



Waste Management Plan

Kingsway City Shopping Centre Short Stay

Prepared for Tah Land Pty Ltd c/- Lofte Property Pty Ltd

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Executive Summary

Tah Land Pty Ltd is seeking development approval for the proposed extension at Kingsway City Shopping Centre Short Stay located at 182 Wanneroo Road, Madeley (the Proposal).

To satisfy the conditions of the development application the City of Wanneroo (the City) requires the submission of a Waste Management Plan (WMP) that will identify how waste is to be stored and collected from the Proposal. Talis Consultants has been engaged to prepare this WMP to satisfy the City's requirements.

A summary of the bin size, numbers, collection frequency and collection method is provided in the below table.

Proposed Waste Collection Summary

Waste Type	Generation (L/week)	Bin Size (L)	Number of Bins	Collection Frequency	Collection
Refuse	23,738	1,100	Five	Five times each week	Private Contractor
Recycling	5,261	1,100	One	Five times each week	Private Contractor
Food Organics	10,174	660	Four	Five times each week	Private Contractor
Paper/Cardboard	2,833	660	One	Five times each week	Private Contractor

A private contractor will service the Proposal onsite, directly from the Bin Storage Area. The private contractor's waste collection vehicle will enter and exit the Proposal in forward gear via Wanneroo Road.

Building management will oversee the relevant aspects of waste management at the Proposal.

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1 Introduction

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To satisfy the conditions of the development application the City of Wanneroo (the City) requires the submission of a Waste Management Plan (WMP) that will identify how waste is to be stored and collected from the Proposal. Talis Consultants has been engaged to prepare this WMP to satisfy the City's requirements.

The Proposal is bordered by residential properties to the north, Kingsway Regional Sporting Complex to the east, Hepburn Avenue to the south and Wanneroo Road to the west.

1.1 Objectives and Scope

The objective of this WMP is to outline the equipment and procedures that will be adopted to manage waste (refuse, recyclables, food organics, and paper/cardboard) at the Proposal. Specifically, the WMP demonstrates that the Proposal is designed to:

- Adequately cater for the anticipated volume of waste to be generated;
- Provide an adequately sized Bin Storage Area, including appropriate bins; and
- Allow for efficient collection of bins by appropriate waste collection vehicles.

To achieve the objective, the scope of the WMP comprises:

- Section 2: Waste Generation;
- Section 3: Waste Storage;
- Section 4: Waste Collection;
- Section 5: Waste Management; and
- Section 6: Conclusion.

2 Waste Generation

The following section shows the waste generation rates used and the estimated waste volumes to be generated at the Proposal.

2.1 Proposed Tenancies

The anticipated volume of refuse and recyclables is based on the number of short stay apartments and the floor area (m²) of the commercial tenancies at the Proposal. The Proposal consists of the following:

- Studio Apartments – 86;
- One Bedroom Apartments – 35;
- Two Bedroom Apartments – 14;
- Meeting Room – 23m²;
- Conference Room – 52m²;
- Gym – 40m²;
- T64 – 143m²;
- T65 – 140m²;
- T66 – 140m²;
- T67 – 140m²;
- T68 – 140m²; and
- T69 – 143m².

2.2 Waste Generation Rates

To achieve an accurate projection of waste volumes for the Proposal, consideration was given to the Western Australian Local Government Association's (WALGA) *Commercial and Industrial Waste Management Plan Guidelines (2014)* and *Multiple Dwelling Waste Management Plan Guidelines (2014)*.

It should also be noted that a conservative approach has been taken with regards to waste generation across the Proposal by overestimating the potential waste volumes for the commercial tenancies. This includes assuming seven days of operation for T65 – T69, and a 50:50 split of restaurant and takeaway stores waste generation rates as the final use.

Table 2-1 shows the waste generation rates which have been applied to the Proposal.

Table 2-1: Waste Generation Rates

Tenancy Use Type	WALGA Guideline Reference	Refuse Generation Rate	Recycling Generation Rate
Studio Apartments	One Bedroom	80L/week	20L/week
One Bedroom Apartments	One Bedroom	80L/week	20L/week
Two Bedroom Apartments	Two Bedroom	160L/week	40L/week
Meeting Room, Conference Room, and Gym	Offices	10L/100m ² /day	10L/100m ² /day
T64 – T66	Restaurants	600L/100m ² /day	130L/100m ² /day
T67 – T69	Takeaway Stores	80L/100m ² /day	40L/100m ² /day

2.3 Waste Generation Volumes

Waste generation is estimated by volume in litres (L) as this is generally the influencing factor when considering bin size, numbers and storage space required.

Waste generation volumes in litres per week (L/week) adopted for this waste assessment is shown in Table 2-2. It is estimated that the Proposal will generate 33,912L of refuse and 8,093L of recyclables each week.

Table 2-2: Estimated Waste Generation

Tenancy Use Type	Number of Apartments / Area (m ²)	Waste Generation Rate	Waste Generation (L/week)
Refuse			
Studio Apartments	86 Apartments	80L/week	6,880
One Bedroom Apartments	35 Apartments	80L/week	2,800
Two Bedroom Apartments	14 Apartments	160L/week	2,240
Meeting Room	23m ²	10L/100m ² /day	16
Conference Room	52m ²	10L/100m ² /day	36
Gym	40m ²	10L/100m ² /day	28
T64	143m ²	660L/100m ² /day	6,607
T65	140m ²	660L/100m ² /day	6,468
T66	140m ²	660L/100m ² /day	6,468
T67	140m ²	80L/100m ² /day	784
T68	140m ²	80L/100m ² /day	784
T69	143m ²	80L/100m ² /day	801
Total			33,912
Recyclables			
Studio Apartments	86 Apartments	20L/week	1,720
One Bedroom Apartments	35 Apartments	20L/week	700
Two Bedroom Apartments	14 Apartments	40L/week	560
Meeting Room	23m ²	10L/100m ² /day	16
Conference Room	52m ²	10L/100m ² /day	36
Gym	40m ²	10L/100m ² /day	28
T64	143m ²	130L/100m ² /day	1,301
T65	140m ²	130L/100m ² /day	1,274
T66	140m ²	130L/100m ² /day	1,274
T67	140m ²	40L/100m ² /day	392
T68	140m ²	40L/100m ² /day	392
T69	143m ²	40L/100m ² /day	400
Total			8,093

3 Waste Storage

Waste materials generated within the Proposal will be collected in the bins located in the Bin Storage Area, as shown in Diagram 1, and discussed in the following sub-sections.

3.1 Internal Transfer of Waste

To promote positive recycling behaviour and maximise diversion from landfill, the Short Stay Apartments will have room to accommodate three under counter/kitchen bins for the separate disposal of refuse, recyclables and paper/cardboard, as well as a kitchen caddy for food organics. The tenants/cleaners will then take the contents of these internal bins to the Bin Storage Area for consolidation into the appropriate bins, as required.

The commercial tenancies at the Proposal will also have a minimum of three bins to facilitate the separate disposal of refuse, recycling and paper/cardboard, as well as a kitchen caddy for food organics. These bins will be transferred by staff/cleaners to the Bin Storage Area and be deposited into the appropriate bins, as required.

All bins will be colour coded and labelled in accordance with Australian Standards (AS 4123.7) to assist the tenants, visitors, staff, and cleaners to dispose of their separate waste materials in the correct bins.

3.2 Bin Sizes

Table 3-1 gives the typical dimensions of standard bins sizes that may be utilised at the Proposal. It should be noted that these bin dimensions are approximate and can vary slightly between suppliers.

Table 3-1: Typical Bin Dimensions

Dimensions (m)	Bins Sizes		
	240L	660L	1,100L
Depth	0.730	0.780	1.070
Width	0.585	1.260	1.240
Height	1.060	1.200	1.330

Reference: SULO Bin Specification Data Sheets

3.3 Bin Storage Area Size

To ensure sufficient area is available for storage of the bins, the amount of bins required for the Bin Storage Area was modelled utilising the estimated waste generation in Table 2-2, bin sizes in Table 3-1 and based on collection of refuse, recyclables, food organics and paper/cardboard five times each week.

It is the intention of the Proposal to separate a number of waste streams onsite for collection. Table 3-2 shows the bins required for the source separation of waste streams. This breakdown has been based on industry specific waste composition data which has then been averaged across the Proposal.

Based on the results shown in Table 3-2 the Bin Storage Area has been sized to accommodate:

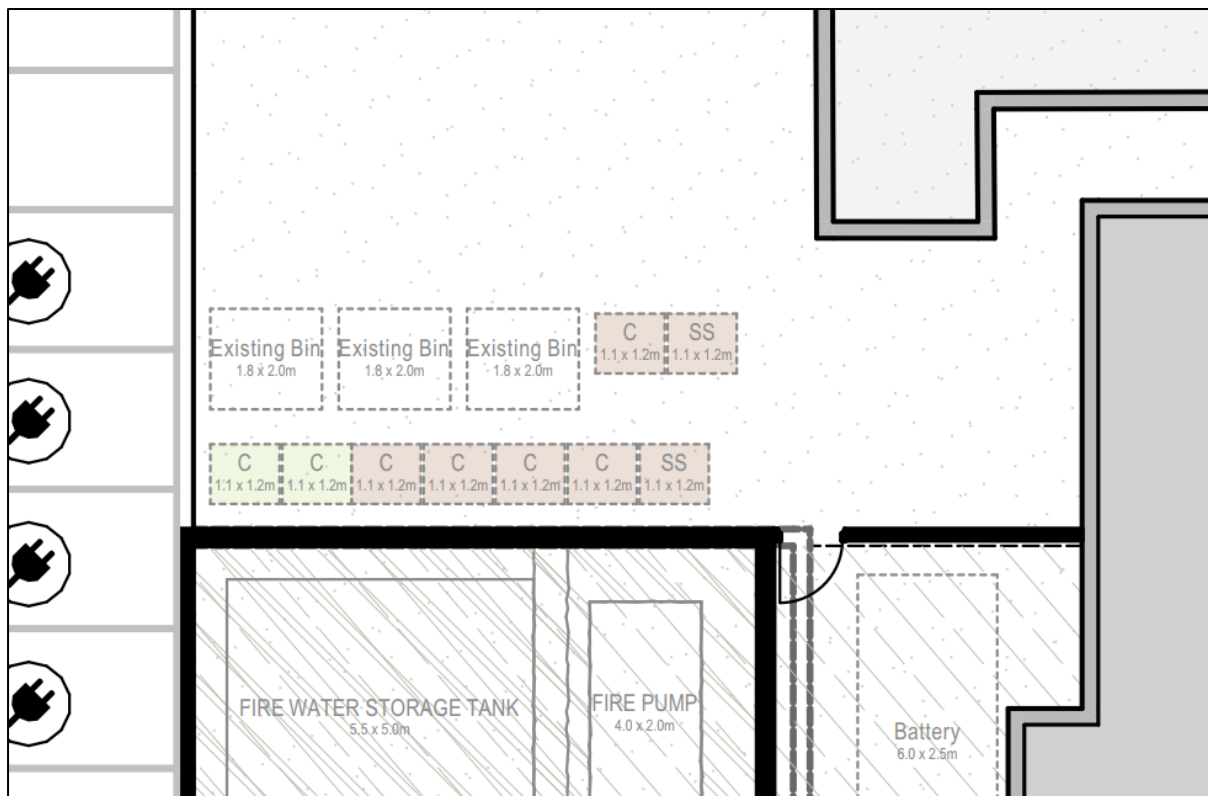
- Five 1,100L refuse bins;
- One 1,100L recycling bin;
- Four 660L food organics bins; and
- One 660L paper/cardboard bin.

Table 3-2: Bin Requirements for Bin Storage Area

Waste Stream	Waste Generation (L/week)	Number of Bins Required		
		240L	660L	1,100L
Refuse	23,738	20	8	5
Recycling	5,261	5	2	1
Food Organics	10,174	9	4	-
Paper/Cardboard	2,833	3	1	1

The location of the Bin Storage Area is shown in Diagram 1.

Diagram 1: Bin Storage Area



3.4 Bin Storage Area Design

The design of the Bin Storage Area will take into consideration:

- Smooth impervious floor sloped to a drain connected to the sewer system;
- Taps for washing of bins and Bin Storage Area;
- Adequate aisle width for easy manoeuvring of bins;
- Ventilated to a suitable standard;
- Appropriate signage;
- Located behind the building setback line;
- Bins not to be visible from the property boundary or areas trafficable by the public; and
- Bins are reasonably secured from theft and vandalism.

Bin numbers and storage space within the Bin Storage Area will be monitored by the building management during the operation of the Proposal to ensure that the number of bins and collection frequency is sufficient.

4 Waste Collection

A private waste collection contractor will service the Proposal and provide the following services utilising a rear loader waste collection vehicle:

- Five 1,100L refuse bins, collected five times each week;
- One 1,100L recycling bin, collected five times each week;
- Four 660L food organics bins, collected five times each week; and
- One 660L paper/cardboard bin, collected five times each week.

The private contractor's rear loader waste collection vehicle will service the bins onsite, directly from the Bin Storage Area. The private contractor's rear loader waste collection vehicle will travel with left hand lane traffic flow on Wanneroo Road and turn into the Proposal in forward gear, complete a multipoint turn within the Proposals carpark and pull up directly opposite the Bin Storage Area for servicing.

It is proposed that servicing will be conducted outside of normal operating hours to allow the waste collection vehicle to utilise the empty carpark for manoeuvring and mitigate impacts on local traffic movements during peak traffic hours.

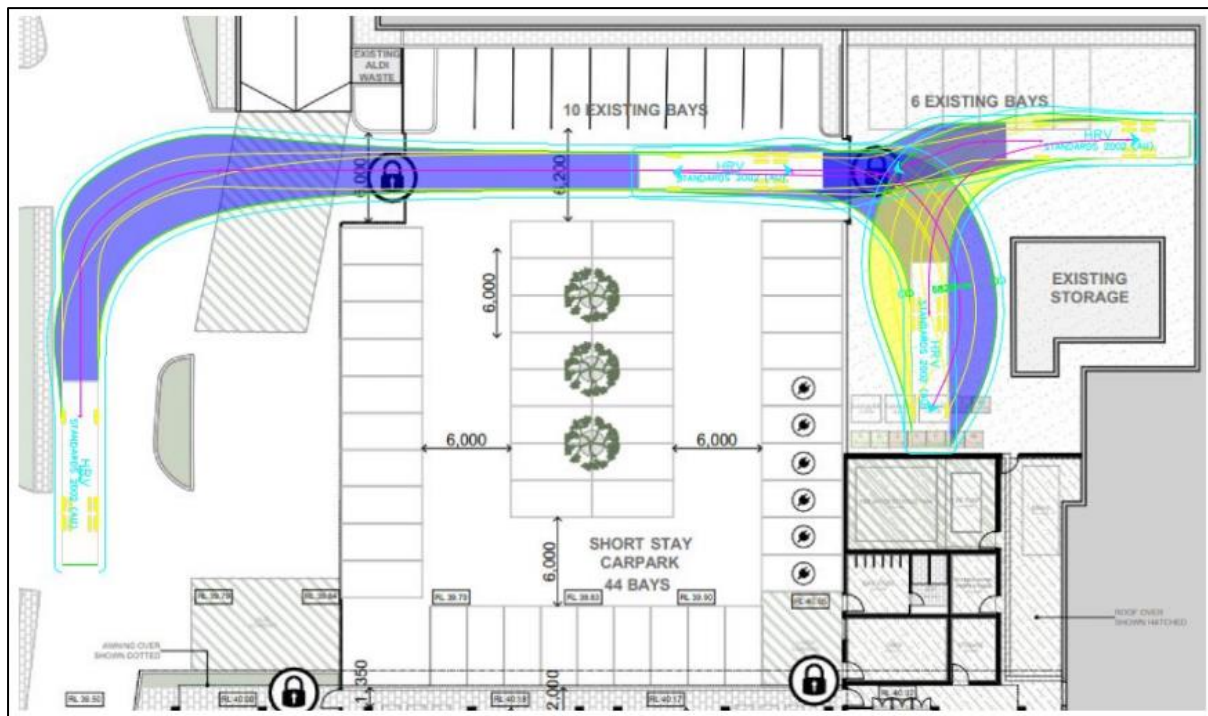
Private contractor's staff will ferry bins to and from the rear loader waste collection vehicle and the Bin Storage Area during servicing. The private contractor will be provided with key/PIN code access to the Bin Storage Area and security access gates to facilitate servicing, if required.

Once servicing is complete the private contractor's rear loader waste collection vehicle will exit in a forward motion, turning onto Wanneroo Road moving with traffic flow, as shown in Diagram 2.

The above servicing method will preserve the amenity of the area by removing the requirement for bins to be presented to the street on collection days. In addition, servicing of bins onsite will reduce the noise generated in the area during collection. Noise from waste vehicles must comply with the Environmental Protection (Noise) Regulations and such vehicles should not service the site before 7.00am or after 7.00pm Monday to Saturday, or before 9.00am or after 7.00pm on Sundays and Public Holidays.

The ability for the private contractor's rear loader waste collection vehicle to access the Proposal in a safe manner has been assessed by WSP and will be included within their traffic impact statement.

Diagram 2: Swept Path Analysis



4.1 Bulk and Speciality Waste

Adequate space may be allocated throughout the Proposal for placement of cabinets/containers for collection and storage of bulk and specialty wastes that are unable to be disposed of within the bins in the Bin Storage Area. These may include items such as:

- Refurbishment wastes from fit outs;
- Mattresses;
- Batteries and E-wastes;
- White goods/appliances;
- Used Cooking Oil;
- Cleaning chemicals; and
- Commercial Light globes.

These materials will be removed from the Proposal once sufficient volumes have been accumulated to warrant disposal. This will be monitored by building management who will organise their transport to the appropriate waste facility, as required. A temporary skip bin could also be utilised for collections, if required.

5 Waste Management

A building manager will be engaged to complete the following tasks:

- Monitoring and maintenance of bins and the Bin Storage Area;
- Cleaning of bins and the Bin Storage Area, when required;
- Ensure all tenants, staff and cleaners at the Proposal are made aware of this WMP and their responsibilities thereunder;
- Monitor tenants, staff, and cleaners behaviour and identify requirements for further education and/or signage;
- Monitor bulk and speciality waste accumulation and assist with its removal, as required;
- Regularly engage with staff/cleaners to develop opportunities to reduce waste volumes and increase resource recovery; and
- Regularly engage with the private contractors to ensure efficient and effective waste service is maintained.

6 Conclusion

As demonstrated within this WMP, the Proposal provides a sufficiently sized Bin Storage Area for storage of refuse, recyclables, food organics, and paper/cardboard based on the estimated waste generation volumes and suitable configuration of bins. This indicates that an adequately designed Bin Storage Area has been provided, and collection of refuse, recyclables, food organics, and paper/cardboard can be completed from the Proposal.

The above is achieved using:

- Five 1,100L refuse bins, collected five times each week;
- One 1,100L recycling bin, collected five times each week;
- Four 660L food organics bins, collected five times each week; and
- One 660L paper/cardboard bin, collected five times each week.

A private contractor will service the Proposal onsite, directly from the Bin Storage Area. The private contractor's waste collection vehicle will enter and exit the Proposal in forward gear via Wanneroo Road.

Building management will oversee the relevant aspects of waste management at the Proposal.



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