been highlighted and discussed in this section. The discussion includes background on these documents, details how they apply, and deliberates important considerations which apply to the proposed development. Detailed planning assessment is provided in the Planning Assessment and Justification section of this report.

STATUTORY PLANNING FRAMEWORK

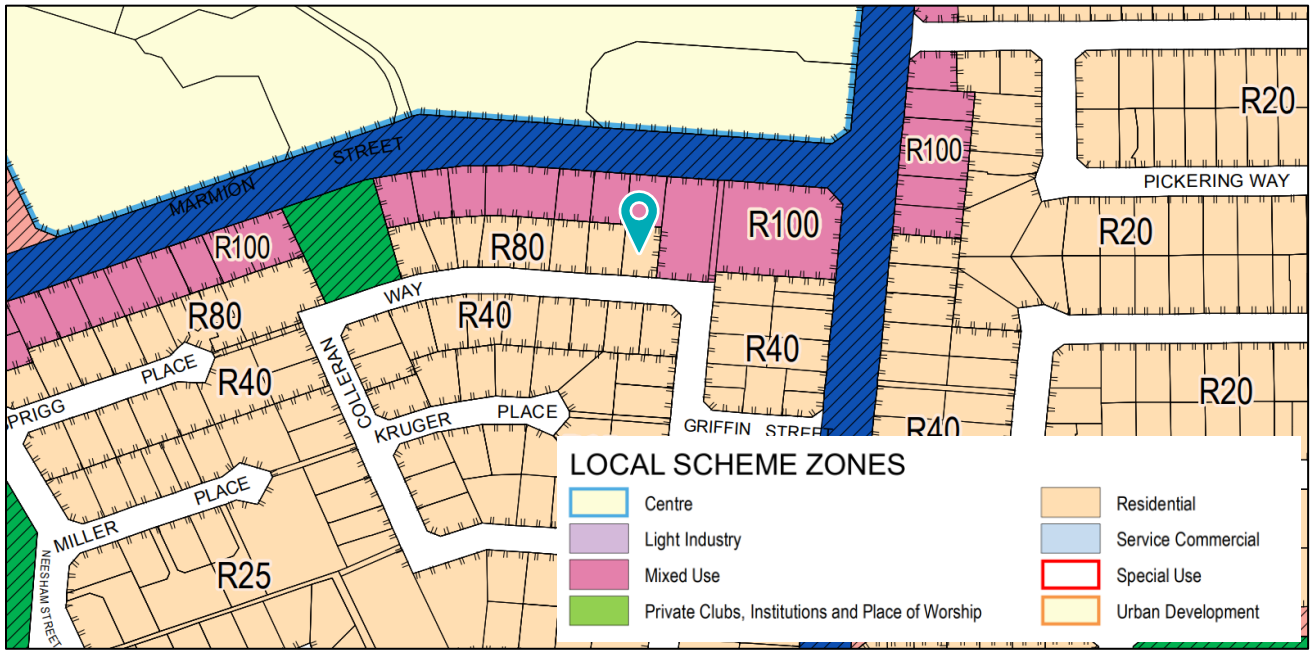
City of Melville Local Planning Scheme No. 6

The City of Melville Local Planning Scheme No. 6 (LPS No. 6) is a statutory Scheme that provides guidance for the development and use of land and buildings in the City. The lot is zoned "Residential" under LPS No. 6, with a density of R80. The area has been recently rezoned to a greater density which has resulted in the construction of several new apartment developments. The site is bounded immediately to the north and the east by Mixed Use R100 zoned land as illustrated in the figure below. The R80 zoned land immediately west of the site is being sold and may be developed together with a Mixed Use R100 lot to the north. As a result, in effect the site is surrounded by land which may be developed to a R100 density standard.

The objectives of Development zoned land are as follows:

- *To provide for a range of housing and a choice of residential densities to meet the needs of the community.*
- *To facilitate and encourage high quality design, built form and streetscapes throughout residential areas.*
- *To provide for a range of non-residential uses, which are compatible with and complementary to residential development to promote sustainable residential development.*
- *To maintain the compatibility with the general streetscape, for all new buildings in terms of scale, height, style, materials, street alignment and design of facades.*

It is considered that the proposed development is wholly consistent with the objectives of "Residential" zoned land, as elaborated on and detailed in the Planning Assessment and Justification section of this report. The subject site abuts the Melville City Centre Structure Plan area.



City of Melville Local Planning Scheme No. 6 Map 4 of 8 Booragoon Locality Source: WAPC 2018.

State Planning Policy 7.3 Volume 2 (DesignWA)

State Planning Policy 7.3 Volume 2 (and SPP 7.0) came into effect on 24 May 2019 and is the primary planning control document for multiple dwellings in Western Australia coded R40 and above, as well as certain other developments. The proposed multiple dwellings are subject to SPP 7.3 Vol. 2. As outlined in State Planning Policy 7.3 Volume 2, each design element includes the following sections to inform assessment of applications for development approval:

- A statement of Intent for each element that explains the intended outcome and why it is important;
- Element Objectives that define the intended outcome for the element;

- Acceptable Outcomes that are specific measures and outcomes to assist in meeting the Element Objectives;
- Guidance including matters to be considered and design responses that can achieve the Objectives:
    - in Part 2 the Planning Guidance is for local governments in preparing modifications to the Primary Controls through the local planning framework to respond to local character and contexts;
    - in Parts 3 and 4 the Design Guidance is for designers and development assessors.

In accordance with this planning framework, a design should demonstrate that it meets the Statement of Intent and Element Objectives of each design element, this includes satisfying the objectives and content of State Planning Policy 7.0. These planning applications are assessed in context of their entire development design and present a new way to consider development proposals. The proposed development has clearly demonstrated that it has achieved the State Planning Policy 7 suite of policies as has been detailed in the Planning Assessment & Justification section of this report.

STRATEGIC PLANNING FRAMEWORK

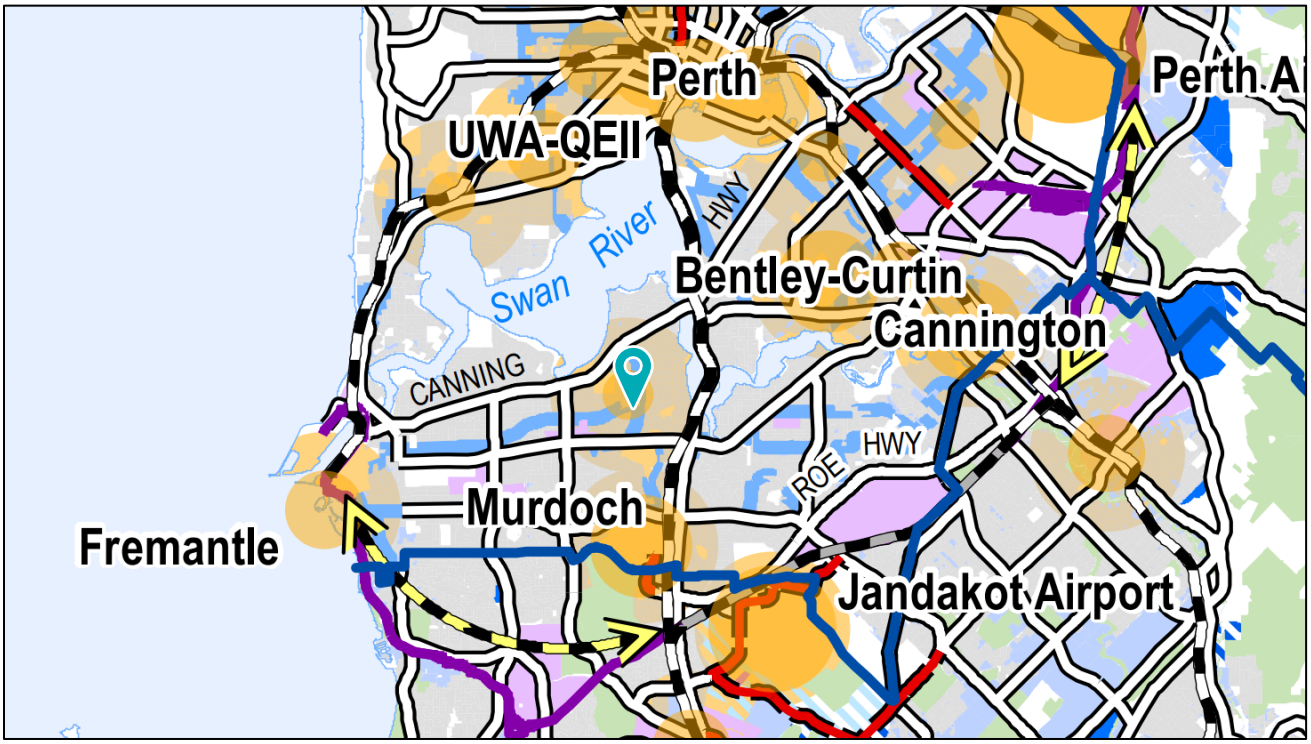
Perth and Peel@3.5million

Perth and Peel@3.5million is the overarching strategic planning framework for the Perth and Peel metropolitan regions. Perth and Peel@3.5million proposes five strategic themes for a liveable, prosperous, connected, sustainable and collaborative City. The framework aspires to a city that provides '…*a network of connected activity centres which deliver employment, entertainment and high-density lifestyle choices*'. The framework further identifies that additional 215,000 dwellings will be required to be accommodated in the central precinct (urban infill) over the 35 years to 2050.

The subject lot is located within an Activity Centre (Booragoon) within the strategy (Plan 1 Central sub-regional planning framework). The strategy identifies that: '*The aim is for the majority of all new infill residential development to occur within the preferred urban consolidation precincts of activity centres, urban corridors and station precincts to accommodate the majority of the infill dwellings required by 2050*. The Activity Centre zone has identified the following key strategic directions and actions applicable to private development:

1. That the site responds to and is situated with high quality links to multimodal transport options (excluding private vehicles), particularly high-frequency public transport;
2. That the site significantly prioritises the use of public transport over the use of private vehicles;
3. That the site provides for appropriate and responsive urban consolidation;
4. That the site provides higher-density residential development;
5. That the site provides a minimal impact of the existing fabric of the surrounding local area; and
6. That the site contributes to an increase in density and diversity of land-uses through mixed-use development as appropriate.

The site is within close proximity to employment nodes, high-frequency multi-modal transport routes, public and private business nodes and centres, and numerous retail options as detailed in the Local Context section of this report. The proposed development is consistent with the objectives of the Activity Centre zone.



Perth and Peel@3.5million Central Sub Region Plan 1. Source: Department of Planning, Lands and Heritage 2018.

DESIGN REVIEW PANEL

The subject planning approval application has been part of the City of Melville Design Review Panel process. A copy of the feedback of the Design Review Panel and comments on the design, as prepared by Alijn Built Forms, have been provided accordingly in the table below. These detail how the design has responded to the feedback of the Design Review Panel. The applicant has been involved in the Design Review Panel process, including on the 8th of October, and most recently on the 6th of November 2019.

DESIGN REVIEW PANEL RESPONSE

Design Review Panel Comments	Design Response / Comment
The gabled pitched roof, window boxes and proposed balustrade details add to the quality of the elevations.	This theme is to continue, with particular emphasis on the human and streel level feel so that occupants of units at front upper levels still have some connect to the street frontage
The range of dwelling types including the split-level apartments is supported.	The mix now consists of 7 of three bed units, and 3 of single bed units, which has improved the dwelling mix of the proposed development.
Locating the open stairs way next to the lift will encourage residents to use these frequently and adds to the elevations However, the applicant needs to ensure these can meet the relevant provisions of the Building Code and, in particular, in regard to the continuity of the stairs from the basement car park.	The detailing of this area is to continue the theme of stair usage over lift access and is being undertaken with Fire Engineering and DFES input. A critical design requirement is that the stair well promotes usage and interaction rather than being solely a fire escape vehicle
Air conditioning condenser units are located on the roof ensuring these do not have an impact on the streetscape or resident amenity.	Air conditioner condenser units will be screened or located as a standard condition of planning approval, so as to not be visible at standing height from the street. The impact of such condenser units on amenity will be minimal. The design also proposes the use of solar panels, and a solar power storage system which have a great benefit on the sustainability of the development.
Generous roof terraces are provided to the rear dwellings.	Units have been flipped based on discussions and reviewed feedback from the panel, plus further market research. The complete building now provides a greater number of units now having aspect to the street rather than the highly possible potential of a large complex close to the boundary to the north. The building is now setback further from the boundary with generous terraces that will not feel so hemmed in by future development. The units at the front will continue to have greater visual aspect .
Basement soil areas are meaningful but the floors above constrain the potential canopy growth. Need to see percentages and opportunities for the growth of the trees.	Following feedback from the panel, the design of the landscaping will progress with our landscape designer. As the restrictions on the site, particularly on the boundary and rear (due to the sewer line) may restrict long term sizing of plants, selected water wise trees are to be installed in selected locations to provide canopy cover, aesthetic and environmental benefit to the development
The street appearance and the interface between the ground floor dwellings and the street is impacted negatively by the levels created by the semi - basement.	The height above floor level has been reduced to just under 1m. As the street profile will eventually be quite diverse, with a mix of housing types and staggered frontages, we believe that small semi-public gardens and areas can contribute to a more informal atmosphere within the locality , rather than a divide of enclosed private apartment boxes on one side of the street and standalone houses on the other The plans were adjusted to have 2 units at the front which can also have aspect to the street. The design is continuing to enhance the step up and down areas to these units ,so they can actually be a functioning sitting area for the occupants as well as visitors (i.e. longer goings) The inclusion of selected fruit trees and food plants (including avocado etc.) located in the areas of public interface, is considered a tool that allows for use by the occupants and the local residents to share in the produce from such plants.

Design Review Panel Comments	Design Response / Comment
	A community fruit tree is a publicly shared fruit tree that is easily accessible for anyone to pick from. A sign next to the tree invites people to enjoy the fruit We believe this global concept of bringing people together over food, creating a sharing mindset, and improving the air, soil and water, even in a small way has very powerful community benefits.
Due to the gradient of the ramp there will be difficulties getting bins to the street from the basement.	The ramp has been designed with input from the traffic managers and the nominated strata company, who will be managing the bin placement to the street as required
The rear car parking bays do not appear to have adequate manoeuvring space.	This area has been amended and swept path diagrams are being undertaken to ensure manoeuvring in the undercroft.
The side landscaping is below the level of the ground floor courtyards, limiting the extent to which it can be used.	The plants that will be installed here will include a number of appropriate trees and plants which have the ability to bear fruit. Careful consideration and management of these plants will be required and the strata management plans will provide by laws for this requirement. We have found that when future owners are aware of these benefits plus care requirements, the ownership of these areas allows them to thrive The area will also be open so that from the carpark, the plants can be seen, and also managed.
Ensure that all balconies are setback from boundaries to meet the visual privacy requirements of the R-Codes.	The orientation of the units have been altered so that all balconies comply with visual privacy requirements of the R-Codes.
Consider reorienting the dwellings to ensure all dwelling are facing towards the front or rear of the lot. For example - the side-facing and rear-facing apartments could be a thinner, longer pair of apartments that face the rear with a 6-metre setback to provide visual privacy and create a greater deep soil zone for trees at the rear of the lot.	All dwellings now face towards the front or rear of the lot with 3 units facing the rear and have a setback of approximately-4.5-5m (greater than the R-Code allowance). This allows for the provision of improved visual privacy, greater deep soil areas, and enhanced light ingress.
Provide details of the percentage of the lot which has been dedicated to deep soil planting, ensure that the building above does not impede on the growth of the tree(s) and provide a species list.	The development proposes ~105.8sqm (or~14%) of Deep Soil Area across the site, inclusive of permeable paving. Ample area will be provided for the growth of trees to maturity. Additional large pots to allow certain tree and plant varieties to grow to mature levels will be included on the northern lot. Preliminary nominated plant lists are noted on the attached plans.
Reduce the level of the basement so that the ground floor is preferably no more than 800 millimetres (1000 at the absolute max) above natural ground level.	The carpark is a semi open under croft with the ground floor level positioned at 900mm above the ground level;
Consider providing a direct entry to the street for the front facing dwellings.	The front units have internal entry for security reasons.
Consider bringing the bin store to the ground floor.	Design Guidelines WA dictates that bins stores are to be located in basement areas. This has been undertaken but also ensures bins are not viewed from the public or private realm. The bin store will also be managed by the strata management company to ensure cleanliness and maintenance of the area.

Design Review Panel Comments	Design Response / Comment
Consider the 'entrance'- Look for opportunities to incorporate shade, shelter and landscaping and consider turning the lift 90deg to show the lift door from the street. If the basement level is reduced there may be an opportunity to remove the stairs and wheelchair lift and transition with a ramp.	The main entry statement will take into account both approach and entrance with the planting, hardscape material and overhead hard canopy protection to define a well-considered environment leading to the main entry Planting and deciduous trees have been selected to screen for privacy while also providing sufficient light/shade and wind amelioration. Together will the hardscape material they define a enjoyable entry statement The wheelchair lift has been removed and access to the ground level will be a ramp transitions from the boundary to central entry area that includes with landscaping along its edges to the main central entry point Upon planning finalisation, planting and deciduous trees are being selected to screen for privacy while also providing sufficient light/shade and wind amelioration.
Consider simplifying the elevations and removing the angled legs.	The elevations have been changed to simplify the forms and articulate each unit via simple structure of flat plate slab and external masonry walling
Consider a front-facing veranda to the ground floor apartment facing the street.	The ground floor street facing units have an elevated roof section that acts as a transition between the apartment interior and the outdoor environment so that it acts a semi-private realm that also allows interaction with the street front.
Consider removing the drying courts – the benefit of them is marginal and they compromise the outlook from the corridor areas.	The individual drying courts have been removed into one smaller private area on the ground floor

PLANNING ASSESSMENT & JUSTIFICATION

An assessment of the proposed development's performance against the various relevant provisions of the planning framework is detailed in this section of the report. This report provides evidence to support development approval by demonstrating how the proposal satisfies these relevant development standards, design guidance, and objectives, and why it is capable of planning approval.

STATE PLANNING POLICY 7.0 PLANNING ASSESSMENT

State Planning Policy 7.0 sets out the objectives, measures, principles and processes which apply to the design and assessment of built environment proposals through the planning system. SPP 7.0 outlines ten key overarching design principles which establish a definition of "good design" to inform planning processes. An assessment of the proposed development has been provided accordingly below in accordance with these ten design principles.

State Planning Policy 7.0 Design of The Built Environment Design Principles			Objective Achieved
1	**Context and Character**	Good design responds to and enhances the distinctive characteristics of a local area contributing to a sense of place	Achieved
	Response The local area is in transition. The area has been recently rezoned allowing for R100 and R80 Mixed Use and Residential redevelopment, which has seen several planning applications be put forward, of which some are in the process of construction (such as at nearby 557 Marmion Street, and 16 Colleran Way). In the future there will be further higher-density development in the local area. The design has responded to and references the built form of the immediate local area by its use of building materials and colours scheme. Examples of the material finish in the surrounding area includes face brick, tiled roofs, texture painted finish and render, and metallic elements. This built form currently is largely single houses. The design and material selection for the proposed building seeks to compliment and reference the local character of the area, while providing a positive contribution to the streetscape by presenting a simple and smart contemporary articulation in the building façade design and the proposed use of materials. The design is also considerate of the predominant built form, and proposes only three storeys (as viewed from the street), where four storeys is permitted. Overall it is considered that the design addresses, responds to, and enhances the character of the area, and will be a suitable and welcome addition. This is achieved through the façade and building design treatment referencing local building materials and the accompanying landscaping which will enhance and contribute to this green aesthetic.		
2	**Landscape quality**	Good design recognises that together landscape and buildings operate as an integrated and sustainable system within a broader ecological context	Achieved
	Response The proposed landscaping solution includes a number of functional tree plantings, including avocado, lemon, and lime trees, and figs as well as selected natives. The landscaping solution has recognised the need to include a variety of low-maintenance hardy plants and the benefits of providing these plants in human health and wellbeing, in the context of an apartment development. The landscaping section will include cascading and trellis plants which will soften the built form, and will be complemented by the green landscaping strips which surround the site. Two White Jacaranda trees are also proposed in the road reserve verge area, as well as an informal seating area within the building frontage area (to the east). The proposal will present generous soft landscaping deep soil areas (in excess of the Acceptable Outcome) within the front setback and side boundaries to allow for in-ground planting. Mature trees and other soft landscape features will be contained within both the horizontal and vertical planes. Consideration has been given to low maintenance plants with priority given to native plants which have all been selected based on their location, exposure to environmental elements, water wise properties and end maintenance and upkeep.		

State Planning Policy 7.0 Design of The Built Environment Design Principles			Objective Achieved
	Selected balconies include a landscape planter bed (with cascading / hanging plants) to improve the aesthetic outcome for residents of each dwelling. The landscaping solution also includes permeable paving throughout. All landscaped areas will be reticulated and mulched as necessary to reduce the burden of their upkeep, and will be regularly inspected and maintained on an ongoing basis by the strata company caretaker. Overall the landscaping solution is considered to be a welcome and much needed addition which will provide a great benefit to the future residents of 4 Colleran Way, and the wider local community.		
3	**Built form and scale**	Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.	Achieved
	Response The proposed built form and scale is consistent with the zoning and desired future character of the area as established by the City's planning framework. The exterior is simple in its expression through its choice of materials and use of clean lines. Living and service areas are characterised within the horizontal elements by the selection, use, and contrast of materials across the façade. The façade will be a subtle mixture of concrete wall and slab with a combination of masonry wall panels and steel/aluminium balustrade features to relate to the massing. It will possess clean aesthetic lines which relates to the various housing styles common to the area. The raw and textural detail of the building surfaces has been carefully considered. As the area is undergoing transition, there is a high probability that future developments will occur that maximise bulk and height allowances of the sites especially along the front and side boundaries. This proposal recognises the future development character of the area, and has responded accordingly by seeking to reduce the effects of massing along the street boundary. In doing so, the development will create an improved interface with the lower zoned R40 areas on the opposite side of Colleran Way. Despite the small size of the site along the front and side boundaries are open landscape areas. This has ensured that the building does not immediately overwhelm the existing residential aspect of the area, and nearby neighbours, but also reflects the desired future character of the area.		
4	**Functionality and build quality**	Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full lifecycle.	Achieved
	Response The proposed design is for a low-maintenance, aesthetically pleasing design which will use durable materials, finishes, and design elements. The design also does not excessively rely on artificial or mechanical heating, or lighting methods (which require regular upkeep) and considers and responds to the potential for future changes in climate. The building will be administered by a strata company and caretaker who will monitor and address any future building issues as they arise in a timely manner.		

State Planning Policy 7.0 Design of The Built Environment Design Principles			Objective Achieved
5	**Sustainability**	Good design optimises the sustainability of the built environment, delivering positive environmental, social, and economic outcomes.	Achieved

Response

The proposed design achieves this sustainability design principle. The proposal has chosen materials using the traditional design hierarchy of reduce-reuse-recycle, aiming for healthy indoor air, resource conservation and minimisation of waste and emissions. The proposal considers key environmental aspects of its materials with several key overarching priorities:

- Use and adherence to the principle of lowest lifecycle cost for the anticipated 100-year life (i.e.: maximising durability, minimising replacement, maximising maintainability).
- Minimising embodied energy.
- Use of locally grown, sourced or manufactured product and materials.
- The importance of project siting, orientation and inclusion of appropriate building systems and products is included.
- Thermal mass used to increase the energy efficiency of building.
- Building has very low ongoing material maintenance requirements.
- Glazing types and sizing assist winter heat gain into the building, whilst minimising heat gain in the summer.
- The installation of an integrated energy network system utilising renewable energy via solar panels and associated integrated power systems.

An energy efficiency assessment of the proposed development has been conducted which has resulted in the following NatHERS energy star ratings, and an average of 6.7 stars:

- Unit1: Achieves 6.4 Stars
- Unit 2: Achieves 5.6 Stars
- Unit 3: Achieves 8.3 Stars
- Unit 4: Achieves 7.6 Stars
- Unit 5: Achieves 5.8 Stars
- Unit 6: Achieves 7.9 Stars
- Unit 7: Achieves 5.4 Stars
- Unit 8: Achieves 6.3 Stars
- Unit 9: Achieves 7.9 Stars
- Unit 10: Achieves 5.7 Stars

The design provides several energy efficiency and energy saving initiatives which have resulted in the proposal reaching this star rating. Further information is provided in the Energy Efficiency Assessment report submitted with this planning application. The proposed apartment design will allow for much needed increases in housing density in a high-amenity area near to Garden City and the Booragoon Activity Centre. The impact of the more modest housing in a high amenity area, with good access to multi-modal transport options, will help improve the sustainability of the design overall. The individual apartments propose the use

State Planning Policy 7.0 Design of The Built Environment Design Principles			Objective Achieved
	of water efficient fittings and fixtures, with lighting sensors and LED lighting will reduce power consumption elsewhere.		
6	**Amenity**	Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.	Achieved
	Response The proposed development itself provides a suitable amount of amenity, with large bedrooms, and living areas complemented by balconies or terraces suitable for outdoor living pursuits. Each apartment has ample access to natural daylight. The amenity of each apartment is complemented by the high sustainability energy efficiency rating. The landscaping and greening solution further enhances the amenity of the proposal. With respect to the situation of the development site, its location less than 150m from Booragoon Bus Transfer Station, the nearest public park, and Garden City shopping centre, as well as just 400m from a large park suitable for active recreation and Melville Aquatic Fitness Centre. Several education facilities and schools, employment centres, medical, and retail options are locate close by. This complements the good multi-modal transport options available to access the site. The nearby local amenity is excellent and the siting of such a proposal for ten multiple dwellings at this location is highly desirable and suitable.		
7	**Legibility**	Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.	Achieved
	Response The apartment design is clearly legible for residents and visitors alike. There is a clear differentiation between the public and private realm and clear access routes for pedestrians and vehicles into the development. The amount of unnecessary circulation space has been minimised, and the stairwell and lift have been centrally located. There is a clear hierarchy of space proposed within the development. The apartment design is intuitive to use. With regard to waste management, the use of the bin store will be aided by signage and ongoing monitoring by a caretaker, while its location, and the ease of moving the bins for presentation is considered to be minimal and amenable given the proposal for ten multiple dwellings. Waste management will operate in accordance with the submitted approved waste management plan. The operation of the building will be reviewed by the strata company and caretaker on an ongoing basis, and as issues arise these will be addressed.		
8	**Safety**	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.	Achieved
	Response The proposed design is considered to achieve the safety design principle. All street fronting apartments overlook and provide passive surveillance to the street, without compromising their ability to provide visual privacy for their residents. The apartment building will be secured using an electronic and key access system to prevent access into the lobby, and each individual apartment except by residents and their visitors. The basement car parking area will be secured with an automatic gate.		

State Planning Policy 7.0 Design of The Built Environment Design Principles			Objective Achieved
	In relation to vehicle manoeuvring, adequate sightlines are maintained through the development and driveway through to the crossover and street. It is noted that there currently is no footpath on either side of the street. All public areas will be provided with lighting to improve visibility, while the design itself does not create any areas for concealment, and limits the amount of exposed blank façade (in relation to graffiti). It is considered that overall the design achieves the principles of Crime Prevention Through Environmental Design. The development ensures passive visual surveillance of Colleran Way throughout from balconies and windows of the apartments on the upper levels. It provides clear sightlines to public spaces and maximises opportunities for natural light penetration through balconies to prevent any dark spaces. Entrances are orientated to face active spaces and are clearly defined. Maximised street activity occurs through integrated public landscaped zones, but with a clear delineation between public and private realm. Lobbies and foyers are visible from the exterior. All apartments and communal areas will only be accessible through a security access card system, and not accessible by the general public. Lighting has been carefully considered to activate the entry experience as well as for the safety of residents entering the building		
9	**Community**	Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction.	Achieved
	Response The proposed design recognises and responds to the needs of providing opportunities for community interaction, while acknowledging the smaller scale of the proposal and its situation as part of a residential (only) development. Elaborate communal facilities have been considered to not be necessary as a result. To help promote ground-floor activation and interaction, the ground floor will include communal trees to allow neighbours to share in the fruits of the site. As a result, seating areas, grass, and landscaped areas are proposed to provide a seamless connection between the street and building, that acts as an informal meeting space. The site is located near to Garden City shopping centre, and a future Mixed Use precinct. Garden City shopping centre provides walkable, pedestrian scale gathering places for people to interact and socialise, improving health outcomes and increasing community resilience.		
10	**Aesthetics**	Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.	Achieved
	Response The design provides a well resolved façade, colours, and materials solution. The contemporary design is based on three long lasting materials — masonry, concrete, and metal — which will present a clean, timeless feel.		

State Planning Policy 7.0 Design of The Built Environment Design Principles		Objective Achieved
	The proposed development considers the existing vernacular in the surrounding area. Through investigation of the geometric articulation, the building presents a refined contemporary design and sets a benchmark performance for all future builds in the locality. Simple subtle design with honest materials that are traditional yet contemporary ensures the design does not create an obtrusive structure while also not presenting any contrived patterning or architectural gimmickry. This simple palette ensures fine grain architecture where materials have built in age and character, that is not so "machine driven". Simple lines with light void areas and landscaping that does not compete with the street and streetscape character have been featured.	

STATE PLANNING POLICY 7.3 VOLUME 2 PLANNING ASSESSMENT

This section of the report provides a comprehensive assessment of the proposed development in accordance with SPP7.3 – Residential Design Codes Volume 2.

The following assessment with the relevant element objectives has been prepared. This assessment has been segmented into three parts based on the layout of SPP 7.3 Vol. 2; these are: primary controls; siting the development; and designing the building. A summary of the proposed apartment composition and design has been provided in the table below. Additionally, it is noted that the City's Local Planning Policy 1.10 (Amenity) requires the provision of an "Amenity Impact Statement". The content of this amenity impact statement has been provided in the comprehensive assessment below, and the associated justification and comments.

Apartment Design Summary Table

Unit #	Floor Area	Bedrooms	Bathrooms / WC	Outdoor Living	Store
Unit 1 (Ground)	125sqm	3	2 bathrooms	39sqm	6sqm (in unit 1)
Unit 2 (Ground)	59sqm	1	1 bathroom	12sqm	3sqm
Unit 3 (Ground)	124sqm	3	2 bathrooms	115sqm	6sqm
Unit 4 (First)	108sqm	3	2 bathrooms	27sqm	5sqm (in unit 4)
Unit 5 (First)	59sqm	1	1 bathroom	12sqm	4sqm
Unit 6 (First)	129sqm	3	2 bathrooms	20sqm	6sqm
Unit 7 (Second)	108sqm	3	2 bathrooms	27sqm	4sqm
Unit 8 (Second)	59sqm	1	1 bathroom	12sqm	5sqm (in unit 8)
Unit 9 (Second)	129sqm	3	2 bathrooms	20sqm	7sqm
Unit 10 (Third)	152sqm	3	2 bath + 1 toilet	30sqm + 13sqm	5sqm (in unit 10)

Part 2: Primary Controls

Part 2 provides the primary controls that relate to the residential coding of the site. A table detailing how the proposed development achieves the design elements of Part 2 of State Planning Policy 7.3 Volume 2 is provided in the table below.

Element Objective		Justification and Comment
Primary Controls		
2.2 — Building Height	**O2.2.1** The height of development responds to the desired future scale and character of the street and local area, including existing buildings that are unlikely to change.	The Acceptable Outcome for building height is 4 storeys, with 4 storeys being proposed. The height of the development is consistent with the desired future scale of Colleran Street, given the zoning of the City and the development intent set-out and permitted as a result. It is noted that there are no heritage listed or properties worthy of a heritage listing in the immediate local area. This is unlikely to change, and the character of the local area is anticipated to evolve given the transitionary nature of the area following the recent up-zoning of density. It is considered that the that proposal is harmonious with the desired future scale of the area.
	O2.2.2 The height of buildings within a development responds to changes in topography.	As demonstrated on the feature survey plan, the topography of the site is quite consistent and flat. The topography rises by less than 0.5m from east to west. The development responds to the change in levels by proposing minimal cut and fill works and retaining.
	O2.2.3 Development incorporates articulated roof design and/or roof top communal open space where appropriate.	The design proposes an articulated roof design that comprises of a gable design to the western side and concealed roof to the eastern side of the street frontage, as demonstrated on the submitted elevation plans. The design also varies the proposed roofing materials to help complement this proposal. Roof-top communal open space is not proposed.
	O2.2.4 The height of development recognises the need for daylight and solar access to adjoining and nearby residential development, communal open space and in some cases, public spaces.	The extent of maximum shadow cast at 12pm on the winter solstice is cast largely onto the Colleran Way road reserve. The design steps back the upper floor away from the southern boundary to allow for improved solar access outcomes. The impact of the proposal with respect to loss of solar access is negligible considering the overall performance of the building.
2.3 — Street	**O2.3.1** The setback of the development from the street reinforces and/or complements the	The street setback Acceptable Outcome is 2.0m. The proposed street setback is at least 2.0m for all floors of the multiple dwelling building. The proposed setback is considered to be

Element Objective		Justification and Comment
	existing or proposed landscape character of the street.	consistent with the proposed landscape character of the street which has been established by the zoning of the site.
	O2.3.2 The street setback provides a clear transition between the public and private realm.	The site provides a clear transition between the public and private realm. Private and communal areas of the site are located behind secure access gates and door and separated clearly from areas accessible by the general public. The proposed development does not include a mixed-use aspect.
	O2.3.3 The street setback assists in achieving visual privacy to apartments from the street.	The proposed street setback and design provides for passive street surveillance while maintaining visual privacy for private open space to the street. The design includes living areas and private open space, such as balconies, that overlook the street.
	O2.3.4 The setback of the development enables passive surveillance and outlook to the street.	The proposed setback enables passive surveillance and outlook to the street from the living areas and balconies of all of the street facing apartments. The front ground floor apartments also provide for and enable passive surveillance and outlook to the street.
2.4 — Side and Rear Setbacks	**O2.4.1** Building boundary setbacks provide for adequate separation between neighbouring properties.	The Acceptable Outcome for (minimum) side setbacks and rear setback is 3.0m. The Acceptable Outcome "average" side setback for buildings longer than 16.0m is 3.5m. The proposed (minimum) setback to the rear lot boundary is ~3.95m for all floors, while the proposed side setbacks are largely 3.0m for all floors. It is noted that this design element should be read in conjunction with design elements 2.7 and 3.5. The future streetscape will include a large number of multiple dwelling style developments. The proposed setbacks are considered to provide an appropriate degree of separation between each property and their neighbours. It is noted that as per the Acceptable Outcomes Nil setback boundary walls are permissible to one lot boundary, for up to two storeys. No lot boundary walls have been proposed.
	O2.4.2 Building boundary setbacks are consistent with the existing streetscape pattern or the desired streetscape character.	The proposed design is consistent with the desired and permitted streetscape character encouraged by the City of Melville's local planning framework. The proposal is considered to respect and respond to the future streetscape character intent set-out by this framework.
	O2.4.3 The setback of development from side and rear boundaries enables retention of existing trees and provision of deep soil areas that	The proposed setbacks allow for the planting of trees throughout the site and which reinforce the green aesthetic that is proposed. The development proposes deep soil areas which are greater than Acceptable Outcome A3.3.5 set out in design element 3.3.

Element Objective		Justification and Comment
	reinforce the landscape character of the area, support tree canopy and assist with stormwater management.	It is noted that the existing trees and vegetation on the site are primarily small ornamental plants or trees within the street frontage area which have little value for retention.
	O2.4.4 The setback of development from side and rear boundaries provides a transition between sites with different land uses or intensity of development.	The zoning of the site to the west is also Residential R80, while both the sites to the north and the east are zoned at a higher density of R100 within a Mixed Use zone, as shown in the scheme Map for LPS No. 6 provided within the Statutory Planning Framework section of this report. Noting the higher density of surrounding properties, the proposal for a four storey apartment building, as shown in the submitted plans, is considered to provide an appropriate transition and response to the planning framework and desired future character.
2.5 — Plot Ratio	**O2.5.1** The overall bulk and scale of development is appropriate for the existing or planned character of the area.	The bulk and scale of the proposed development is consistent with the planned and permissible future character and scale of the local area. The Plot Ratio Acceptable Outcome is 1:1.0 (resulting in a plot ratio area of 735sqm), with the proposed plot ratio being ~1:1.44 with a plot ratio area of ~1,056sqm (which excludes store rooms). It is noted that the adjoining sites to the north and east have a plot ratio Acceptable Outcome of 1:1.3. It is considered that the proposed plot ratio is supportable for the following reasons: • Plot ratio alone does not result in a development being sympathetic with the existing context and character of an area. The general appearance of size and scale is more important in the context of the perceptions of neighbours and local residents, than the numerical plot ratio value. • The design includes several measures, namely on the building façade, which result in a lesser appearance of bulk and scale to the street. These include façade and materiality choices, as well as indentation and height stepping. • The proposed plot ratio is not considered to adversely affect the immediate local area with respect to its appearance of bulk and scale. • The building height is consistent with the permitted height set out in design element 2.2. • The upper floor is stepped back away from the street which has the effect of reducing the appearance of bulk to the street.

Element Objective		Justification and Comment
		• The subject site adjoins property which is zoned at a higher density of R100 to the immediate north and east. • The future character of the area will be one comprised of predominantly multiple dwellings of a similar scale. • The design has reduceds the impact of bulk and scale through the stepping back of the upper floor away from the street, the use of articulation, as-well as setting back the façade of the upper floors through the use of balconies. • Similar properties, for example at 16 Colleran Way, were approved with comparable plot ratios. The plot ratio of the approved ten multiple dwelling development at 16 Colleran Way was 1:1.20 with the development standard being 1:1.0 at that time. The proposed plot ratio for 4 Colleran Way does not result in a significant departure from this. The proposed bulk and scale of the apartment complex building is considered to be appropriate with respect to the proposed plot ratio, and its is considered that the Element Objective O2.5.1 for plot ratio has been achieved.
2.6 — Building Depth	**O2.6.1** Building depth supports apartment layouts that optimise daylight and solar access and natural ventilation.	The proposed apartments are well planned and propose a building depth which provides sufficient access to daylight and natural ventilation. Each apartment includes an outdoor living area, major openings, and amenities which provide for and help contribute to supporting an "indoor-outdoor" lifestyle with ample access to natural sunlight and ventilation. Little to no single aspect apartments are proposed.
	O2.6.2 Articulation of building form to allow adequate access to daylight and natural ventilation where greater building depths are proposed.	The design includes articulation across the building façade to improve its visual aesthetic and improve the ability for access to daylight and natural ventilation within the site and to neighbouring sites. The balconies on the upper floors also help to articulate the building and its appearance. This has the effect of reducing the impact of building bulk and scale to neighbouring properties and the street. The design also incorporates numerous articulations across the development, namely to the eastern facing units. The design provides a generous amount of access to natural daylight and ventilation across the site.

Element Objective		Justification and Comment
	O2.6.3 Room depths and/or ceiling heights optimise daylight and solar access and natural ventilation.	The well proportioned room depths and heights in the proposed development achieve and allow for good access to daylight and natural ventilation throughout and across each apartment. This has been demonstrated in the plans submitted with this application.
2.7 — Building Separation	**O2.7.1** New development supports the desired future streetscape character with spaces between buildings.	The desired future streetscape has been established and is enabled by the City of Melville's local planning framework. The proposed building separation provides and ensures that there is sufficient area for landscaping, solar access, and natural ventilation.
	O2.7.2 Building separation is in proportion to building height.	The proposed design utilises a single apartment blocks, with a stepped upper floor design. The proposed separation is considered to be in proportion to the proposed four storey height.
	O2.7.3 Buildings are separated sufficiently to provide for residential amenity including visual and acoustic privacy, natural ventilation, sunlight and daylight access and outlook.	The proposed building separation provides and allows for a sufficient amount of visual privacy for residents and neighbours while also reducing the impact of noise and acoustic transfer. The design and proposed separation between building blocks also provide for increased landscaping areas, solar access, and natural ventilation and outlook in-between the apartment building and surrounding development.
	O2.7.4 Suitable areas are provided for communal and private open space, deep soil areas and landscaping between buildings.	The proposed separation provides for landscaped areas, private open space, and deep soil areas whilst maintaining the opportunity for solar access and natural ventilation within the site.

Part 3: Siting the Development

Siting the development provides guidance on the design and configuration of apartment development at a site scale.

A table detailing how the proposed development achieves the design elements of Part 3 of State Planning Policy 7.3 Volume 2 is provided in the table:

Element Objective		Justification and Comment
Siting the Development		
3.2 — Orientation	**O3.2.1** Building layouts respond to the streetscape, topography and site attributes while optimising solar and daylight access within the development.	The layout of the building is considered to respond to the streetscape and topography attributes, with minimal ground floor cut, fill and retaining (refer to FFLs and site plans). All units and the building overall itself each have access to multiple aspects, allowing for better all-round all-year use. The design has

Element Objective		Justification and Comment
		thoughtfully considered its solar orientation and ensured that all units including living areas and private open space have access to an ample amount of solar access. The design provides sufficient solar access across the site. This is further demonstrated in the plans which have been prepared for the proposed development. The public realm frontage of the design also incorporates direct access from the street.
	03.2.2 Building form and orientation minimises overshadowing of the habitable rooms, open space and solar collectors of neighbouring properties during mid-winter.	The amount of overshadow to existing residential single houses of adjoining sites is minimal as the site is largely oriented in a north-south direction. The shadow is predominantly cast to the street. There are also no solar collectors present on neighbouring properties affected by proposed development.
3.3 — Tree Canopy and Deep Soil Areas	**03.3.1** Site planning maximises retention of existing healthy and appropriate and protects the viability of adjoining trees.	The plan does not propose the retention of any trees, however proposes the planting of up to 18 trees within the lot. There are currently no street trees at 4 Colleran Way.
	03.3.2 Adequate measures are taken to improve tree canopy (long term) or to offset reduction of tree canopy from pre-development condition.	The proposed development provides a significant improvement in the pre-development tree canopy. The current site only contains smaller bushes and trees located at the front of the site in an ornamental garden. These existing plants have little functional benefit beyond aesthetic greening, and their retention would be unviable and not feasible in the context of the wider proposal. The proposed landscaping solution at maturity will significantly increase the amount of landscaping through and across the site when compared with the pre-development condition.
	03.3.3 Development includes deep soil areas, or other infrastructure to support planting on structures, with sufficient area and volume to sustain healthy plant and tree growth.	The development proposes ~105.8sqm (or~14%) of Deep Soil Area across the site, inclusive of permeable paving. The Deep Soil Area Acceptable Outcome for this design element is 10% of the site area (73.5sqm). The application is considered to achieve this element objective. Further, the application proposes the planting of up to 18 trees within the lot, from a mixture of species and varieties including highly functional avocado, lemon, and lime trees. Four of these trees will be larger plantings, including Simon's Poplar Tree, to achieve the tree size development standard of Acceptable Outcome A3.3.5. Further information and detail has been provided in the final Landscaping Plan submitted with this planning approval application. Sufficient rootable soil zone is provided around each tree to enable growth to full canopy at maturity.

Element Objective		Justification and Comment
3.4 — Communal Open Space	**03.4.1** Provision of quality communal open space that enhances resident amenity and provides opportunities for landscaping, tree retention and deep soil areas.	No communal open space is proposed, nor is it needed as an Acceptable Outcome. An attractive landscaping solution helps to soften the proposed development and improve the appearance of the apartment building when viewed from the street and internal circulation areas which are "communally" accessible. Landscaping and greening is proposed to accompany the private open space which has been provided within the development site. This landscaping includes a communal "orchard" concept with tree and plant varieties including avocado, lemon, lime, fig, and passionfruit.
	03.4.2 Communal open space is safe, universally accessible and provides a high level of amenity for residents.	As above no communal open space is proposed. The apartment building itself, and all individual apartments are capable of being accessed by persons with mobility impairments, with suitable sizing and dimensions, and step and lip free floor design
	03.4.3 Communal open space is designed and oriented to minimise impacts on the habitable rooms and private open space within the site and of neighbouring properties.	Not applicable, as above.
3.5 — Visual Privacy	**03.5.1** The orientation and design of buildings, windows and balconies minimises direct overlooking of habitable rooms and private outdoor living areas within the site and of neighbouring properties, while maintaining daylight and solar access, ventilation and the external outlook of habitable rooms.	The proposed development demonstrates a suitable amount of solar access and natural ventilation within the site and each apartment in addition to maintaining solar access and natural ventilation to neighbouring properties. The development restricts overlooking westward and eastward into neighbouring properties in order to reduce the impact of current, or potential future overlooking into adjoining sites within the cone-of-vision — without compromising the ability of each multiple dwelling to gain access to natural ventilation and daylight. Most balcony areas include screening which restricts overlooking to neighbouring properties and maintain suitable privacy. All living rooms are also provided with an unscreened external outlook without relying heavily on high sill levels or permanent screening.
3.6 — Public	**03.6.1** The transition between the private and public domain enhances the privacy and safety of residents.	The proposed design ensures that there is an adequate degree of privacy maintained, particularly for the six proposed units which have frontage to Colleran Way. Access to the apartments and the site itself will be through a secure access door and gate.

Element Objective		Justification and Comment
	O3.6.2 Street facing development and landscape design retains and enhances the amenity and safety of the adjoining public domain, including the provision of shade.	The design retains and enhances the amenity of the public domain. The design is considered to achieve this through the provision of a complimentary landscaping and façade design which addresses the street. The proposed development also does not affect any existing street trees and provides an attractive pedestrian retreat area. The location of bins, the bin store, and other servicing infrastructure is also separated, screened, or positioned to reduce any impact to the apartments, streetscape or public domain areas. The design of balconies and balustrading further helps to provide visual privacy.
3.7 — Pedestrian Access and Entries	**O3.7.1** Entries and pathways are universally accessible, easy to identify and safe for residents and visitors.	The proposed entry way (from the road and the car parking area) is suitable for universal access. The design provides a wide, step free, generally flat means of access to the apartments and lift. The proposed design provides a clear and separate pedestrian entry. The pedestrian entry is clearly legible and easy to identify for residents and visitors.
	O3.7.2 Entries to the development connect to and address the public domain with an attractive street presence.	The proposed design provides a clear and connected interface between the public domain and the street. The design utilises a variety of materials and colours, in combination with landscaping to provide an attractive street presence. These materials and colours include contrasting render, breeze blocks, metallic and glass elements, and lighter concrete blockwork.
3.8 — Vehicle Access	**O3.8.1** Vehicle access points are designed and located to provide safe access and egress for vehicles and to avoid conflict with pedestrians, cyclists and other vehicles.	The proposed design provides safe vehicle access and egress points. The design proposes an adequate degree of wayfinding, separation, and visibility (sight lines) from the vehicular access point. The provided vehicle access point has been designed in a standard manner and presents no increased risk in comparison with any other typical crossover or driveway in the area. Pedestrian traffic has right of way, and the design is considered to appropriately communicate this. The proposed 4.1m wide driveway allows for one-way access with internal passing within the basement area. The car parking is located behind the street setback area, and is not readily visible from the street. Further details on car parking are provided in a Transport Impact Statement which has been prepared for the development by Move Consultants.

Element Objective		Justification and Comment
		With respect to the potential for vehicle-to-vehicle conflict, this is considered to be low and very manageable given a peak traffic rate of one vehicle every 10–12 minutes. Colleran Way is also a residential access road with less than 1,000 vehicle movements per day, which reduces the potential for conflict. Vehicle access and manoeuvring will be in accordance with AS2890.1 as amended. The Transport Impact Statement notes an estimated trip generation of 29 inbound and 29 outbound motor-vehicle movements per day.
	O3.8.2 Vehicle access points are designed and located to reduce visual impact on the streetscape.	The design proposes a sunken vehicular entry-way to the proposed basement car parking. The location and design of the parking behind the street setback further reduces the impact of car parking structures to the streetscape and neighbouring properties. The car park area is secured with a gate which has been incorporated into the design.
3.9 — Car and Bicycle Parking	**O3.9.1** Parking and facilities are provided for cyclists and other modes of transport.	The site is in a location A area. It is considered that the facilities provided for bicycles and other modes of transport are suitable for the proposed development, as discussed further below. The acceptable outcome requirement for bicycle parking is for 0.5 bicycle parking spaces per dwelling (5 spaces) and 1 bicycle parking space per 10 dwellings for visitors (1 space). The design proposes the provision of eight bicycle parking spaces. This bicycle parking is proposed to be located near the bin store within the basement car parking area. The apartments provide suitable end-of-trip facilities for cyclists and pedestrians. The applicant expects and welcomes the conditioning of the application in relation to bicycle parking. The development proposes additional area for residential bicycle parking within each of the dwelling store rooms.
	O3.9.2 Car parking provision is appropriate to the location, with reduced provision possible in areas that are highly walkable and/or have good public transport or cycle networks and/or are close to employment centres.	In accordance with A3.9.2 of SPP7.3 Vol. 2, the car parking Acceptable Outcome rate for a location A area is as follows: • 0.75 bays per each single bedroom dwelling (2.25 bays); • 1.0 bay per each multi bedroom dwelling (7.0 bays); • 1.0 bay per four dwellings for visitor car parking (2.5 visitor bays); • The acceptable outcome equates to 9.25 residential bays (rounded to 10 bays) with 3 visitor bays, with a • Acceptable Outcome total of 13 car parking bays. The development proposes a total of 17 car parking spaces for residents of the apartments. With regard to visitor car parking, it

Element Objective		Justification and Comment
		is noted that the site is optimally located close to public transport, namely the Booragoon Bus Transfer Station which is less than 150m from the site. As previously discussed Booragoon Bus Transfer Station includes seven separate bus services. These services provide frequent connections through to the wider public transport network, and includes late night and weekend services. It is anticipated that visitors could take advantage of the excellent public transport options to access the site. Alternatively, reference is made to the nearby property at 16 Colleran Way which was approved on 20 March 2017 by the Metro. Central JDAP with external visitor parking within the road reserve. The applicant looks forward to working with the City on this matter for timely planning approval.
	O3.9.3 Car parking is designed to be safe and accessible.	The proposed car parking design is considered to be safe and accessible. The car parking is secured behind a gate. A separate pedestrian entry is also proposed. Details on car parking including manoeuvring and peak trip generation rates are provided in the Traffic Impact Assessment prepared by Move Consultants for the proposed development. The Transport Impact Statement details how the car parking and circulation areas are suitable for the proposed development, given the scale of the development, its location, and other site considerations Apron width (manoeuvring space) of 5.8m is required and has been provided with the basement area. The proposed driveway allows safe access and egress from the site.
	O3.9.4 The design and location of car parking minimises negative visual and environmental impacts on amenity and the streetscape.	The proposed development achieves this element objective and the related acceptable outcomes for design and location of car parking. The car parking is located behind the street setback area, within a basement structure, and is not readily visible from the street. Details on car parking are elaborated on within the Transport Impact Statement which has been prepared for the development by Move Consultants. The maximum number of car parking bays which are permissible in accordance with acceptable outcome A3.9.3 is 22 (18.5 + 3) with 17 proposed.

Part 4: Designing the Building

Designing the building provides Element Objectives, Acceptable Outcomes and Design Guidance for building form, layout, functionality, landscape design, environmental performance and residential amenity. A table detailing how

the proposed development achieves the design elements of Part 4 of State Planning Policy 7.3 Volume 2 is provided in the table below:

Element Objective		Justification and Comment
Siting the Development		
4.1 — Solar and Daylight Access	**04.1.1** In climate zones 4, 5 and 6: the development is sited and designed to optimise the number of dwellings receiving winter sunlight to private open space and via windows to habitable rooms.	All individual dwellings are capable of receiving direct solar access to each habitable room. Each habitable room has a light-permeable window for access to natural daylight. The apartment complex includes a central vertical breeze-way to improve access to daylight through each floor of the development.
	04.1.2 Windows are designed and positioned to optimise daylight access for habitable rooms.	All apartments have access to multiple aspects to enable improved all year round use.
	04.1.3 The development incorporates shading and glare control to minimise heat gain and glare: – from mid-spring to autumn in climate zones 4, 5 and 6 AND – year-round in climate zones 1 and 3.	The design includes shading devices, namely associated with the balconies, to help in the control of excess heat gain during the summer months.
4.2 — Natural Ventilation	**04.2.1** Development maximises the number of apartments with natural ventilation.	All apartments are provided with openable windows and doors which allow for natural ventilation across each dwelling.
	04.2.2 Individual dwellings are designed to optimise natural ventilation of habitable rooms.	As before a central vertical breeze-way is proposed which improves the ability for access to natural ventilation. Most dwellings have been designed so as to position an internal door opposite an openable window in habitable rooms, so as to lengthen and improve the ability for ventilation across each dwelling. All apartments include large sliding doors associated with an open plan living room and outdoor balcony, again to improve the ability to access natural ventilation and reduce the reliance on mechanical heating or cooling means.
	04.2.3 Single aspect apartments are designed to maximise and benefit from natural ventilation.	No single aspect apartments are proposed.
4.3 — Size and Layout	**04.3.1** The internal size and layout of dwellings is functional with the ability to flexibly accommodate furniture settings and personal goods,	The internal size and layouts of the dwellings are functional and provides the ability for reuse in the future to suit and be customised to different residents. The size and layout of each apartment is considered appropriate for the expected household

Element Objective		Justification and Comment
	appropriate to the expected household size.	size. The apartment composition is for seven three-bedroom dwellings and three single-bedroom dwellings.
	04.3.2 Ceiling heights and room dimensions provide for well-proportioned spaces that facilitate good natural ventilation and daylight access.	The proposed room dimensions and proportions facilitate good access to natural ventilation and daylight. Each individual floor is ~3.1m high. Further detail is provided on the building floor plans.
4.4 — Private Open Space and Balconies	**04.4.1** Dwellings have good access to appropriately sized private open space that enhances residential amenity.	All apartments have good access to an appropriately size private open space. All private open space meets the minimum dimension and area requirements of the respective acceptable outcomes. Some screening has been incorporated as a design feature, more so to improve the attractiveness of the façade, and for solar access and shade control, rather than visual privacy and limit overlooking.
	04.4.2 Private open space is sited, oriented and designed to enhance liveability for residents.	All primary private open space of each apartment is oriented north, to maximise solar access and the usability of these spaces. The private open space is sited and provided to enhance the liveability for residents. All private open space is capable of receiving direct sun. All private open space is also directly accessible from the living room of each unit, and secure.
	04.4.3 Private open space and balconies are integrated into the overall architectural form and detail of the building.	The proposed development design thoughtfully integrates the balconies and ground floor private open space into the building design. The balconies are framed with the building façade and compliment the overall proposed aesthetic. Most private open space includes landscaping, which complements the green aesthetic of the overall development. The design and materiality of landscaping integrates with the private open space. Some balconies and other private open space include landscaping which has been thoughtfully integrated into the design of the building. Overall, the private open space is thoroughly integrated into the design of the building providing a thoughtful and functional design which does not include unscreened external fixtures or servicing infrastructure.
4.5 — Circulation and Common	**04.5.1** Circulation spaces have adequate size and capacity to provide safe and convenient access for all residents and visitors.	The size and capacity of circulation areas is considered to be appropriate, safe, and convenient. All circulation spaces are at least 1.5m in width, this includes lobbies and external circulation spaces, which have all been designed with universal access considerations in mind.

Element Objective		Justification and Comment
		Direct, convenient, and safe pedestrian access is provided for all residents and visitors both from the street, and from vehicle parking areas to each proposed apartment. A security system is proposed to be installed to manage the means of access to each apartment from the street and will be complimented by a lighting treatment for the public and secure access communal circulation spaces. Each apartment is also proposed to be securable in accordance with the requirements of the National Construction Code. The impact of noise from circulation areas is considered to be minimal.
	O4.5.2 Circulation and common spaces are attractive, have good amenity and support opportunities for social interaction between residents.	The ground floor circulation space, and common spaces are complemented with communal avocado trees, creeping figs, as well as several other trees and planters. Each apartment design is well resolved and allows for good all-round use be residents and visitors alike. Given the proposal for only ten apartments a specific communal open space is not required. Informal seating for residents to sit and relax in is provided to the east of the apartment complex at the front of the property.
4.6 — Storage	**O4.6.1** Well-designed, functional and conveniently located storage is provided for each dwelling	Each apartment has been provided with a conveniently located, easily accessible storeroom. These storerooms are well-designed and functional. The storerooms for four of the ten apartments are located within the apartment itself, with the remainder being on the basement floor car parking area. Each storeroom will be provided with adequate lighting in accordance with the National Construction Code. The acceptable outcomes are for a store rooms to have an area of 3sqm (single-bedroom dwelling) or 5sqm (three-bedroom dwelling) with minimum dimensions of 1.5m and a ceiling height of at least 2.1m. All proposed store rooms meet these size development standards.
4.7 — Managing the Impact of Noise	**O4.7.1** The siting and layout of development minimises the impact of external noise sources and provides appropriate acoustic privacy to dwellings and on-site open space.	The proposed design will be acoustically treated to minimise the impact of noise to the apartments. The proposed development will be required to achieve the acoustic requirements of the National Construction Code and includes several noise abatement design treatments. An acoustic report has been prepared for this application (by B. Lorente Lacasta Consultants and Alijn Built Forms) that details and demonstrates the design requirements that the proposal meets and has to comply with.

Element Objective		Justification and Comment
		The location of mechanical building services and vehicle car parking and manoeuvring areas are proposed to be screened from sensitive residential apartments, and from adjoining sites.
	04.7.2 Acoustic treatments are used to reduce sound transfer within and between dwellings and to reduce noise transmission from external noise sources.	Each apartment is separated vertically and horizontally by a fire-rated wall or floor plate which will sufficiently reduce sound transfer. The apartment block has also been sufficiently separated from nearby neighbouring properties to reduce the impact of noise propagation between these apartment blocks. The property will be administered by a strata body who will ensure the ongoing management of the property, and address noise issues associated with individual apartments should the become a problem.
4.8 — Dwelling Mix	**04.8.1** A range of dwelling types, sizes and configurations is provided that caters for diverse household types and changing community demographics.	The design incorporates a range and mix of dwelling types spread over each of the floors. This includes: • 7x three bedroom, two-bathroom apartments; • 3x single-bedroom apartments. The proposed design is considered to be capable of catering to both current and future housing demand. The development has demonstrated a good mix of dwelling types, and in doing so will cater for a wider community and resident demographic.
4.9 — Universal Design	**04.9.1** Development includes dwellings with universal design features providing dwelling options for people living with disabilities or limited mobility and/or to facilitate ageing in place.	More than 20% of the multiple dwellings achieve the universal design Silver Level requirements of the *Livable Housing Design Guidelines*. All floors are accessible via a lift, and include appropriate clearances, design features, and space to achieve the universal design standards. The design supports and is considered to achieve and provide for aging in place.
4.10 — Façade Design	**04.10.1** Building façades incorporate proportions, materials and design elements that respect and reference the character of the local area.	The building has undergone several design revisions. The building façade design includes a mixture of contrasting rendering, contemporary metallic balustrading, glass panelling, timber elements, concrete blockwork, and curved architectural breeze blocks which provide a contrast to contemporary feel, and give the building a earthy and relatable appearance. The façade also includes articulation and scaling elements to improve its appearance to the street. The face brick and blockwork adds character and a sense of age to the design and references existing buildings and residential development in the local area. The design also includes landscaping to the street

Element Objective		Justification and Comment
		frontage which will complement and soften the design and its appearance to the street. The proposed design achieves the acceptable outcomes as it provides a façade treatment that includes: • a site responsive mixed materials and colours palette; • building articulation and scaling; • clearly defined and legible building entries; • vertical design elements; and • concealed building services.
	04.10.2 Building façades express internal functions and provide visual interest when viewed from the public realm.	The proposed design provides a variety of responsive materials, colours, and other design elements to the building façade. As discussed previously, this includes face brick, wood, metal, glass and contrasting render in combination with an articulated façade design. Together this façade treatment provides visual interest for the development when viewed from the street. The building façade provides a clear hierarchy and expression of the building's function and purpose as residential apartments.
4.11 — Roof Design	**04.11.1** Roof forms are well integrated into the building design and respond positively to the street.	The proposed split-level roof form complements the façade design and streetscape character. The proposed building services are not visually obtrusive when viewed from the street. The concealed roof design minimises the perception of additional roof bulk of the development. The façade provides a gabled roof design as well as a concealed roof design, and steps back the upper floor. The design uses multiple roof levels. The proposed roof form is considered to be well integrated into the overall building design, and provides a positive contribution to both the current and future street and streetscape. Roof services are expected to be screened / located so as to not be visible from the street as a standard condition of approval.
	04.11.2 Where possible, roof spaces are utilised to add open space, amenity, solar energy generation or other benefits to the development.	The roof space will incorporate an area for solar panels as part of an integrated enery network. The use of the roof for solar generation is considered to be a great addition to the proposal, and in helping the site meet sustainability and energy efficiency targets. The proposed development wholly achieves the element objectives relating to energy efficiency. Given the proposal does not exceed ten dwellings, communal open space on the roof has not been proposed.
4.12 —	**04.12.1** Landscape design enhances streetscape and pedestrian amenity;	Cascading / hanging planting is proposed throughout to reduce the impact of walls, facades, and fences. This landscaping has

Element Objective		Justification and Comment
	improves the visual appeal and comfort of open space areas; and provides an attractive outlook for habitable rooms.	the benefit of softening the façade, and improving the aesthetic of the development overall. The street frontage includes numerous tree plantings to further contribute to creating an attractive view toward the development. All apartments have outlook toward landscaping and landscaped areas. The landscaping design addresses the street, and communal open space areas through the provision of shade trees and plants which will sufficiently address and improve the aesthetic and functional performance of the development in relation to heat loads, and heat retention, noise and acoustic propagation, privacy, and health and wellbeing of residents and visitors. The design includes a verge landscaping treatment surplus to landscaping requirements.
	04.12.2 Plant selection is appropriate to the orientation, exposure and site conditions and is suitable for the adjoining uses.	The proposed plant selection includes Avocado Trees, Lemon Trees, and Lime Trees, as well as several other hardy tree and plant varieties which require little upkeep. In addition to this, the application proposes two flowering Jacaranda street trees which are iconic to the City of Melville area, and which will complement and soften the overall built form.
	04.12.3 Landscape design includes water efficient irrigation systems and where appropriate incorporates water harvesting or water re-use technologies.	All landscaped areas will be reticulated using a variety of systems, as well as mulched to a minimum depth of 30mm. This will minimise the extent of water loss through evaporation. The proposed design is considered to achieve and be consistent with the intent of this element objective.
	04.12.4 Landscape design is integrated with the design intent of the architecture including its built form, materiality, key functional areas and sustainability strategies.	The proposed landscaping is considered to be integrated with the built form of the development overall. As demonstrated in the submitted landscaping plan, the plant selection is considered to respond to and soften the impact of the apartment built form.
4.13 — Adaptive Reuse	**04.13.1** New additions to existing buildings are contemporary and complementary and do not detract from the character and scale of the existing building.	*Not applicable.*
	04.13.2 Residential dwellings within an adapted building provide good amenity for residents, generally in accordance with the requirements of this policy.	*Not applicable.*

Element Objective		Justification and Comment
4.14 — Mixed Use	**04.14.1** Mixed use development enhances the streetscape and activates the street.	*Not applicable.*
	04.14.2 A safe and secure living environment for residents is maintained through the design and management of the impacts of non-residential uses such as noise, light, odour, traffic and waste.	*Not applicable.*
4.15 — Energy Efficiency	**04.15.1** Reduce energy consumption and greenhouse gas emissions from the development.	An energy efficiency assessment of the proposal has been conducted which results in the apartments receiving and average start rating of ~6.7 stars. All apartments will include insulation and several other design features to reduce the energy impact of the apartment complex across its lifetime, including glazing, insulation, water efficient fittings, and lowest lifecycle cost materials (with high durability, low maintenance, and low embodied energy) The design proposes the use of light sensors and LED lights to reduce electricity consumption across the site when areas are not in use (without compromising the principles of Crime Prevention Through Environmental Design). A key design element includes a proposal for on-site solar power collection and storage in an integrated system which will greatly aid in reducing the ongoing power usage footprint of the development. The design has also closely considered natural ventilation and solar access through and across the site to reduce the need for artificial heating and cooling means year-round. The applicant welcomes the conditioning of such a design element where it will assist the timely approval of the application. The proposal is consistent with the City's Local Planning Policy 1.5 relating to Energy Efficiency in Building Design.
4.16 — Water Management and Conservation	**04.16.1** Minimise potable water consumption throughout the development.	The proposed design aims to utilise water efficient fixtures and fittings for the toilets and kitchen / bathroom taps and shower heads within each apartment. It is also noted that each apartment is individually metered for water and power use, which will reduce the amount of potable water consumption (as each tenant will be individually liable for their own use). The applicant welcomes the conditioning of such a design element where it will assist the timely approval of the application. The proposal is

Element Objective		Justification and Comment
		consistent with the City's Local Planning Policy 1.5 relating to Energy Efficiency in Building Design. Further information is provided in the Energy Efficiency Assessment by SustainabilityWA.
	04.16.2 Stormwater runoff from small rainfall events is managed on-site, wherever practical.	The design proposes to retain all stormwater which falls on the site within the site through soak wells and stormwater infrastructure. It is expected that this will be conditioned as a standard condition of development approval, with specific details relating to water management and conservation to be conditioned / addressed at building permit stage.
	04.16.3 Reduce the risk of flooding so that the likely impacts of major rainfall events will be minimal.	The topography of the site is relatively flat rising no more than ~0.5m. As illustrated on the submitted plans, the basement and site will include soakwells which will be capable of infiltrating stormwater runoff for 1 in 1 year Average Recurrence Interval rainfall events. The development will meet the requirements of the National Construction Code. Specific details relating to water management and conservation are expected to be conditioned as a standard condition of approval / addressed at building permit stage.
4.17 — Waste Management	**04.17.1** Waste storage facilities minimise negative impacts on the streetscape, building entries and the amenity of residents.	A detailed Waste Management Plan has been prepared for the proposed development by Alijn Built Forms. This Waste Management Plan addresses the requirements of a Level 1A waste management plan for multiple dwelling in accordance with the WALGA *Multiple Dwelling Waste Management Plan Guidelines 2015* and the requirements set-out in the City's Local Planning Policy 1.3 (Waste and Recyclables Collection for Multiple Dwellings, Mixed Use Developments and Non-Residential Developments). The bin store is located behind the street setback area (within the basement) and not readily visible from the street, residential apartments, or common areas. The bin store will also include a washdown area, and suitable drain with gross pollutant trap. The amenity impact of the proposed bin storage is considered to be minimal. The Waste Management Plan has specified the inclusion of a bin presentation hardstand area at the direction of the City.
	04.17.2 Waste to landfill is minimised by providing safe and convenient bins and information for the separation and recycling of waste.	The Waste Management Plan prepared for this development proposes the use of a three-bin system to separate recyclable waste, organics waste, and general waste. The proposed bin composition is:

Element Objective		Justification and Comment
		• 4x 240L Mobile General Waste Bins (MGB); and • 5x 360L Mobile Recycling Bins (MRB); and • 7x 240L Food Organics and Garden Organics Bins (FOGO / MOB). The expected waste generation (as detailed in the Waste Management Plan) is: • 480L per week General Waste (MGB); and • 900L per week Recyclable Waste (MRB); and • 1,920L per week FOGO Waste (FOGO / MOB). The proposed bin composition can accommodate the expected waste generation of the proposed apartment development. The use of this three-bin system is considered to minimise the amount of waste which will go through to landfill. Information signage is expected to be provided within the bin store to assist with informing residents of how to use this bin system and to reduce contamination, this is expected to be conditioned. The Waste Management Plan specifies the provision of a bin for each apartment to allow for the separation of waste prior to transfer to the bin-store. The developer is required to satisfy the Waste Management Plan which has been prepared for the development by Alijn Built Forms. Ongoing up-keep and compliance with the Waste Management Plan will be the responsibility of the future strata company. The day-to-day upkeep of the bin stores and waste store areas will be the responsibility of the strata company caretaker.
4.18 — Utilities	**04.18.1** The site is serviced with power, water, gas (where available), wastewater, fire services and telecommunications / broadband services that are fit for purpose and meet current performance and access requirements of service providers.	The proposed building services will include power, potable water, natural gas, sewerage, and NBN. These services will be fit for purpose and meet the performance and access requirements of the respective service providers. NBN and underground power are proposed to service the site.
	04.18.2 All utilities are located such that they are accessible for maintenance and do not restrict safe movement of vehicles or pedestrians.	The design and location of building utilities including laundries, stores, site servicing infrastructure, waste collection rooms, etcetera are positioned to not be visually or acoustically obtrusive and to be functional and convenient to use. The

Element Objective		Justification and Comment
		applicant welcomes the conditioning of this as a standard condition of planning approval.
	O4.18.3 Utilities, such as distribution boxes, power and water meters are integrated into design of buildings and landscape so that they are not visually obtrusive from the street or open space within the development.	The location of the proposed water meter is near the south west corner of the lot.
	O4.18.4 Utilities within individual dwellings are of a functional size and layout and located to minimise noise or air quality impacts on habitable rooms and balconies.	There is not considered to be any adverse negative impact which will arise from the proposed development in relation to noise or air quality impacts from utilities within individual apartments. This includes from laundry rooms, store rooms, or waste collection rooms.

PLANNING & DEVELOPMENT (LOCAL PLANNING SCHEMES) REGULATIONS 2015

The decision maker is to have due regard to various matters contained within clause 67 of Schedule 2 Deemed Provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015* (W.A.). It is noted that the development satisfies the matters to be considered by local government within clause 67 of these regulations. In considering an application for development approval the local government (or delegated decision-making authority / decision-maker) is to have due regard to the following matters to the extent that, in the opinion of the local government, those matters are relevant to the development the subject of the application —

Ref	Provision	Complies / Comment
	Clause 67 Deemed Provisions — Matters to be considered by local government / decision maker	
a.	the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;	Satisfies aims and provisions of the Local Planning Scheme as discussed prior.
b.	any approved State planning policy;	Satisfies State Planning Policy framework.
c.	the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;	Satisfies the requirements of orderly and proper planning.
d.	any environmental protection policy approved under the Environmental Protection Act 1986 section 31(d);	Not applicable to this site.
e.	any policy of the Commission;	Satisfies WAPC policies.

Ref	Provision	Complies / Comment
f.	any policy of the State;	Satisfies State policies.
g.	any local planning policy for the Scheme area;	Satisfies Local Planning Policy framework as detailed in the planning assessment section of this report.
h.	any structure plan, activity centre plan or local development plan that relates to the development;	Satisfies applicable Activity Centre Plans.
i.	any report of the review of the local planning scheme that has been published under the Planning and Development (Local Planning Schemes) Regulations 2015;	Not applicable to this site.
j.	in the case of land reserved under this Scheme, the objectives for the reserve and the additional and permitted uses identified in this Scheme for the reserve;	Not applicable to this site.
k.	the built heritage conservation of any place that is of cultural significance;	Satisfied. The lot does not contain registered places of Indigenous Australian or Australian heritage significance.
l.	the effect of the proposal on the cultural heritage significance of the area in which the development is located;	Satisfied. The lot does not contain registered places of Indigenous Australian or Australian heritage significance.
m.	the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;	Satisfies sub-clause m. The proposed development is considered to be compatible with its setting. Multiple dwellings are not common in the local area, however are permissible and encouraged given the zoning and planning framework set out by the City of Melville
n.	the amenity of the locality including the following — (i) environmental impacts of the development; (ii) the character of the locality; (iii) social impacts of the development;	Satisfies sub-clause n. The design considers the established character of the locality and associated environmental and social impacts. No significant adverse impact has been identified.
o.	the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource;	Satisfies sub-clause o. No significant adverse impact has been identified in relation to the impact of the proposed development on the natural environment. Minimal excavation and fill works are proposed.
p.	whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;	The proposal satisfies sub-clause p. Landscaping and deep soil areas are provided throughout as shown on the submitted plans, which create an aesthetically pleasing outlook for future residents.
q.	the suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk;	The site is not within a bush fire risk area or 1 in 100-year flood area. No other specific site constraints related to clause *q* have been identified.
r.	the suitability of the land for the development taking into account the possible risk to human health or safety;	The land is suitable to be developed to the standard proposed. The site proposes minimal risk to human

Ref	Provision	Complies / Comment
		health and safety and will meet (and be required to meet) the standards on the National Construction Code.
s.	the adequacy of — (i) the proposed means of access to and egress from the site; and (ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;	The proposed vehicular and pedestrian access is adequate, clearly legible and suitable for the proposed development. The car parking manoeuvring is further detailed in the report prepared by Move Consultants.
t.	the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;	The site is in close proximity to multi-modal transport options. Expected traffic volumes capable of being handled within the site and proposed development. The site is within a location A area. Car parking provision suitable for local area.
u.	the availability and adequacy for the development of the following — (i) public transport services; (ii) public utility services; (iii) storage, management and collection of waste; (iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities); (v) access by older people and people with disability;	The site is in close proximity to multi-modal transport options. The development proposes a suitable amount of amenity for pedestrians and cyclists. Waste and site servicing requirements are to standard. Design provides suitable access options for older people and people with a movement disability.
v.	the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses;	The development satisfies sub-clause v. No adverse negative impact to community service or community benefit identified.
w.	the history of the site where the development is to be located;	Development in the local area has been traditionally residential suburban development. No historical issues of note have been identified for the subject site.
x.	the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;	The design is considered to increase the opportunity for interaction and activity on the street and provide an overall community benefit. The design satisfies sub-clause x.
y.	any submissions received on the application;	The development is subject to advertising.
za.	the comments or submissions received from any authority consulted under clause 66;	Not applicable.
zb.	any other planning consideration the local government considers appropriate.	Not applicable.

CONCLUSION

The proposed development at 4 Colleran Way has been duly considered in the sections above in accordance with City of Melville Planning Framework, including State Planning Policy 7.3 Volume 2. As demonstrated, the proposed design satisfies the objectives and design guidance as demonstrated in this planning submission, and the City's support for development approval is therefore welcomed.

The application prepared and submitted for development approval to the JDAP showcases a proposal which has considered the site and immediate locality to produce a development outcome and which is responsive to and respectful of the established streetscape and local development character.

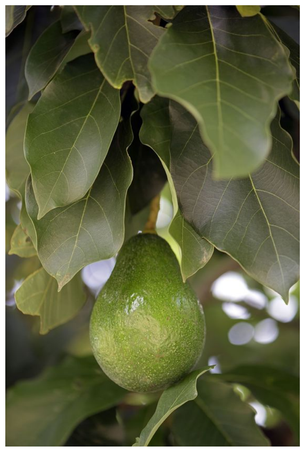
The proposal for ten accessible and well-proportioned apartments and a highly sustainable design solution (incorporating energy and thermally efficiency apartments as well as solar capture and storage) is considered to complement the generous and functional greening which is proposed throughout. The design has respected and responded to the emerging character of the area in providing more affordable, and sustainable, high amenity living options. The future residents of 4 Colleran Way will be able to enjoy the benefits of living within throwing distance of excellent public transport links, retail options, community and health facilities, and natural recreation spaces.

The proposal will bring in much needed vibrancy and activity to the wider Booragoon and Melville City Centre area and positivity contribute to the growth and vitality of Colleran Way.

It is recommended that the JDAP welcome this addition to the local area, and assist the City of Melville in meeting their dwelling diversity and housing targets, by approving the application subject to appropriate conditions.

Should you have any question in relation to the details provided in this submission, please contact Petar Mrdja on 6444 9171 or petar@urbanistaplanning.com.au.

FICUS PUMILA



Custom steel seating & herb planters

Custom Steel Planters for Chinese Pistachio trees underplanted with Native Lomnadra 'Lime Tuff' Grasses

Community seating and herb gardens

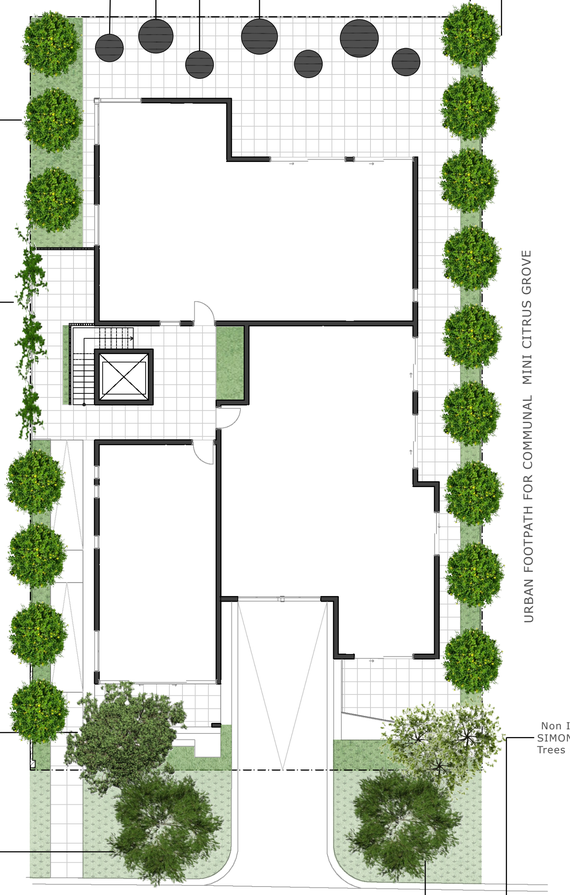
LIGHTING AND RETICULATION PROVISIONS TO THESE PLANTERS

Pleached TAHITIAN Lime Trees along Eastern Boundary fence for Communal picking

Passionfruit climber to be trained up and over fence for Communal overhanging garden.

3 x Lemon Trees

Ficus Pumila 'Creeping Figs' to grow up Western Masonry wall to cool and soften 200mm garden bed with reticulation and lighting provisions.



COMMUNAL Avocado tree

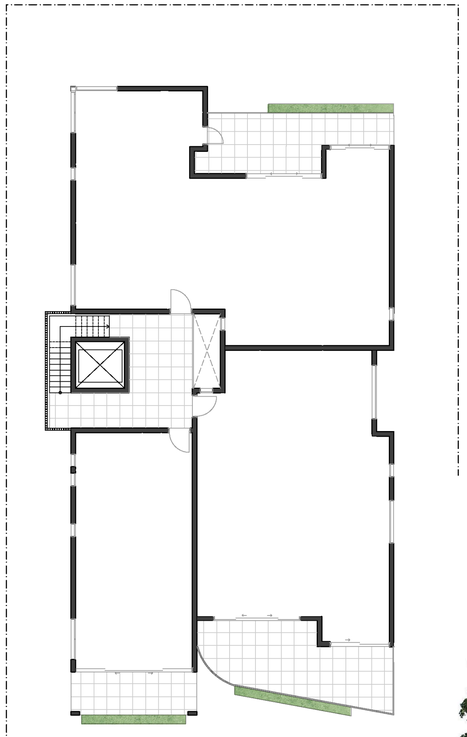
Non Invasive SIMON'S Poplar Trees x 3

White Jacarandah Verge Trees

COLLERAN WAY

Lighting & reticulation Provisions under all Proposed Trees

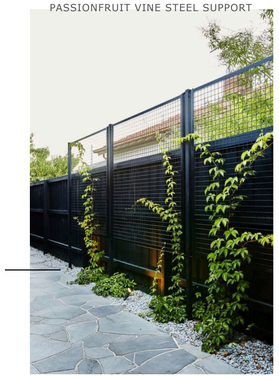
GROUND FLOOR LANDSCAPE PLAN



TYPICAL FLOOR LANDSCAPE PLAN

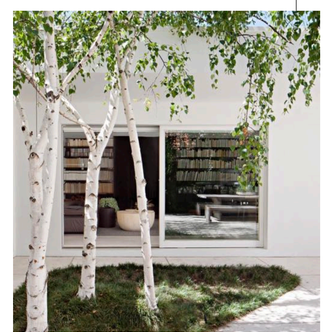
Steel Mesh Custom Screens to support Passionfruit vine on boundary fence

PASSIONFRUIT VINE STEEL SUPPORT



COMMUNAL LIME TREES

Poplar Trees Clumped informally in garden bed with mass planted Dwarf Liriope Grasses



Balcony planters to be mass planted with Cissus antarctica 'Kangaroo Vine

Planting List

3 x Populus simonii 'Simons Poplar 200ltr
1 x Avocado Sharwil 'Avocado tree' 400ltr
2 x Jacarandah alba 'White Christmas'
13 x Citrus x latifolia 'Tahitian Lime Tree' 75ltr
3 x Citrus lemon ' Lemon trees' 150ltr
100 x Passionfruit vines 'Sunshine Special'
3 x Pistacia chinensis ' Chinese Pistachio tree 200ltr

COLLERAN APTS

4 COLLERAN WAY, BOORAGOON

Revision	Drawing Name	Date Issued:	Layout ID
DA1	**Landscape Plans** Drawing Scale: **1:200 @ A3** Drawing Status: **DRP Submission**	**Tuesday, December 10, 2019** Modified by **LBR** Checked by **CH**	**A.11**

_blocq+ ARCHITECTURE

ASCHER SMITH
exterior styling & landscaping

Mobile **0422 069 310**
Email ascher@aschersmith.com.au
www.aschersmith.com.au

CLIENT: Alijn Architects

Colleran Apartments

SITE ADDRESS:
4 Colleran Way, Booragoon

Drawn: Ascher Smith
Date: December 17, 2019
Project No:

PROGRESS DRAWING

This drawing is not intended to be used for contract pricing or fabrication purposes.
All content is subject to change

Proposed Residential Development
4 Colleran Way, Booragoon

TRANSPORT IMPACT AND PARKING ASSESSMENT – V2

FINAL REPORT

Prepared for: FAT One Pty. Ltd.

Prepared by: Move Consultants

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December 2019

DOCUMENT ISSUE AUTHORISATION

Issue	Rev	Date	Description	Checked	Approved
1	0	10/12/19	FINAL	HH	HH
2	1	17/12/19	REV	HH	HH

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1. INTRODUCTION

1.1 OVERVIEW

This Transport Impact and Parking Assessment has been prepared by Move Consultants on behalf of FAT One Pty. Ltd. with regard to a proposed residential development to be located at 4 Colleran Way, Booragoon in the City of Melville. The subject land is currently occupied by a single-family dwelling and is located adjacent to the *Melville City Centre Structure Plan* area.

1.2 SITE LOCATION

The site is located on the north side of Colleran Way south of Marmion Street and west of Riseley Street in the suburb of Booragoon and is located due south-west of the signalised intersection of Riseley Street and Marmion Street. The site is generally presently surrounded by residential uses to all sides and is located approximately 60m due south of the Westfield Booragoon Shopping Centre and Booragoon Bus Station where are located on the north side of Marmion Street on the west side of Riseley Street. The site is currently occupied by a single-family dwelling with access to the north side of Colleran Way and backs onto existing and proposed high density residential uses located on the south side of Marmion Street opposite the Booragoon Bus Station

The location of the site is shown in Figure 1.

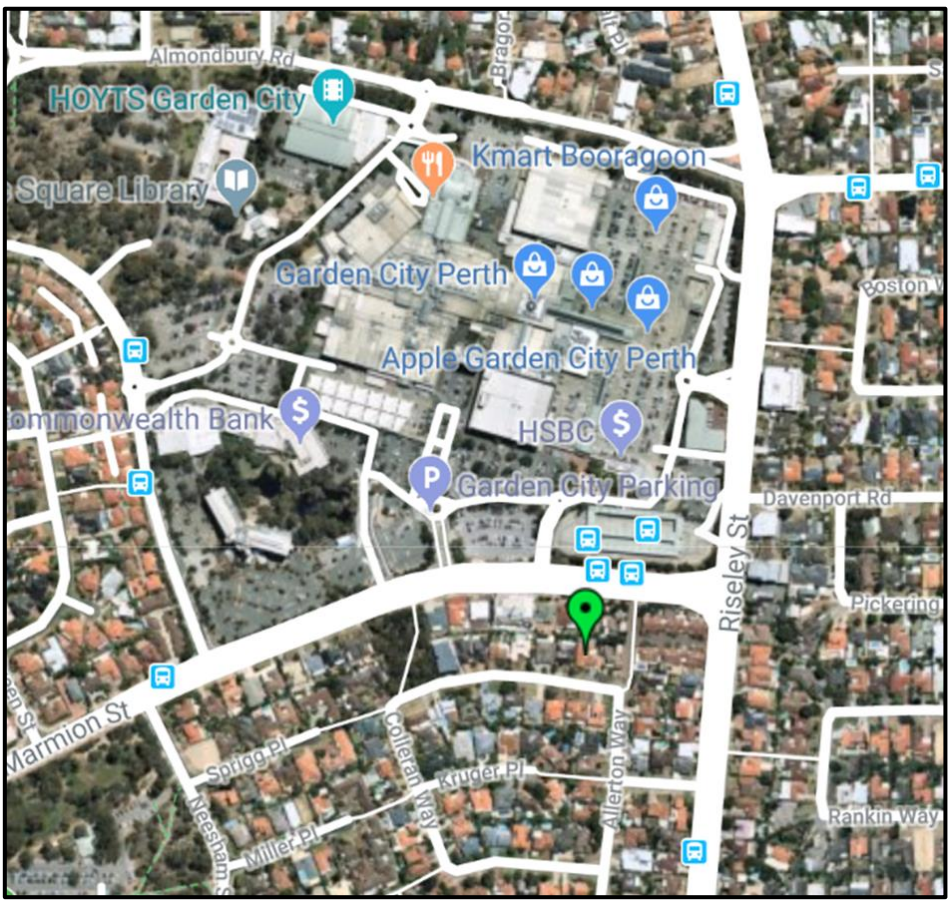


Figure 1: Site Location

The general metropolitan context is shown in Figure 2.

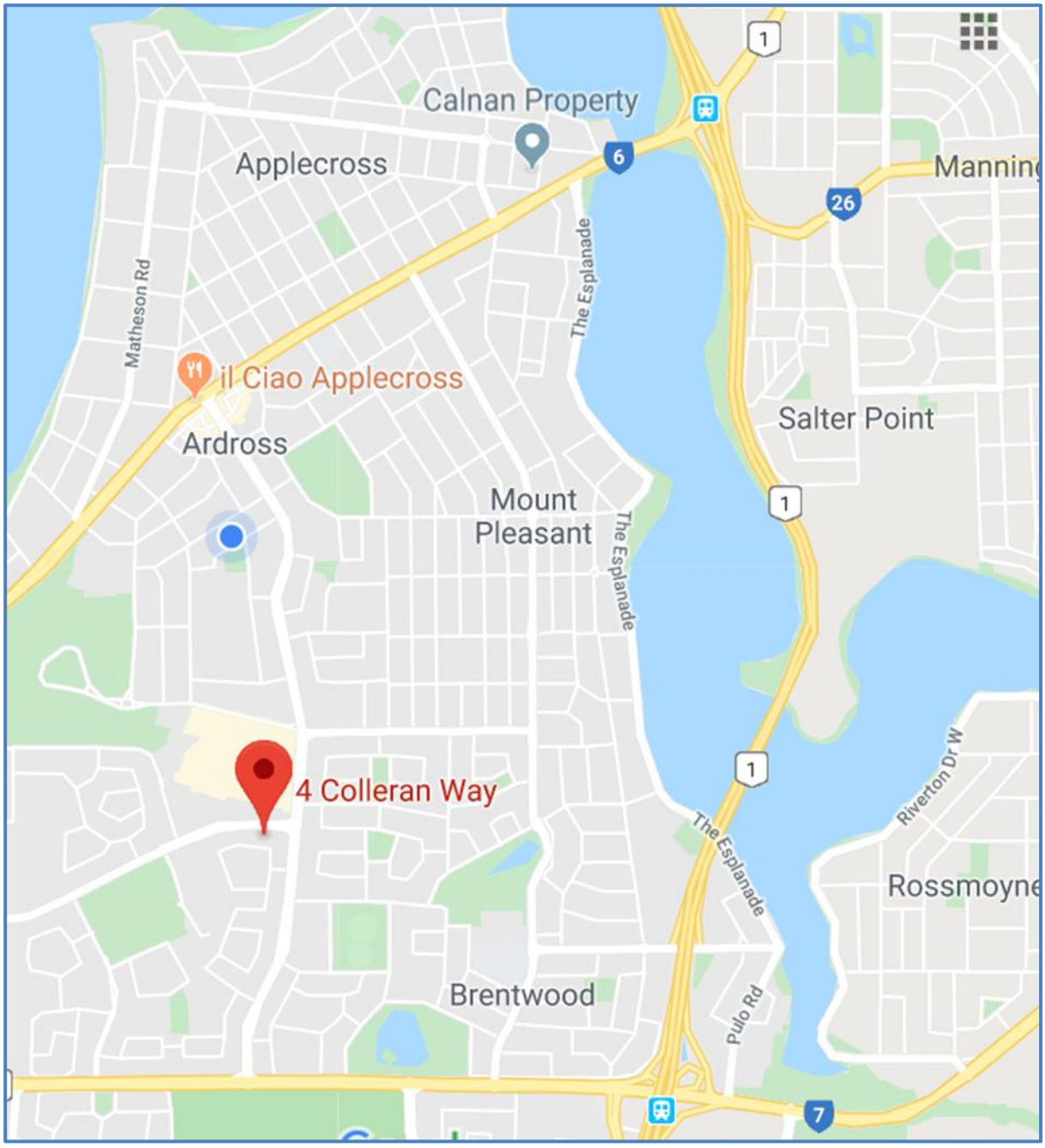


Figure 2: Metropolitan Context

1.3 SCOPE OF ASSESSMENT

This report has been prepared in accordance with the Western Australian Planning Commission's *Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments* (2016).

Specifically, this report aims to assess the impacts of the proposed development on the boundary road network in the vicinity of the site to identify any modifications, to site or road layout, which may be required to serve the proposed site. In addition, the assessment considers the proposed access, circulation, and egress arrangements to and from the site.

For this purpose, the traffic operations on the adjacent and broader local road network has been assessed under both existing and future proposed traffic conditions with regard to the potential impacts from additional traffic generated by the proposed development of the site.

2. EXISTING SITUATION

2.1 ROAD INFRASTRUCTURE

The proposed development is to be constructed on a site currently occupied by a single family dwelling on the north side of Colleran Way, west of Riseley Street and south of Marmion Street, in the suburb of Booragoon and immediately adjacent to the Melville City Centre, in the suburb of Booragoon with a single crossover proposed to the north side of Colleran Way. The site is bounded generally by existing residential uses to all sides and proposed high density residential to the north along Marmion Street.

Riseley Street is the primary north-south connecting road within the Melville City Centre and functions as a north-south link between Leach Highway and Canning Highway parallel to the Kwinana Freeway and links directly into the Melville City Centre and Westfield Booragoon Shopping Centre. The site is located immediately to the south of the Melville City Centre and is in walking distance to the Westfield Booragoon Shopping Centre and Booragoon Bus Station located approximately 60m to the north of the site. It has been classified as a *District Distributor A* road under the Main Roads WA *Functional Road* Hierarchy and is defined as a road which *"...carries traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property and are managed by Local Government."* Riseley Street has been constructed as a dual divided carriageway in the vicinity of the subject site and operates under a speed limit of 60kph. It is owned, operated and maintained by the City of Melville.

Marmion Street is a major east-west parallel reliever route to Leach Highway, located to the south, and to Canning Highway, located to the north. It provides direct access into the southern half of the Melville City Centre. It also functions as an east-west link between Fremantle to the west and the Melville City Centre. It has been classified as a *District Distributor A* road under the Main Roads WA *Functional Road* Hierarchy and is defined as a road which *"...carries traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property and are managed by Local Government."* Marmion Street has been constructed as a dual divided carriageway in the vicinity of the site and operates under a speed limit of 60kph. It is owned, operated and maintained by the City of Melville.

Colleran Way, along the southern frontage of the site, has been classified as an *Access Road* under the Main Roads Western Australian *Functional Road Hierarchy* with these roads defined as those which *"… provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local Government."* It has been constructed to a single undivided carriageway standard with a seal of 6 to 7m in the vicinity of the subject site and operates under a speed limit of 50kph. It is owned, operated and maintained by the City of Melville. The balance of the roads in the general vicinity of the site, including Allerton Way and Griffin Street, which connects directly to Riseley St 180 due south-east of the site, are also classified as *Access Roads.*

Figure 3 illustrates the functional road hierarchy in the vicinity of the site.

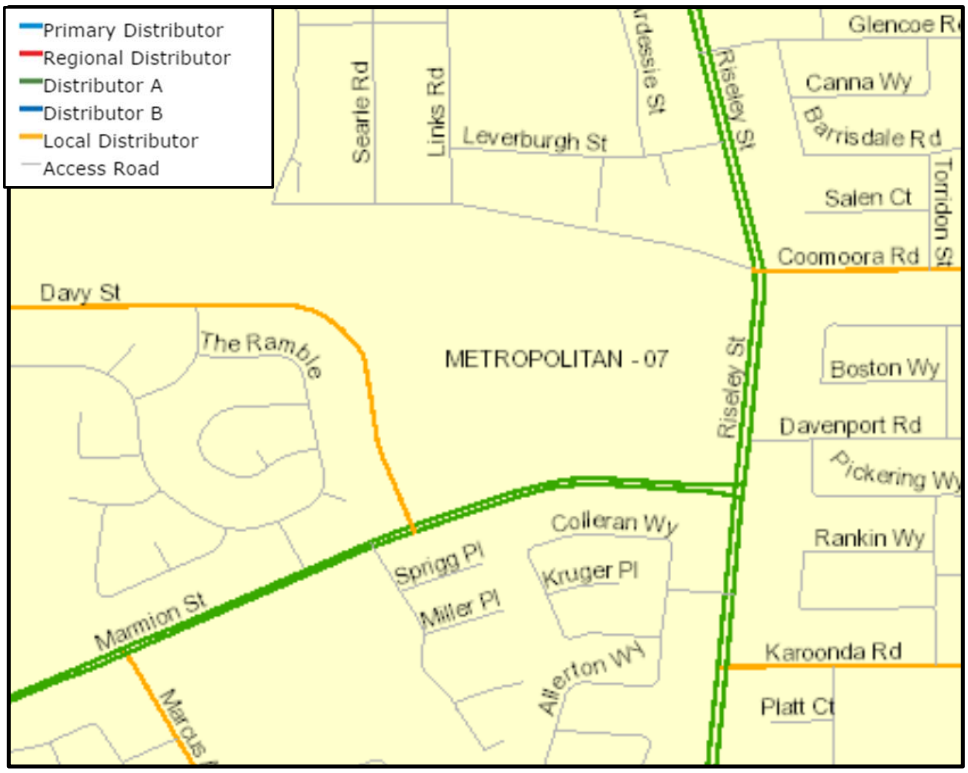


Figure 3: MRWA Functional Road Hierarchy

The intersection of Riseley Street with Marmion Street is a signalised intersection and the T-intersection of Riseley Street with Griffin Street operates under Give Way control on the Griffin Street approach. The T-intersection of Allerton Way/Griffin Street operates under Give Way control on the Griffin Street approach.

Existing traffic volumes are outlined in Table 1.

Table 1: Existing Traffic Volumes

Road	Daily Volume (vpd)	Date/Source	Practical Capacity (vpd)
Marmion Street (West of Riseley Street)	14,400 vpd	Main Roads WA (2018/19)	25,000 vpd
Riseley Street (North of Marmion Street)	16,500 vpd	Main Roads WA (2018/19)	30,000 vpd
Riseley Street (South of Marmion Street)	22,000 vpd	Main Roads WA (2018/19)	30,000 vpd
Griffin Street	1,500 vpd (est.)	Estimated	3,000 vpd
Allerton Way/Colleran Way	750 vpd	Estimated	3,000 vpd

2.2 PUBLIC TRANSPORT, PEDESTRIAN, AND CYCLIST FACILITIES

The site is well served by public transport services and is within a 1-minute walking distance a major regional bus station (Booragoon Bus Station) via the existing public access way located east of the site connecting Colleran Way with Marmion Street. A number of high frequency bus services including Routes 114, 115 and 501 provide direct services along Marmion Street, Riseley Street, Leach Highway and Canning Highway as well as to both Bull Creek Railway Station, Canning Bridge Railway Station and Fremantle Railway Station. The combined frequency of these bus services typically run a 5- to 10-minute service during the weekday roadway peak periods and a15-minute services during the evening and weekend periods. Figure 4 shows the existing public transport services in the area.

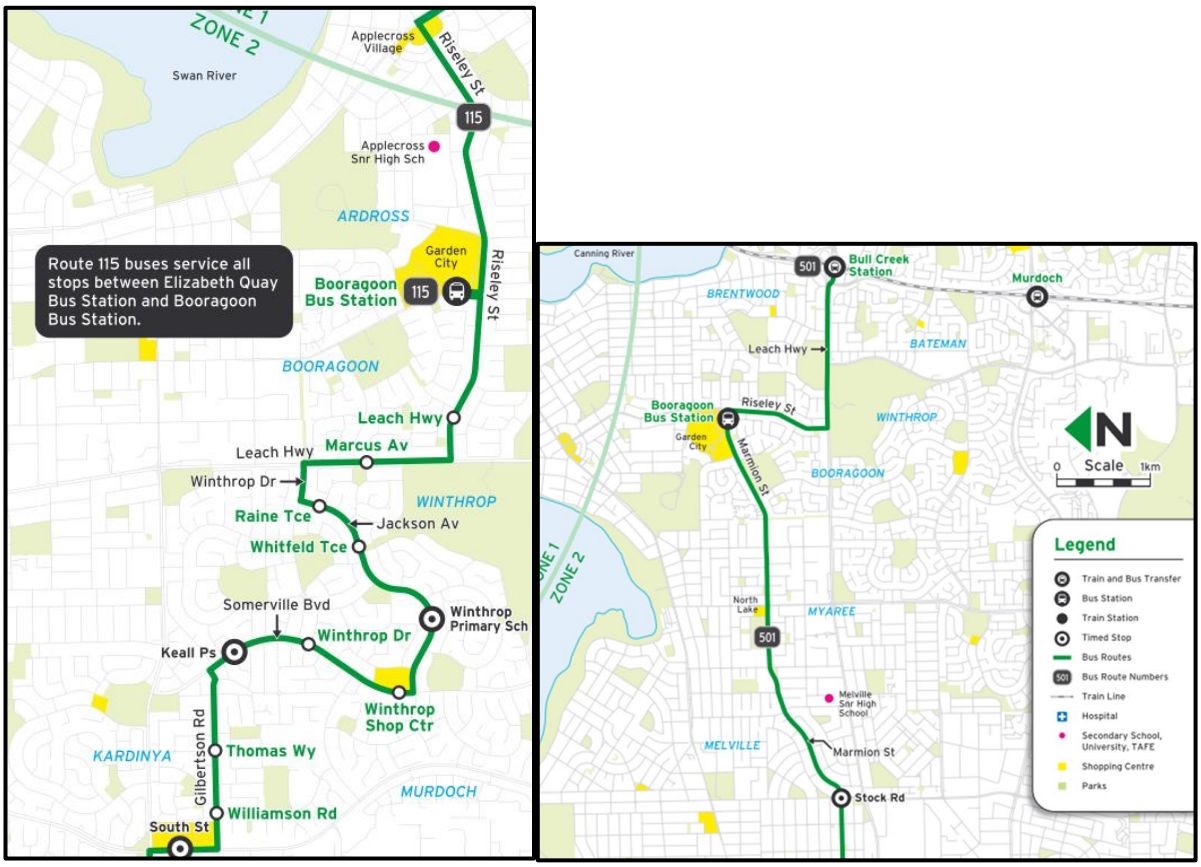


Figure 4: Existing Public Transport Services

The closest train station to the site, Bull Creek Railway Station, is approximately 2.0km due south-east of the site. This exceeds the maximum limit of 800m which people are generally willing to walk to access a train service; however, the existing high frequency line haul bus services from Booragoon Bus Station, in close proximity to the site (as described above) facilitates easy and convenient direct access to the station. These existing services also provide a direct connection to the railway station onto further destinations.

A footpath of 2.0m in width is in place on both sides of Marmion Street and Riseley Street and dedicated on-road cycle lanes are also in place on both sides of these roads. No footpaths are in place on Griffin Street, Allerton Way or Colleran Way; however, Griffin Street has been designated as a *Bicycle Boulevard.* Further to the south, there are Principal Shared Paths on both sides of Leach Highway and a Principal Shared Path is in place along the Canning River's west side in Mount Pleasant which connects directly to the Principal Shared Path on the west side

of the Kwinana Freeway connecting into the Perth CBD. Figure 5 shows the cycling and pedestrian infrastructure in the vicinity of the site.

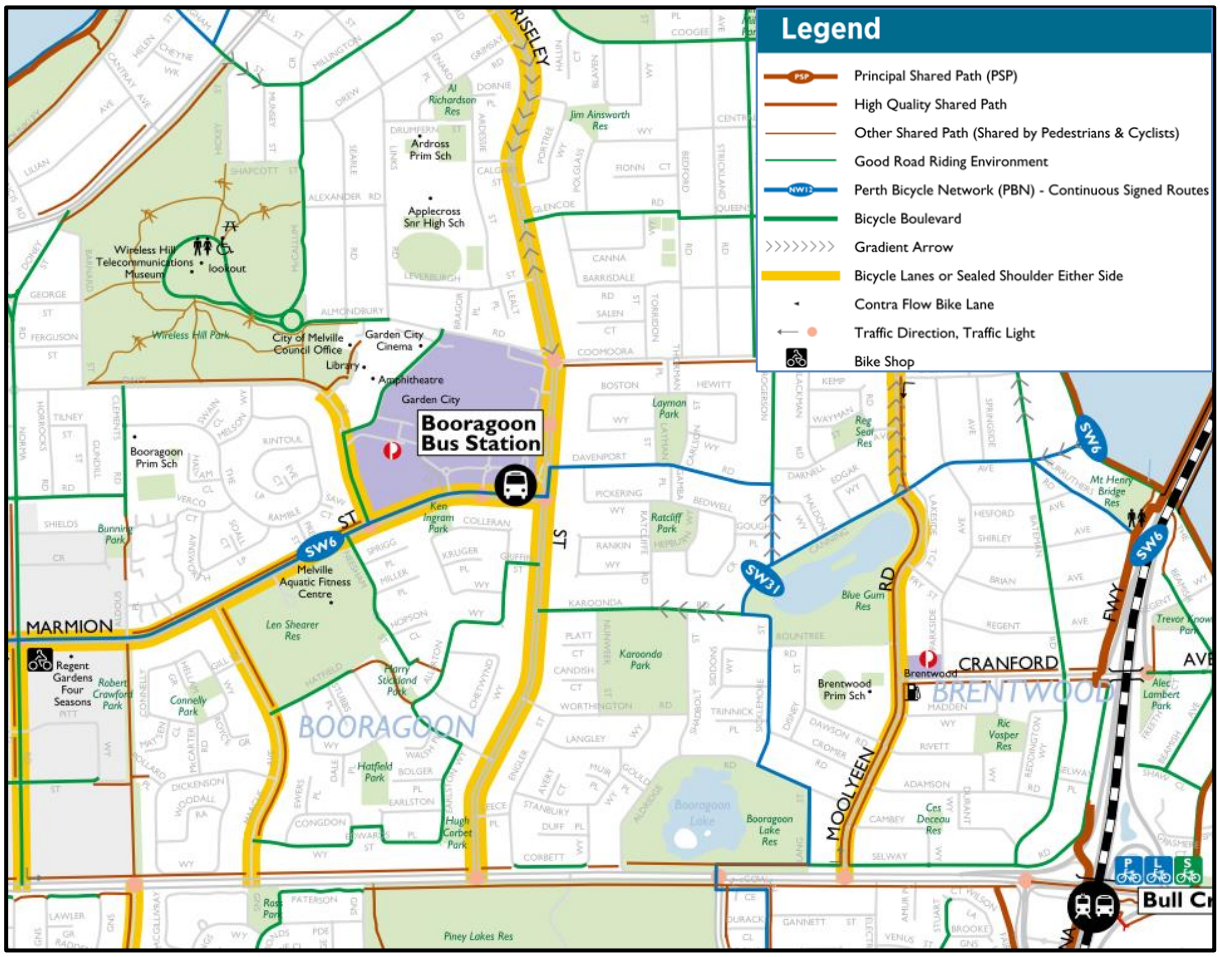


Figure 5: Existing Cycling and Pedestrian Infrastructure

3. PROPOSED DEVELOPMENT

A site plan of the proposed development has been prepared by Alijn Architects. A copy of the site plan is contained in **Appendix A**.

3.1 PROPOSED LAND USES

The proposal seeks the development of 10 multiple-dwelling residential units consisting of 7 x 3-bedroom apartments and 3 x 1-bedroom apartments.

The proposed residential development is to be constructed on the site, which is currently occupied by a single-family dwelling, located on the north side of Colleran Way, Booragoon in the City of Melville and located immediately to the south of the Booragoon Bus Station and Westfiled Booragoon Shopping Centre. The site is also located adjacent to the *Melville City Centre Structure Plan* area. Existing residential uses are located to all sides of the site with future high-density development proposed to the immediately northern boundary of the site on the south side of Marmion Street.

3.2 PROPOSED ACCESS AND PARKING ARRANGEMENTS

The proposed access arrangements are shown to consist of a single crossover located along the southern boundary of the site to Colleran Way, approximately 35m west of Allerton Way.

Direct access to the car parking area on the site will provide ingress and egress to and from proposed 17-bay on-site car parking supply arranged flanking either side of a central north-south oriented aisle in a right-angle arrangement.

The proposed car parking supply consists of 17 dedicated residential tenant and visitor bays, which is consistent and compliant with the *State Planning Policy 7.3: Volume 2 – Apartment Design* which states that a minimum of 9.25 residential tenant bays and 2.5 visitor bays are required to be provided at a minimum rate of 0.75 bays for each one-bedroom apartment up to a maximum rate of 1.0 bays for each three-bedroom apartment plus the provision of 1 visitor bay per 4 residential apartments. The minimum car parking requirement is therefore 11.75 bays which is comfortably satisfied by the proposed 17-bay provision on the site. This is consistent with good and orderly planning and relevant endorsed policies and guidelines such as the *Melville City Centre Structure Plan*, *State Planning Policy 4.2: Activity Centres for Perth and Peel* and *Development Control 1.6: Planning to Support Transit Use and Transit-Oriented Development*, *relevant R-Codes* and the City's *Car Parking and Access Policy* as the site is located within 400m of a high frequency bus route. Rubbish collection will be undertaken on the kerbside by Council vehicles and a separate Waste Management Plan will be prepared in consultation with the City of Melville during the detailed design stages of the project.

3.3 END OF TRIP FACILITIES

End-of-trip facilities (including bicycle racks) are proposed to be provided on the site within individual storage lockers and consistent with Austroads and City of Melville guidelines.

Proposed on-site supply consists of dedicated bicycle parking within the under-croft car parking area of 8 bays.

4. TRANSPORT ANALYSIS

A traffic generation and distribution exercise has been undertaken to assess the potential traffic impacts associated with the proposed development. The aim of this exercise was to establish the traffic volumes which would be generated from the proposed development and to quantify the effect that the additional traffic has on the surrounding road network, specifically on the local road network including Riseley Street, Marmion Street, Allerton Way/Colleran Way and Griffin Street. Also, the volume and functionality of traffic at the proposed crossover to the north side of Colleran Way was also assessed.

4.1 TRIP GENERATION

The traffic generated by the proposed development has been predicted by applying trip generation rates for the *Residential Condominium/Townhouse* (230) category. These rates were derived from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition*. This trip generation represents the 'worst case' scenario as the anticipated net site traffic increase has not been adjusted to reflect the proximity to existing high quality public transport, pedestrian and cycling infrastructure or the limited amount of car parking on the site, which typically result in a reduction in net impact on the boundary road system. The total maximum anticipated traffic generated by the

proposed development is estimated to be in the order of 58 vehicular trips (29 inbound/29 outbound) on a daily basis, 5 vehicular trips (1 inbound/4 outbound) during the a.m. peak hour; and 5 vehicular trips (3 inbound/2 outbound) during the p.m. peak hour.

4.2 TRAFFIC ASSESSMENT

Based upon the existing traffic patterns in the area and the spatial distribution of adjacent land uses, the following distribution for the proposed 'new' development generated traffic has been assumed:

- 100% to and from the south-east via Allerton Way/Griffin Street and Riseley Street/Griffin Street;
- 40% to and from the south via Riseley Street/Griffin Street;
- 60% to and from the north via Riseley Street/Griffin Street; and
- 10% to and from the west via Riseley Street/Marmion Street.

The number of trips entering / exiting the site via the proposed site crossover has been assigned based upon the most logical route for vehicles to take given their origin / destination.

The anticipated site-generated traffic was then assigned to the respective crossover to Colleran Way Road based upon the existing proportions for both the weekday a.m. and p.m. peak hours. The resultant increases in weekday daily and a.m. and p.m. peak hour-generated traffic under the 'worst case' scenario for the boundary road network would be as follows:

- Riseley Street (North of Marmion Street):
    - Daily: +36 vehicular trips
    - A.M. Peak Hour: 3 vehicular trips
    - P.M. Peak Hour: +3 vehicular trips
- Riseley Street (South of Marmion Street):
    - Daily: +23 vehicular trips
    - A.M. Peak Hour: +2 vehicular trips
    - P.M. Peak Hour: +2 vehicular trips
- Marmion Street (West of Riseley Street):
    - Daily: +6 vehicular trips
    - A.M. Peak Hour: +1 vehicular trips
    - P.M. Peak Hour: +1 vehicular trips
- Colleran Way (West of Allerton Way) :
    - Daily: +59 vehicular trips
    - A.M. Peak Hour: +5 vehicular trips
    - P.M. Peak Hour: +5 vehicular trips
- Allerton Way (North of Griffin Street) :
    - Daily: +59 vehicular trips
    - A.M. Peak Hour: +5 vehicular trips
    - P.M. Peak Hour: +5 vehicular trips
- Griffin Street (East of Allerton Way) :
    - Daily: +59 vehicular trips
    - A.M. Peak Hour: +5 vehicular trips
    - P.M. Peak Hour: +5 vehicular trips

These increases in daily and a.m./p.m. peak hour volumes will have a negligible impact on existing traffic operations in the area and can be comfortably accommodated within the practical capacities of the respective links on the boundary road network.

4.3 CRASH HISTORY

A review of the crash history along the frontage of the site and at the nearby local road intersections for the 5-year reporting period 2014-2018 indicates that no crashes occurred on Colleran Way, Allerton Way or on Griffin Street, west of Riseley Street, including none involving manoeuvring into or out of a driveway. An additional 9 crashes occurred at the intersection of Riseley Street/Griffin Street over this 5-year period; however, this crash rate is considered low b comparison to the total amount of traffic travelling through the intersection. The risk profile therefore associated with both the overall development on the boundary road network and with the proposed crossover location will not be impacted by the development due to the homogenous nature of the traffic generation of the site (primarily outbound during the morning peak period and inbound during the afternoon peak period).

5. VEHICULAR ACCESS AND PARKING

5.1 ON-SITE QUEUING, CIRCULATION, AND ACCESS

The site plan indicates a site crossover located centrally along the southern boundary of the site leading into an under-croft car parking area to serve 17 car parking bays located at right-angles to a central north-south aisle inside the property boundary. The proposed 4.1m width of the north-south entry aisle into the car parking area is consistent with *State Planning Policy 7.3: Volume 2 – Apartments* which indicates under Element 3.8 that full two-way access is only required for developments of greater than 10 dwellings. This entry crossover widens considerably inside the car parking area to allow for simultaneous manoeuvring. It should be noted that the anticipated risks associated with simultaneous inbound and outbound traffic at this location would be virtually nil as a result and hence the proposed 4.1m width of the crossover from Colleran Way would accommodate this very marked one-way demand comfortably. Efficient access and egress would be expected within the car parking area with the installation of a convex mirror to provide advance warning to egressing vehicles that a vehicle is inbound from Colleran Way if such a situation would arise.; however, expected peak hour volumes are in the order of one (1) vehicle maximum every 10-12 minutes and the anticipated conflict probability is very low.

A review of the sight distance requirements at the crossover to Colleran Way Road indicates that adequate sight distance is in place to satisfy minimum Approach Site Distance, Minimum Gap Sight Distance and Safe Intersection Stopping Distance in accordance with Austroads *Guide to Road Design: Part 4A – Unsignalised and Signalised Intersections* and *AS 2890.1: Off-Street Parking.*

A review of the proposed on-site circulation and car parking layout within the under croft car parking area was also undertaken to assess the adequacy of the proposed site access and circulation on the site and it can be concluded that all bays are compliant with the minimum required standard outlined in AS 2890.1. with the proposed design considered adequate to accommodate on-site manoeuvring and circulation.

Rubbish collection will be undertaken on the kerbside by Council vehicles and a separate Waste Management Plan will be prepared in consultation with the City of Melville during the detailed design stages of the project.

5.2 PARKING DEMAND AND SUPPLY

The proposed car parking supply consists of 17 dedicated residential tenant bays, which is consistent and compliant with relevant Council and State Planning policies as well as with the general tenets outlined in the *Melville City Centre Structure Plan* which requires a minimum of 10.75 bays to be provided on-site inclusive of both tenant and visitor parking. This minimum car parking requirement is comfortably satisfied by the proposed 17-bay provision on the site. This is consistent with good and orderly planning and relevant endorsed policies and guidelines such as the *Melville City Centre Structure Plan, State Planning Policy 4.2: Activity Centres for Perth and Peel*, *State Planning Policy 7.3: Volume 2- Apartment Design* and *Development Control 1.6: Planning to Support Transit Use and Transit-Oriented Development* as well as Council policies as the site is located within 400m of a high frequency bus route.

6. CONCLUSIONS

The aim of this Transport Impact and Parking Assessment was to discuss the traffic likely to be generated by the proposed residential 10-unit multiple dwelling development proposed at 4 Colleran Way, Booragoon, in the City of Melville and to assess the impacts associated with anticipated site-generated upon the adjacent transport infrastructure. In particular, the assessment considered the impacts on the boundary road network including Colleran Way along the southern frontage of the site and road network in the vicinity of the site.

A review of the expected traffic generation associated with the proposal indicates that the local road network has sufficient practical capacity to accommodate the increases in vehicular site-generated traffic and that the development generated traffic will have a negligible impact on existing traffic operations during the weekday a.m. and p.m. roadway peak periods.

The site plan indicates a site crossover located centrally along the southern boundary of the site leading into an under-croft car parking area to serve 17 car parking bays located at right-angles to a central north-south aisle inside the property boundary. The proposed 4.1m width of the north-south entry aisle into the car parking area is consistent with *State Planning Policy 7.3: Volume 2 – Apartments* which indicates under Element 3.8 that full two-way access is only required for developments of greater than 10 dwellings. This entry crossover widens considerably inside the car parking area to allow for simultaneous manoeuvring. It should be noted that the anticipated risks associated with simultaneous inbound and outbound traffic at this location would be virtually nil as a result and hence the proposed 4.1m width of the crossover from Colleran Way would accommodate this very marked one-way demand comfortably. Efficient access and egress would be expected within the car parking area with the installation of a convex mirror to provide advance warning to egressing vehicles that a vehicle is inbound from Colleran Way if such a situation would arise.; however, expected peak hour volumes are in the order of one (1) vehicle maximum every 10-12 minutes and the anticipated conflict probability is very low.

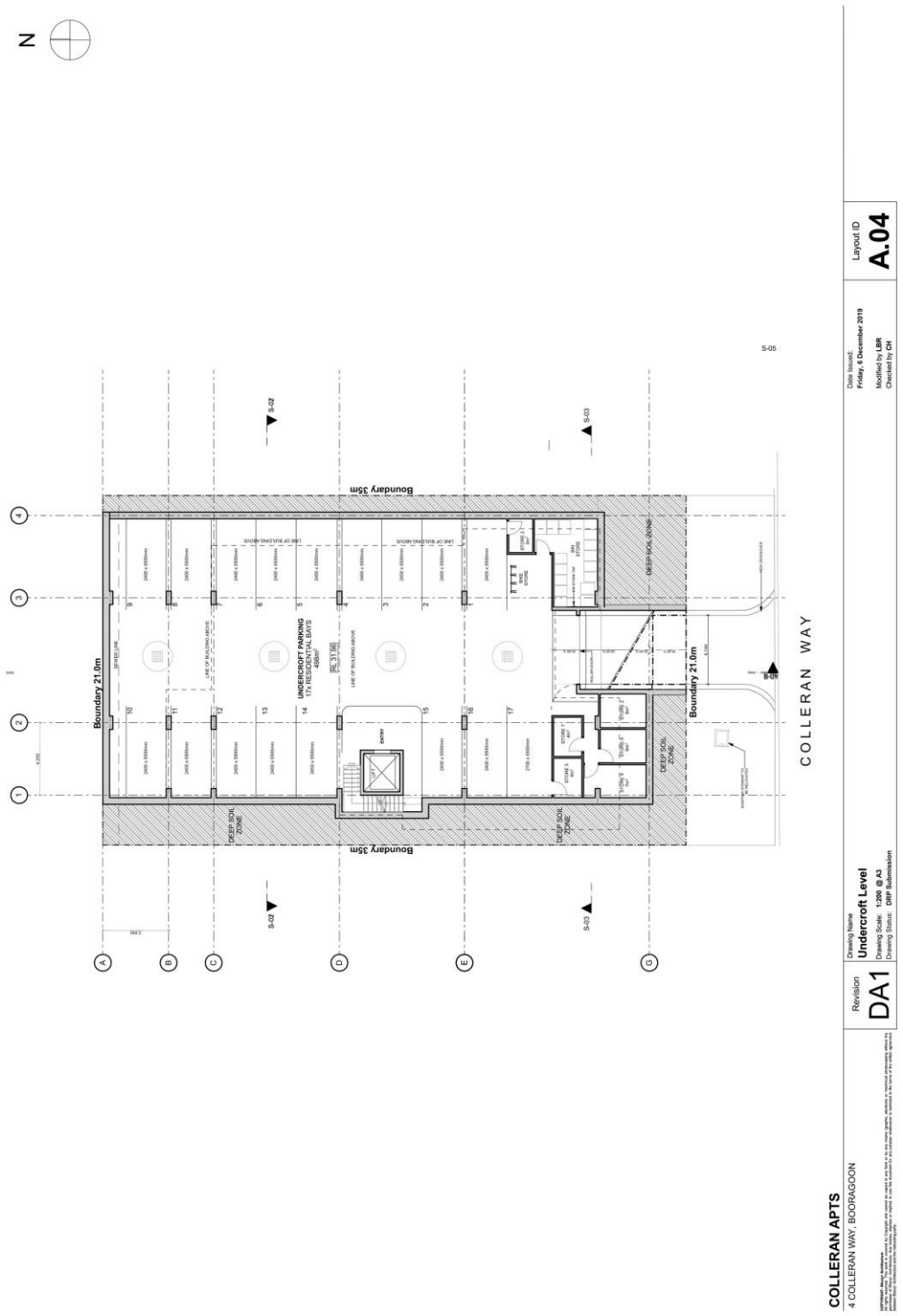
A review of the proposed on-site circulation and car parking layout within the under croft car parking area was also undertaken to assess the adequacy of the proposed site access and circulation on the site and it can be concluded that all bays are compliant with the minimum required standard outlined in AS 2890.1. with the proposed design considered adequate to accommodate on-site manoeuvring and circulation.

The proposed car parking supply consists of 17 dedicated residential tenant bays, which is consistent and compliant with relevant Council and State Planning policies as well as with the general tenets outlined in the *Melville City*

Centre Structure Plan which requires a minimum of 10.75 bays to be provided on-site inclusive of both tenant and visitor parking. This minimum car parking requirement is comfortably satisfied by the proposed 17-bay provision on the site. This is consistent with good and orderly planning and relevant endorsed policies and guidelines such as the *Melville City Centre Structure Plan, State Planning Policy 4.2: Activity Centres for Perth and Peel*, *State Planning Policy 7.3: Volume 2- Apartment Design* and *Development Control 1.6: Planning to Support Transit Use and Transit-Oriented Development* as well as Council policies as the site is located within 400m of a high frequency bus route.

In conclusion, it should be noted that based both on a review of the modelled total traffic assessment and observed traffic operations of the boundary road system, the anticipated site-generated traffic associated with the proposed development can be accommodated within the existing practical capacity and functional road classification of the local road system.

APPENDIX A: SITE PLAN


N
Boundary 35m
Boundary 21.0m
Boundary 21.0m
Boundary 35m
COLLERAN WAY
UNDERCROFT PARKING
17x RESIDENTIAL BAYS
DEEP SOIL ZONE
DEEP SOIL ZONE
DEEP SOIL ZONE
DEEP SOIL ZONE
S-02
S-03
S-05
COLLERAN APTS
4 COLLERAN WAY, BOORAGOON
Revision
DA1
Drawing Name
Undercroft Level
Drawing Scale: 1:200 @ A3
Drawing Status: DRP Submission
Date Issued:
Friday, 6 December 2019
Modified by LBR
Checked by DH
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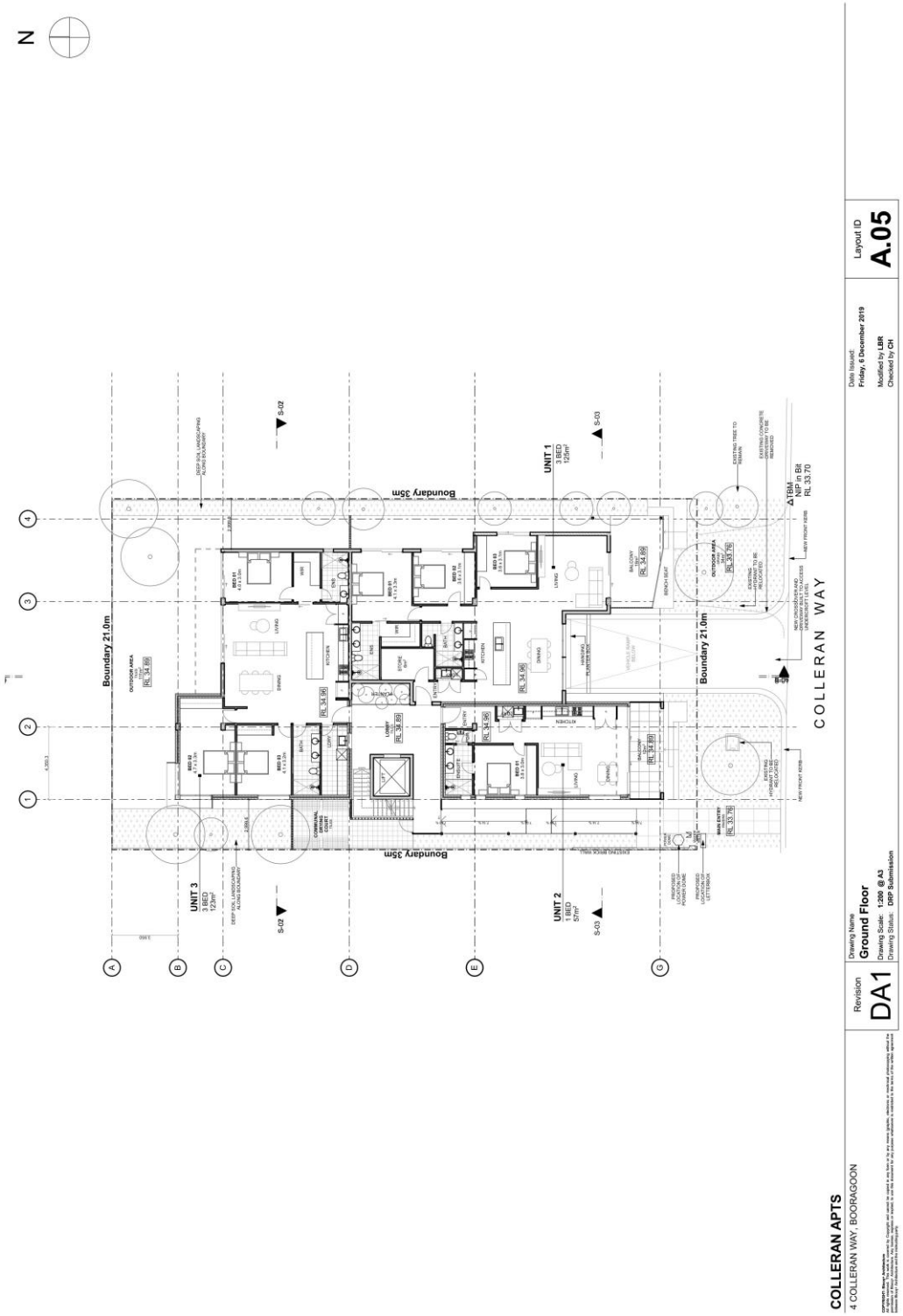
A.04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Boundary 35m
Boundary 21.0m
Boundary 35m
COLLERAN WAY
UNIT 1
3 BED
126m²
UNIT 2
1 BED
57m²
UNIT 3
3 BED
112m²
S-02
S-03
COLLERAN APTS
4 COLLERAN WAY, BOORAGOON
Revision
DA1
Drawing Name
Ground Floor
Drawing Scale: 1:200 @ A3
Drawing Status: DRP Submission
Date Issued
Friday, 6 December 2019
Modified by LBR
Checked by CH
Layout ID
A.05


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UNIT 4
3 BED
106m²
UNIT 6
3 BED
127m²
UNIT 5
1 BED
57m²
S-02
S-03
COLLERAN APTS
4 COLLERAN WAY, BOORAGOON
Revision
DA1
Drawing Name
First Floor
Drawing Scale: 1:200 @ A3
Drawing Status: DRP Submission
Date Issued:
Friday, 6 December 2019
Modified by LBR
Checked by CH
Layout ID
A.06


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3 BED
106m²
UNIT 9
3 BED
127m²
UNIT 7
1 BED
57m²
S-02
S-03
COLLERAN APTS
4 COLLERAN WAY, BOORAGOON
Revision
DA1
Drawing Name
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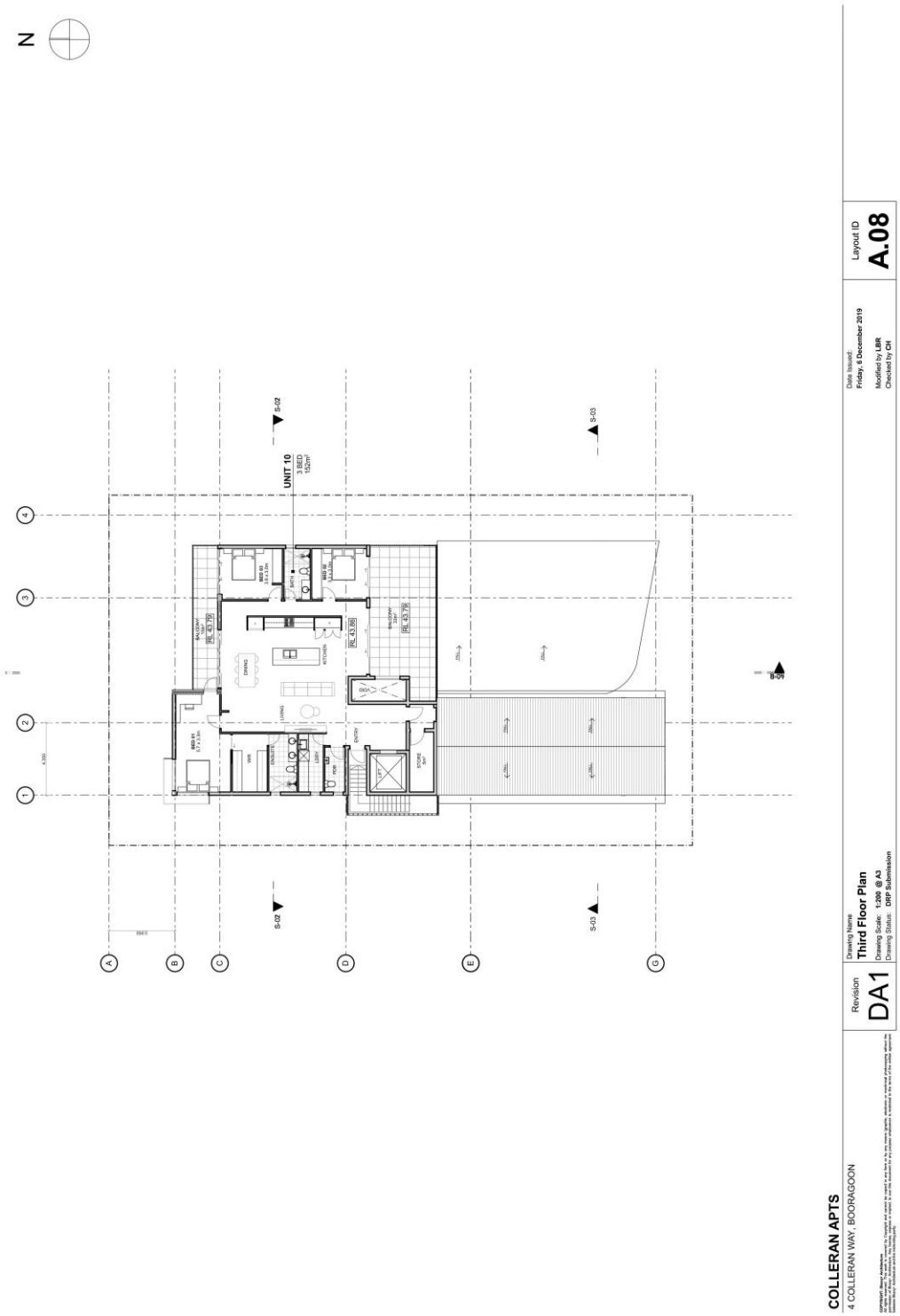
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S-02
S-03
S-02
S-03
B-B'
COLLERAN APTS
4 COLLERAN WAY, BOORAGOON
Revision
DA1
Drawing Name
Third Floor Plan
Drawing Scale: 1:200 @ A3
Drawing Status: DRP Submission
Date Issued:
Friday, 6 December 2019
Modified by LBR
Checked by CH
Layout ID
A.08

4 COLLERAN WAY BOORAGOON

Waste Management Plan
REPORT – V2

Prepared for: MP2 Pty Ltd
Prepared by: Alijn Built Forms

December 2019

DOCUMENT ISSUE AUTHORISATION

Rev	Date	Description	Prepared	Checked	Approved
0	20/10/19	DA REPORT	HH/CH	HH	
1	1/12/2019	REV	HH/CH	HH	

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INTRODUCTION

This Waste Management Plan has been prepared for the proposed 10 multiple dwelling development to be located at 4 Colleran Way Booragoon, in the City of Melville. This plan has been developed as part of the requirements dictated by the proposed Development Application for the proposal.

The key objectives of the plan outline the equipment and protocols which will be implemented and adopted to manage all waste (FOGO, refuse and recycling) on the site. Specifically, the Waste Management Plan (WMP) demonstrates that the development will be designed to:

- Adequately cater for the anticipated quantities of various waste types and recyclables to be generated;
- Provide a suitable bin storage area and hazardous waste area including appropriate disposal receptacles; and
- Allow for the efficient collection of receptacles by appropriate waste collection vehicles.

The subject site is located on an existing local road primarily serving existing residential uses to all sides within the suburb of Booragoon and also located within the City Centre . The location of the site is shown in Figure 1

Figure 1: Location Context

The Applicant plans to demolish the existing single-family dwellings on the property and construct a 10-unit apartment building on the property to be served by a single crossover from the southern boundary of Colleran Road

A site visit was conducted on 18th October 2019 to identify any potential traffic-related issues associated with the proposal and access to the bin storage area. A separate Transport Impact and Parking Assessment has been issued for the proposal.

Waste management associated with the development will be consistent with City of Melville's requirements, relevant State Government requirements and industry guidelines and standards.

2. WASTE GENERATION

In October 2018, Melville Council approved the roll out for a third food organic and garden organic (FOGO) bin collection, with a proposed date of implementation being set for the 2019-2020 Financial Year.

The City calculated that approximately 55% of rubbish in their green topped bins is organic i.e. - food and garden waste. A FOGO bin system was decided to have a major impact on diverting rubbish from landfill and thus seeks to match the States diversion from landfill targets (65% by 2020)
Under the State Government's recently revised Waste Strategy 2030, all Councils will need to move to a three bin FOGO system by 2025.

This system has been directed to be implemented into this development during the development Application stage.

The volume of waste generated by the uses on the site is typically determined by the types of activities, and overall size of the development. Once determined, the appropriate generation rates for these activities can be assigned. To understand the waste generated at the development, the types of waste generating activities and their operating days were also considered. The estimated quantity of waste will then determine the number of receptacles required.

2.1 DESIGN CONSIDERATIONS

The design consideration s for Waste Management at this property has taken into account;

- WALGA 2710 Multiple Dwelling Waste Management Plan Guidelines
- State Government of WA revised Waste Strategy 2030,
- SMRC Strategic Waste Management Plan 2016
- City of Melville FOGO rollout 2019- 2020
- City of Melville Waste and Recyclables Collection for Multiple Dwellings LPP1.3

Per SPP -7.3 Vol 2; Sect 4.17: Waste Management, the following objectives in this Development have considered ;-

- Element Objectives ;
    - O4.17.1; Waste storage facilities have minimal negative impact on the streetscape, building entries and the amenity of residents by placing them in an accessible and functional utility area in the basement.
    - O4.17.2 Waste to landfill is minimised by providing safe and convenient bins and information for the separation and recycling of waste being included as part of the strata company by laws.

- Acceptable Outcomes:
    - A4.17.1 Waste storage facilities are provided in accordance with the Better Practice considerations of the WALGA Multiple Dwelling Waste Management Plan Guidelines and City Of Melville's Waste Strategy. LPP 1.3
    - A4.17.3 Sufficient area is provided to accommodate the required number of bins for the separate storage of green waste, recycling and general waste in accordance with the WALGA Multiple Dwelling Waste Management Plan Guidelines.
    - A4.17.4 Communal waste storage is sited and designed to be screened from view from the street, open space and private dwellings.

2.2. WASTE GENERATION RATES

The following waste generation rates have been used, based on the best practice guide for waste management in multi-unit and commercial developments noted in the WALGA Management Plan Guidelines for Commercial and Industrial Waste and Multi Residential Developments, the City of Melville Waste Strategy LPP1.3 and City of Melville FOGO rollout 2019-2020 strategy.

The anticipated volumes of general waste (refuse) and recycling waste for the proposed residential apartments has been based on the City's *Waste and Recycling Collection for Multiple Developments – Local Planning Policy 1.3* (2016).

The Residential areas are calculated to generate the following rates;

1 Bedroom Apartments generate

- 80L FOGO per week.
- 40L comingled recyclables per fortnight.
- 40L general waste fortnight.

2 Bedroom Apartments generate

- 160L FOGO per week.
- 80L comingled recyclables per fortnight.
- 80L general waste fortnight.

3 Bedroom Apartments generate

- 240L FOGO per week
- 240L comingled recyclables per fortnight.
- 120L general waste fortnight.

2.2.1 FOGO WASTE

Table 1 shows the anticipated FOGO waste to be generated by the proposal.

Table 1: Estimated FOGO Waste Generation

Type of Activity	Number of Dwellings	Waste Generation Rate (L/week)	Recycling Waste Generated/Week
Residential Multiple Dwellings	10	192	1,920 L

2.2.2 RECYCLABLE WASTE

Table 3. shows the anticipated recyclable waste to be generated by the proposal.

Table 3: Estimated Recycling Waste Generation

Type of Activity	Number of Dwellings	Waste Generation Rate (L/week)	Recycling Waste Generated/Week
Residential Multiple Dwellings	10	90	900 L

2.2.3 GENERAL WASTE

Table 2 shows the anticipated general waste to be generated by the proposal.

Table 2: Estimated General Waste Generation

Type of Activity	Number of Dwellings	Waste Generation Rate (L/week)	General Waste Generated/Week
Residential Multiple Dwellings	10	48	480 L

2.3 TOTAL WASTE

The total weekly volume of waste would be 480L of general waste , 1920 L of FOGO Waste and 900L of recycling waste in total.

Residential Waste Calculations

Waste Type	(Bed))	Generation	Generation	L/ Week	No of	Total L/Week	per week	110	240	360
FOGO	1	80		80	3	240				
	2	160		160		0				
	3	240		240	7	1680				
					subtotal	**1920**	**1**	0	7	0
CM Recyclable	1		40	20	3	60				
(MRB)	2		80	40		0				
	3		240	120	7	840				
					subtotal	**900**	**0.5**	0	0	5
General Waste	1		40	20	3	60				
(MGB)	2		80	40		0				
	3		120	60	7	420				
					subtotal	**480**	**0.5**	0	4	0
					Totals	**3300**			**11**	**5**

Based on the above figures and some natural compaction of the waste, it is proposed that the volumes of waste generated by the residential component of mixed-use development and disposed of per week will result in the following waste amounts and bin numbers;

- 1920 L FOGO Waste — 7 number of 240 litre FOGO garbage bins.
- 900 L comingled recyclables — 5 number of 360 litre comingled recycling bins.
- 480 L general waste — 4 number of 240 litre general waste garbage bins .

3. WASTE MANAGEMENT RECOMMENDATIONS

3.1 Management of Food and Organic, recycling and waste materials collections.

The new 3-bin Food Organics, Garden Organics (FOGO) system is now being rolled out to households across the City. FOGO is the collection of food waste and garden waste which is placed in the lime green-lidded bin together to create high quality compost.

The City is moving to the new 3-bin FOGO system for several reasons including:

- Recycling valuable nutrient rich food waste, which when combed with garden waste creates a high quality, Australian standard compost
- Compost created from the contents of the FOGO bin can be used in parks, gardens, reserves and farms
- Diverts food and garden waste from landfill which reduces harmful methane gas which contribute to global warming
- It is the State Government and the Waste Authority's preferred, best practise waste approach and the only system that will meet State diversion from landfill targets (65% by 2020)

In order to ensure that waste is managed appropriately and safely, it is essential that adequate space be provided on site within the bin storage area to accommodate the required storage receptacles.

3.2 Garbage General

In order to promote positive recycling behaviour and to maximise diversion of recyclables from existing landfill facilities, dedicated bins will be provided to allow for efficient and effective disposal of waste materials with separate bins for each of FOGO,recycling and general waste.

It is proposed that all garbage disposal will be taken by residents to a bin rooms and deposited in the relevant 240 litre and 360 bins, colour coded and signed.

Standard City of Melville households will have three bins;

- Lime green lid FOGO bin,
- Yellow lid recycling bin and
- Red lid general waste bin.

Households will also receive a 6 litre kitchen caddy for food scraps. The city has determined that people living in apartment complex where bins are shared, the number of bins required are based on the size of the units and current bin usage.

The bin rooms combine to be 15.87sqm in area and are located as per Figure 2.

The entry to the bin store is via the basement entrance ramp at the front of the property or by residents/tenants access via the lift or stairs.

The management of all bins will be arranged by the Strata Management Company as the representatives of the council of owners. The Strata body will organize for the bins to be taken from the bin rooms and positioned on the verge on the area's allocated bin collection days.

3 ,2.1 FOGO Bins

Lime green lid FOGO bin: All food organics (raw and cooked), meat, bones and garden organics. This bin will be composted so it's important to keep plastic, metal and glass out of this bin. It is proposed that all FOGO waste will be taken to a designated bin room in the basement and deposited in 240 litre bins, colour coded Lime Green and signed.

3.2.2 Recycling and paper/cardboard Bins

It is proposed that all recycling waste will be taken to the designated bin room in the basement and deposited in 360 litre bins, colour coded Yellow and signed.

Recyclable materials such as paper, cardboard, aluminium and steel cans, glass and plastic containers. Directions to occupants and bin room signage will note the importance of ensuring items are empty, clean and placed in the bins, loose with all lids removed.

It is proposed that residents will be given specifically designed containers for use in this multi-unit development. This will ensure that all recyclables are placed loose in the bins as recyclables as plastic bags are regarded as contamination and rejected at the sorting facilities.

Residents will also be given a brochure and education program relating to the waste and recycling system operating in the complex. Information about the waste management will also be included in the apartment user guide.

There will be clear signage on the bins to indicate the appropriate waste that is placed in the recycling bins to be used.

3.2.3 General Waste Bins

General rubbish items that cannot be composted or recycled, such as nappies, plastic bags and hygiene products. It is proposed that all general waste will be taken to a designated bin room in the basement and deposited in 240 litre bins, colour coded Red and signed.

3.3 BIN STORAGE AREA

It is recommended that once weekly waste collection be undertaken by the City of Melville via kerbside collection with the following bins be implemented within this area

- 7 number of 240 litre FOGO garbage bins.
- 5 number of 360 litre comingled recycling bins.
- 4 number of 240 litre general waste garbage bins .

. The allocated bin area can comfortably accommodate these bins in the context of the preferred location of the bin store within the undercroft car parking area.

3.4 EXTERNAL COLLECTION OF WASTE

Collection of waste will be carried out by collection vehicles as part of the regular weekly (1 x per week) by the City of Melville waste management vehicles via kerbside collection.

It is our understanding that the City is currently exploring acquisition of additional waste management vehicles of a smaller dimension in order to enter residential car parking areas to collect bins. The proposed design of the entry area into the site's car parking area where the bin enclosure is located can accommodate vehicles up to 2.85m in height entering the garage area and up to 3.0m when fully engaged.

Future on-site waste collection activities by the City utilising these vehicles will be of a sufficient size and scale so as to reverse into the site crossover into the ground floor level car parking area in order to allow for direct and proximate collection of waste on-site with all vehicles exiting in forward gear. It is anticipated that the maximum number of movements will be 2 trips per week (1 inbound/1 outbound).

The Owner will arrange for the acquisition of the receptacles where required with a verge hardstand negotiated directed with the City, if viable and practicable.

4. WASTE BIN STORAGE AREAS

4.1 Design Of Bin Storage Area

The dedicated bin storage area will be located at ground level adjacent to the east side of the southern entry aisle from Colleran Road within the car parking area. The design of the bin storage area should consider the following:

- Impervious floor draining to the existing sewer.
- Installation of a tap for washing and rinsing of bins and bin storage area, as required.
- Adequate manoeuvring space to remove bins.
- No double stacking of receptacles.
- Appropriate signage, where required.
- Bin storage should be undercover and be designed so as not to permit stormwater to enter the drain.
- Bin storage area to be located behind the building setback line.
- Receptacles to be reasonably secured from theft and vandalism.
- Receptacles ideally to not be visible from property boundary or areas trafficable by the public.
- Receptacles and storage areas within the bin storage area to be monitored during the operation of the development to ensure that the receptacles are sufficient.
- Appropriate ventilation installed including an extraction fan in the bin store
- Staff will be assigned to oversee all relevant aspects of the waste management associated with the proposal.

It should be noted that the number of receptacles has been based upon a once-weekly collection regime; however increased collection frequency will lower the number of receptacles required. Waste receptacle and storage space within the dedicated bin storage area will be monitored during the operation of the development to ensure that the proposed number of collection receptacles is sufficient.

5. BULK AND GREEN WASTE COLLECTION

The City of Melville provides for annual bulk and green waste collection for residential properties via verge collection. Any bulk waste would need to be placed on the verge, in conjunction with the City's requirements. Given the proposed high-quality streetscape along the southern frontage of the proposal, it is proposed that bulk waste materials and items be removed from the property as it is generated. Removal of these bulk waste materials will be the sole responsibility of the residential tenants with the Property Manager to monitor bulk waste removal and provide assistance and advice, as required.

Green waste collection is anticipated to be negligible as the proposal consists of apartment units and would therefore be removed as required. Removal of green waste would typically be the responsibility of the Property Manager. .Detailed information in relation to the timing of bulk and green waste collection can obtained from the City of Melville.

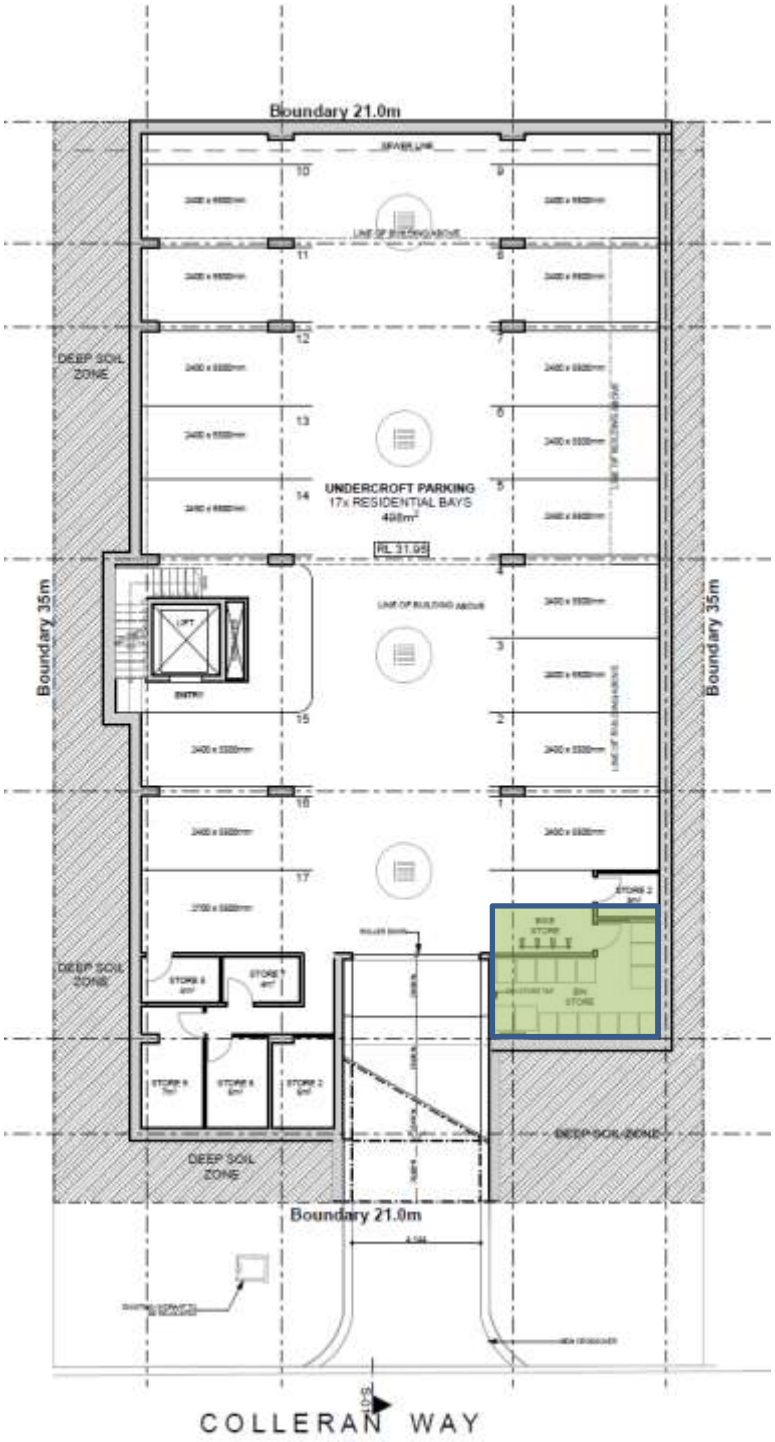
Due to the new FOGO system, the general small level garden collection gathered during routine maintenance will be deposited in the FOGO receptable

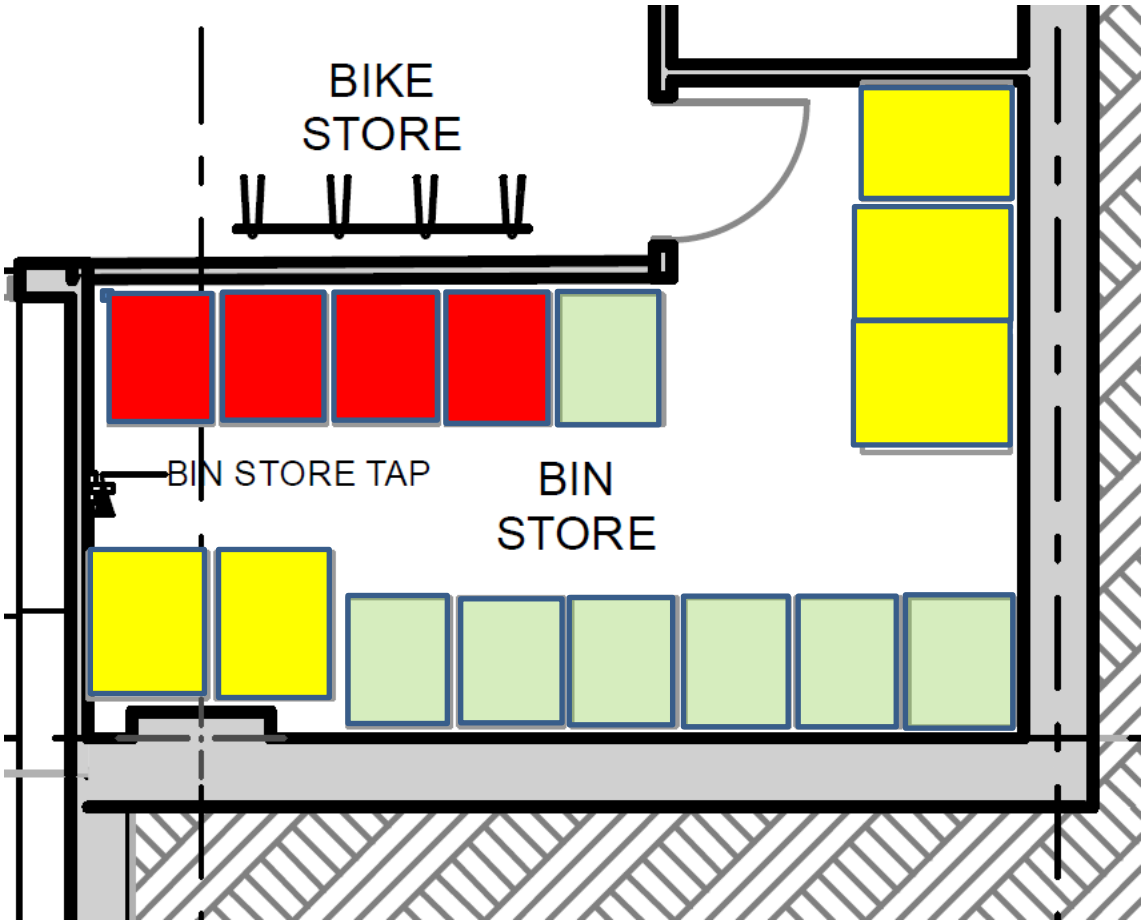
6. PROPERTY MANAGEMENT RESPONSIBLITIES

Property managers will be appointed to be responsible for the following tasks associated with Waste Management on the site:

- Monitoring and maintenance (including cleaning) of the waste receptacles, bin chutes and bin storage areas.
- Management of bulk waste and green waste collection, where required.
- Engage on an ongoing basis with residents to develop opportunities to increase resource recovery and minimise general waste volumes.
- Responsible for placing both general and recycling waste receptacles on the kerbside on bin collection days until such time as the City makes arrangements with the Strata Manager to collect waste on-site.
- Regularly engage with Council to ensure an effective and efficient waste service is maintained.
- Ensure all residents are informed in relation to Waste Management Protocols at the developments and their respective responsibilities in accordance with this plan.

APPENDIX A: UNDERCROFT LEVEL PLAN PLUS BIN ARRANGEMENT





FOGO WASTE (240L BIN)

RECYCLING WASTE (340L BIN)

GENERAL WASTE (240L BIN)