Adelaide Central Plaza

Commercial Tower

Waste Management Plan

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Prepared for:

Precision Group

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Distribution List

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Contents

1 INTRODUCTION

This document presents a waste management plan (WMP) for the proposed commercial development at 100 Rundle Mall, Adelaide (the "Development"). The Development is a commercial tower, nominally consisting of retail, food service, and office tenancies.

The project proponent is Precision Group, the architect is PACT, and the traffic engineer is Empirical Traffic Advisory.

The WMP explains how the Development can manage waste effectively to achieve regulatory requirements and desired design and operating objectives, including those recommended by the South Australian Better Practice Guide (State Guideline) (Zero Waste SA, 2014), and the SA Planning & Design Code. The WMP should be read in conjunction with other planning approval documentation for the Development.

The objectives of the waste management plan are to:

- Demonstrate how waste can be effectively managed on site, including integration with an existing waste management system in the adjoining commercial building (to be retained)
- Ensure that tenants are provided with suitable space to conveniently separate and store recoverable wastes from landfill
- Encourage education of waste system users to maximise diversion of waste from landfill
- Provide a cost-effective waste management system

2 WASTE SERVICES SUMMARY

The development will utilise the existing well-established waste management system within the Adelaide Central Plaza basement. The system supports recycling of a comprehensive range of materials. Collection frequency will be increased to meet the needs of the new tower, as shown in the following table. All existing (retained) tenancies will maintain the same access to waste disposal as storage. The table shows collection frequency including existing and future waste needs. The following provides a summary of the waste services proposed at the site:

	Disposal	**Collection Frequency**
General Waste	Disposed to tower basement into 1100L skip bins. Bins are moved to existing loading dock and emptied into a compactor bin for collection	3 to 4 times weekly
Mixed Dry Recycling	Disposed to tower basement into 1100L skip bins. Bins are moved to existing loading dock for collection with Rear-Lift truck	Up to 3 times weekly
Cardboard and Paper	Bin storage room in eastern area of building. Lifting platform to move bins to loading dock.	Up to 4 times weekly
Soft Plastics and Polystyrene	Packed into 200L bale bags in tower basement. Bags moved to loading dock for collection	Weekly / Monthly
Food Waste	Disposed to tower basement into 660L skip bins. Bins are moved to existing loading dock for collection with rear lift truck. May be temporarily stored in refrigerated room with General Waste compactor bin.	Waste moved to east/west bin rooms by site cleaners
Waste Oil	Disposed to 400L stainless steel tank (or similar) in basement. Collected from loading dock by specialist truck	Fortnightly

3 DEVELOPMENT DESCRIPTION

The Development consists of a 31-storey tower (plus Lower Ground and Basement levels). The tower will be located on a portion of the land at 100 Rundle Mall and have frontage onto North Terrace. An existing building on the remainder of the land at 100 Rundle Mall will be retained and continue operating throughout the construction of the new tower. The existing building has a large Loading Dock in the basement, which will be used by the New Tower. The Loading Dock will be connected to the basement of the new tower with a corridor. All delivery and collection vehicles will enter the basement Loading Dock from North Terrace via an existing access lane and ramp.

An overview of the site (including existing and new portions) is shown in Figure 3-1.

The new tower will nominally consist of:

- Food Court at lower ground level
- Dry Retail and Food Service businesses at Ground to Level 3
- Offices and office ancillaries at Level 4 to Level 30

The development will consist of a variety of Commercial tenancies. Table 3-1 gives the basis of tenancy types from which waste generation volumes have been estimated. Table 3-1 includes the relevant metric use for Waste Resource Generation Rates and the Land Use Type, matching the categories provided in the State Guideline (Zero Waste SA, 2014).

Table 3-1: Summary of land uses for the Development, their WRGR Description(s) and relevant Development Metric(s).

Land Use	Description	Land Use Type (WRGR)	Dev. Metric(s)	
Food & Beverage	Food & Beverage (Lower Ground)	Food Court*	866	m2
Food & Beverage	Food & Beverage (Ground, Level 2)	Light Café*	1,430	m2
Retail	Dry Retail Tenancies (Ground, Level 1, Level 3)	Dry Retail > 100m2	2,063	m2
Commercial	Office Ancillaries (Level 4 / 6)	Showroom	818	m2
Commercial	Offices (Level 5, 7-30)	Offices and Consulting^	33,082	m2

* Derated Café WRGRs from State Guideline: General waste = -50%, Recycling = -50%, Food Waste = - 70%, Active Area = 70%
^ Derated Office WRGRs from State Guidelines: General waste = -50%, Recycling = -50%, Organics = -70%

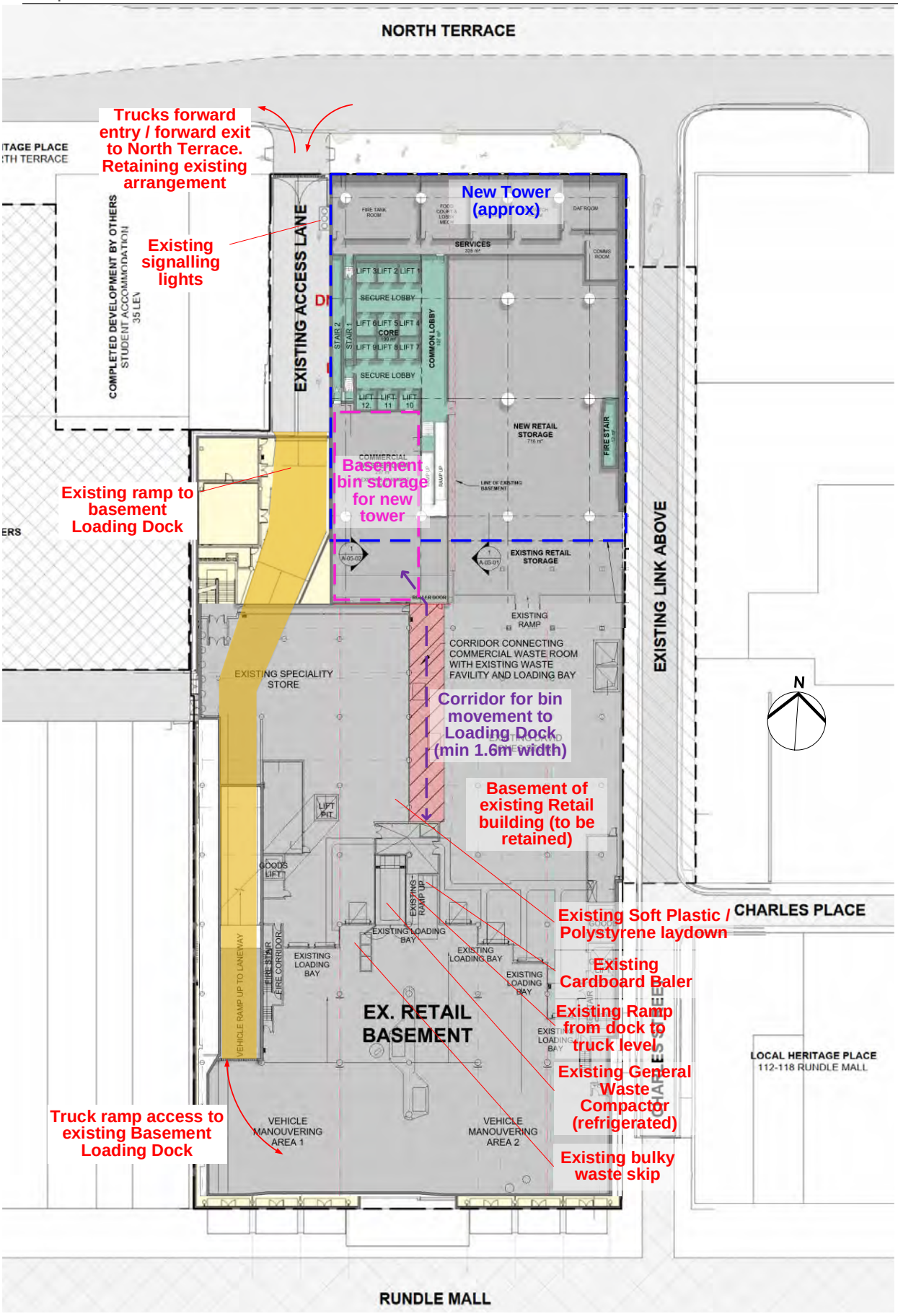

Figure 3-1 *Site overview including key features of existing waste system*

4 DESIGN ASSUMPTIONS

4.1 Waste & Recycling Service Provision

Table 4-1 outlines the recommended waste services by land use per Table 3-1. The different waste service classifications listed in Table 4-1 are explained below.

An existing building within the site will be retained and will continue operating throughout construction and after completion of the new development. All retained tenancies will continue to access existing waste storage and disposal facilities.

- ***Routine Services*** **–** These require on-site waste storage and routine and regular collections, and would include services for general waste, dry (comingled) recyclables and food waste.
- ***At-call services*** **–** These involve non-frequent collections, such as Hard waste and are organised and provided on an as-needed basis.
- ***External Services*** **–** These are where waste items (e.g. printer cartridges, batteries, lighting) can be dropped off by tenants at external locations (e.g. Officeworks, waste depot). Separate on-site waste storage is not usually needed or provided.
- ***Maintenance services*** **–** Some waste items (e.g. lighting in common areas or commercial tenancies, sanitary waste in public/common toilets) would be removed and disposed of (off-site) by the contractor providing the related maintenance service (and hence on-site waste storage is not usually needed or provided).

4.2 Waste & Recycling Volumes

Table 4-2 provides estimated or expected waste and recycling volumes for the Development (in Litres/week). Volumes are estimated from Waste Resource Generation Rates (provided in the State Guideline (Zero Waste SA, 2014)). Where WRGRs are not available, volumes are estimated based on the consultant's recent audit work at similar businesses.

Table 4-1 Expected or recommended waste & recycling services for the Development

Service Type	Material	Food Court	Café / Restaurants	Dry Retail	Office ancillary	Offices
Routine (regularly scheduled)	General Waste	X	X	X	X	X
	Mixed Recycling	X	X	X	X	X
	Food Organics	X	X			X
	Cardboard	X	X	X	X	X
	Soft Plastics	X	X	X		
	Confidential Paper					
	10c deposit containers	X	X			
	Cooking Oil	X	X			
At-call collection or drop-off disposal	Hard Waste	X	X	X	X	X
	E-Waste	X				X
	Printer cartridges				X	X
	Batteries	X	X	X	X	X
Maintenance (waste removed by contractor)	Sanitary (toilets)	X	X	X	X	X
	Garden Waste					
	Lighting	X	X	X	X	X

Table 4-2 Estimated waste & recycling volumes (Litres/week) for Development.

Waste / Recycling Service	Food Court	Café / Restaurants	Dry Retail	Office ancillary	Offices
General Waste (uncompacted)	8,800	11,200	8,700	2,100	24,800
Dry Comingled Recycling	600	1,100	1,400	300	6,600
Cardboard (uncompacted)	4,100	5,600	7,200	300	16,500
Soft Plastic (baled)	400	400	400		
Polystyrene (baled)	100	100	200		
Recycled Deposit Container	600	800		100	
Confidential Paper					1,700
Food/Garden Organics	4,700	9,000	200	100	2,500
TOTAL	**19,300**	**28,200**	**18,100**	**2,900**	**52,100**

5 WASTE MANAGEMENT SYSTEM

5.1 Integrated waste systems

The existing Adelaide Central Plaza site has an established and comprehensive waste management system including source separation of a wide range of recoverable materials. The waste is stored in an existing Loading Dock that is accessible with full-size waste collection vehicles via a ramp and laneway from North Terrace.

The new proposed tower will be connected to the existing loading dock via a wide passage that will allow movement of waste and goods in both directions (i.e. deliveries and waste disposal). Furthermore, the new tower will have access to existing General Waste compactor bin and cardboard baler.

A large bin storage room is to be provided in the basement of the new tower for local disposal of waste and recoverable material by staff and cleaners of tenancies in the new tower. These bins can then be moved to the loading dock for compaction and/or collection by private waste contractors.

5.2 Waste System Overview, Storage, and Services

An overview of the site including key features of the waste management system is provided in Figure 3-1 (page 5). This shows:

- Access to the site for waste trucks
- Location of waste storage for the new tower
- Main waste disposal pathways

The bin storage and servicing requirements are provided in Table 5-1, based on estimated waste volumes in Table 4-2 on page 7. The table includes:

- Number and type of bins;
- Collection frequency (expected or proposed); and
- Service provider.

A waste management area is provided in the basement of the new tower as shown in Figure 5-1 (page 9).

Table 5-1 Waste storage and bin schedule for intermediate storage in the basement of the new tower.

Routine Service	Estimated Waste/Recycling Volumes (L/wk)	Collection Frequency (Events/wk)	Bins/Items		
			No.	*Size (L)*	*Type*
General Waste (Uncompacted)	55,600	7	8	1,100	Skip
Dry Comingled Recycling	10,000	3	4	1,100	Skip
Cardboard (Uncompacted)	33,700	7	5	1,100	Skip
Soft Plastics (baled)	1,200	1	6	200	Bale
Polystyrene (baled)	400	0.5	4	200	Bale
Recycled Deposit Container	1,500	1	7	240	MGB
Food/Garden Organics	16,500	3	12	660	Skip

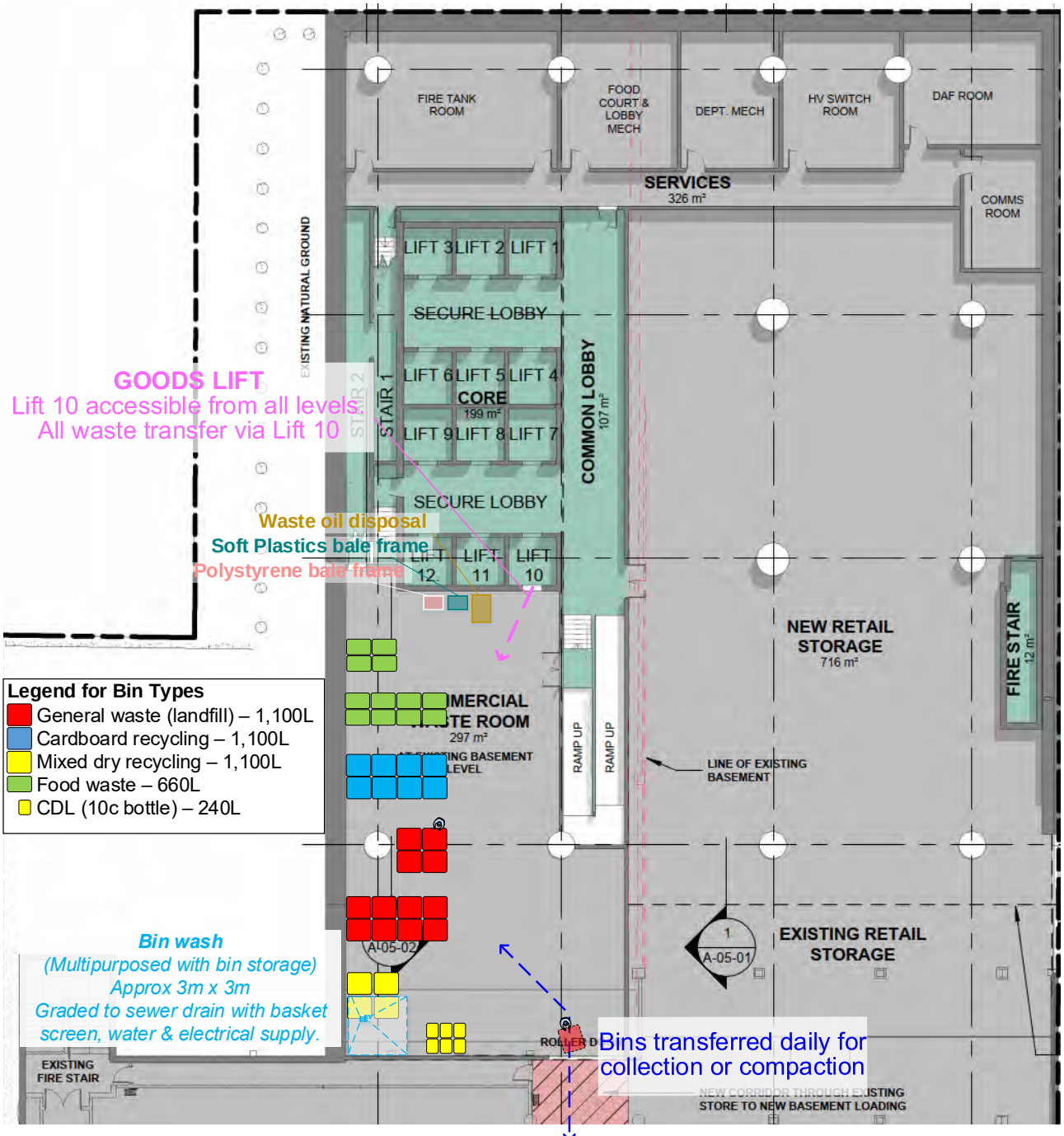

Figure 5-1: Basement bin storage in new tower

5.3 User Storage

- The tenancies would have bins located in-tenancy for disposal of their waste and recycling.
- The types and size of bins would be decided during tenancy fit-out as they depend on type of commercial activity and services elected by the tenants.
- Publicly accessible bins would be located throughout the retail centre in appropriate locations allowing shoppers to conveniently dispose waste, recycling, and food waste (where applicable). Some example public space bins are shown in Figure 5-2. Bins are to be monitored by site cleaning staff and emptied when half to three-quarters full. Waste is to be moved to the basement bin storage room for disposal.

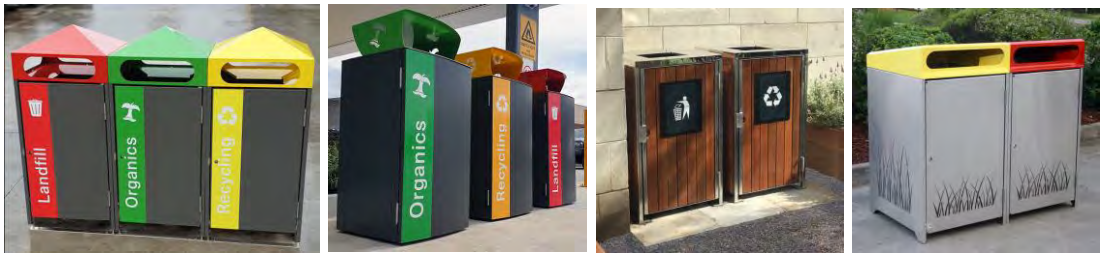

Figure 5-2– Example public space bins. All examples are from www.draffin.com.au

5.4 Local Disposal and Waste Storage area

- Tenancy staff or cleaners would transfer waste & recycling from the local points of user disposal to the waste storage area in the basement of the new tower as shown in Figure 5-1 (page 9).
- It is anticipated that waste transfer would occur outside peak times at each business.
- A dedicated Goods Lift is to be provided (nominally lift 10), which will be accessible from all levels of the building. All waste is to be carried via Lift 10 to the basement.
- Public bins would be serviced by cleaners engaged by Centre Management
- Office staff or cleaners would move waste via elevators to the bin room.

Key elements provided in this area are:

- General Waste 10 to 12 x 1,100L 4-wheel skip bins
- Mixed recycling 4 x 1,100L 4-wheel skip bin
- Cardboard 6 to 8 x 1,100L 4-wheel skip bin
- Food Waste 12 x 660L 4-wheel skip bins
- CDL 4 to 6 x 240L MGBs
- Soft Plastics bale frame and set down area (see Figure 5-3).
- Polystyrene bale frame and set down area
- Waste oil container

Figure 5-3 Soft plastics and Polystyrene bale frames

5.5 Waste Transfer

- All waste must be transferred from the basement bin storage room to the existing Loading Dock.
- Bins are wheeled (nominally daily) to the Loading Dock
- General Waste bins would be emptied into the existing General Waste compactor. This ~8,000L compactor will reduce waste volume by around 6 times.
- Cardboard bins would be emptied into the existing cardboard baler. This machine bales up carboard into approx. 800L bales on pallets, reducing volume by 3 to 4 times.
- Food waste bins would be transferred and placed in the refrigerated room (with general waste compactor)

5.6 Collection

- All collection services would be provided by private contractors
- All collections occur at night, which ensures the basement is largely free of cars and other delivery vehicles
- The loading dock has minimum clearance of 3.9m with additional height available for collection of Marrel bins.
- All collection vehicle types are currently operating in the Loading Dock. Collection frequencies to be increased to suit larger waste volumes.
- All collection vehicles would enter the site from North Terrace in a forward direction using the existing ramp to enter the Loading Dock
- Collection volumes (after compaction) are shown in Table 5-2.
- General Waste compactor bin is collected by lifting the entire bin with a Marrel truck. The bin is taken offsite, emptied, and returned to site within 2 to 3 hours. Collections are expected to be 3 to 4 times per week

- Baled cardboard is collected by flat bed truck and taken from site for recycling
- Food waste is to be collected by Rear-Lift truck. 3 x weekly collections are anticipated
- Following collection, all trucks would exit the site in a forward direction to North Terrace.

Table 5-2 Bin collection schedule from Loading Dock

Routine Service	Estimated Waste/Recycling Volumes (L/wk)	Collection Frequency (Events/wk)	Bins/Items		
			No.	*Size (L)*	*Type*
General Waste (Compacted)	9,300	3	1	8,000	Bin
Dry Comingled Recycling	10,000	3	4	1,100	Skip
Cardboard (Baled)	11,200	4	5	800	Bale
Soft Plastics (Baled)	1,200	1	6	200	Bale
Polystyrene (Baled)	400	0.5	4	200	Bale
Recycled Deposit Container	1,500	1	7	240	MGB
Food/Garden Organics	16,500	3	12	660	Skip

5.7 Hard waste

- A bulky waste skip bin (Marrel bin) is currently provided for disposal of large waste items. Tenants are to dispose large items directly to the skip bin. Materials are taken off site for sorting and recycling where appropriate.
- Tenants are to organise for hard waste collection (e.g. furniture or tenancy re-fit) direct from the tenancy. This must be coordinated with the building manager to ensure appropriate protocols are followed.

5.8 Maintenance Services

Waste would be generated by some maintenance services or activities in the building and commercial tenancies at the site (e.g. lighting, repair work, cleaning of commercial toilets, etc.). These maintenance-generated waste materials would be handled and disposed of by the contractor undertaking these services. Dedicated on-site storage for these waste materials is therefore not needed.

5.9 External

Tenants would be able to dispose of smaller waste items, such as e-waste, printer cartridges, batteries and lighting, to publicly available external drop off points (e.g. supermarkets, Officeworks, telco retail stores, etc.), which accept these materials.

The Building User Manual(s) should include advice on external drop-off points for these waste items, which may include reference to Council advice available at their Web site.

5.10 Bin cleaning (& On-site Bin Wash Area)

A dedicated on-site bin cleaning area should be provided in the basement bin storage area – see Figure 5-1 (page 9) – or other suitable location.

- The bin wash facility would be for cleaning small to medium bins (including tenants' in-store bins).
- The bin wash area would require grading to a sewer drain with basket screen to remove gross solids, tiles or epoxy coating to water-proof adjacent walls and flooring, standard cold-water supply faucet and commercial-grade electrical power supply (if pressure washer system is to be used).
- Bin washing activity would be managed by the Building/Facilities Manager.
- Bin washing would be timed to occur immediately after bins are emptied.
- Bin washing could be facilitated with a mechanical lifting device such as that shown in Figure 5-4

Figure 5-4 Mechanical bin washer Source: https://emoveit.com.au/product/bin-blaster-mobile-wheelie-bin-washer

Alternatively, bin cleaning at the Development could be outsourced to an external contractor (e.g. http://binforce.com.au/).

- These external contractors generally have self-contained bin washing systems on back of ute or truck that enable them to clean bins on site – e.g. Figure 5-5 below.
- Some service providers will remove bins from site, replacing them with an empty spare, clean the bins, then return them to site.
- Bin washing would be done in the Loading Dock

Figure 5-5 On-site bin wash system for rear-lift trucks on back of ute. *Source: http://binforce.com.au/*

5.11 Transfer pathways

There are range of transfer pathways for the waste systems at the Development. The following is provided as a guide for sizing and designing these transfer pathways.

- *Transfer pathways –*
  - *User disposal – prefer less than 50m each way and free of steps, no grades greater than 1:15, and cater for mobility impaired users.*
  - *Local disposal points to central storage – enough width to accommodate relevant bins or waste loads being transferred, free of steps, no grades greater than 1:12*
  - *Collection – less than 30m with no steps or grades greater than 1:10*
- *Corridor widths –*
  - *240L MGBs or smaller bins / loads – min. 1,000 mm (1,200mm preferred)*
  - *660L skip bins – min. 1,200mm (1,400mm preferred)*
  - *1,100L skip skips and/or other waste loads – min. 1,500mm (1,600mm preferred)*
- *Doors –*
  - *Local disposal access – 800mm*
  - *Transfer pathways– Appropriate to the size of bin to be transported, e.g.*
    - *240L MGB (or smaller) – min. 800mm*
    - *660L skip – min. 1,200mm*
    - *1,100L skip – min 1,400mm*
- *Floors – Hard surfaces where bins and skips are to be carted*

All relevant transfer pathways should be reviewed and confirmed at detailed design stage to ensure they are appropriate.

5.12 Management & Communication

5.12.1 Responsibilities

Table 5-3 summarises the responsibilities of different parties / stakeholders for proposed waste management and operational activities at the Development. In summary, the Building / Facilities Manager would manage the waste system, including ensuring that good waste management outcomes by tenants were achieved.

Table 5-3 Management & operational responsibilities for the waste systems at the Development

Waste System	Activity	Responsible party
Commercial/Retail tenancies	*Local Disposal, Hard Waste & External Disposal*	Tenants
	Waste Storage Areas, Hygiene, Odour Management & Cleaning	Tenants, Centre Management
	Collection services – Waste & Recycling	Commercial / Private Contractor(s)
	Management	Centre Management
	Education, Training & Engagement (tenants)	Centre Management

5.12.2 Implementation & Communication

The following should be put in place for the commercial system:

- ***Community/Strata title arrangements for commercial property tenants/owners –*** Obligations for the commercial tenants and/or property owners to properly access, operate and use the waste systems would be written into any tenancy agreement.
- ***Site Management System / Manual*** – Advice and instructions on waste management and using the waste systems should be provided for tenants, including contact information for further information, questions and issues.
- ***Tenant Induction –*** Should include guidance on how to correctly use waste /recycling bins as well as the site approach to waste and recycling.
- ***Emergency Response or Site Management Plan(s) –*** Should include response measures (or contingencies) for:
    - *Waste collection services suspended or not available;*
    - *Incorrect use by tenants of the waste systems;*
    - *Illegal dumping on-site; and*
    - *Poor waste management outcomes (including cleanliness, odour and/or low diversion).*

5.13 Other Waste System Design or Management Issues

The following would be considered and/or implemented for waste systems at the Development. More details for some of these items can be resolved at detailed design stage with the waste contractor and/or Council.

1) **Bins** – These would comply with Australian Standard for Mobile Waste Containers (AS 4213).
2) **Signage** –
    - Appropriate signage in all Local Disposal and Waste Storage Areas should be used to ensure correct disposal of waste and recycling.
    - This signage should conform to the signage requirements of Council and/or the State Guideline (Zero Waste SA, 2014).
    - Written and pictorial guidance recommended.
3) **Vermin, hygiene & odour management (inc. ventilation)**
    - ***Inspection & Cleaning*** –

- An inspection and cleaning regime would be developed and implemented by the Building / Facilities Manager for waste systems at the Development, including ensuring that surfaces and floors around disposal areas, transfer pathways and waste storage areas are kept clean and hygienic and free of loose waste and recycling materials.
    - *Where putrescible general waste or food waste is being stored, Local Disposal and Waste Storage areas should be graded to a sewer drain with tiling or epoxy coating to floors and adjacent walls to waterproof the area and for cleaning.*

o ***Odour Control*** –

- All Waste Storage Areas –
    - *Bin storage rooms should be mechanically ventilated to prevent build up of odours. The building operator may consider active odour control devices such as activated carbon, if necessary.*
    - *The extraction vent discharge location would be selected to avoid impact on tenants and/or neighbours and in line with Australian Standards and Building Codes.*
    - *It should be a requirement for food waste and general waste bins in Waste Storage areas that lids are closed after use.*

4) **Access & security** –

o All Waste Storage Areas in the Development should be secure and only accessible by key or fob or access code.

- *This key or fob or access codes would be provided to tenants, property management staff and/or waste contractor(s) collecting from these areas.*
- *CCTV is recommended to monitor waste disposal practices in all Waste Storage Areas.*

6 PLANNING & DESIGN CODE OBJECTIVES

The applicable policies relating to Waste are provided in the following table. The third column states how these policies have been addressed in the proposed design.

Design in Urban Areas		
PO 1.5 The negative visual impact of outdoor storage, waste management, loading and service areas is minimised by integrating them into the building design and screening them from public view (such as fencing, landscaping and built form), taking into account the form of development contemplated in the relevant zone.	DTS/DPF 1.5 None are applicable	Response: Bins are to be stored in a dedicated bin storage area in the building basement. This area will not be accessible or visible by the general public. All waste collection occurs in the basement with no access or visibility by the public.
PO 11.1 Development provides a dedicated area for on-site collection and sorting of recyclable materials and refuse, green organic waste and wash bay facilities for the ongoing maintenance of bins that is adequate in size considering the number and nature of the activities they will serve and the frequency of collection.	DTS/DPF 11.1 None are applicable	Response: Space is provided for collection systems for source-separated landfill, recycling, cardboard and food waste, soft plastics, polystyrene and CDL. These systems are established and well utilised in the existing site. Bin wash facilities are to be co-located within the bin storage area as shown in Figure 5-1.
PO 11.2 Communal waste storage and collection areas are located, enclosed and designed to be screened from view from the public domain, open space, and dwellings	DTS/DPF 11.2 None are applicable	Response: Bins are to be stored in the basement with no public view.
PO 11.3 Communal waste storage and collection areas are designed to be well ventilated and located away from habitable rooms.	DTS/DPF 11.3 None are applicable	Response: Bin storage area is to include suitable mechanical ventilation to prevent build up of odours. Exhaust location to comply with Australian Standards and NCC standards.
PO 11.4 Communal waste storage and collection areas are designed to allow waste and recycling collection vehicles to enter and leave the site without reversing.	DTS/DPF 11.4 None are applicable	Response: The site has been designed to allow waste collection on site, with waste vehicles to enter and exit the site in a forward direction from North Terrace using the existing laneway and ramp.
PO 11.5 For mixed use developments, non-residential waste and recycling storage areas and access provide opportunities for on-site management of food waste through composting or other waste recovery as appropriate	DTS/DPF 11.5 None are applicable	Response: Space has been allocated for separation and collection of General Waste, Mixed Recycling, Cardboard, Food Waste and other minor wastes. Food waste is to be collected and transported off site for processing / composting.

PO 43.1 Areas for activities including loading and unloading, storage of waste refuse bins in commercial and industrial development or wash-down areas used for the cleaning of vehicles, plant or equipment are: a) designed to contain all wastewater likely to pollute stormwater within a bunded and roofed area to exclude the entry of external surface stormwater run-off b) paved with an impervious material to facilitate wastewater collection c) of sufficient size to prevent 'splash-out' or 'over-spray' of wastewater from the wash-down area d) are designed to drain wastewater to either: a. a treatment device such as a sediment trap and coalescing plate oil separator with subsequent disposal to a sewer, private or Community Wastewater Management Scheme or b. a holding tank and its subsequent removal off-site on a regular basis	DTS/DPF 43.1 None are applicable	Response: The bin wash is to be located in a basement room with no risk of stormwater entry to sewer. Bin wash is to include a basket screen for removal of gross solids prior to disposal to sewer.

7 REFERENCES

PlanSA. (2024). *Planning & Design Code.*

Zero Waste SA. (2014). South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments.