Project

CENTRAL VILLAGE, PHASE 2 STAGE 4 AND 5

FORTITUDE VALLEY

Report on

WASTE MANAGEMENT PLAN

Client

METRO PROPERTY DEVELOPMENT

Consulting Engineers

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EXECUTIVE SUMMARY

This Waste Management Plan (WMP) has been developed in accordance with the Department of Environment and Climate Change document titled *Better Practice Guide for Waste Management in Multi-unit Dwellings*, as well as other relevant legislation and best practice guidelines and information received from Brisbane City Council.

Residential Waste

Bins will be collected every two to three days by Brisbane City Council's waste contractor SUEZ (formerly known as SITA).

General waste will be collected from Monday through to Sunday.

Commingled recycling will be collected from Monday through to Friday.

A single chute system with diverter (to separate general waste from commingled recycling) is proposed for both Stage 4 and Stage 5.

General waste will discharge from the chutes directly into a four bin (1,100L each) carousel (with compactor), in both the Stage 4 Refuse room and the Stage 5 Refuse area.

Commingled recycling will discharge from the chutes directly into a four bin carousel (1,100L each) in both the Stage 4 Refuse room and the Stage 5 Refuse area.

The room containing the Stage 5 Refuse is also the Central Refuse room.

The Central Refuse room will contain full bins from both Stage 4 and Stage 5. Bins will be transferred to and from Stage 4 by the aid of a ride on utility vehicle.

An alternate solution is that bins are placed in the loading dock adjacent to the Central Refuse room prior to collection and will then promptly be returned to the Stage 4 Refuse room.

An interim waste collection scheme is provided for Stage 4 waste to be collected from Stage 1 until the Central Refuse room in Stage 5 is complete.

Tenancy Waste

Bins will be collected by Brisbane City Council's waste contractor SUEZ.

General waste will be collected twice per week from Monday through to Sunday.

Commingled recycling will be collected twice per week from Monday through to Friday.

A tenancy waste room will house two 660L general waste bins and two 660L commingled recycling bins for the common use of all tenancies.

Tenants will be responsible for transferring waste generated within the tenancies to the bins.

Bins will be transferred via the ride on utility vehicle, to Stage 1 loading dock where the waste will be collected.

SECTION 1 INTRODUCTION

This report identifies and assesses the options for waste management of the proposed residential and retail development located on the corner of Water and Brunswick Street, Fortitude Valley.

Central Village Phase 2 consists of two (2) stages which rise from a central podium. Stage 4 consists of twenty-eight (28) levels and two hundred and eighty-five (285) apartments, Stage 5 consists of twenty-two (22) levels and two hundred and thirty-six (236) apartments.

This Waste Management Plan (WMP) has been developed in accordance with the Department of Environment and Climate Change document titled *Better Practice Guide for Waste Management in Multi-unit Dwellings*, as well as other relevant legislation and best practice guidelines and information received from Brisbane City Council.

1.1 WASTE MANAGEMENT OBJECTIVES

The waste management objectives addressed within this report are:-

- Identify the waste types likely to be generated throughout the life of the development.
- Develop an integrated approach to waste management to provide consistency in service throughout the site.
- Provide advice of the waste storage rooms spatial and design requirements.
- Provide advice of the size and quantity of waste receptacles required.
- Provide advice of the waste chute spatial and design requirements.

1.2 WASTE MANAGEMENT CONSIDERATIONS

Items considered when developing this waste management plan are as follows:-

- Brisbane City Council waste generation rates.
- Brisbane City Council's general waste and commingled recycling (paper, cardboard, steel cans, aluminium cans, plastic bottles and containers, glass bottles and jars) collection frequencies.
- Transfer frequencies of bins from the waste chute discharge room to the waste storage area.
- Manual manoeuvring of waste bins.

SECTION 2 OPERATIONAL WASTE MANAGEMENT

2.1 WASTE GENERATION RATES

The waste generation rates used to calculate the predicted volume of waste generated on site is based on information received from Brisbane City Council and the *Better Practice Guide for Waste Management in Multi-unit Dwellings* issued by the Department of Environment and Climate Change NSW.

The following table outlines the waste generation rates for both the residential and tenancy areas on site:-

Type of Premises	General Waste Generation Rate	Recycling Waste Generation Rate
Restaurants (L / 100m^2 floor area / day)	660	130
Retail less than 100m^2 floor area (L / 100m^2 floor area / day)	50	25
Retail greater than 100m^2 floor area (L / 100m^2 floor area / day)	50	50
Takeaway (L / 100m^2 floor area / day)	80	40
Offices - Managers Offices (L / 100m^2 floor area / day)	40	80
Residential (L / unit / week)	100	60
Gym (L / 100m^2 floor area / day)	40	20

Table 1: Waste generation rates provided by Brisbane City Council and the *Better Practice Guide for Waste Management in Multi-unit Dwellings*, Department of Environment and Climate Change NSW.

2.2 WASTE COLLECTION FREQUENCIES

Brisbane City Council has engaged the waste contractor SUEZ to collect all general and commingled recycling within the local government area. SUEZ offer the following waste collection frequencies:-

- General waste: seven days per week.
- Commingled recycling: five days per week – Monday through to Friday.

Based on this information the following minimum collection frequencies are proposed:-

- General waste: every two to three days.
- Commingled recycling: every two to three days.

2.3 PREDICTED WASTE GENERATION RATES ON SITE

In order to plan for the effective ongoing management of wastes, it is first necessary to conduct a hypothetical waste audit to identify the waste streams generated and their approximate daily volume.

It is from this hypothetical audit that the size and quantity of bins required and collection frequencies are determined.

The proposed compactors will reduce the volume of general waste by 3 to 1.

The predicted waste generation volumes are outlined in the following tables:-

Residential - Stage 4, 285 Units and Managers Office Predicted Waste Volumes	General Waste with Compactor	Commingled Recycling
Day 1	1,360 L	2,463 L
Day 2	2,721 L	4,926 L
Day 3	4,081 L	7,389 L

Table 2: Residential - Stage 4 predicted waste volumes.

Residential - Stage 5, 236 Units Predicted Waste Volumes	General Waste with Compactor	Commingled Recycling
Day 1	1,062 L	1,909 L
Day 2	2,125 L	3,819 L
Day 3	3,187 L	5,728 L

Table 3: Residential - Stage 5 predicted waste volumes.

Tenancies Predicted Waste Volumes per day	Floor Area m^2	General Waste	Commingled Recycling
Stage 4			
Brunswick St Centre Activities / Showroom (Office)	260	728 L	1,456 L
Centre Activities - Corner Tenancy (Office)	95	266 L	532 L
Retail 1 Adjacent Laneway - Café (Takeaway)	78	437 L	218 L
Retail 2 North – Café (Takeaway)	65	364 L	182 L
Stage 5			
Retail 1 Adjacent Laneway - Café (Takeaway)	70	392 L	196 L
Retail 2 Adjacent Orderly Room – Café (Takeaway)	68	381 L	190 L

Table 4: Tenancies predicted waste volumes per week.

Due to the volume of waste generated in each residential area, it is proposed to utilise 1,100L skip bins for the residential waste to minimise the quantity of bins and reduce the spatial requirements for the waste refuse rooms and the time spent relocating bins from the waste chute discharge rooms to the waste storage room and vice versa.

2.4 WASTE MANAGEMENT AND BIN SIZES

This section outlines the size and quantity of bins required for each main area of the development, and the waste management strategy specific to that area.

Bin carousels are proposed for Stage 4 and Stage 5 Refuse rooms. The bin carousels enable either two or four 1,100L bins to be filled before the attention of the building manager is required. Compactors (available for the general waste only) reduce the waste volume by 3:1, therefore delaying the need for the bins to be replaced.

Empty 1,100 skip bins will be stored in the Central Refuse room and will replace full bins on the bin carousels. Full bins will be emptied from the loading dock adjacent to the Central Refuse room.

Residential – Stage 4 Including Managers Offices

Residents in Stage 4 will dispose of their general waste and commingled recycling in the waste chutes which will be on each level.

General waste will discharge into one of four 1,100L skip bins located on a four bin compactor carousel.

Commingled recycling will discharge into one of four 1,100L skip bins located on a separate four bin carousel.

On the day of collection, full bins will be transferred from each carousel to the Central Refuse room. An empty bin is required on each carousel to collect any waste which may be disposed of during waste collection.

A ride on utility vehicle will be used to transfer the bins to the Central Refuse room or loading dock.

Residential - Stage 4, 285 Units	Bin Size	Collection Frequency
General Waste	5 x 1,100L	Every 2 to 3 days
Commingled Recycling	8 x 1,100L	Every 2 to 3 days

Table 5: Residential - Stage 4 bin sizes and collection frequency.

Residential – Stage 5

The Stage 5 Refuse area is located within the Central Refuse room.

Residents in the Stage 5 tower will dispose of their general and commingled recycling in the waste chutes which will be provided on each level.

General waste will discharge into one of four (4) 1,100L skip bins located on a four (4) bin compactor carousel.

Commingled recycling will discharge into one of four (4) 1,100L skip bins located on a separate four (4) bin carousel.

On the day of collection, full bins will be taken from the carousels to be emptied. An empty bin is required on each carousel to collect any waste which may be disposed of during waste collection.

Residential - Stage 5, 236 Units	Bin Size	Collection Frequency
General Waste	4 x 1,100L	Every 2 to 3 days
Commingled Recycling	6 x 1,100L	Every 2 to 3 days

Table 6: Stage 5 bin sizes and collection frequency.

Additional Residential Waste Storage Areas for Consideration

Additional Residential waste storage areas for consideration are:-

- Caged area or room for the temporary storage of residential bulky waste items or electronic goods.
- Green waste bins.

Tenancies

Tenants will dispose of their waste directly into communal bins which will be stored in a Tenancy Refuse room located on Level 1. Bins will be transferred to the collection point in Stage 1 by the aid of a ride on utility vehicle.

Tenancies Predicted Waste Volumes per day	Waste Type	Bin Size	Collection Frequency
Stage 4			
Brunswick St Centre Activities / Showroom (Office)	General	1 x 360L	Twice per week
	Commingled	1 x 660L	Three times per week
Centre Activities - Corner Tenancy (Office)	General	1 x 360	Weekly
	Commingled	1 x 360	Twice per week
Retail 1 Adjacent Laneway - Café (Takeaway)	General	1 x 360L	Twice per week
	Commingled	1 x 240L	Weekly
Retail 2 North – Café (Takeaway)	General	1 x 360L	Weekly
	Commingled	1 x 240L	Weekly
Stage 5			
Retail 1 Adjacent Laneway - Café (Takeaway)	General	1 x 360L	Twice per week
	Commingled	1 x 240L	Weekly
Retail 2 Adjacent Orderly Room - Café (Takeaway)	General	1 x 360L	Twice per week
	Commingled	1 x 240L	Weekly

Table 7: Tenancies bin sizes and collection frequency.

In the event that the waste generated by tenants contains 20% or more (by weight) of fish poultry or meat, the waste must be collected daily or refrigerated. In this instance the waste receptacles will reduce to 240L.

Additional Tenant Waste Storage Areas for Consideration

Additional tenants waste storage areas for consideration are:-

- Recyclable electronic goods such as batteries, equipment containing printed circuit boards, computers, televisions, fluorescent tubes, smoke detectors and other recyclable resources.
- Reusable items such as crates, pallets and kegs.
- Liquid wastes such as oils. The liquid waste storage area must be bunded and drained to a grease trap.

2.5 QUANTITY AND DIMENSIONS OF BINS

The bin sizes proposed for tenancies are 660L. The waste receptacles proposed for the residents are 1,100L skip bins.

The dimensions of the proposed bins are outlined in the below table.

Bin type	Height	Depth	Width
660 Litre Skip Bin	1250 mm	850 mm	1370 mm
1,100 Litre Skip Bin	1470 mm	1250 mm	1370 mm

Table 8: Waste receptacle dimensions.

Residential

There will be a total of nine (9) general waste skips, of which a maximum of seven (7) will be ready for collection at any one time. Five (5) of the skips will belong to Stage 4 and four (4) of the skips will belong to Stage 5. One (1) of the skips will remain on each general waste compactor carousel whilst the remaining skips from each stage (totalling 7 skip bins) will be emptied by the waste contractor.

There will be a total of fourteen (14) commingled recycling skips of which a maximum of twelve (12) skips will be ready for collection at any one time. Eight (8) of the skips will belong to Stage 4 and six (6) of the skips will belong to Stage 5. One (1) skip bin will remain on each commingle carousel whilst the full skips from Stage 4 and from Stage 5 (totalling 12 skip bins) are emptied by the waste contractor.

The residential waste storage area is sized to store the following:-

- 7 x 1,100L general waste skips.
- 12 x 1,100L commingled recycling skips.

On collection day, skips transferred from Stage 4 Refuse room will be placed either within or adjacent to the Central Refuse room.

Tenancies

The Tenancy Bin Store is sized to store the following:-

- 2 x 660L general waste skips.
- 2 x 660L commingled recycling skips.

2.6 WASTE STORAGE AREA DESIGN FOR UNITS

It is recommended that each unit will incorporate a storage space that is sized to store a minimum of two days worth of waste.

Over two days, units will generate approximately 29 litres of general waste and approximately 17 litres of commingled recyclable waste. Waste storage spaces should be sized to house waste receptacles.

The following table outlines the calculated waste generation rate for units.

Waste Stream	Allowance	Allowance for two days	Waste receptacle
Garbage	100L/unit/week	29L/unit/two days	≥30L general waste bin
Commingled recycling	60L/unit/week	17L/unit/two days	≥20L commingled recycling bin

Table 9: Unit waste generation rates.

2.7 SERVICE / GARBAGE CHUTE ROOMS AND WASTE STORAGE ROOMS

Residents will dispose of all general waste and commingled recycling into the appropriate chute system.

Service and Garbage Chute Room Design

The design and construction of the waste storage areas are required to comply with the following conditions:-

- Each service room / temporary waste storage room must be well ventilated and well lit.
- The floors walls and ceilings of the service rooms must be finished smooth impervious materials that are capable of being easily cleaned.
- The service rooms must contain signage that describes the types of wastes that can be deposited into the garbage chute and the types of wastes which should be deposited into the commingled recycling chute.
- The service openings must be fitted with a charging device between one (1) meter and one and a half (1.5) meters above floor level and have a cross-sectional area not more than half that of the garbage chute.
- The charging devices must be self closing and permit the free flow of garbage into the chute.

Waste Chute Requirements

The waste chute is to comply with the following requirements:-

- The chute must be cylindrical in shape with a minimum diameter of 500mm.
- The chute must be constructed of a non-corrosive, impervious and smooth metal.
- The chute must be vertical with no bends, off-sets or restrictions and all internal joints and seams finished to a smooth even surface to allow the free flow of garbage through the chute.
- Adequate isolation of the waste chute from the building structure must be provided to minimise vibrations associated with the operation of the chute.
- The waste chute must terminate in the waste room and discharge the garbage directly into the waste container / compactor in such a way that no spillage occurs.
- A cut-off device must be provided at or near the base of the chute to effectively close off the chute while the waste containers are being serviced or the compaction equipment is being maintained.
- The chute, charging devices and service openings must be capable of being easily cleaned.
- The chute must be ventilated so that air does not flow from the chute through any service opening and the flow of air through the chute does not impede the downward movement of garbage.
- The vent at the top of the chute must extend above the roof level and be fitted with a weather-proof cowl and wire mesh screen to prevent the entry of rainwater and birds.

Spatial requirements for the waste chute riser are shown in Appendix A.

2.8 WASTE COLLECTION

A nominated person, will transfer full waste bins daily, or as required, from the waste refuse rooms to the collection point with the aid of a ride on utility vehicle with an attached trailer.

Residential Waste Storage Area

Full skip bins from Stage 4 will be transferred to either the Central Refuse room or adjacent to the Central Refuse room in the loading dock area. Waste from Stage 4 and Stage 5 will be collected simultaneously.

An interim waste collection scheme is provided for Stage 4 waste to be collected from the Stage 1 loading dock until the Central Refuse room in Stage 5 is complete.

Full skips in Central Refuse room will be taken to the truck to be emptied; the empty bins will then be placed either on the bin carousels or back into the Central Refuse room ready to replace full bins.

Tenancy Waste Storage Area

A nominated person will move bins from the Tenancy Refuse room on Level 1 of Stage 4 to the loading dock of Stage 1 on designated bin collection days.

2.9 BIN MOVER

A bin mover is required to transfer bins to and from waste refuse rooms and collection areas. A ride on utility vehicle with an attached trailer is proposed.

The proposed bin mover is the Carryall 500 Utility vehicle. In addition to a trailer, universal towing devices will be fitted in each bin to provide flexibility for both modes of transport.

Figure 1: Carryall 500 Utility Vehicle.

The dimensions are:-

Bin type	Height	Width	Length
Carryall 500	1800 mm	1280 mm	3000 mm
Trailer (additional)	~1600 mm	1150 mm	2000 mm
Overall Dimensions	~1600 mm	1280 mm	5000 mm

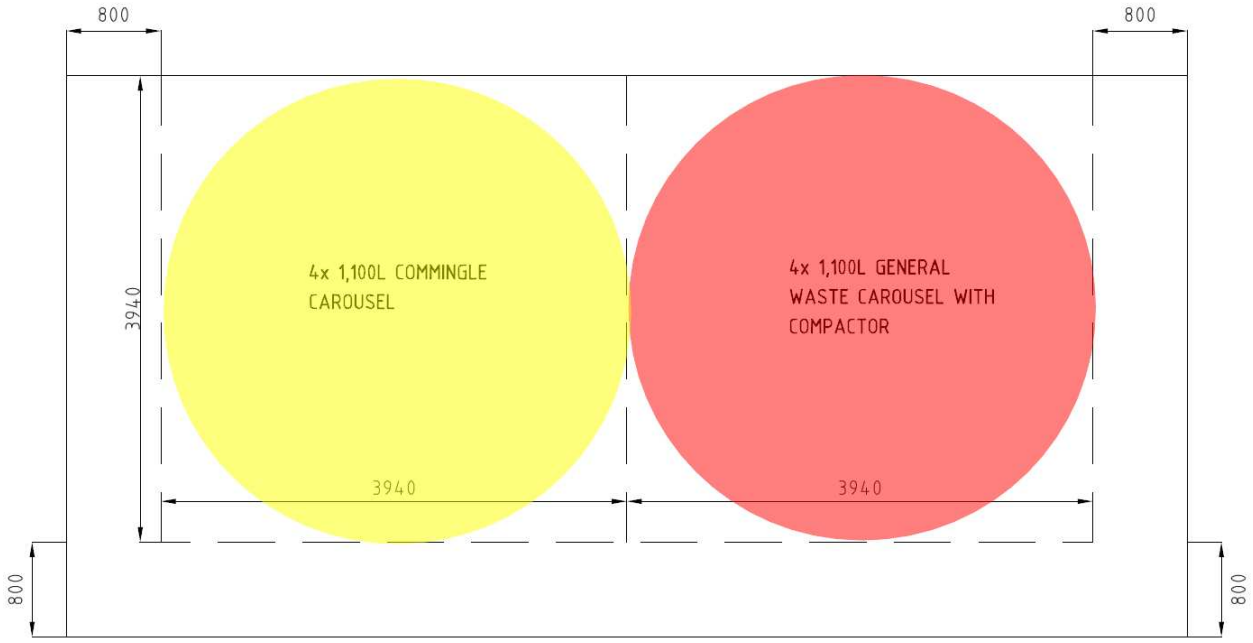
Table 10: Bin mover tug and trailer dimensions.

Space will need to be allocated to store the bin mover and trailer.

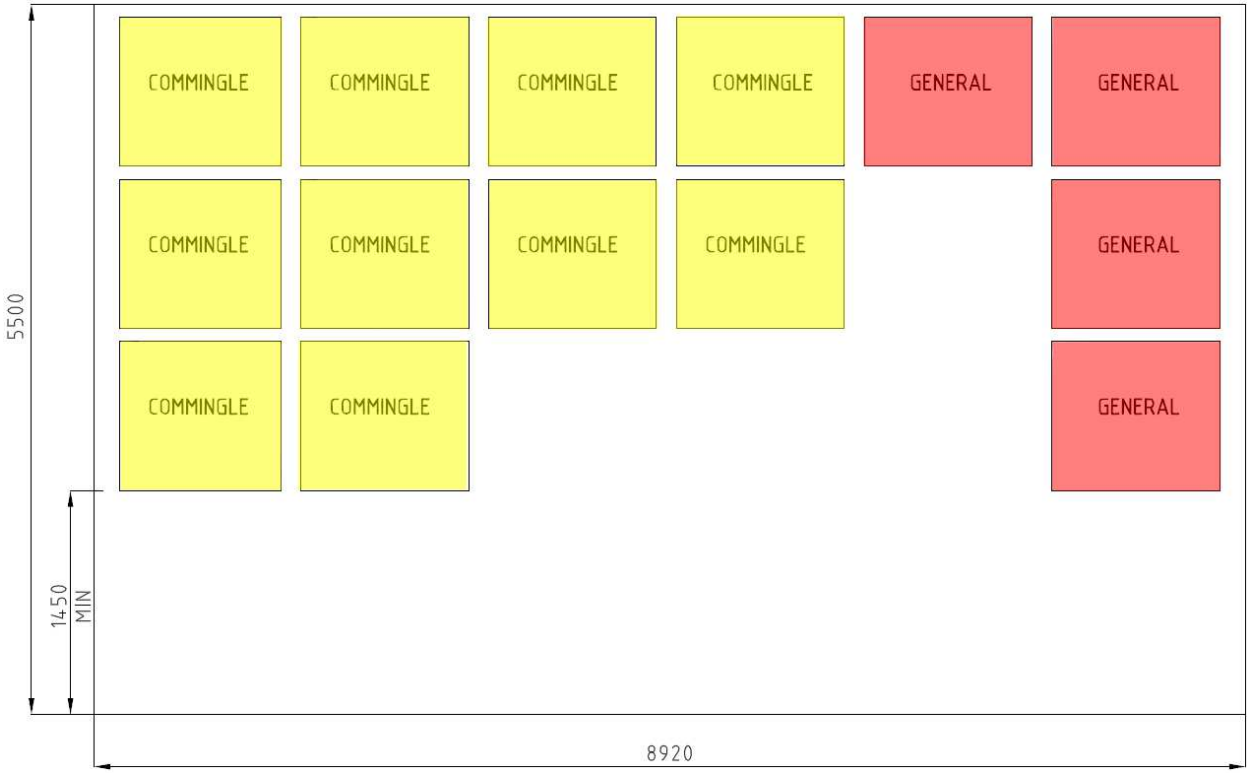
APPENDIX A

WASTE STORAGE AREA LAYOUT

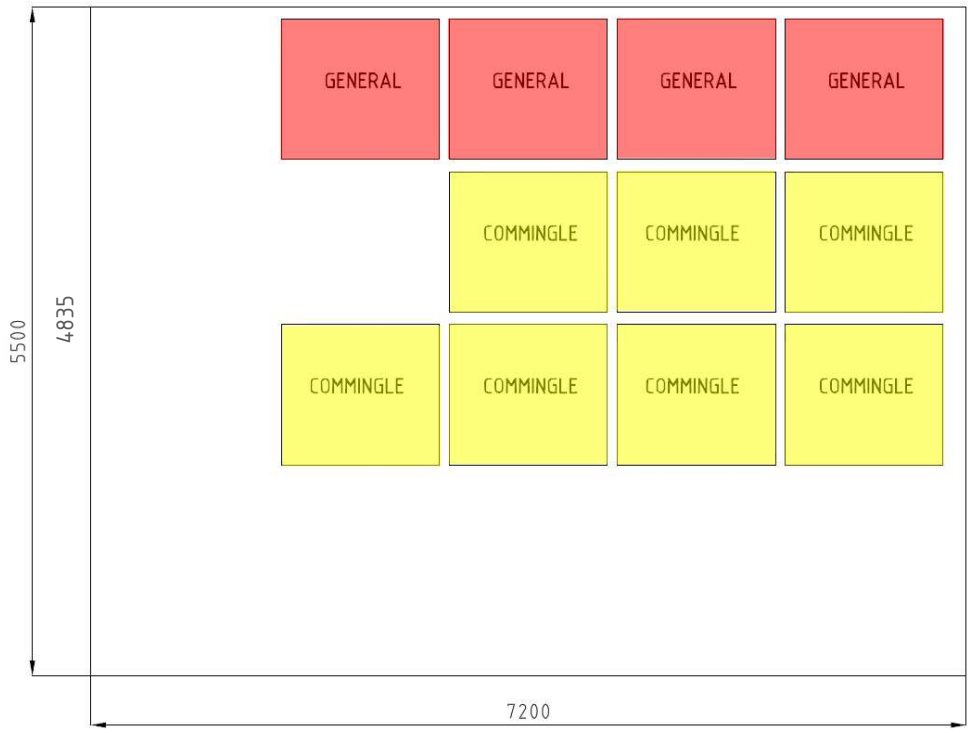
SPATIAL REQUIREMENTS FOR BIN CAROUSELS



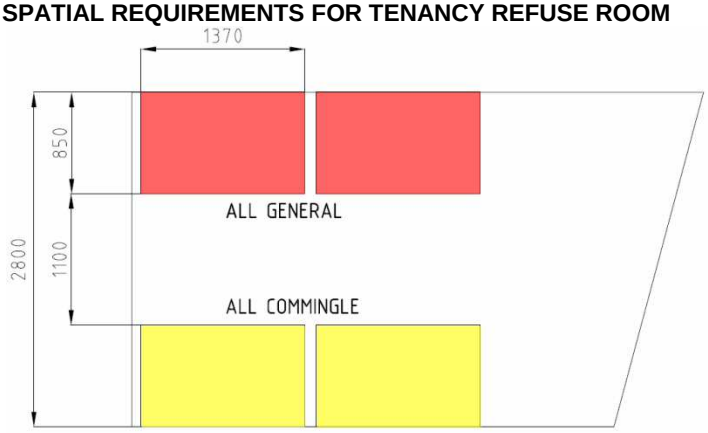
SPATIAL REQUIREMENTS FOR STAGE 4 AND STAGE 5 WASTE RECEPTACLES WITHIN CENTRAL REFUSE ROOM



SPATIAL REQUIREMENTS FOR STAGE 4 WASTE RECEPTACLES WITHIN STAGE 1



SPATIAL REQUIREMENTS FOR TENANCY REFUSE ROOM



SPATIAL REQUIREMENTS FOR THE WASTE CHUTES