



Abel Tasman Village at Chester Hill, NSW – Operational Waste Management Plan.



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Conflict of Interest

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It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and Council rates have been utilised as they include nominal allowances for normal daily problems encountered in aged care.

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Appendix A - Applied Waste generation rates

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The Definitions.

Acronyms	Description
NCC	National Construction Code
DA	Development Application
DCP	Development Control Plan
EPA	NSW Environmental Protection Authority
LAP	Local Approvals Policy
Local Council	City of Canterbury-Bankstown Council
WMP	A document that details the type and quantity of garbage and recyclable material that is likely to be generated during the construction, demolition, and ongoing operation of a development. It also details where and how the garbage and recycling should be stored, how it will be reprocessed or disposed of and handling procedures.
MGB	A waste container constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1,100.
WH+S	Work Health and Safety
Bund or bunded pallet	To be enclosed by a low wall or enclosed pallet system intended to contain any liquid spillage or inundation from extending beyond an area.
Clean-up service	A booked, collection service for large and bulky items such as furniture offered by the Council to residents.
Electronic waste or e-waste	Unwanted or broken electronic goods that can be recycled, including TVs, computers, and peripherals, electric appliances, mobile phones, VCRs, stereos, photocopiers, and fax machines.
Waste and recycling storage area	A dedicated space (including a bin room or bin bay) for the storage of waste, recycling, food, and/or garden. organics bins, and bulky waste, problem waste and textile waste that is convenient for residents and occupiers to access and use.
FOGO	Food Organics and Garden Organics

1. Executive Summary.

Abel Tasman Village Management is looking to develop the existing aged care facility located at 222 Waldron Road & 138 Campbell Hill Road, Chester Hill, NSW 2162. The facility will cater for upwards of one hundred and twenty (120) RAC residents and sixty-four (64) independent living units when full. As part of this re-development a new waste management operation is to be created.

The purpose of this plan for the Abel Tasman Village waste management area is to outline specific measures to attain the following outcomes.

- Comply with all relevant Local (City of Canterbury-Bankstown Council) Council Authority and NSW state codes, legislative requirements and policies that will apply to this development.
- The Secretary's Environmental Assessment Requirements SSDA - 49937206 SEAR No 17 Waste Management
- Compliant handling, disposal, and treatment of generated waste volumes in accordance with the NSW EPA *"Better practice guide for resource recovery in residential developments"*
- Comply with City of Canterbury-Bankstown Council Waste Management Plan Guidelines for Proposed Developments.
- Provide processes to minimise the quantities of wastes generated ending up as land fill.
- Provide processes to reduce spatial requirements.
- Provide processes to reduce land fill and waste cartridge costs.
- Support and promote the principles of an Ecologically Sustainable Development.
- The waste management operation for the Abel Tasman Village will be designed to always operate in accordance with current Workplace Health and Safety standards in mind.
- Ensure Workplace Health and Safety protocols and legislated requirements are attained in the day-to-day management of the Waste operations of this facility.

Key features of the plan include.

- Contracted Waste collector specialists shall be contracted to remove all general, recyclable, and organic collected waste from site.
- Contracted waste collector specialists shall be contracted to remove all Medical and Cytotoxic collected waste from site.
- Abel Tasman Village staff will be required to maintain and manage all bin holding/collection areas on site. Facility staff will be required to maintain all bin movements, compaction, and equipment to assist residents in the correct handling processes.

Note: Waste management facilities for this site are to be designed, constructed, and operated in accordance with current NCC, NSW EPA, Australian Standards and Statutory requirements.

2. Briefing.

A. Objectives.

The objective of this WMP is to provide a way forward through a series of recommendations regarding the proposed future methods of transportation, handling, storage, compaction, and periodic waste removal of the waste stream from the Abel Tasman Waste Holding areas from site.

Recommendations are provided regarding the capacity and performance requirements of new waste management equipment and systems as well as the periodic removal of Green (organic), General, Medical, Cytotoxic and Recyclable Waste.

B. Methodologies.

The review of the current waste management operations as well as the outlined recommendations as detailed in this report has been based on the following.

- Current Boffa Robertson Architects drawings.

Additionally, the following Standards, Codes and Guidelines have been adhered to in the production of this report.

- AS1668.2-2012 – Mechanical ventilation.
- NSW Safe Food standards.
- Current NCC requirements.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- City of Canterbury-Bankstown Council – Waste Management Guidelines.
- Waste generation rates as outlined in the NSW EPA *“Better practice guide for resource recovery in residential development.”*

Note: This waste management plan is not a Construction Waste Management Plan. A Construction Waste Management Plan will need to be developed by the future construction team.

Note: All waste calculations and figures provided by UFD are based on the current architectural plans provided.

C. Applied waste generation rates.

The EPA waste generations rates as detailed in the *“Better practice guide for resource recovery in residential developments”* have been applied to this WMP. Please refer to the Appendix No 1:

3. Locations.

The waste management operation will support Buildings A, B and E. All waste streams shall be collected in a compliant manner from Buildings B and E to building A for waste removal from site on a regular basis and as detailed in this report.

Note: All waste removed from site shall be removed via Building A.

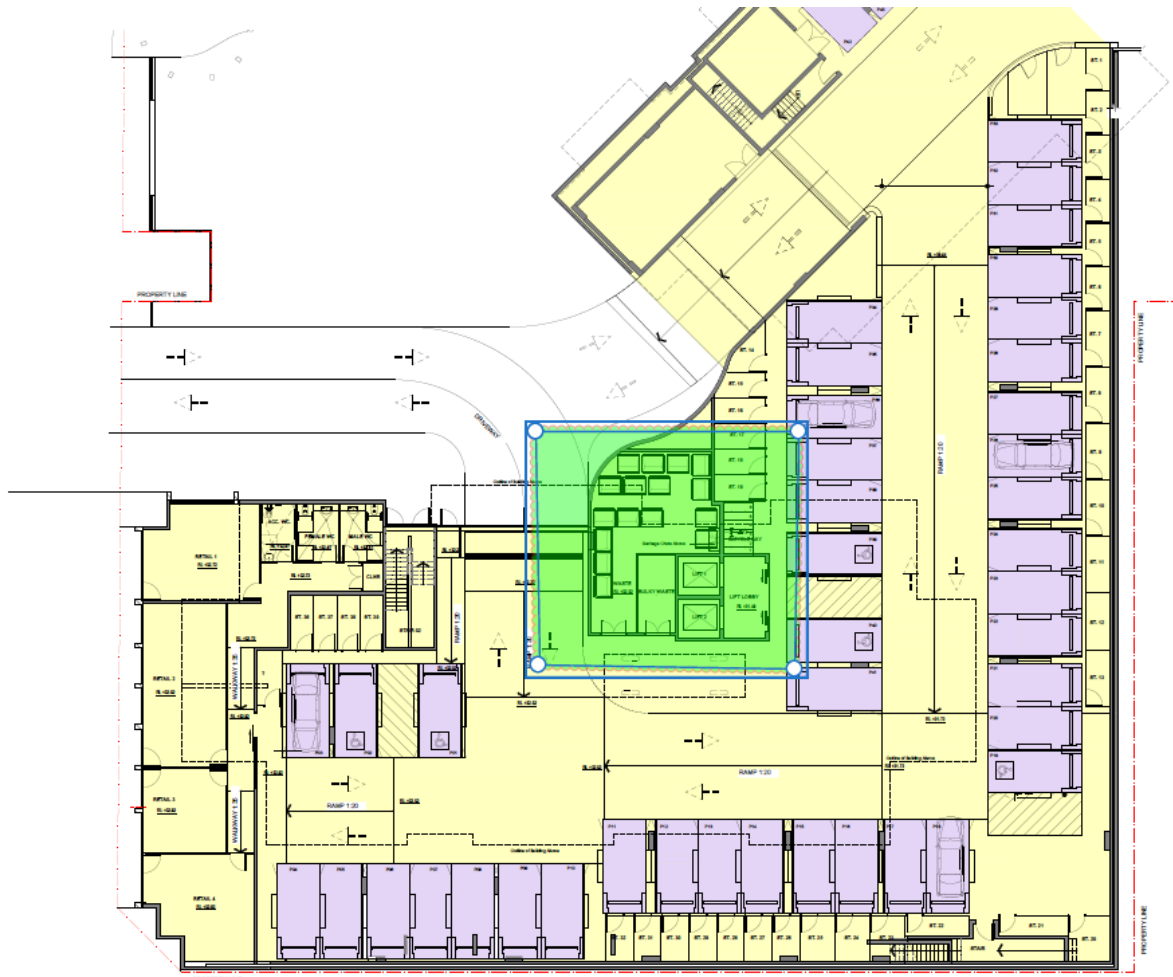


Figure 1 Building A highlighted waste area.



Figure 2 Buildings B and E waste management areas.

4. Resident and ILU Numbers.

Proposed RACF Resident and ILU Accommodation Mix.

Building A.

Apartment Type.	Apartment numbers.
Studio / One (1) bedroom apartments.	6
Two (2) bedroom apartments.	29
Three (3) bedroom apartments.	4
Total Resident numbers.	39

Building B.

120 RACF Residents (See Section 7 for details).

Building E.

Apartment Type.	Apartment numbers.
Studio / One (1) bedroom apartments.	5
Two (2) bedroom apartments.	21
Three (3) bedroom apartments.	0
Total Resident numbers.	26

The NSW EPA “*Better practice guide for resource recovery in residential developments*” Provides the following waste generation rates per week for apartments. These rates are applied to this waste management plan.

In addition to the waste generated in the resident living areas, allowances must also be made for the following additional areas:

- Car park areas.
- Upper floor Foodservice areas.
- All Back of House Administration and multipurpose / function areas.
- All Front of house Areas.

The NSW EPA “*Better practice guide for resource recovery in residential developments*” Provides the following waste generation rates for these also, which will be applied to this WMP.

5. ILU Waste Volumes and Proposed bin numbers.

This section provides calculation of proposed waste volumes generated for **Buildings A, B and E**. It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and The NSW EPA “Better practice guide for resource recovery in residential developments” waste generation rates have been used.

NSW EPA “Better practice guide for resource recovery in residential developments” waste generation rates utilised for ILU apartments is as noted below.

Table F2: Estimated domestic waste and recycling generation rates per week

Apartment size	Waste	Recycling	Organics
1 bedroom or studio	80L	80L	25L*
2 bedroom apartment	100L	100L	25L
3 bedroom apartment or greater	120L	120L	50L

5.1 Building A, General & FOGO Waste

Based on Building A’s apartment numbers and the EPA “Better practice guide for resource recovery in residential developments” the following general waste volume is applied for Building A.

General Waste

Apartment Type.	Apartment numbers.	Volume per week per unit.	Total volume per week.
Studio / One (1) bedroom apartments.	6	80 litres	480 litres per week
Two (2) bedroom apartments.	29	100 litres	2,900 litres per week
Three (3) bedroom apartments.	4	120 litres	480 litres per week.
Total Resident numbers.	39		3,860 litres per week.

FOGO waste

Apartment Type.	Apartment numbers.	Volume per week per unit.	Total volume per week.
Studio / One (1) bedroom apartments.	6	25litres	150 litres per week
Two (2) bedroom apartments.	29	25 litres	725 litres per week
Three (3) bedroom apartments.	4	50 litres	200 litres per week.
Total Resident numbers.	39		1,075 litres per week.

5.2 Building E, General & FOGO Waste

Based on Building E's apartment numbers and the EPA "Better practice guide for resource recovery in residential developments" the following general waste volume is applied for Building E.

General Waste

Apartment Type.	Apartment numbers.	Volume per week per unit.	Total volume per week.
Studio / One (1) bedroom apartments.	5	80 litres	400 litres per week
Two (2) bedroom apartments.	21	100 litres	2,100 litres per week
Three (3) bedroom apartments.	0	120 litres	0 litres per week.
Total Resident numbers.	26		2,500 litres per week.

FOGO waste

Apartment Type.	Apartment numbers.	Volume per week per unit.	Total volume per week.
Studio / One (1) bedroom apartments.	5	25 litres	125 litres per week
Two (2) bedroom apartments.	21	25 litres	525 litres per week
Three (3) bedroom apartments.	0	50 litres	0 litres per week.
Total Resident numbers.	26		650 litres per week.

5.3 Building A, Co-Mingled Waste

Based on Building A's apartment numbers and the EPA "Better practice guide for resource recovery in residential developments" the following general waste volume is applied for Building A.

Apartment Type.	Apartment numbers.	Volume per week per unit.	Total volume per week.
Studio / One (1) bedroom apartments.	6	80 litres	480 litres per week
Two (2) bedroom apartments.	29	100 litres	2,900 litres per week
Three (3) bedroom apartments.	4	120 litres	480 litres per week.
Total Resident numbers.	39		3,860 litres per week.

5.4 Building E, Co-Mingled Waste

Based on Building E's apartment numbers and the EPA "Better practice guide for resource recovery in residential developments" the following general waste volume is applied for Building E.

Apartment Type.	Apartment numbers.	Volume per week per unit.	Total volume per week.
Studio / One (1) bedroom apartments.	5	80 litres	400 litres per week
Two (2) bedroom apartments.	21	100 litres	2,100 litres per week
Three (3) bedroom apartments.	0	120 litres	0 litres per week.
Total Resident numbers.	26		2,500 litres per week.

5.6 Anticipated bin numbers for Buildings A and E (General waste).

Building A	Bin type	Bin numbers.	Removal times
General Waste	1,100 litre	4	One time each week.
FOGO Waste	1,100 litres	1	One time each week.
Co-mingled waste	1,100 litre	4	One time each week.
		9	

Building E	Bin type	Bin numbers.	Removal times
General Waste	1,100 litre	3	One time each week.
FOGO Waste	1,100 litres	1	One time each week.
Co-mingled waste	1,100 litre	3	One time each week.
		7	

5.6 Anticipated bin numbers for Buildings A and E (Co-mingled waste).

Building A	Bin type	Bin numbers.	Removal times
General Waste	1,100 litre	4	One time each week.
Co-mingled waste	1,100 litre	4	One time each week.
		9	

Building E	Bin type	Bin numbers.	Removal times
General Waste	1,100 litre	3	One time each week.
Co-mingled waste	1,100 litre	3	One time each week.
		7	

5.7 1,100 litre bin compaction system.

UFD recommends the use of an 1,100-litre bin compaction system that can reduce waste volumes by 3:1.

Key Benefits

- Suitable for compacting cardboard, plastic, wet and dry waste.
- Our unique design does not damage the bin.
- Adjustable to various bin sizes.
- Fast cycle times.
- Easy to use with many safety features.

This Wheeled Bin Compactor is recommended for businesses who put their waste into 1100L wheelie bins but find they overflow regularly but are not necessarily full of waste. By compacting bagged general waste, you can fit more bags of waste into a 1,100-litre bin and present a clean, more environmentally friendly working environment.



Figure 3 1,100 litre bin compaction system.

Note: Linear tracking system.

Due to the design of the basement waste management areas **no spatial allowance** is provided for a suitable bin linear tracking system. As such, facility staff will be required to rotate bins from under the waste chute system as they become full.

6. Buildings A and E Bulky waste hold.

It is considered better practice to provide a space for ILU residents to temporarily store unwanted bulky waste awaiting disposal through a programmed clean-up service, such as old furniture, mattresses, appliances, and other larger items that will not usually fit in a bin.

These areas are important safeguards against ILU residents illegally dumping bulky waste on the footpath or within communal areas of the building. Regular illegal dumping can attract other dumped waste and generate litter, detracting significantly from the quality and appearance of the development and reduce amenity.

It is important that bulky waste storage areas:

- Are readily accessible to all residents.
- Are screened from the street or in a basement.
- Be secure and caged to allow the contents to be visible from the outside.
- Have a minimum doorway width of 1.5 metres to allow for easy movement of large waste items.

Some councils will specify the storage requirements for bulky waste within their DCPs. Where this information is not available, the bulky waste storage should be provided at the rate of 10m² of space for up to FORTY (40) units and then 2m² for every TEN (10) units after that.

6.1 Proposed Bulky Waste hold for Building A.

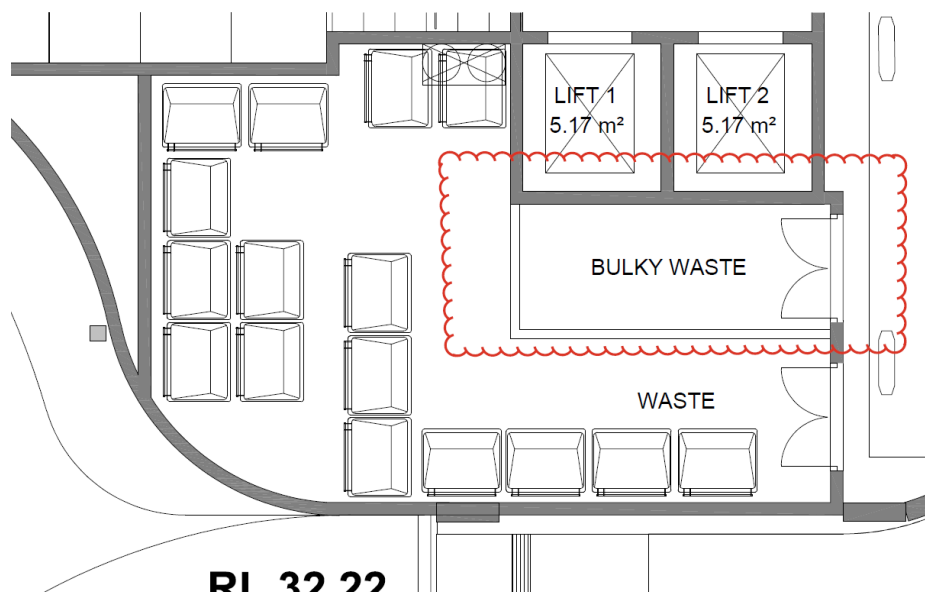


Figure 4 Building A bulky waste hold.

6.2 Proposed Bulky Waste hold for Building E.

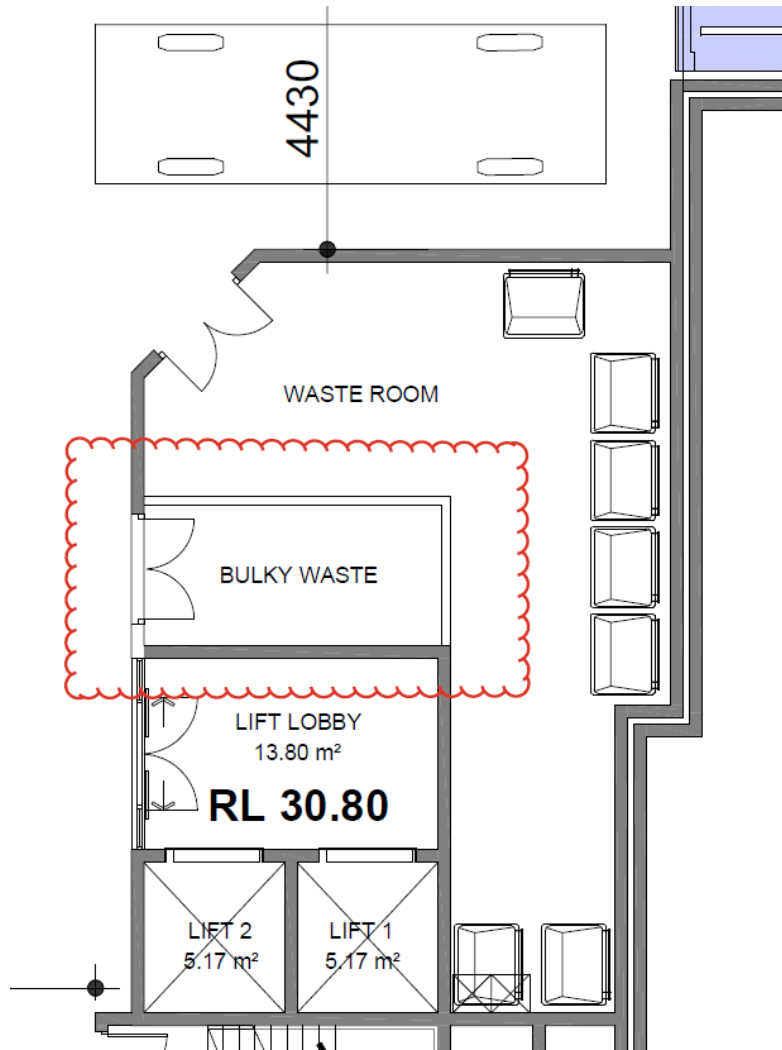


Figure 5 Building E Bulky waste area.

7. RACF general waste generation.

General and co-mingled waste generation rates for aged care area to be based on the EPA rates as detailed below.

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Table F3: Calculating commercial and industrial waste and recycling generation rates

Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m ² floor space.
Carparks (commercial)	1	1	Based on per 100 m ² floor space.

7.1 Waste bin numbers.

The following bin numbers will be required for Building B (RACF living spaces).

Bin type	Bin size/capacity	Bin numbers	Pickups – per week
General waste	1,100 litres	2	1 time
Recycled waste	1,100 litres	2	1 time
FOGO waste	1,100 litres	1	1 time
Medical waste	120 litres	2	1 time
Cytotoxic waste	120 litres	2	1 time
Secured paper waste	240 litres	1	1 time – per month
Fluid waste	1265mm x 645mm bunded pallet	1	As volume dictates

The waste calculations to determine the noted bin numbers are as detailed below.

7.2 General waste.

Based on this amount of general waste generated UFD recommends the following estimates be applied:

Area	General waste litres per day requirement	General waste litres per week requirement
120 residents	600 litres per day	4,200 litres per week.
Main kitchen	436 litres per day	3,052 litres per week.
Hair Salon	29 litres per day	203 litres per week.
Administration and area Office areas (Combined allowance)	10 litres per day	70 litres per week.
Café	17 litres per day	119 litres per week.
Gym	17 litres per day	119 litres per week.
Multi-Purpose room	10 litres per day	70 litres per week.
GENERAL WASTE TOTALS	1,119 LITRES PER DAY	7,833 LITRES PER WEEK.

Note: Using the waste compactor as detailed in Section 5.7 of this report the compacted waste volume will be a nominal **2,611 litres per week.**

Note: FOGO waste is allocated as 25% of the general waste stream as noted above being = **1958 litres per week.**

7.3 Recycling generation.

Based on this amount of Co-mingled waste generated UFD recommends the following estimates be applied:

Area	Co-mingled waste litres per day requirement	Co-mingled waste litres per week requirement
120 residents	120 litres per day.	840 litres per week.
Main kitchen	305 litres per day	2,135 litres per week.
Hair Salon	25 litres per day	175 litres per week.
Office areas (Combined allowance)	15 litres per day	105 litres per week.
Café	21 litres per day.	147 litres per week.
Gym	13 litres per day	91 litres per week.
Multi-Purpose room	20 litres per day.	140 litres per week.
CO-MINGLED WASTE TOTALS	519 LITRES PER DAY	3,633 LITRES PER WEEK

Note: Using the waste compactor as detailed in Section 5.7 of this report the compacted waste volume will be a nominal **1,211 litres per week.**

7.4 Liquid waste storage requirements.

UFD recommends a **bunded area** be provided in the waste collection area. This will assist in ensuring the waste liquids such as oil, fuels, cooking oils, paint, chemical's etc. do not enter the trade waste system.

UFD recommends an area of a **nominal 1.00 square meters (1,245mm x 645mm)** be allowed for bund pallet in the waste collection area for this purpose.



Note: No floor waste should be required for the bunded pallet.

Note: To EC Pallets for detail - <https://www.materialshandling.com.au/products/polyethylene-low-profile-spill-control-pallets/>

7.5 Medical waste collection requirements.

120 residents @ 1.3 litres of waste generated per week = 156 litres of medical waste generated per week.

Based on this amount of waste generated UFD recommends the following:

1. Waste removal is conducted **once per week** (or as waste accumulation dictates).
2. Medical waste is held in two (2) x 120 litre bins.
3. A Specialist private contractor is engaged to remove the waste.
4. At the same time that the medical waste bins are removed from the Waste holding area, the waste collector will also go through the Home and collect all full 2 litre and 5 litres 'sharps' bins – exchanging them with empty bins.

Note: UFD recommends that **two colour coded (2) x 120 litre bins** are maintained on site if waste cannot be collected due to uncontrollable circumstances.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to handle the waste generated. The bin numbers noted are estimates based on volumes estimated and the amount of times waste is collected during the typical weekly period.

7.6 Hazardous (Cytotoxic) wastes general comments and requirements.

Cytotoxic Waste Disposal.

All cytotoxic waste containers should be sealed prior to collection by the specialist waste agency. Cytotoxic preparations must be transported in sealed designated containers and labelled as cytotoxic waste. Personnel engaged in the routine handling and transport of cytotoxic waste should wear industrial workwear, polyvinyl chloride (PVC) industrial gloves and safety boots.

Cytotoxic waste should be segregated from other waste streams. At present incineration is the only acceptable method for treating cytotoxic waste.

120 residents @ 1.3 litres of Hazardous medical waste generated per week = 156 litres of Hazardous medical waste generated per week.

Based on this amount of waste generated UFD recommends the following:

1. Hazardous medical waste removal is conducted **once per week** (or as waste accumulation dictates).
2. Hazardous medical waste is held in **two (2) x 120 litre bins**.
3. A specialist private contractor is engaged to remove the waste.
4. At the same time the Cytotoxic waste bins are removed from the Waste holding area, Home Medical waste collectors will also go through the Home and collect all full 4 litre and 20 litres 'sharps' bins/pails – exchanging them with empty bins.

Note: All full Cytotoxic 4 litre and 20 litres 'sharps' bins/pails bins used in the RACF will be in the following areas:

- Dirty Utility rooms.
- Team Nurse Stations.
- Doctors' treatment room or treatment areas.

Note: UFD recommends that two (2) colour coded (purple) x 120 litre bins are always maintained on site if waste cannot be collected due to uncontrollable circumstances.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to handle the waste generated. The bin numbers noted are estimates based on volumes estimated and the amount of times waste is collected during the typical weekly period.

Certain medical and liquid wastes have properties that make them hazardous or potentially harmful to human health or the environment. Some liquid wastes can also be hazardous.

If not stored and treated appropriately, some hazardous materials can cause infections or injuries, while others can be highly toxic. As such the correct and safe handling of generated Hazardous waste will always be required.

7.7 Administration/Secured paper waste.

A single 240 litre Administration/Secured paper waste bin shall be in the Building B waste management area. This will be emptied once (1 time) per month or as waste volumes dictates.



Figure 6 A Confidential waste management bin will be provided.

7.8 Building B Waste area.

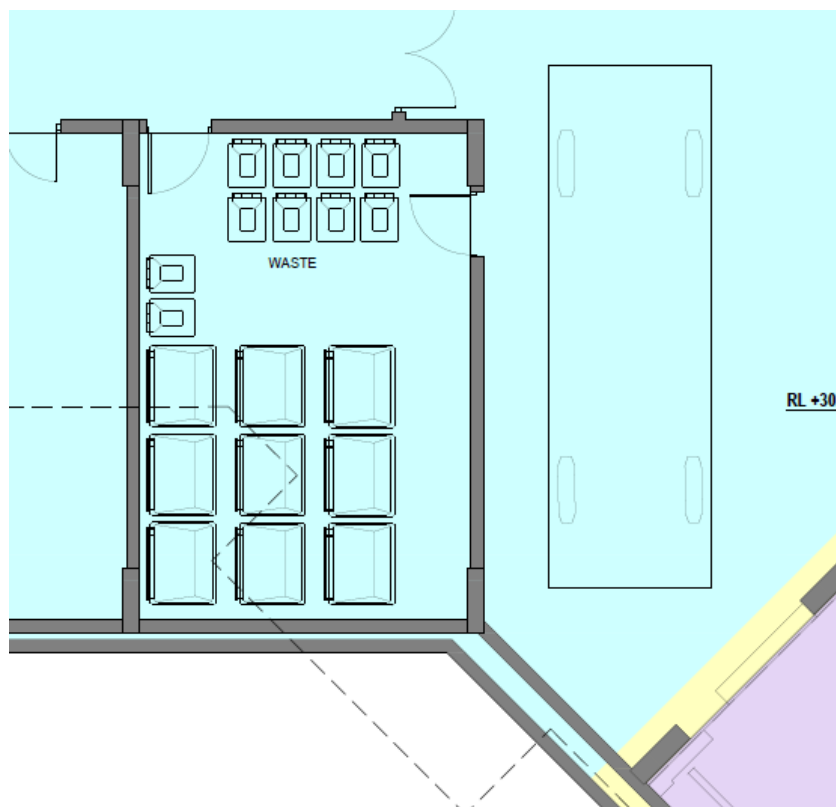


Figure 7 Proposed Waste Area for Building B.

7.9 Block A, B and E Car-parking areas

Waste generation for all car parking areas is as noted below being based off the EPA rates as detailed below:

Table F3: Calculating commercial and industrial waste and recycling generation rates

Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m ² floor space.
Carparks (commercial)	1	1	Based on per 100 m ² floor space.

Basement and Lower basement car parking spaces have a combined 300m² areas. Based on this calculation:

Car parking General waste generation rates for car parking areas based on the EPA rates as detailed above.

- 300m² @ 1 litres per 100m² of general waste per day = 3 litres per day.
- 3 litres of general waste x seven (7) days = **21 litres per week.**

Car parking Co-mingled waste generation rates for car parking areas based on the EPA rates as detailed above.

- 300m² @ 1 litres per 100m² of general waste per day = 3 litres per day.
- 3 litres of general waste x seven (7) days = **21 litres per week.**

Note: Waste volumes generated in the car park areas have been added to the waste volumes as detailed for Building B.

8. Waste vehicle movements.

Loading areas will be provided in several locations within the development, suitable for small to medium rigid trucks used by the applicant for garbage collection and deliveries. These vehicles will be up to eight (8) metres long, with a reduced height clearance requirement of 2.5 metres. Service vehicles shall be able to enter and exit the site in a forward direction.

Note: The noted rear waste collection vehicle can remove waste from 120, 240, 660 and 1,100 litre waste bins.

Note: As detailed below, this vehicle has a working height of 2,500mm.

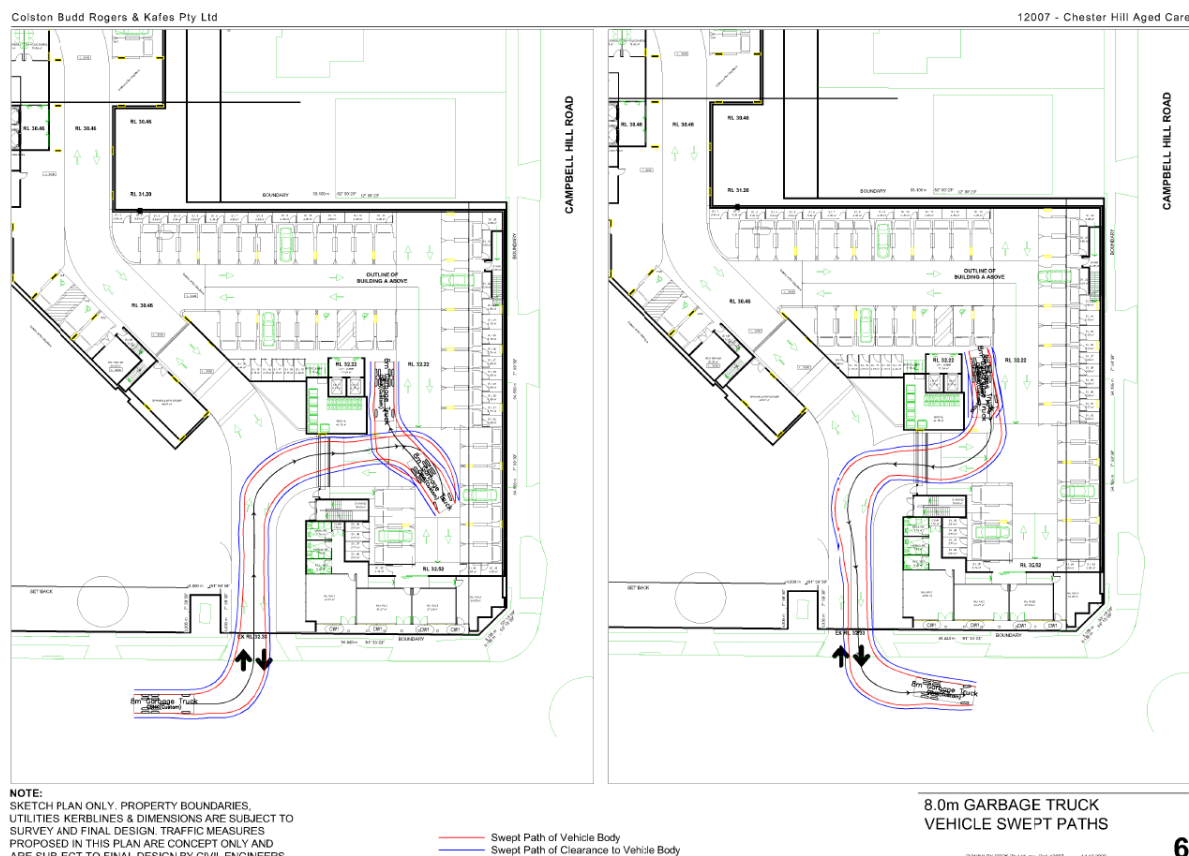


Figure 8 Proposed waste removal vehicle details.

Access and turning provisions.

Best design practice for access and egress from the Abel Tasman RACF will always call for a separate entrance and exit to allow the collection vehicle to travel in a forward direction. Where there is a requirement for collection vehicles to turn at a cul-de-sac head within a development, the design must incorporate either a bowl, 'T' or 'Y' shaped arrangement.

The design aspect of waste removal considered by the architect includes the following:

- The presence of parked cars on access roads / parking areas.
- The trucks three-point allowance to enter and exit in a forward motion.

Note: The Abel Tasman Management will be required to contract a private waste removal organization that is proficient and accredited in removing all waste generated on site as detailed in this report.

Waste pick up/collection zone.

To assist the private waste collection agency and ensure that the vehicles used in the collection of waste do not clash with the RACFs building elements, **UFD notes that a dedicated waste collection zone will be allowed for (Building A).** Key features of the waste collection processes are as follows:

- The **contracted waste collector** must collect all general and recyclable generated on a regular basis (as detailed in this report). The collection of waste and pick-up time will be coordinated with the Abel Tasman RACF Maintenance team to ensure that all bins ready for collection are correctly located prior to the pickup time.

Note: To assist in the management of waste removal from the RACF the Waste collection vehicles used shall be equipped with a GPS tracking system that will show the waste vehicle driver what job he goes to next, the directions, instructions whilst on site, site contacts and estimated arrival and departure times.

If any of the noted protocols are not adhered too, the tracking system alerts the waste collection agency service office and steps are put into place to ensure corrective actions are achieved.

Note: The collection of general waste (the largest waste volume) will be removed with a ten (10) minute time frame.

- Maintenance team members or the Private Waste collection agency will be required to move the required waste bins from the waste management area to the noted waste collection point for pick up before returning the waste bins back to the allotted waste areas.
- The waste collection area will have enough height to allow for the waste collection vehicle to gain movement into this area.
- Appropriate WH+S signage will be in and near the waste collection loading area.

Note: Vehicle access and vehicle movements shall be aligned with Council waste collection requirements which details:

- The collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre within the RACF.
- A compliant waste collection vehicle must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site.
- The travel route shall suit the dimensions of the waste collection vehicle. Travel routes shall be adequately surfaced in accordance with Council requirements.
- The grades of entry must not exceed the capabilities of the waste collection vehicle.

9. Waste Management areas.

All waste management (waste holding areas) shall be complete with the following:

Note: All waste generated from Building's B and E will be transferred off site via the central waste management area in Building A.

9.1 Facility requirements

All the following items are to be incorporated into the waste management areas.

1. The ceiling height of all new waste storage facilities shall be a minimum of 2400 mm.
2. The doorway opening to the waste rooms shall be of adequate size to allow easy access to bins and permit the installation and maintenance of waste handling and compaction equipment that may be used in the garbage rooms.
3. UFD recommends that the floor to each waste area be a minimum of 75mm thick and coved at the walls and graded to a centrally located floor drain. Flooring will be slip rated in accordance with current Australian Standards (AS4586).
4. A centrally located, WaterMark approved drain point with accessible and WaterMark approved removable bucket trap shall be installed into the floor. This drain point will be connected to the sewer.
5. Walls to the Waste Management areas shall be painted in an epoxy-based paint that is both washable and cleanable. The walls of the waste room must be constructed of approved solid impervious material. The waste room will be constructed to prevent the entry of vermin (rats, mice etc.).
6. All internal walls of the waste areas will be fitted with protective bumper railings (or protective finishes) for these spaces. Bumper railing shall be detailed by the Architect/Interior Designer.
7. The waste management area shall be complete with hot and cold-water hose cocks which will have fitted to them a proprietary hose reel assembly and the floor is to be graded and drained to the sewer to the requirements of Sydney Water.
8. Hot and cold-water points complete with a Temperature Mixing Valve will be provided in the waste collection point.
9. UFD recommends that all the new the waste management and holding areas be under surveillance to minimise vandalism.
10. The waste management operation for this facility will always operate in accordance with current Workplace Health and Safety standards in mind.
11. The waste collection and holding areas will be designed into the buildings in such a manner as to not compromise the streetscape character.

12. Artificial lighting that is adequate for the needs of the Waste Management operations through all waste management areas in accordance with Australian Standards for LUX requirements in commercial operations will need to be designed by the Electrical/Lighting Consultant.
13. Waste management areas shall all be constructed with a supply and exhaust air system, being constructed in accordance with AS1668.2-2012

The waste management room must be ventilated by either:

- Permanent, unobstructed natural ventilation openings direct to the external air, not less than 5% of the floor area.
 - A mechanical exhaust ventilation system exhausting at a rate of 5L/s.m2 floor area, with a minimum rate of 100L/s min
14. Proprietary bug/insect zappers should be installed in the RACF waste collection room. A general-purpose outlet will be provided at elevated level (nominally 2200mm AFFL) near the insect zapper's location. This will assist in controlling insects in the waste management area.

10. Staff Responsibilities.

The size of this development will influence the responsibility for ongoing management and maintenance of all bins and associated waste management areas.

All waste bin and waste equipment movements in and around all noted waste areas are always to be managed by the facility maintenance staff.

ILU Residents **will not be allowed** to transfer waste to any waste holding areas located on the Lower Ground Floor.

Facility maintenance and cleaning staff duties include, but are not limited to, the following:

- Organising, maintaining, and cleaning the general and recycled waste the holding areas (Frequency will be dependent upon waste generation rates and will be determined based upon the home's operations).
- Organising and coordinating both General waste and Recycled Waste pick-ups in a just in time manner with the Abel Tasman Contracted waste collection agency. Facility Maintenance staff shall ensure that bin movements are done in accordance with current WH+S requirements.
- Cleaning staff shall be required to collect all generated waste from the following areas:
 - All Resident living areas.
 - Car park areas.
 - Upper floor Foodservice areas.
 - All Back of House Administration and multipurpose areas.
 - All Front of house Areas.

Note: The collection of all generated waste generated through Block D will be conducted on a regular basis, with all generated waste being removed from the noted areas and transferred to the BOH waste management area by staff.

Note: Different waste streams (as indicated in this report) will require different coloured bins. o Abel Tasman Maintenance and Cleaning staff shall be responsible for training residents and staff on the correct placement of generated waste into the correct bin type.

- Cleaning and exchanging (servicing) all bins as required through all areas.
- Abel Tasman staff will ensure that waste bins are not left un-attended in the loading of the Home.
- The Abel Tasman maintenance staff will also be responsible for the following to minimise dispersion of site litter and prevention of stormwater pollution to avoid impact to the environment and local amenity.
- Promoting adequate waste disposal into all bins across all waste holding areas on site.
- Keep under surveillance the bin room and dock areas.
- Prevent overfilling of all waste bins; keep all bin lids closed and bungs leak-free.
- Act to prevent dumping or unauthorised use of waste areas or litter on site.
- Require collection contractor/s to clean-up any spillage that may occur when clearing bins.

- Manage the access of staff, tradespeople, and contracted agencies to the loading dock.
- Coordinate preventative maintenance requirements on all waste machinery, bins, and plant as detailed in this report.

7.1 Collection of waste through Block A, B and E.

UFD notes the following waste collection processes to be applied during the day-to-day operation of all buildings.

1. General waste.

All general waste (not generated by the ILU residents) will be transferred manually by Abel Tasman facility cleaning staff to the waste holding areas on an as required basis. General waste shall be collected from the following areas:

- Dirty Utility areas.
- RACF Resident living spaces.
- Function spaces.
- Administration areas.
- Front of house areas.

2. Medical and Cytotoxic waste

All Medical and Cytotoxic waste shall be removed from installed locations and returned to the waste holding areas by Abel Tasman facility cleaning staff. This will occur on a regular basis as demands dictates. Medical and Cytotoxic waste shall be collected from the following areas:

- Dirty Utility areas.
- Nursing Stations.
- Medical rooms.

3. Secured Administration waste.

All secured Administration waste shall be collected on an as required basis by Abel Tasman facility cleaning staff. This waste stream will not be transferred to the waste area via the waste chute. Secured waste will be transferred manually to the waste holding area. Secured waste shall be collected from the following areas:

- Reception areas.
- Office administration areas.
- Nursing stations.

4. Co-mingled waste.

Co-mingled waste will be transferred manually by Abel Tasman facility cleaning staff to the waste holding area on an as required basis. Recyclable waste shall be collected from the following areas:

- Nursing and Medical stations.
- Medical rooms.
- Dirty Utility rooms.
-

7.2 Transferring waste back to Block A.

Abel Tasman Staff will be responsible for the compliant transfer of waste from Block D to Block A.

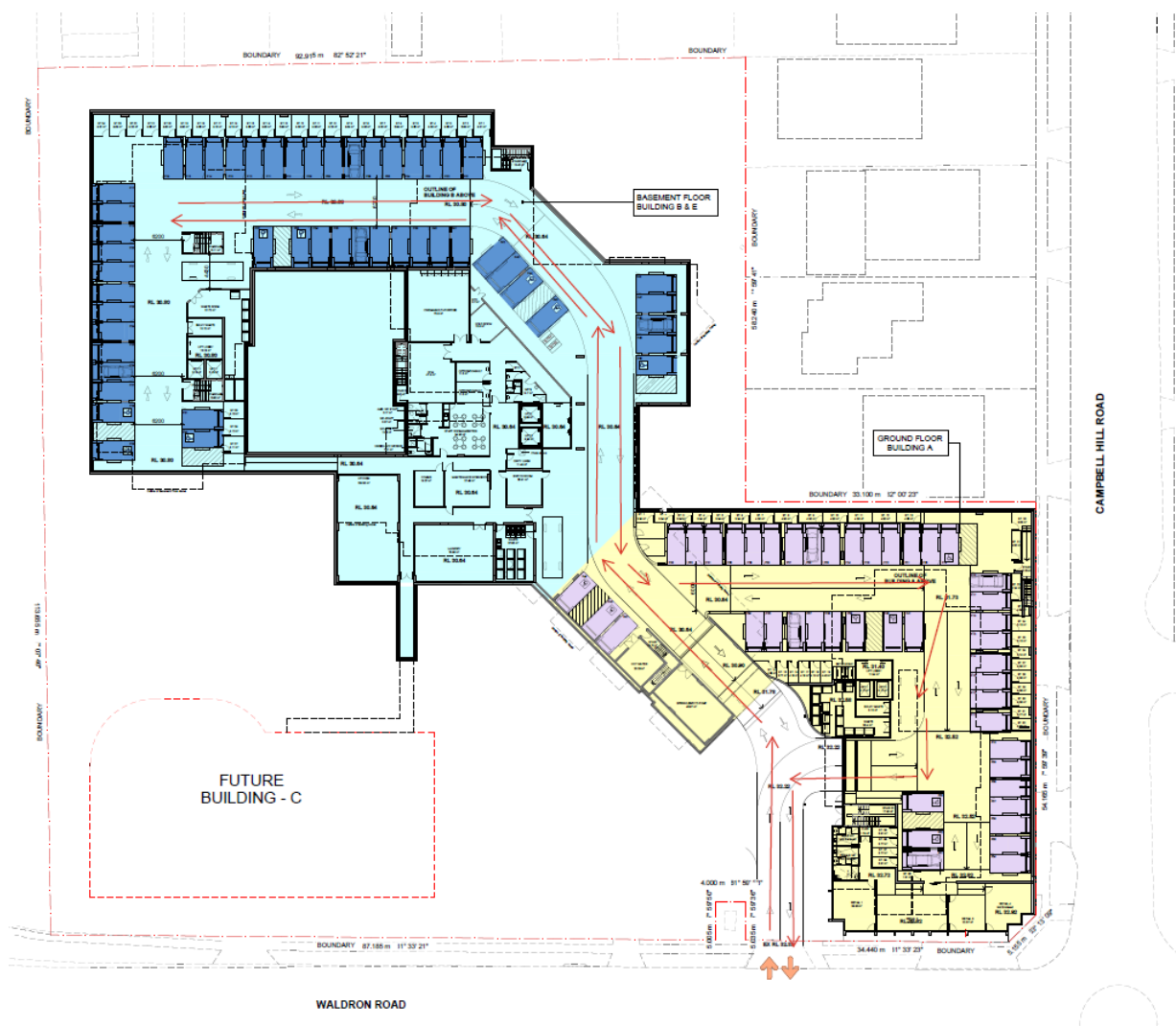


Figure 9 Proposed waste transfer route.

Note: Noting the travel distance from Block E to Block A UFD recommends that a motorised transfer tug be employed to minimise WH+S with waste transfer and align with the better practice guide for resource recovery in residential developments. (Refer to Section 5.8 for details).

Note: For safety and ease of manoeuvrability, the distance required for building managers and caretakers to wheel bins to their collection point must be the minimum achievable. No steps or kerbs are allowed in the path for wheeling bins to the collection point.

Table C.2: Bin-carting design standards

Bin capacity	Up to 360L	360L – 1100L	More than 1100L
Maximum distance	30m	5m	3m
Maximum surface grades	1:14	1:14	1:30
Steps or kerbs	None	None	None

Where the bin-carting route from the storage area to the collection point exceeds these distances or many bins need to be moved around the site, such as in large developments, a dock leveller, bin lift or a tow tug device will be used.

11. Waste Bin Standards.

All waste bins used at this facility (including waste collection points through the building) are to be aligned with current Australian Standards regarding waste management.

An Australian Standard has recently been developed for mobile bin colours (AS4123.7-2006 mobile waste containers - Part 7: colours, markings, and designation requirements). The colour designations for common waste categories are listed in the table below.

Waste Category	Bin body colour	Bin lid colour
Garbage	Dark green or black	Red
Recycling (commingled or containers)	Dark green or black	Yellow
Paper / Cardboard	Dark green or black	Blue
Organics (including co-collected food and garden organics)	Dark green or black	Lime green

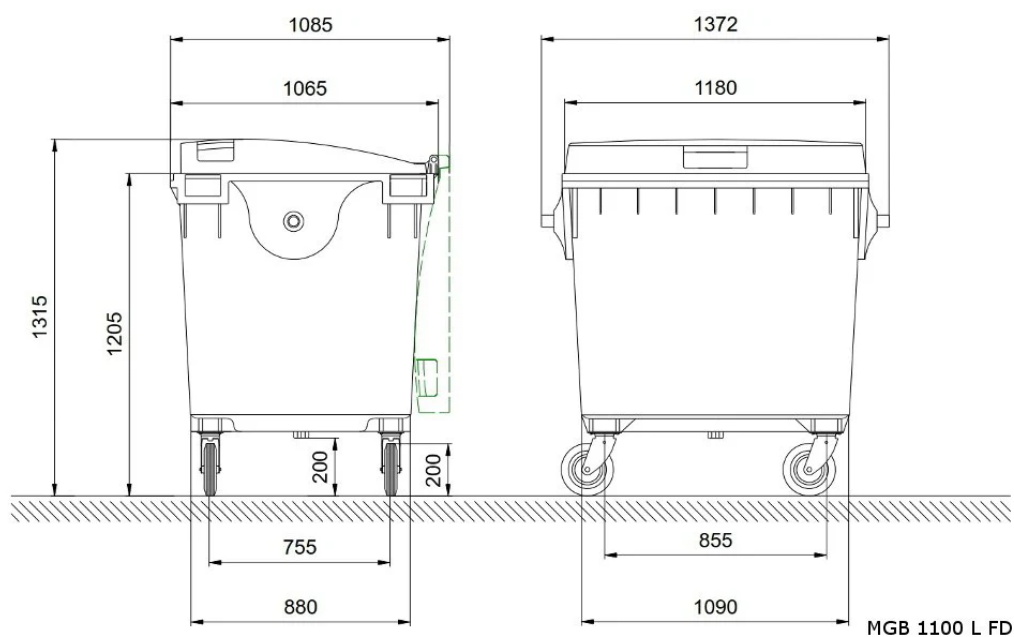


Figure 10 1,100 litre bins will be used on this project.

12. Waste Chute design requirements.

Waste chutes are vertical tubes that run through each floor of a building to the basement where it empties into mobile bins or bulk bins. Chutes for waste collection are suitable in buildings of four (4) or more storeys.

ILU Residents **will not have access** to the Lower Ground floor waste holding areas.

Each of the proposed waste chutes shall have space for an 1,100-litre bin located underneath it. Carousel or linear track bin systems will not be used on this project.

UFD recommends the use of proprietary waste chutes such as Elephant Foot. Standard features include:

- The waste and recycling chute for the residential areas are supplied in either 510mm galvanised steel or 510mm recycled LLDPE polyethylene plastic with 2-hour fire rated doors.
- Galvanised steel chutes and polyethylene chute hoppers are wrapped with 50mm poly wool R1.3 noise insulation foil to assist in noise reduction.
- Penetrations on each building level at vertically perpendicular points with minimum penetration dimensions 600mm x 600mm (square or round) are required to accommodate the chute.
- Each chute is supplied with a vent exiting at the top of each chute and wash down system.
- Council and supplier require that all chutes are installed without offsets wherever possible to achieve best operational outcome for both buildings.

13. Conclusion.

The Waste Management report that you have just read is a set of comments based on the following:

- AS1668.2-2012 – Mechanical ventilation.
- Current BCA requirements.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- City of Canterbury-Bankstown Council.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

Additionally, all material provided by UFD has always been done so based on being independent and representing the Stakeholders best interest. Thought and consideration has been provided on how to reduce operational costs, consolidate labour costs, and increase Safe work practices across the Home.

By the Abel Tasman Stakeholders moving ahead with the recommendations as noted in this report, UFD note that they are rising to the challenge of creating an efficient and sustainable Waste management operation as part this new Home that will cater to the Waste management needs of the Home in the years to come.

Appendix A Waste Generation Rates.

Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m ² floor space.
Carparks (commercial)	1	1	Based on per 100 m ² floor space.
Childcare	20	5	Per child
Cultural and recreational services: (museums, theatres, cinemas)	5	10	Based on per 100 m ² floor space for patrons (seating areas for theatre/cinema). Calculate cafes separately. Calculate office areas separately.
Dry cleaning	15	5	Per premises (80 m ²)
Food retail: bakeries	240	120	Per premises (80 m ²)
Food retail: butchers	250	50	Per premises (80 m ²). If organics recycling implemented, then 150L may be transferred from waste.
Food retail: seafood	250	50	Per premises (80 m ²) If organics recycling implemented, then 150L may be transferred from waste.
Food retail: greengrocers	540	60	Per premises (80 m ²) A higher rate needs to be considered for larger premises (based on a pro-rata increase for the 80 m ²) premises. If organics recycling implemented, then 300L may be transferred from waste.
Food retail: other	120	80	Per premises (80 m ²)
Food retail: takeaway (with sit-down area)	500	240	Per premises (80 m ²) – day operation only Note consideration must be given to the number of hours of operation.
Food retail: takeaway (food preparation only)	120	60	Per premises (80 m ²)
Gymnasiums	20	15	Based on per 100 m ² floor space
Hair and beauty	50	40	Per premises (80 m ²)
Hotels/pubs (without meals provided at the bar)	50	50	Based on per 100 m ² floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Licensed clubs (with gaming)	50	50	Based on per 100 m ² floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Medical	20	10	Per number of doctors' consulting rooms. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Motels	10	5	Based on the number of guest rooms with other types of facilities calculated separately.
Offices	10	15	Based on per 100 m ² floor space that is used for staff activities (e.g. exclude lobby areas).
Optical	15	25	Per premises (80 m ²)
Restaurants	400	280	Based on per 100 m ² floor space
Retail: chemists	20	45	Per premises

Retail: chain stores (clothing, manchester etc.)	5	20	Based on per 100 m ² floor space. Other facilities such as cafes calculated separately.
Retail: other non-food	50	100	Per premises
Retail: grocery and convenience stores	120	240	Based on per 100 m ² floor space
Retail: homeware and kitchenware shops	20	120	Per premises
Retail: newsagents and stationery shops	30	60	Per premises
Retail: office-based (e.g. travel agents)	30	40	Based on per 100 m ² floor space that is used for staff activities (e.g. exclude lobby areas).
Retail: variety gift stores	20	120	Per premises
Schools: pre-school	10	15	Per student
Schools: primary	15	20	Per student
Schools: secondary	20	15	Per student
School: tertiary	10	10	Per student (full time equivalent). Note that other waste such as chemical waste will be generated. Need to calculate other services (e.g. food halls, student accommodation, childcare, gyms), separately.
Showrooms	10	25	Based on per 100 m ² floor space
Supermarkets	240	300	Based on per 100 m ² floor space. Larger supermarkets may have a number of recycling streams, so advice should be sought as to what systems will be provided.
Wholesale trade	100	50	Based on per 100 m ² floor space

Appendix B WHS Signage

Appropriate Work Health and Safety hazard signs and Work Safe signage to inform people of hazardous areas, where there is restricted access and to reduce risks to staff, employees and to people that are in a location that could be a threat to safety and well-being. Hazard signs and safety symbols may also prevent entry by unauthorised personnel.

The purpose of these guidelines is to provide information for the application of regulatory and hazard signage in accordance with the requirements of the following legislations.

- Dangerous Goods Act (1985).
- Gene Technology Act (2000).
- Quarantine Act (1908).
- Occupational Health and Safety Act (2004) and associated New South Wales regulations and the:
 - Australian Standard 1319:1994 Safety signs for the occupational environment.

