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73-75 Maritime Drive, Jindalee Proposed Mixed-Use Development

Waste Management Plan



Prepared for:
DTG Developments

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73-75 Maritime Drive, Jindalee

Prepared for: DTG Developments
Prepared by: Paul Ghantous
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Urbii Consulting Pty Ltd
ABN 34 630 529 476
PO BOX 4315
BALDIVIS WA 6171
T: + 61 433 858 164
E: customer@urbii.com.au
W: www.urbii.com.au

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1 Introduction

This Waste Management Plan has been prepared by **Urbii** on behalf of **DTG Developments** with regards to the proposed mixed-use development, located at **73-75 Maritime Drive, Jindalee**.

The subject site is situated on the western side of Maritime Drive, as shown in Figure 1.

It is proposed to develop the site into a mixed-use development, delivering 11 apartments, 16 townhouses and a GP (medical) clinic.

The key issues that will be addressed in this WMP include calculation of the waste generation of the site, assessment of waste storage provisions and documentation of the waste collection arrangements.



Figure 1: Subject site



2 Objectives

The objectives of this WMP are adapted from WALGA:

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

This WMP implements the WALGA 'Better Practice' principles. The better practice approach promotes appropriate resident behaviour in relation to waste management, increases the amenity and practicality of waste systems, enhances environmental performance and the reputation of developments with well-managed waste facilities.

3 Referenced documents

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

- City of Melbourne *Guidelines for Waste Management Plans* 2021;
- City of Perth *Waste Guidelines for all Developments* 2019;
- WALGA *Multiple Dwelling Waste Management Plan Guidelines*;
- WALGA *Subdivision Waste Management Plan Guidelines*; and,
- Waste Authority WA *Waste Avoidance and Resource Recovery Strategy for 2030*.



4 Guiding concepts

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

4.1 Waste hierarchy

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

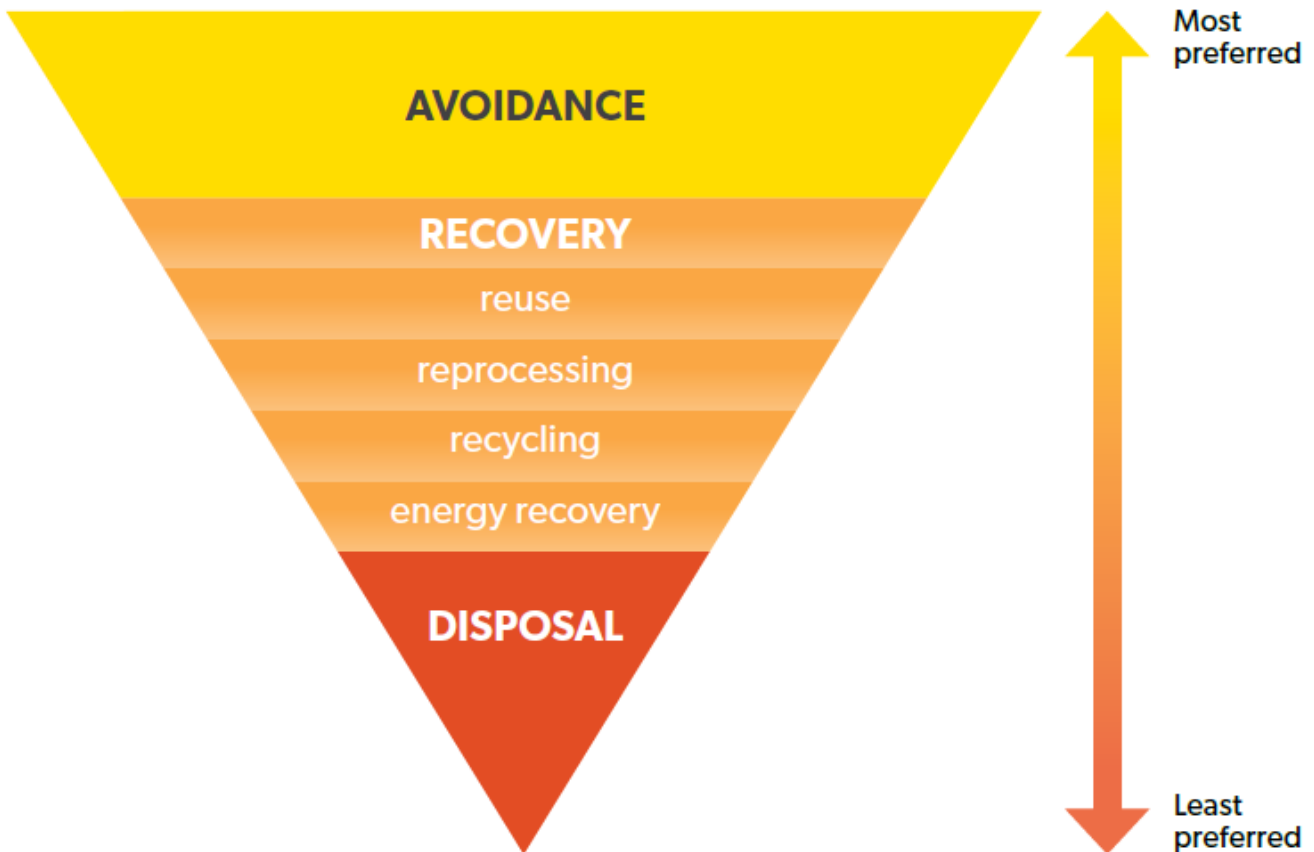


Figure 2: Waste hierarchy

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

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

4.2 Circular economy

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

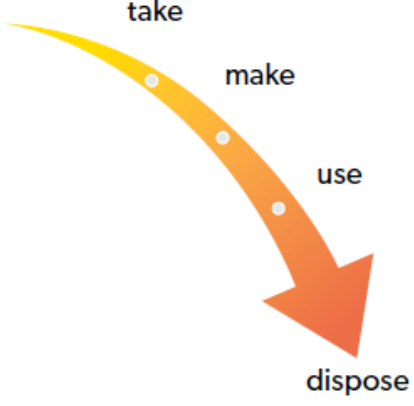

Current approach	Circular economy
	
Linear flow of materials – 'take, make, use and dispose' model.	Circular flow of materials – materials sorted and retained in the economy for as long as possible.
Limited use of renewable materials and energy.	Preference for renewable materials and energy.
Significant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

Figure 3: Transitioning to a circular economy



5 Proposed development

The proposal for the subject site is for a mixed-use development, comprising:

- 11 x 2-Bed apartment dwellings;
- 16 x townhouse dwellings;
- GP (medical) clinic (approximately 3.5m² GFA);
- 56 onsite car parking spaces;
- 9 on-street parking spaces;
- Bicycle parking; and,
- Bin storage.

Vehicle access to the site is proposed via two crossovers on Maritime Drive, with an internal circulation roadway connecting between both crossovers. Waste will be collected via verge collection on Maritime Drive and the internal roadway.

People walking and cycling will access the development from the external path network near the site.

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

6 Waste generation

6.1 Waste generation rates

The waste generation rates for general waste and recyclables are sourced from the WALGA Guidelines. Residential waste generation rates for different multiple dwelling sizes are detailed in Table 1.

Table 1: Residential waste generation rates (used for apartments)

Description	General waste generation rate	Recyclables generation rate
1 Bedroom MUD	80L/week	40L/fortnight
2 Bedroom MUD	160L/week	80L/fortnight
3 + Bedroom MUD	240L/week	240L/fortnight

Waste generation rates for the non-residential uses are detailed in Table 2

Table 2: Commercial waste generation rates

Description	General waste generation rate	Recyclables generation rate
Office	10L/100m ² floor area/day	10L/100m ² floor area/day

6.2 Waste generation calculations

The waste generation calculations are detailed in Appendix D. The estimated waste generation for the development is:

Residential apartments

- General Waste: around 1,760L per week.
- Recyclables: around 880L per fortnight.

GP Clinic

- General Waste: around 183L per week.
- Recyclables: around 183L per week.

Residential townhouses

- Assume each townhouse is provided with an individual set of bins.
- 1 x 240L General Waste and 1 x 240L Recycling Bins



7 Waste systems

7.1 Internal waste storage

Residential

Designers should aim to incorporate sufficient space within the kitchen, laundry room or other convenient location within each dwelling for the temporary storage of accumulated waste and recycling. Space should be sufficient to allow for the separate storage of recyclables and general waste. Possible ways to encourage recycling and minimise contamination include:

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

Commercial

Each treatment room, office and communal area will be supplied with small bins for separate waste and recycling disposal. Employed cleaners will empty bins regularly and transfer waste to the bin store.

7.2 External bin storage areas

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

7.2.1 Bin size, quantity and colour

The City of Wanneroo presently offers 240L bins and the standard residential collection frequency (once per week for general waste and once per fortnight for recycling).

The apartment bin stores have been designed to accommodate 240L bins at the standard collection frequency offered by the City:

- 8 x 240L General waste (red lid bin).
- 4 x 240L Co-mingled recycling (yellow lid bin).

The townhouse dwellings will also be issued with standard 240L bins:

- 16 x 240L General waste (red lid bin).
- 16 x 240L Co-mingled recycling (yellow lid bin).

The GP clinic will be issued with 240L bins for private waste collection:

- 1 x 240L General waste (red lid bin).
- 1 x 240L Co-mingled recycling (yellow lid bin).

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

7.2.2 Bin storage area size

As detailed in Table 3, each 240L bin has a footprint area of 0.43m². A 50mm gap is allowed between the bins to allow easy pull movement.

Storage areas should be out of sight or well screened from the street. Bin storage areas should not detract from the aesthetics of the development and should blend in with surrounding structures and landscaping.

Table 3: Standard Mobile Garbage Bin (MGB) dimensions

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

Source: WALGA



7.2.3 Bin storage area design

Urbii has checked the proposed bin storage locations and confirmed that required clearances are provided. A bin storage plan is included in Appendix B. The following is a list of generic advice offered for consideration at subsequent detailed design stages of the project:

- **Ventilation and odour:** For enclosed storage and service areas, the air flowing from any storage areas should not exit close to residences. Ventilation openings should be protected against flies and vermin and located as near the ceiling and floor as possible, but away from the windows of dwellings. If a forced ventilation or air conditioning system is used (for enclosed storage areas), It should be in accordance with the ventilation requirements of the Building Code of Australia and *Australian Standard AS 1668.2 The use of Ventilation and Air Conditioning in Buildings*. It should not be connected to the same ventilation system supplying air to the units.
- **Lighting:** Artificial light controlled by switches should be located near the bin store entrance.
- **Noise:** Bins will be collected from the waste collection presentation point on the road.
- **Aesthetics:** The bin store should be consistent with the overall aesthetics of the development.
- **Vermin:** Self-closing doors can be considered to eliminate access to vermin.
- **Washing bins and waste storage area:** If there is no space for bin washing outdoors then the internal bin stores will have bin-washing facilities including an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock and have floor drainage installed. The building caretaker will be responsible for washing bins (or contracting a provider to wash bins) and for maintenance of the bin store.

7.3 Access to bins

Waste and recycling storage facilities are in positions that:

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

8 Waste collection

8.1 Waste vehicle types

It is proposed to engage the City of Wanneroo waste service to collect residential waste from the proposed development. A side loader waste truck will be used to collect waste from the Maritime Drive verge on scheduled waste collection days. Waste truck access into the site through the private internal road is required to collect waste from the townhouse bins.

Should the City be unable to provide waste collection services via the private internal road then a private waste contractor will be engaged for this component of the residential waste collection.

Access codes and/or keys will be provided to the City or waste contractor.

A private waste service will be used to collect waste from the GP clinic. A side loader waste truck will be used to collect waste from the Maritime Drive verge on scheduled waste collection days.

8.2 Waste collection frequency

Residential

The proposed collection frequency is once weekly for general waste collection and once per fortnight for recycling collection.

GP clinic

The proposed collection frequency is once weekly for general waste and recycling collection.

8.3 Waste collection method and presentation points

Bins are proposed to be wheeled out from the apartment and GP clinic bin stores to designated bin presentation pads on Maritime Drive, on scheduled collection days.

Bins will be wheeled out of townhouses and placed on a designated pad adjacent to the internal road network. It is recommended that bins for each townhouse are provided with numbered identification stickers and that the landscaping/footpath plan makes provision for numbers and identification of the bin presentation zone for each townhouse.

A bin presentation plan is included in Appendix B.

8.4 Vehicle access and maneuvering

Swept path analysis was undertaken for a 9.8m rigid waste truck, to confirm the truck can circulate through the internal road. The swept path analysis is presented in Appendix C.



9 Additional waste requirements

9.1 Bulk waste

Bulk waste can be temporarily stored in the bin store, or individual store rooms until it is removed by private service.

9.2 E-Waste

Storage space for E-waste will be accommodated in storage areas or individual dwellings. E-waste will be disposed of in a suitable manner, such as bulk drop-off to the tip or using public battery recycling boxes.

9.3 Garden organics

The site caretaker will manage garden organic waste associated with landscape maintenance. Garden waste can be placed in bins if there is space or can be removed by trailer to be disposed offsite in a suitable location.

9.4 Medical waste

The GP clinic will generate medical and/or clinical waste. The facility operators will engage a private service for the storage and collection of medical grade waste.

10 Waste management

The building caretakers or contracted staff will be responsible for:

- Arranging for the bins to be cleaned and sanitised;
- Coordinating the cleaning of the bins and bin storage areas every two (2) to three (3) weeks;
- Dealing promptly with any issues or complaints relating to hygiene, noise, odour or other inconvenience; and,
- Providing adequate training for relevant staff regarding waste management.

Townhouse residents will be responsible for presenting and cleaning their own bins.

Residents should comply with the City's waste sorting requirements and only place permitted waste in each respective bin type. Waste that does not belong in any bin should be disposed of through on-demand services or another appropriate method.

A copy of the Waste Management Plan will be maintained within the premises and strata plan for reference and records.



11 Signage and education

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

“Educational signage should:

- Clearly identify what items are and are not accepted in the general waste and recycling systems. If signage within the bin store is not possible due to space or other restrictions, bin stickers may be appropriate.*
- Outline appropriate waste management behaviour i.e. placing refuse/recyclables inside as opposed to adjacent to bins, placing mixed recyclables into the bin loose (not in a plastic bag), closing bin lids etc.*
- Where the strata body/building management holds tenants’ induction schemes, these should include the use of waste and recycling facilities. The strata body/building management, in conjunction with the Local Government, should issue a leaflet on the correct use of the waste and recycling facilities and the materials recycled. Tenants’ handbooks should include a section on the correct use of general waste and recycling facilities.*
- Ensuring education is ‘ongoing’ is beneficial because it tackles the transient nature of residents and differences between different Local Government services. All waste and recycling bins or receptacles should be clearly and correctly labelled and signage should be erected in bin storage areas to instructing residents as to the correct separation of recyclables from general waste.*
- Any hazards or potential dangers associated with the waste facilities, including those from the use of any waste handling equipment, should also be clearly identified. It is recommended that building managers post information in communal areas which clearly identified the relevant points of contact regarding recycling and/or other services within the development. As part of the ongoing education program, welcome packs should be produced and provided to all new residents. These packs should contain information outlining the developments waste management system, required actions and appropriate waste management behaviours.”*

12 Conclusion

As demonstrated within this Waste Management Plan, the proposed mixed-use development provides sufficient bin storage and adequate bins to service the site for general waste and recyclables.

Furthermore, the servicing of the bins by the City of Wanneroo and/or private collection can be adequately achieved without having an adverse impact on the site and the local street network.



Appendices

Appendix A: Proposed development plans

SCALE 1:100



DEVELOPMENT APPLICATION
 XXI Overall Site Layout
 REF: 21/00359-00



DATE: 27/06/2023
 DRAWN BY: D. ALCOCK
 CHECKED BY: D. ALCOCK



Appendix B: Bin storage and presentation plans



Revision notes: Rev: 1 Date: 28/11/2023	Note: 240L General Waste and 240L Recycling Bins	Drawn by: Paul Gharisius	Project: U23.13.1 - 7.2-75 Maritime Drive, Jindalee Proposed Mixed-Use Development	Date: 16/02/2023

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PO Box 4310, Balcatta WA 6171
 08 9437 8888
 www.urbii.com.au

Appendix C: Swept path analysis

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

Cyan represents the wheel path of the vehicle

Green represents the vehicle body envelope

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

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



Revision notes:	Rev:	Date:	Note:
	1	28/11/2023	Dark blue line represents a 500mm buffer
Drawn by:	Paul Gharisius		
	Client: DTIS Developments		
Project:	U23/13/1 - 72-75 Maritime Drive, Jindalee Proposed Mixed-Use Development		
	Drawing Title: Truck entry, circulation and exit 9.8m Rigid Waste Truck		
Date:	16/02/2024	Scale @ A3:	1:300
Revision:	54/11a	urbiil Sustainable Transport. Safe Solutions PO Box 4315, Basildon QLD 4714 07553933344	



Appendix D: Waste calculations

Table 4: Weekly waste generation and collection – Residential apartments

Land use	Description	Units	General waste generation rate	Recyclables generation rate	General waste daily generation (L)	Recyclables daily generation (L)
Multiple Dwelling	1 Bedroom MUD	0	80L/week	40L/fortnight	0	0
Multiple Dwelling	2 Bedroom MUD	11	160L/week	80L/fortnight	251.4285714	62.85714286
Multiple Dwelling	3 + Bedroom MUD	0	240L/week	240L/fortnight	0	0
Total		11			251.4285714	62.85714286

Waste type	Daily generation (L)	Days in operation (per week)	Weekly waste generation (L)	Weekly collection frequency
General waste	251.4285714	7	1760	1
Recyclables	62.85714286	7	440	0.5

General Waste Bins

Bin Size (L)	Number of bins	Weekly capacity
240	8	1920
Total weekly capacity (L)		1920

Recycle Waste Bins

Bin Size (L)	Number of bins	Weekly capacity
240	4	480
Total weekly capacity (L)		480



Table 5: Weekly waste generation and collection – GP clinic

Land use	Description	Floor area (m2)	General waste generation rate	Recyclables generation rate	General waste daily generation (L)	Recyclables daily generation (L)
Medical Centre	Office	305	10L/100m ² floor area/day	10L/100m ² floor area/day	30.5	30.5

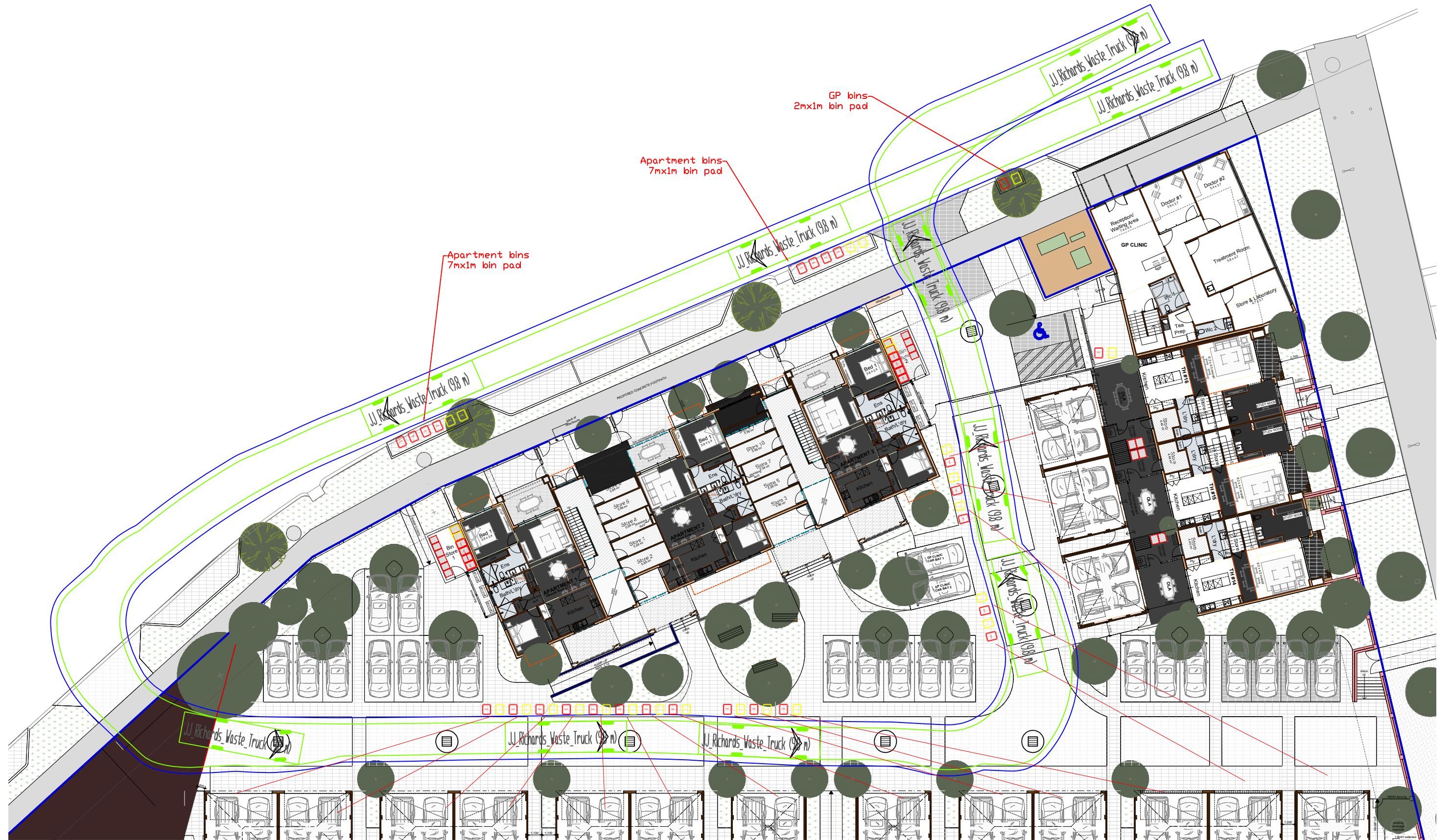
Waste type	Daily generation (L)	Days in operation (per week)	Weekly waste generation (L)	Weekly collection frequency
General waste	30.5	6	183	1
Recyclables	30.5	6	183	1

General Waste Bins

Bin Size (L)	Number of bins	Weekly capacity
240	1	240
Total weekly capacity (L)		240

Recycle Waste Bins

Bin Size (L)	Number of bins	Weekly capacity
240	1	240
Total weekly capacity (L)		240



Revision notes:		
Rev:	Date:	Notes:
1	29/11/2023	Dark blue line represents a 500mm buffer

Drawn by: Paul Ghanous
Client: DTG Developments

Project: U23.131 - 73-75 Maritime Drive, Jindalee Proposed Mixed-Use Development
Drawing Title: Truck entry, circulation and exit 9.8m Rigid Waste Truck

Date: 16/02/2024
Scale @ A3: 1:300
Revision: sk01a



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PO Box 4315, Baldviss WA 6171
customer@urbii.com.au
0433858164



Revision notes:		
Rev:	Date:	Notes:
1	29/11/2023	240L General Waste and 240L Recycling Bins

Drawn by:
Paul Ghantous

Client:
DTG Developments

Project:
U23.131 - 73-75 Maritime Drive, Jindalee
Proposed Mixed-Use Development

Drawing Title:
Bin storage and presentation plan

Date:
16/02/2023

Scale @ A3:
1:300

Revision:
sk02a



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PO Box 4315, Baldivis WA 6171
customer@urbii.com.au
0433858164