East Village Centre, Jordan Springs NSW

Mixed-Use Development

OPERATIONAL WASTE MANAGEMENT PLAN

4/11/2019
Report No. SO181
Revision C

Client

LA Land

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SCOPE

This operational waste management plan (OWMP) only applies to the **operational** phase of the proposed development; therefore, the requirements outlined in this OWMP must be implemented during the operational phase of the site and may be subject to review upon further expansion for, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are *not* addressed in this report. It is Elephants Foot Recycling Solutions' (EFRS) understanding that a construction and demolition waste management plan will be completed by a separate party appointed by the developer and submitted separately to this report. Typically, the head contractor of the site will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements.

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	10/10/2019	W. Brunson	A. Armstrong	Draft
B	16/10/2019	W. Brunson	A. Armstrong	Draft
C	4/11/2019	W. Brunson	A. Armstrong	Final

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GLOSSARY OF TERMS

TERM	DESCRIPTION
Baler	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
Chute	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
Chute Discharge	The point at which refuse exits from the refuse chute
Chute Discharge Room	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
Collection Area/Point	The identified position or area where garbage or recyclables are loaded onto the collection vehicle
Compactor	A machine for compressing waste into disposable or reusable containers
Composter	A container/machine used for composting specific food scraps
Crate	A plastic box used for the collection of recyclable materials
Garbage	All domestic waste (Except recyclables and green waste)
Green Waste	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
Hopper	A fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit
L	Litre(s)
Liquid Waste	Non-hazardous liquid waste generated by commercial premises that is supposed to be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
LRV	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
Mobile Garbage Bin(s) (MGB)	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
MRV	Medium rigid vehicle
MUD	A classification of housing designed to house residents in separate housing units.
Recycling	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines
SRV	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33

INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for the operational management of waste generated by the mixed-use development located at East Village Centre, Jordan Springs NSW.

Waste management strategies and audits are required for new developments to provide support for the building design, and to promote strong sustainability outcomes for the building. It is EFRS's belief that a successful waste management strategy contains three key objectives:

i. ***Promote responsible source separation*** to reduce the amount of waste that goes to landfill by implementing convenient and efficient waste management systems.

ii. ***Ensure adequate waste provisions and robust procedures*** that will cater for potential changes during the operational phase of the development.

iii. ***Comply*** with all relevant council codes, policies, and guidelines.

To achieve these objectives, this OWMP identifies the different waste streams likely to be generated during the operational phase of the development. Associated information includes: how the waste will be handled and disposed, details of bin sizes/quantities and waste rooms, descriptions of the proposed waste management equipment used, and information on waste collection points and frequencies.

It is essential that this waste management plan is integrated into the overall management of the building and is clearly communicated to all relevant stakeholders.

REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application and is supplied by EFRS with the following limitations:

- Drawings, estimates and information contained in this OWMP have been prepared by analysing the information, plans and documents supplied by the client and third parties including Council and other government agencies. The assumptions based on the information contained in the OWMP is outside the control of EFRS;
- The figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building management's approach to educating residents and tenants regarding waste management operations and responsibilities;
- The building manager will adjust waste management operations as required based on actual waste volumes (e.g. if waste is greater than estimated) and increase the number of bins and collections accordingly;
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures;
- The report has been prepared with all due care; however no assurance is made that the OWMP reflects the actual outcome of the proposed waste facilities, services, and operations, and EFRS will not be liable for plans or results that are not suitable for your purpose due to incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the OWMP unless specifically stated;
- Any manual handling equipment recommended in this OWMP should be provided at the recommendation of the appropriate equipment provider who will assess the correct equipment for supply;
- Design of waste management chute equipment and systems must be approved by the supplier;
- EFRS cannot be held accountable for late changes to the design after the OWMP has been submitted to Council;
- EFRS will provide specifications and recommendations on bin access and travel paths within the OWMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions;
- EFRS are not required to provide information on collection vehicle head heights, internal manoeuvring and loading requirements. These variables are considered to be within the applicable Traffic Consultants domain;
- Council are subject to changing waste and recycling policies and requirements at their own discretion.

This OWMP is only finalised once the Draft Watermark has been removed. If the Draft Watermark is present, the information in the OWMP is not confirmed.

DEVELOPMENT SUMMARY

The proposed development falls under the Local Government Area (LGA) of Penrith City Council, and is categorised as a mixed-use development with commercial, retail and residential components. The development will consist of 4 buildings into two stages. Stage 1 will include buildings A and B, and Stage 2 will include buildings C & D. Refer to the tables below for further detail.

Table 1. Building A Summary

Level	Building A			
	Dwellings	Tenancies	GFA (m^2)	Other
Basement	-	-	-	Carparks Residential Waste Room A1 Residential Waste Room A2
Ground Floor	-	Swim School Retail	350 725	-
Level 1	-	Gym Child Care (indoor)	488 1080	-
Level 2	9	-	-	-
Level 3	9	-	-	-
Level 4	9	-	-	-
Level 5	5	-	-	Communal Open Space
Totals	**32**		**1598**	

Table 2. Building B Summary

Level	Building B			
	Dwellings	Tenancies	GFA (m^2)	Other
Basement	-	-	-	Carparks Residential Waste Room B1 Residential Waste Room B2 Bin Holding Room Bulky Waste Room Waste Transfer Room/Hoist
Ground Floor	-	Retail Supermarket	97 930	Loading Area/Turntable Waste Collection Area Bin Hoist
Level 1	9	-	-	-
Level 2	9	-	-	-
Level 3	9	-	-	-
Level 4	9	-	-	-
Level 5	6	-	-	Communal Open Space
Totals	**42**		**1085**	

Table 3. Building C Summary

Level	Building C			
	Dwellings	Tenancies	GFA (m^2)	Other
Basement	-	-	-	Carparks Residential Waste Room C1 Residential Waste Room C2
Ground Floor	3	Medical Centre Pharmacy	400 156	Townhouse Waste Room 3 x townhomes (no chute access)
Level 1	8	-	-	
Level 2	9	-	-	-
Level 3	9	-	-	-
Level 4	-	Learning Centre	200	-
Level 5	-	-	-	-
Totals	**29**		**756**	

Table 4. Building D Summary

Level	Building D			
	Dwellings	Tenancies	GFA (m^2)	Other
Basement	-	-	-	Carparks Residential Waste Room D1 Residential Waste Room D2
Ground Floor	9	-	-	3 x townhomes (no chute access)
Level 1	5	-	-	-
Level 2	9	-	-	-
Level 3	9	-	-	-
Level 4	-	-	-	-
Level 5	-	-	-	-
Totals	**32**			

SITE LOCATION

The site is located at Lot 11, Village Centre, Central Precinct Jordan Springs East. The Development will have frontage to Road 1 and Road 27, and vehicle entryway access via Road 1.

Figure 1. Site Location

PENRITH CITY COUNCIL

This OWMP presents waste management recommendations based on the criteria outlined in *The Hills Development Control Plan 2012,* and the NSW *Better practice guide for resource recovery in residential developments 2019.* In addition, all waste facilities and equipment must be designed and constructed in compliance with this DCP, and with Australian Standards and other statutory requirements.

COUNCIL OBJECTIVES

Penrith City Council recognises waste management as a key component to providing sustainable living for residents in terms of economic, social, and environmental outcomes. In this regard, Council's waste management service will take into consideration:

- Site planning of the development accommodates on-site waste collection and allows the waste collection vehicle to enter/exit, manoeuvre within the site and access the nominated collection point in a safe and efficient manner.
- Site planning of the development ensures amenity and safety of all users (including residents, caretakers, cleaners and waste collection staff) at all stages of the waste management process.
- Waste management system selection ensures that it is safe and convenient for resident use; and
- Adequate waste storage area(s) are provided within the development site to store all required waste bins.

BETTER PRACTICE GUIDELINES

Access – Ensure waste systems are easy to use and collection vehicles are able to access buildings to safely remove waste and recycling;

Safety – Ensure safe practises for storage, handling and collection of waste and recycling;

Pollution Prevention – Prevent stormwater pollution that may occur as a result of poor waste storage and management practises;

Noise Minimisation – Provide acoustic insulation to the waste service facilities or residential units adjacent to or above chutes, waste storage facilities, chute discharge, waste compaction equipment and waste collection vehicle access points;

Ecologically Sustainable Development (ESD) – Promote the principles of ESD through resource recovery and recycling leading to a reduction in the consumption of finite natural resources;

Hygiene – Ensure health and amenity for residents, visitors and workers within Penrith City Council.

STAKEHOLDER ROLES AND RESPONSIBILITIES

The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 5. Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata/Management	• Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organising internal waste audits/visual assessments on a regular basis; and • Managing any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	• Ensuring effective signage, communication and education is provided to occupants, tenants and cleaners; • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; • Ensuring site safety for residents, children, visitors, staff and contractors; • Abiding by all relevant OH&S legislation, regulations, and guidelines; • Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers; • Preventing litter and storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) • General maintenance and cleaning of chute doors on each level; • Cleaning and transporting of bins as required; • Organising, maintaining and cleaning the general and recycled waste holding area; • Organising both garbage and recycled waste pick-ups as required; • Organising replacement or maintenance requirements for bins; • Organising bulky waste collection when required; and • Investigating and ensuring prompt clean-up of illegally dumped waste materials.
Residents/Tenants	• Disposing of all garbage and recycling in the allocated waste chutes and/or mobile garbage bins (MGBs) provided; • Ensuring adequate separation of garbage and recycling; and • Compliance with the provisions of Council and the OWMP.
Council or Private Waste Contractor	• Providing a reliable and appropriate waste collection service; • Providing feedback to building managers/residents regarding contamination of recyclables; and • Working with building managers to customise waste systems where possible.
Gardening/Landscaping Contractor	• Removing all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Building Contractors	• Removing all construction related waste offsite in a manner that meets all authority requirements.

EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each resident by building managers to ensure correct use of the waste chutes. This should include the correct disposal process for bulky waste such as old furniture, large discarded items, and other materials including electronic and chemical wastes. It is recommended that the building caretaker provides information in multiple languages to support correct behaviours, and to minimise the possibility of chute blockages and contamination in the communal waste bins.

It is also recommended that the owners' corporation website contain information for residents' referral regarding use of the chute. Information should include:

- Directions on using the chute doors;
- Recycling and garbage descriptions (Council provides comprehensive information);
- How to dispose of bulky waste and any other items that are not garbage or recycling;
- Residents' obligations to health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

To prevent damage or blockage to rubbish chute DO NOT dispose of any umbrellas, bedding, cigarettes, cartons, coat hangers, brooms, mops, large plastic wrappings from furniture, white goods, any sharp objects, hot liquid or ashes, oil, unwrapped vacuum dust, syringes, paint and solvents, car parts, bike parts, chemicals, corrosive and flammable items, soil, timber, furniture, bricks or other building materials down the chute.

RESIDENTIAL WASTE MANAGEMENT

The waste generation rates used in the table below have been advised by the Penrith City Council *Residential Flat Building Waste Management Guidelines* shown below:

Figure 2. Waste Generation Rates for Respective Bin Allocations

Weekly Waste Generation Volumes (L)	240L Bin Allocation	660L Bin Allocation	1100L Bin Allocation
Residual	2 dwellings per bin	9 dwellings per bin	18 dwellings per bin
Recycling	2 dwellings per bin	9 dwellings per bin	18 dwellings per bin

Source: Penrith DCP

The site will use 1100L MGBs, therefore the waste generation rate would be as follows:

Garbage: 1100L MGB/18 dwellings = 61.1
=62L/unit/week

Recycling: 1100L MGB/18 dwellings = 61.1
=62L/unit/week

Calculations are based on generic figures, and waste generation rates may differ according to the residents' waste management practice.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of garbage and recycling generated by the residential component of the development.

It is the responsibility of the building manager to monitor the number of bins required for the development. As such, bin types and quantities may need modification to accommodate actual waste generation rates by the residents' activities. Seasonal peak periods such as public and school holidays should also be considered.

Table 6. Estimated Waste Generation – Residential Apartments

Building/ Core	# Units	Garbage Generation Rate (L/Unit/Week)		Generated Garbage (L/Week)	Compacted Garbage (L/Week)	Recycling Generation Rate (L/Unit/Week)	Generated Recycling (L/Fortnight)	
A1	17	62		1054	527	62	1054	
A2	15	62		930	465	62	930	
B1	26	62		1612	806	62	1612	
B2	16	62		992	496	62	992	
C1	12	62		744	372	62	744	
C2	14	62		868	434	62	868	
D1	15	62		930	465	62	930	
D2	14	62		868	434	62	868	
TOTAL	**129**			**7998**	**3999**		**7998**	
Collections		Garbage Bin Size (L)		1100	10000	Recycling Bin Size (L)		1100
		Garbage Collections/Week		1	1	Recycling Collections/Week		1
		Bins/Day	A1 Waste Room	0.1	0.0	Bins/Day	A1 Waste Room	0.1
			A2 Waste Room	0.1	0.0		A2 Waste Room	0.1
			B1 Waste Room	0.2	0.0		B1 Waste Room	0.2
			B2 Waste Room	0.1	0.0		B2 Waste Room	0.1
			C1 Waste Room	0.1	0.0		C1 Waste Room	0.1
			C2 Waste Room	0.1	0.0		C2 Waste Room	0.1
			D1 Waste Room	0.1	0.0		D1 Waste Room	0.1
			D2 Waste Room	0.1	0.0		D2 Waste Room	0.1
		Total Bins per Collection	A1 Waste Room	1.0	0.1	Total Bins per Collection	A1 Waste Room	1.0
			A2 Waste Room	0.8	0.0		A2 Waste Room	0.8
			B1 Waste Room	1.5	0.1		B1 Waste Room	1.5
			B2 Waste Room	0.9	0.0		B2 Waste Room	0.9
			C1 Waste Room	0.7	0.0		C1 Waste Room	0.7
			C2 Waste Room	0.8	0.0		C2 Waste Room	0.8
			D1 Waste Room	0.8	0.0		D1 Waste Room	0.8
			D2 Waste Room	0.8	0.0		D2 Waste Room	0.8
		Total Waste Bins	Bin Collection Area	**9**	**9**	Total Recycling Bins	Bin Collection Area	**9**

Table 7. Estimated Waste Generation – Residential Townhomes

Building	# Units	Garbage Generation Rate (L/unit/week)	Generated Garbage (L/week)	Recycling Generation Rate (L/unit/week)		Generated Recycling (L/week)
Townhomes	6	120	720	120		720
TOTAL	**6**		**720**			**720**
Collections		Garbage Bin Size (L)	1100	Recycling Bin Size (L)		1100
		Garbage Collections per Week	1	Recycling Collections per Week		1
		Bins Per Day	0.1	Bins Per Day	North Core Waste Room	0.1
		Bins per Collection	**1**	Total Bins	North Core Waste Room	**1**

BIN SUMMARY

Based on the estimated waste generated by the residential component of this development, the recommended bin quantities and collection frequencies are as follows:

General Waste: 10 x 1100L MGBs collected **1 x weekly**

Recycling: 10 x 1100L MGBs collected **1 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager once the proposed development is operational.

RESIDENTIAL WASTE DISPOSAL PROCEDURES

APARTMENTS

A dual waste chute will be installed in each core for the disposal of general waste and recyclables by residents. The chutes will discharge into 1100L bins on the Basement Level (see APPENDIX A.1). Neither general waste nor commingled recyclables are compacted.

Only Chute Room B1 will discharge into 1100L bins on linear tracks because the chute core services over 18 apartments (per Council's advice), and may otherwise require more manual handling of rotating the bins under the chute prior to collection.

The remainder of the chute cores service fewer than 18 apartments each, manual bin rotations are not anticipated prior to collection, and therefore linear track systems are not required.

Refer to Council guidance for the types of materials accepted in the general waste and recycling streams.

TOWNHOMES

Residents of the townhomes will transport their waste and recyclables to the Townhouse Waste Room on the Ground Level and deposit into the appropriate 240L bin (see APPENDIX A.2).

RESIDENTIAL BIN SERVICING PROCEDURES

When the 1100L general waste bins under the chutes become filled, the building caretaker will be responsible for transporting the bins from the chute rooms on the Basement Level, to the Waste collection area on the Ground Level. This will be accomplished with a bin tug and bin hoist located in the Waste Transfer Room on the Basement Level. It is recommended that service bins are placed under the chutes at this time.

When the 1100L general waste bins have been transferred to the Waste Collection Area, the building caretaker will use the bin lifter to empty the bins into the integrated auger compactor (see APPENDIX B.4), which will be supplied by Council. The bin lifter will be mobile, and need to be sourced by the building manager.

The building caretaker will also be responsible for transporting the 240L general waste and recycling bins from the Townhouse Waste Room to Waste Collection Area as needed. The 240L general waste bins will be emptied into the auger compactor via the bin lifter, and the 240L recycling bins will be emptied into the 1100L recycling bins with the same bin lifter.

Council will designate a day for the weekly servicing of general waste and recycling bins. Before collection, the building caretaker will transport the 1100L recycling bins from the chute rooms to the Waste Collection Area via the bin tug and bin hoist. It is recommended that service bins are placed under the chutes at this time.

To service the bins, a Council collection vehicle will enter the Loading Dock on the Ground Level from Road 1 and park on the turntable (see APPENDIX A.2). Once the driver services the bins from the Waste Collection Area, they will be able to exit the site in a forward direction onto Road 1.

All access and clearances to the Waste Collection Room must be able to accommodate a 12.5m long HRV per AS2890.2-2002, and meet any other Council requirements.

Quantities, sizes, and servicing of bins may be modified according to actual waste generation rates by residents. Please note that the collection of residential bins should occur on separate days from the collection of commercial bins to ensure proper segregation of waste streams.

BULKY WASTE PROCEDURES

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the Bulky Waste Storage Room on the Basement Level (see APPENDIX A.2). For collection services through Council, it is the caretaker's responsibility to arrange collection dates with Council and then coordinate with the residents.

On the day of bulky waste collection, the building caretaker will be responsible for transferring the bulky waste from the Bulky Waste Storage Area, to the Loading Dock via the bin hoist. A Council collection vehicle will enter the Loading Dock from Road 1, and park on the turntable. After the bulky waste had been loaded, the vehicle will exit the site in a forward direction onto Road 1.

Refer to Council's website for acceptable items and other information regarding bulky waste collection.

COMMON AREAS

The lobbies, amenities and circulation areas will be supplied with suitably branded waste and recycling bins where considered appropriate. These areas generate minimal waste, however garbage and recycling receptacles should be provided and placed in convenient locations.

SOURCE SEPERATION

Waste avoidance, recovery/reuse of discarded materials, and responsible management of hazardous waste are all crucial elements of sustainable development. Effective waste management practices in residential developments significantly improve environmental, social, and economic outcomes on both a local and regional scale, and should be integrated into the waste management processes.

GENERAL WASTE (GARBAGE)

Residents will be supplied with a collection area in each unit to dispose of general waste and collect recyclable material suitable for one day's storage. This collection area is typically located under the kitchen bench or similar area. Residents should wrap or bag their general waste, which should not exceed 3kg in weight or 35cm x 35cm x 35cm in dimension. Refer to Council's website for items that can be disposed of as general waste.

RECYCLING

Recycling must not be bagged. It is recommended that residents use a crate or dedicated bin for collecting recyclables within the allocated residential space provided to ensure correct separation. Refer to Council's website for items that can currently be recycled through their collection program.

ORGANIC WASTE AND COMPOSTING

Composting organic waste, such as food scraps and garden materials, dramatically reduces the quantity of waste being diverted to landfill, and thus reduces residents' ecological footprint. Compost material can be returned to the soil as a rich fertilizer that improves plant growth and the overall health of surrounding vegetation.

Green waste that is generated from communal landscaped areas is usually removed by the maintenance contractor. For garden waste generated from residents' balcony plants, it is recommended that a space for composting or worm farming is made available for all residents to access (see APPENDIX D.1). Food scraps may also be included in these systems. Residents may also choose to purchase and install apartment style compost bins and self-manage these systems (see APPENDIX D.2).

BULKY WASTE AND TEXTILES

Council requires a dedicated area for the temporary storage of unwanted bulky items such as furniture, mattresses, and appliances for residents only. These areas are crucial to prevent illegally dumped bulky waste on the footpath outside Council's scheduled collection days. Regular illegal dumping can attract other dumped waste, generate litter, detract significantly from the quality and appearance of the development and reduce amenity of the street.

Per Council guidance, the Bulky Waste Room should be calculated as follows, and rounded up to the next whole number:

$$\textbf{Bulky Goods Room Area } (m^2) = \left[\text{Number of Units} \times 8 \right] \div 52$$

Therefore, the Bulky Goods Storage Area should be 21m^2.

It is recommended that unwanted bulky items such as clothes and household goods should first be donated to a charity when possible. Second-hand items in reasonable condition can then be purchased at reduced prices and help alleviate financial stress on disadvantaged communities, families, and individuals. Donations can be arranged with the assistance of the building manager/waste caretaker.

SPECIAL WASTE

Special waste such as electronic goods cannot be disposed of in general waste or recycling bins due to the potential contamination of soil and surrounding water bodies. Additional items considered special waste include: computers, televisions, batteries, fluorescent tubes, and smoke detectors.

An allocated space in the bulky waste area should also be made for the interim storage of special waste. Disposal or recycling of special waste will be organised with the assistance of the building caretaker. Residents and/or the building manager may contact Council to find out about new or existing strategies for the disposal and collection of special waste. Electronic items in working condition may be donated to a charity.

CHEMICAL WASTE

Chemical wastes (e.g. cleaning chemicals, paints, oils solvents) pose detrimental effects to human health and the environment if not correctly disposed of. Chemical wastes should be disposed of at a suitably licensed disposal facility. No liquid wastes or wash-down water should be disposed of via the storm water drainage system.

Residents will need to liaise with the building manager who is responsible for arranging the correct disposal of chemical waste. Household Chemical CleanOut events are held at various locations throughout NSW on specified dates throughout the year. Locations and dates are subject to change. It is recommended that the building caretaker confirm these details with Council.

COMMERCIAL/RETAIL WASTE MANAGEMENT

The NSW *Better practice guide for resource recovery in residential developments 2019* has been referenced to calculate the total number of bins required for the Waste Collection Area. Calculations are based on generic figures, and waste generation rates may differ according to the tenant's waste management practices. It is the responsibility of the building manager to monitor the number of bins required for the development.

Note that the retail tenant must not have access to the residential waste room, nor to any storage containers or chutes used for residential waste and recycling.

SUPERMARKET

It is expected that there will be a supermarket tenant, such as Coles or IGA, located in Building B of the proposed development. The retail area will total approximately 930m^2 including back of house (BOH) operations, and a 7-day operating week is assumed.

The supermarket tenant is responsible for developing a separate waste management plan in accordance with their nationwide store policies and procedures. The supermarket tenant will also nominate their preferred waste equipment (e.g. compactors, balers, and/or bins) as part of designing the layout of the loading area. As shown in APPENDIX A.2, equipment and bins for the management of supermarket waste have been drawn into the architectural plans as placeholders.

Waste and recyclables generated by the supermarket will be stored in the Waste Collection Area, and managed separately from all other tenancies. In general, it is expected that supermarket staff will dispose of waste and recyclables in the loading area, and an appointed waste collection contractor will remove the waste from the loading area on an arranged schedule.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The table below estimates the volumes of waste and recyclables likely to be generated by the supermarket.

Table 8. Estimated Waste Generation – Supermarket

Bldg.	Level	Tenancy Type	GFA m^2	Waste Generation Rate (L/100m^2/Day)	Generated Garbage (L/Week)	Recycling Generation Rate (L/100m^2/Day)	Total Recyclables (L/Week)
B	GF	Supermarket	930	240	15624	300	19530
TOTALS			**930**		**15624**		**19530**

WASTE DISPOSAL PROCEDURES

To be outlined separately in the supermarket waste management plan.

WASTE COLLECTION PROCEDURES

To be outlined separately in the supermarket waste management plan.

MEDICAL CENTRE & PHARMACY

It is proposed that Building C will contain a medical centre with 7 consulting rooms and an attached pharmacy with 156m^2 of retail space.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The tables below estimate the volumes of waste and recyclables likely to be generated.

Table 9. Estimated Waste Generation – Medical Centre

Bldg	Tenancy Type	# Doctor's Rooms	Waste Generation Rate (L/# doctor's rooms/day)	Generated Garbage (L/Week)	Recycling Generation Rate (L/# doctor's rooms/day)	Total Recyclables (L/Week)
C	Medical Centre	7	20	980	10	490
TOTALS		**7**		**980**		**490**

Table 10. Estimated Waste Generation – Pharmacy

Bldg	Tenancy Type	Waste Generation Rate (L/premises/day)	Generated Garbage (L/Week)	Recycling Generation Rate (per premises)	Total Recyclables (L/Week)
C	Pharmacy	20	140	45	315
TOTALS			**140**		**315**

WASTE DISPOSAL PROCEDURES

MEDICAL WASTE

The management of medical waste is a specialised field. If not stored and treated appropriately, some materials can cause infections or injuries, while others can be highly toxic. As such, the correct and safe handling of generated medical waste will be required at all times with all medical waste being removed off site by a specialist waste removal contractor.

The medical centre/pharmacy will have dedicated medical waste bins supplied as per the medical waste contractor's recommendations for the site. Waste from out-of-date and partly used medicines, infectious medical wastes, hazardous wastes and radioactive wastes must be stored and disposed of according to specific industry-based regulations. Correct segregation and containment of all wastes is required under the Waste Act.

Medical waste will be removed from site by a specialist waste removal contractor. Bins will be serviced on a collect-and-return arrangement on an agreed collection schedule.

GENERAL WASTE & RECYCLABLES

The medical centre and pharmacy will also produce standard general waste and recyclables that will be stored BOH in designated receptacles. Nominated staff will be responsible for transporting their waste and recyclables to the Waste Collection Area after each trading day, or as needed.

General waste will be bagged and deposited into the Multipress Eco Compactor with swipe card access (see APPENDIX B.3).

Paper and flattened cardboard will be deposited into the designated 4.5m^3 bin for recycling.

Commingled recyclables will be deposited into a separate 4.5m^3 bin.

CHILDCARE CENTRE

It is proposed that Building A will contain a childcare centre on Level 1 with space to accommodate 154 children.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The tables below estimate the volumes of waste and recyclables likely to be generated.

Table 11. Estimated Waste Generation – Childcare Centre

Bldg.	Level	Tenancy Type	# Children	Waste Generation Rate (L/Child/Day)	Generated Garbage (L/Week)	Recycling Generation Rate (L/100m²/Day)	Total Recyclables (L/Week)
A	L1	Childcare Centre	154	20	21560	5	5390
C	L4	Learning Centre	26	20	3640	5	910
TOTALS			**180**		**25200**		**6300**

WASTE DISPOSAL PROCEDURES

Most waste generated by childcare centres include soiled nappies, wipes, and change sheets. Dedicated waste bins should be allocated for general waste and disposable nappies. It is recommended that a recycling service for soiled disposable nappies be investigated.

Waste and recycling receptacles will be conveniently located in common areas, kitchens, and staff rooms. All childcare centre staff will be responsible for sorting their waste into the appropriate bins. It is recommended that separate receptacles for paper/cardboard recycling and comingled recycling be considered. A re-use station should also be established for paper products and other materials that can be salvaged for craft projects or other uses.

After each day, staff or contracted cleaners will transport the sorted waste and recyclables to the Waste Collection Area.

General waste will be bagged and deposited into the Multipress Eco Compactor with swipe card access (see APPENDIX B.3).

Paper and flattened cardboard will be deposited into the designated 4.5m^3 bin for recycling.

Commingled recyclables will be deposited into a separate 4.5m^3 bin.

OTHER RETAIL & COMMERCIAL ACTIVITIES

The remaining retail and commercial activities include a swim school, gym, and non-food shops.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The tables below estimate the volumes of waste and recyclables likely to be generated.

Table 12. Estimated Waste Generation – Other Retail & Commercial Activities

Bldg.	Level	Tenancy Type	GFA m^2	Waste Generation Rate (L/100m^2/Day)	Generated Garbage (L/Week)	Recycling Generation Rate (L/100m^2/Day)	Total Recyclables (L/Week)
A	GF	Retail	725	50	2538	50	2538
B	GF	Retail	97	50	340	50	340
A	GF	Swim School	350	5	123	10	245
A	L1	Gym	488	20	683	15	512
TOTALS			**1660**		**3683**		**3634**

WASTE DISPOSAL PROCEDURES

The remaining tenants will be responsible for their own storage of general waste and recyclables back of house during daily operations. On completion of each trading day or as required, nominated retail staff or contracted cleaners will transport their general waste and recyclables to the Waste Collection Area and place into the appropriate collection bins.

General waste will be bagged and deposited into the Multipress Eco Compactor with swipe card access (see APPENDIX B.3).

Paper and flattened cardboard will be deposited into the designated 4.5m^3 bin for recycling.

Commingled recyclables will be deposited into a separate 4.5m^3 bin.

COMMERCIAL/RETAIL BIN SUMMARY

The summary of tenant activities (excepting the supermarket) is outlined in the table below.

Table 13. Estimated Waste Generation – Summary of All Tenants

Tenancy Type	Generated Garbage (L/Week)	Compacted Garbage 5:1 (L/Week)	Total Recyclables (L/Week)	Cardboard Recycling (L/Week)	Commingled Recycling (L/Week)
All tenants	30003	6001	10739	5370	5370
Totals	**30003**	6001	**10739**	**5370**	**5370**
Collections	Container size	8000	4500	4500	4500
	Containers per week	0.75	2.4	1.2	1.2
	Collections per week	1	2	2	2
	Containers per collection	0.75	1.2	0.6	0.6

Based on the estimated waste generated by all the tenants, except for the supermarket, the recommended bin quantities and collection frequencies are as follows:

General Waste: 1 x 8m^3 Multipress Eco Skip Compactor collected **1 x weekly**

Cardboard/Paper Recycling: 1 x 4.5m^3 steel front-loading bin **2 x weekly**

Commingled Recycling: 1 x 4.5m^3 steel front-loading bin **2 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager once the proposed development is operational.

BIN SERVICING PROCEDURES

The building manager will coordinate with a private waste collection contractor to service the waste and recycling containers on a regular basis.

On the designated day for general waste collection, a Marrell truck will enter the site from Road 1 and park on the turntable. The driver will load the Eco Compactor onto the vehicle and transport it to a licensed landfill facility. Once the compactor has been emptied, the driver will return the unit to the Waste Collection Area to resume operational use.

On the designated days for recycling collection, front-load vehicle will enter the site from Road 1 and park on the turntable. The driver will empty the steel bins into the truck on-site. Once the bins have been serviced, the front-load vehicle will exit the site in a forward direction.

WASHROOMS

Washroom facilities should be supplied with collection bins for paper towels (if used). Sanitary bins for female restroom facilities must also be arranged with an appropriate contractor.

WASTE OILS

Consideration should be given to the use of cooking oil collection systems. A single service provider may be used to reduce the amount of commercial traffic into the loading bay or around the precinct area. This should be measured against bulk delivery of oils where the same vehicle is used to remove containers of waste cooking oils.

OTHER WASTE STREAMS

Tenants are required make arrangements for the disposal and recycling of special waste (toner cartridges, batteries, etc.). Disposal of hard, electronic, liquid waste and any chemical waste (paint/chemicals) can be organised with the assistance of the building management or cleaners.

MOVEMENT AND TRANSPORTATION OF BINS

The building manager is responsible for the transportation of residential bins from their designated operational locations to their respective collection area prior to scheduled collection times, and returning them once emptied to resume operational use.

Transfer of waste and all bin movements require minimal manual handling. The operator must assess manual handling risks and provide any relevant documentation to building management.

If required, the developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations. Examples of motorised bin moving equipment can be found in APPENDIX C.5.

Per the Council DCP, there must be an unobstructed access corridor for the movement of bins and bulky waste at least 1.8m wide.

COLLECTION AREA

It is Elephant Foot's understanding that the collection areas have been reviewed by a traffic consultant to confirm the swept paths, load requirements and clearances for waste collections. It must be ensured that that the collection vehicle (and other trucks if required) can enter and exit the building in a forward direction.

POLLUTION PREVENTION

Building management shall be responsible for the following to minimise dispersion of site litter and prevent stormwater pollution to avoid impact to the environment and local amenity:

- Promoting adequate waste disposal into the bins
- Securing all bin rooms (whilst affording access to staff/contractors)
- Prevent overfilling of bins, keep all bin lids closed and bungs leak-free
- Taking action to prevent dumping or unauthorised use of waste areas
- Require collection contractor/s to clean up any spillage when clearing bins

INSTALLATION EQUIPMENT AND WASTE ROOM DESIGN

EQUIPMENT SUMMARY

Table 14. Equipment Summary

Component	Part	Qty	Notes
Chutes	Dual waste & recycling chute	8	See APPENDIX B.1 – please refer to supplier's information
Equipment A	Dual 2-bin 1100L linear compactor for general waste and recycling	1	See APPENDIX B.2 – please refer to supplier's information
Equipment B	Multi Bin lifter	1	See APPENDIX B.5 – please refer to supplier's information
Equipment C	Suitable Bin Moving Equipment	-	Optional, see APPENDIX C.5

WASTE ROOM AREAS

All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room. Access to waste discharge rooms should be provided to the building manager/waste caretaker **only**. Under no circumstances should access be provided to any residents or waste collection staff.

Chute discharge requires a minimum of 3000mm distance from floor to ceiling and needs to be free of service pipes and other overhead obstacles within the immediate space around the chute discharge (minimum 500mm clearance).

The areas allocated for waste storage and collection areas are detailed in the table below, and are estimates only. Final areas will depend on room and bin layouts.

Table 15. Waste Room Areas

Level	Waste Room Type	Bins/Equipment	Estimated Area Required	Actual Area Provided
GF	Bin Collection Area	1 x 8m^3 Multipress Eco Skip Compactor (commercial waste) 2 x 4.5m^3 steel bins (commercial recyclables) 10m^3 Integrated Auger Compactor (residential waste) 10 x 1100L MGBs (residential recyclables) 1 x 1100L Bin Lifter (residential waste/recyclables) Supermarket compactor Supermarket 4.5m^3 bins	95m^2	155m2
	Bin Hoist Room	Bin Hoist Bin Tug		42.7m2
B	Bulky Waste Room	N/A	21m^2	25.7m^2
B	Bin Storage Room	As needed	NA	89.1
B	Chute Room A1	4 x 1100L MGBs	11m^2	31.4m^2
B	Chute Room A2	4 x 1100L MGBs	11m^2	22.5m^2
B	Chute Room B1	Dual 2-bin 1100L linear track system 4 x 1100L MGBs	11m^2	24.1m^2
B	Chute Room B2	4 x 1100L MGBs	11m^2	26.6m^2
B	Chute Room C1	4 x 1100L MGBs	11m^2	34.7m^2
B	Chute Room C2	4 x 1100L MGBs	11m^2	19m^2
B	Chute Room D1	4 x 1100L MGBs	11m^2	25m^2
B	Chute Room D2	4 x 1100L MGBs	11m^2	26.2m^2

The waste rooms have been calculated based on bin and equipment dimensions with an additional 60% of the GFA factored in for manoeuvrability.

WASTE ROOMS

CONSTRUCTION REQUIREMENTS

The waste room will be required to contain the following facilities to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- Waste room floor to be sealed with a two pack epoxy;
- Waste room walls and floor surface is flat and even;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- For residential: a hot and cold water facility with mixing facility and hose cock must be provided for washing the bins;
- For retail/commercial: a cold water facility with hose cock must be provided for washing the bins;
- Any wastewater discharge from bin washing must be drained to sewer in accordance with the relevant water board. (Sydney water);
- Tap height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above floor levels;
- The room must be mechanically ventilated;
- Light switch installed at height of 1.6m;
- Waste rooms must be well lit (sensor lighting recommended);
- Optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;
- If 660L or 1100L bins are utilised, 2 x 820mm (minimum) double-doors must be used;
- All personnel doors are hinged, lockable and self-closing;
- Waste collection area must hold all bins – bin movements should be with ease of access;
- Conform to the building code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured.

SIGNAGE

The building manager is responsible for waste room signage including safety signage (see APPENDIX C.4). Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating what type of waste or recyclables is to be placed in the bin underneath. All chute doors on all residential levels will be labelled with signs directing chute operations and use of chute door.

VENTILATION

Waste and recycling rooms must have their own exhaust ventilation system either;

- Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area; or
- Mechanically - exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum. Mechanical exhaust systems shall comply with AS1668 and not cause any inconvenience, noise or odour problem.

USEFUL CONTACTS

Elephants Foot Recycling Solutions does not warrant or make representation for goods or services provided by suppliers.

PENRITH CITY COUNCIL CUSTOMER SERVICE
Phone: (02) 4732 7777 Email: council@penrith.city

SULO MGB (MGB, Public Place Bins, Tugs and Bin Hitches)
Phone: 1300 364 388

CLOSED LOOP (Organic Dehydrator)
Phone: 02 9339 9801

ELECTRODRIVE (Bin Mover)
Phone: 1800 333 002 Email: sales@electrodrive.com.au

RUD (Public Place Bins, Recycling Bins)
Phone: 07 3712 8000 Email: Info@rud.com.au

CAPITAL CITY WASTE SERVICES (Private Waste Services Provider)
Phone: 02 9399 9999

REMONDIS (Private Waste Services Provider)
Phone: 13 73 73

SITA ENVIRONMENTAL (Private Waste Services Provider)
Phone: 13 13 35

NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC. (NACRO)
Phone: 03 9429 9884 Email: information@nacro.org.au

PURIFYING SOLUTIONS (Odour Control)
Phone: 1300 636 877 Email: sales@purifyingsolutions.com.au

MOVEXX (Bin Movers)
Phone: 1300 763 444

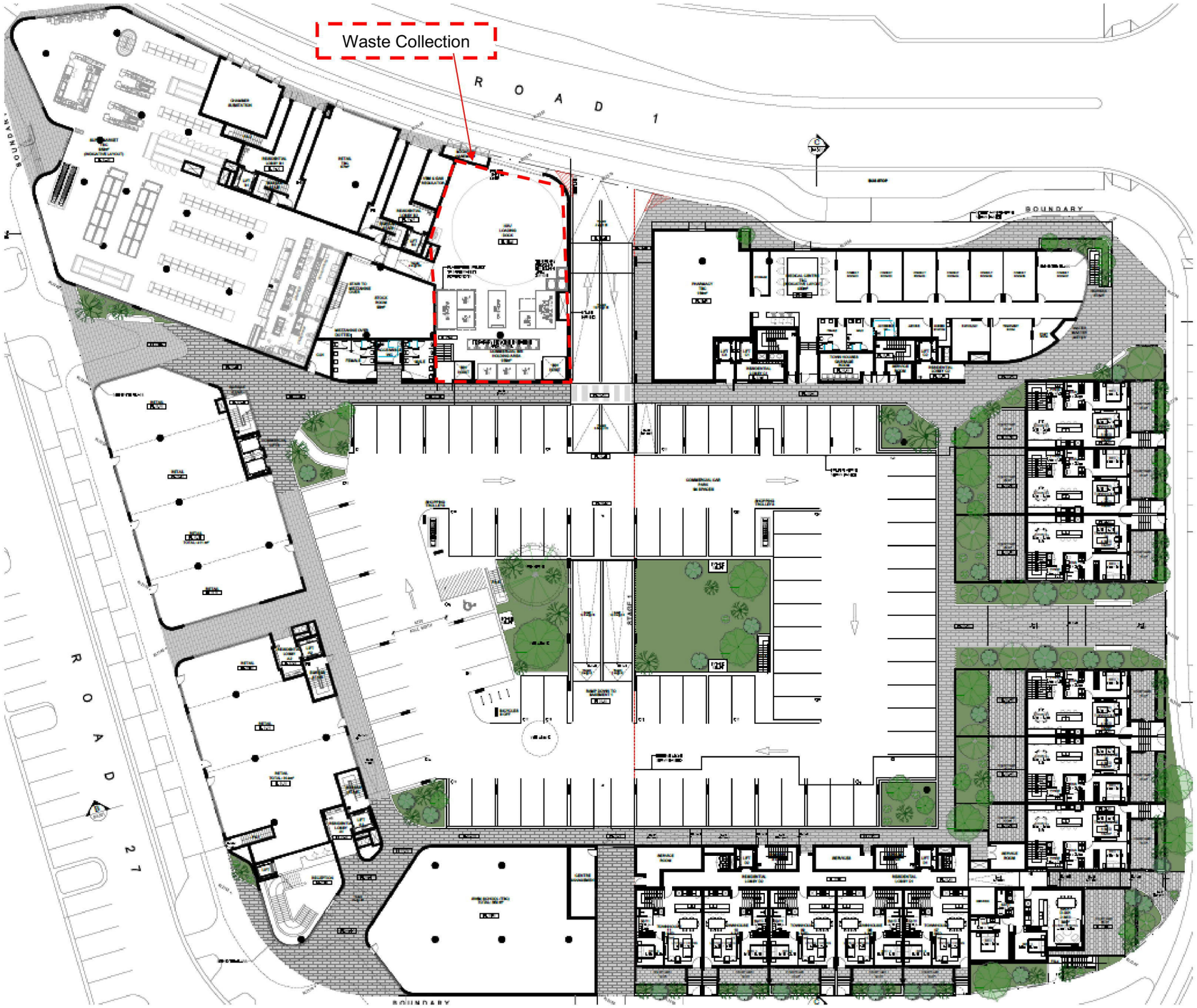
AUSCOL (Recycling Oils & Animal Fats)
Phone: 1800 629 476

ELEPHANTS FOOT RECYCLING SOLUTIONS (Chutes, Compactors and eDiverter Systems)
44 – 46 Gibson Avenue
Padstow NSW 2211
Free call: 1800 025 073 Email: info@elephantsfoot.com.au

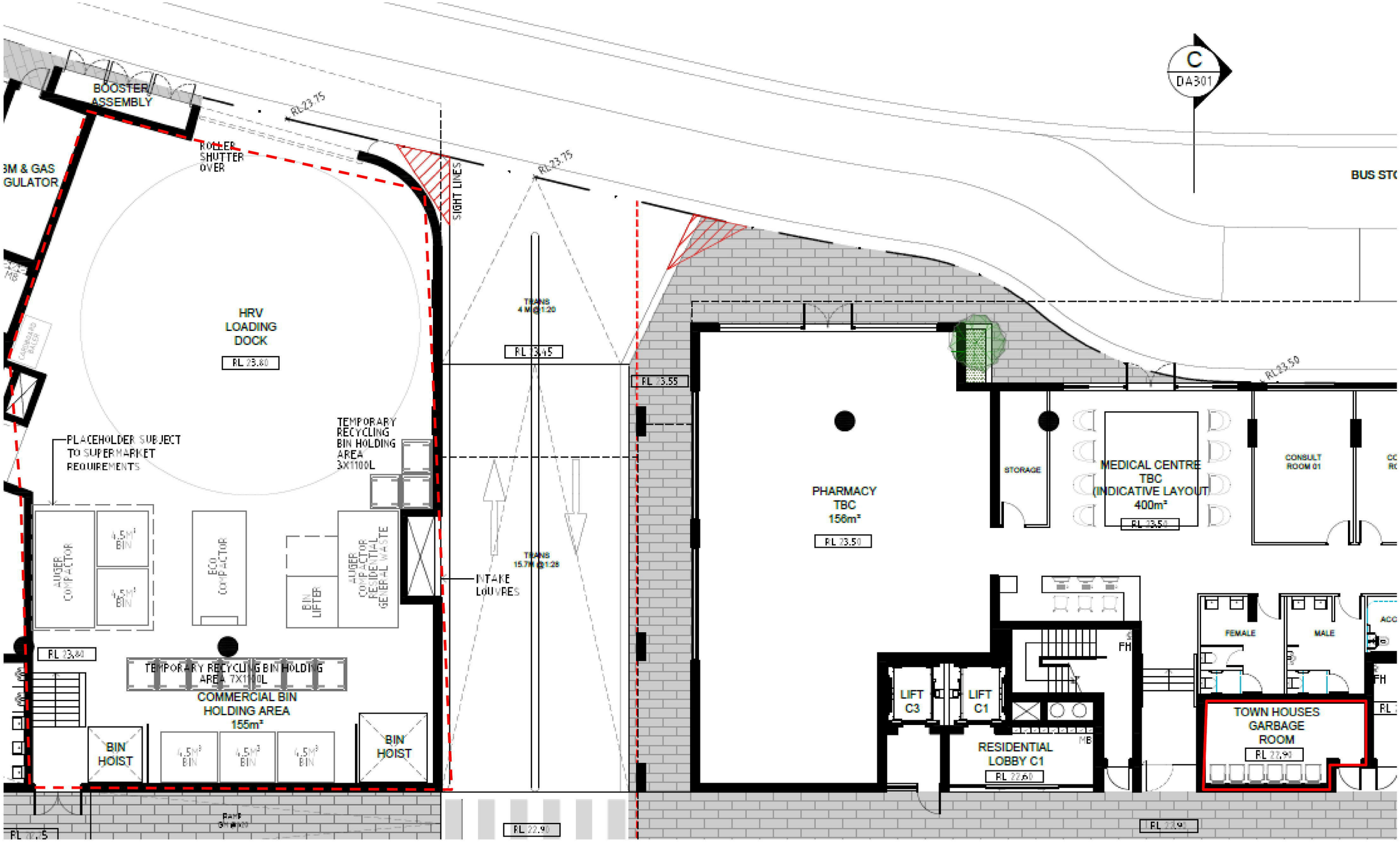
APPENDIX A: ARCHITECTURAL DRAWINGS

APPENDIX A.1 BASEMENT LEVEL

APPENDIX A.2 GROUND FLOOR PLAN

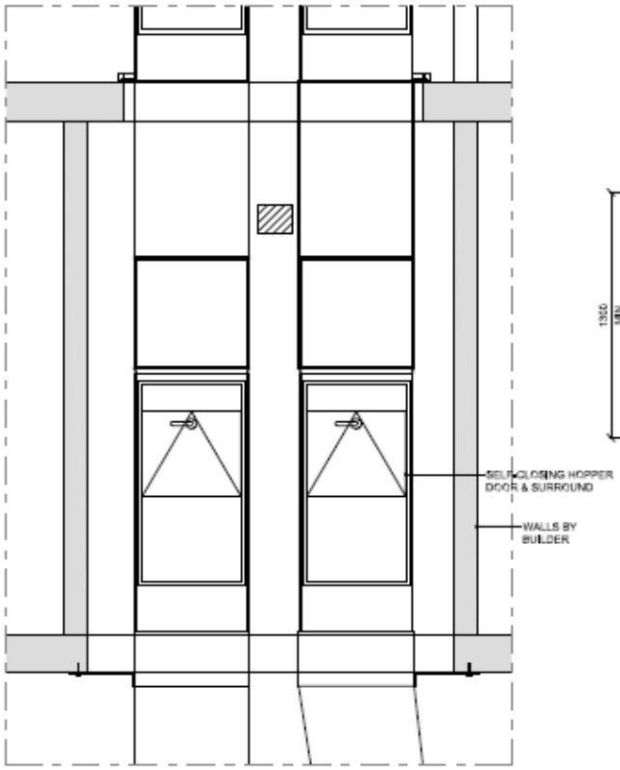


APPENDIX A.2 GROUND FLOOR WASTE COLLECTION

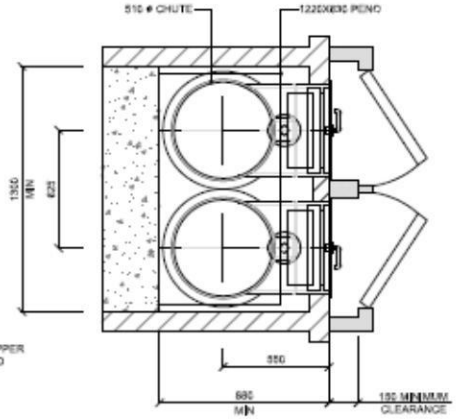


APPENDIX B: INSTALLATION EQUIPMENT

APPENDIX B.1 TYPICAL DUAL WASTE CHUTE SPECIFICATIONS



TYPICAL DUAL CHUTE LAYOUT
(S1023)
SCALE 1:20



TYPICAL LLDPE PLASTIC TWIN CHUTE LAYOUT
wADDED ENCLOSURE (S1023) (STEEL SIMILAR)
SCALE 1:20

NOTE; ENCLOSURES ARE REQUIRED IF THE CHUTE OPENS DIRECTLY TO A CORRIDOR OR IS NOT LOCATED IN A WASTE ROOM.

VENT

PVC 160MM DIAMETER VENT PIPE WITH COWL, DEKTITE FLASHING AND EXTRACTION CAP FITTED FROM THE TOP OF THE CHUTES, PIPE EXITS AS PER REQUIRED BY BUILDER THROUGH PLANT ROOM ROOF AND CAPPED WITH GALVANISED STEEL REDUCTION CAP. ACCESS HATCH TO BE SUPPLIED ON LAST LEVEL FOR SERVICING OF THE WASH DOWN SYSTEM

CHUTE DOORS

SUPPLY AND FIT STAINLESS STEEL, TWO HOUR FIRE-RATED (AS1530,4-2005) REFUSE CHUTE DOORS AND THROAT ASSEMBLIES AT EACH SERVICE LEVEL, ALL DOORS ARE FITTED WITH A SELF-CLOSING MECHANISM TO MEET BSA FIRE STANDARDS. DOORS TO BE BLOCKED IN BY OTHERS INSTALLATION OF DOORS ON COMPLETION OF THE BUILDING STRUCTURE, THE CHUTE PIPES BRICKED IN, RENDERED AND THE WALLS PAINTED.

OPTIONAL EQUIPMENT

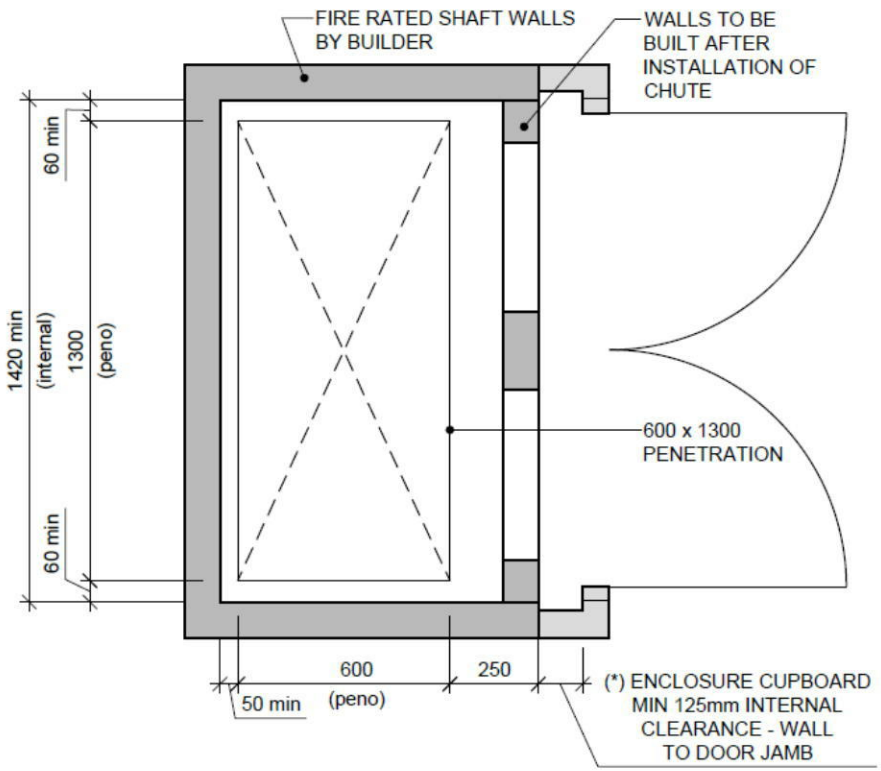
ELEPHANTS FOOT SUPPLY BALERS SUITABLE FOR BALING CARDBOARD PRODUCT IN COMMERCIAL, RETAIL AND RESIDENTIAL AREAS, BALED PRODUCT REDUCES THE REQUIREMENTS FOR ADDITIONAL COLLECTION EQUIPMENT. STATE OF THE ART COMPACTORS ARE ALSO AVAILABLE IN AUGER, BLADE AND ECO MODELS.

ELEPHANTS FOOT RECYCLING SOLUTIONS

TYPICAL DUAL CHUTE LAYOUTS

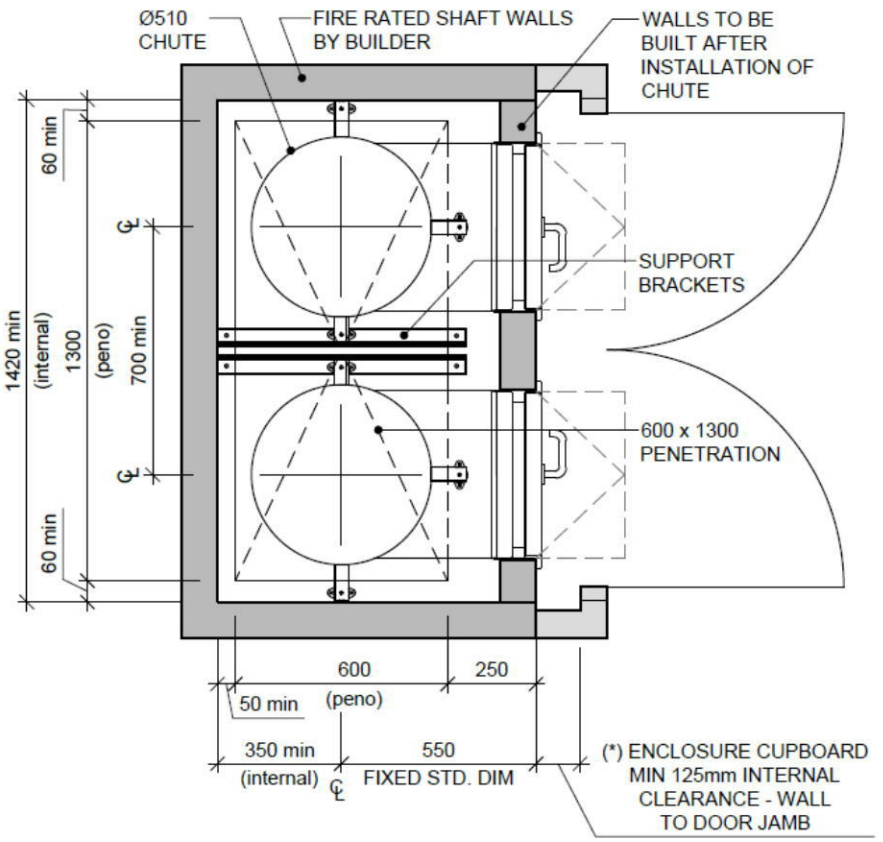
STANDARD DETAILS

Please note: this is an example only – please refer to supplier's information and specification.



DUAL 510Ø CHUTE - PENETRATION SET-OUT
with ENCLOSURE CUPBOARD (*)
SCALE 1:20

(*) NOTE: ENCLOSURES ARE RECOMMENDED IF THE CHUTE OPENS DIRECTLY TO A CORRIDOR OR IS NOT LOCATED IN A WASTE ROOM. IF CHUTE ACCESS IS WITHIN A WASTE ROOM THEN THE CUPBOARD ENCLOSURES ARE NOT REQUIRED.

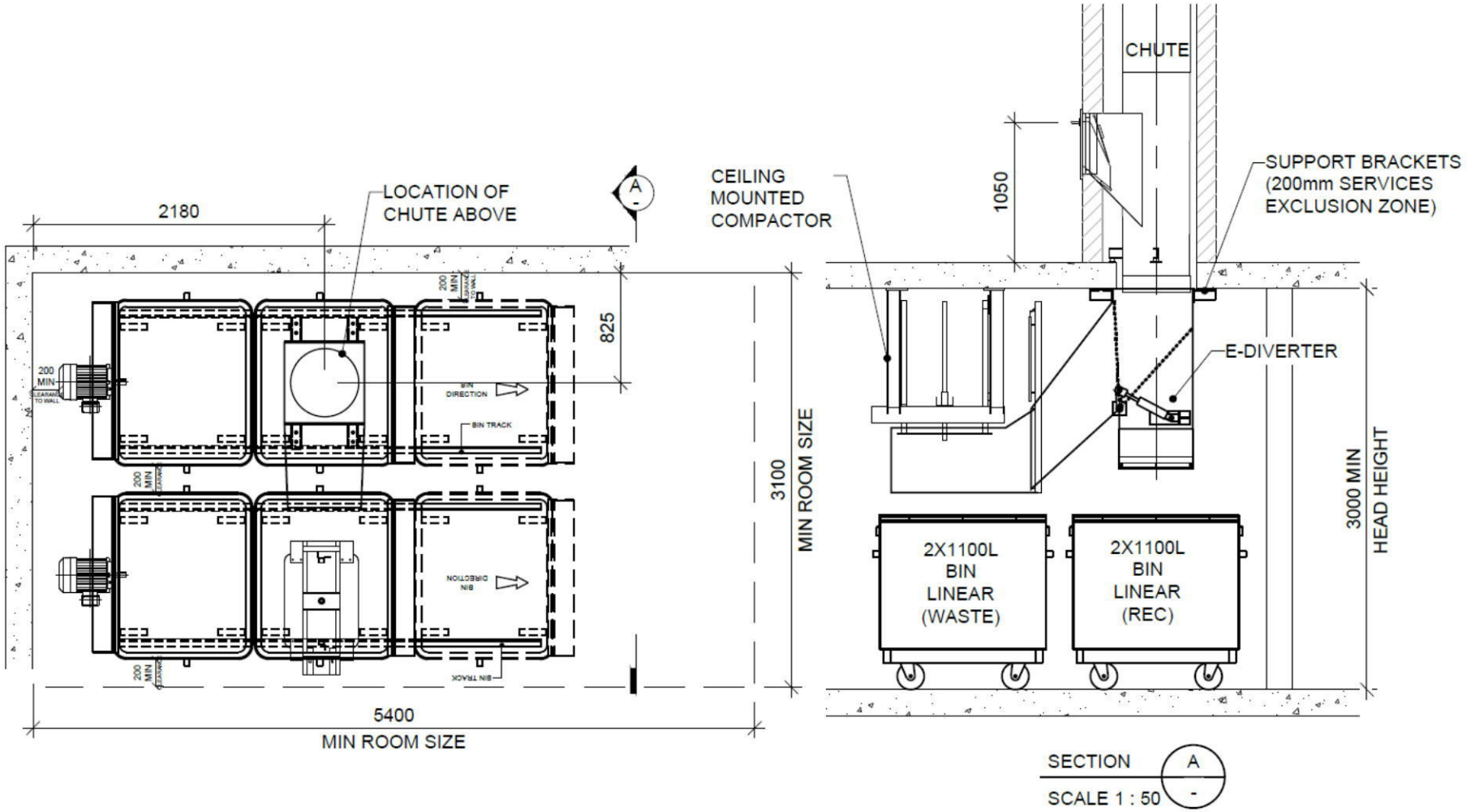


DUAL 510Ø GALVANISED STEEL CHUTE LAYOUT
with ENCLOSURE CUPBOARD (*)
SCALE 1:20

(*) NOTE: ENCLOSURES ARE RECOMMENDED IF THE CHUTE OPENS DIRECTLY TO A CORRIDOR OR IS NOT LOCATED IN A WASTE ROOM. IF CHUTE ACCESS IS WITHIN A WASTE ROOM THEN THE CUPBOARD ENCLOSURES ARE NOT REQUIRED.

Please note: this is an example only – please refer to supplier's information and specification.

APPENDIX B.2 TYPICAL LINEAR TRACK SYSTEM



Please note: this is an example only – please refer to supplier's information and specification.

APPENDIX B.3 MULTIPRESS ECO SKIP COMPACTOR

The skip container is only available with front filling and optionally with canopy.

ECO Skip	MP 8-1.0	MP 10-1.0	MP 12-1.0
Volume Container	8 m³	10 m³	12 m³
Length (without rear hook)	4200	4700	5200
Length (with rear hook)	-	-	-
Width x height	1950 x 2400 mm	1950 x 2400 mm	1950 x 2400 mm
Filling height	1270 mm	1270 mm	1270 mm
Volume weighing sluice	510 lt.	510 lt.	510 lt.
Volume weighing sluice	3 x 80 lt. sacs	3 x 80 lt. sacs	3 x 80 lt. sacs
Compaction force	250 kN	250 kN	250 kN
Pressing cycle	60 sec.	60 sec.	60 sec.
Motor	5,5 kW	5,5 kW	5,5 kW
Fuse slow	16 A	16 A	16 A
Electric connection	400 V, 50 Hz	400 V, 50 Hz	400 V, 50 Hz
Unladen weight	3250 kg	3450 kg	3650 kg
Container conical	conical à 80 mm	conical à 80 mm	conical à 80 mm

Refer to supplier's information and specification.

APPENDIX B.4 10M³ INTEGRATED AUGER COMPACTOR

Electrical Requirements	Description
Electrical Outlet	5 Pin, 415 Volt, 32 Amp Outlet
Phase	3 Phase, 1 Neutral and 1 Earth
Location	Electrical located within 1m of the unit
Circuit Breaker	D Curve Circuit Breaker - Large enough to start and run 10kw electric motor - Breaker size to be confirmed with breaker supplier

Table 10: Electrical requirements for the operation of integrated auger compactors

3.10.3 Integrated Auger Compactor Schematics (4.3m)

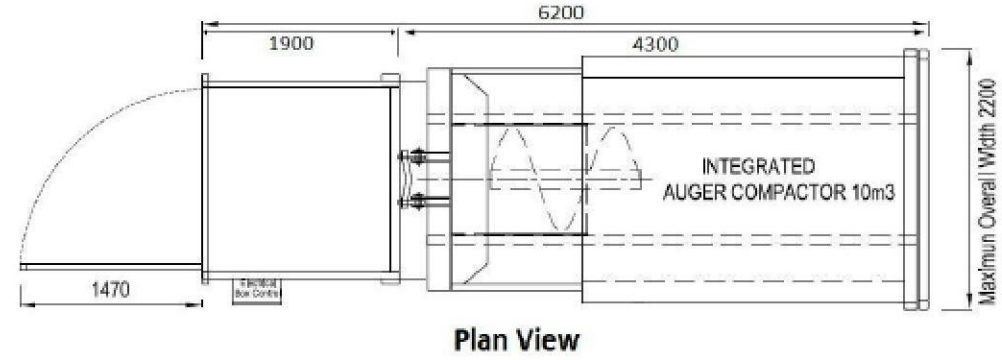
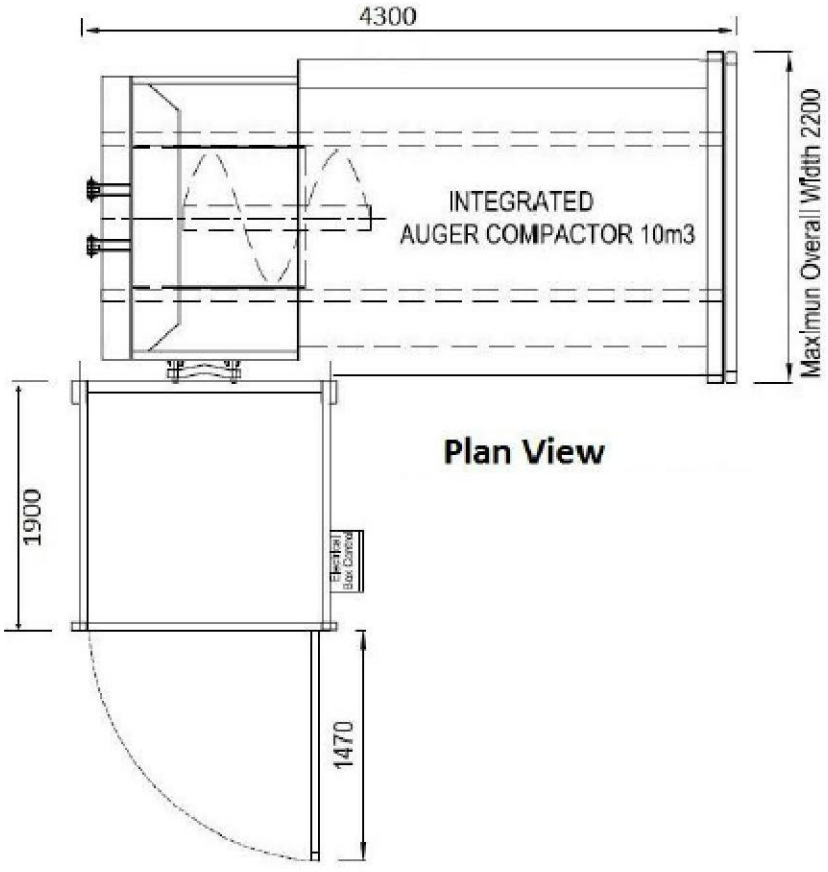


Figure 35: 4.3m Integrated Auger schematic with rear loading bin lifter



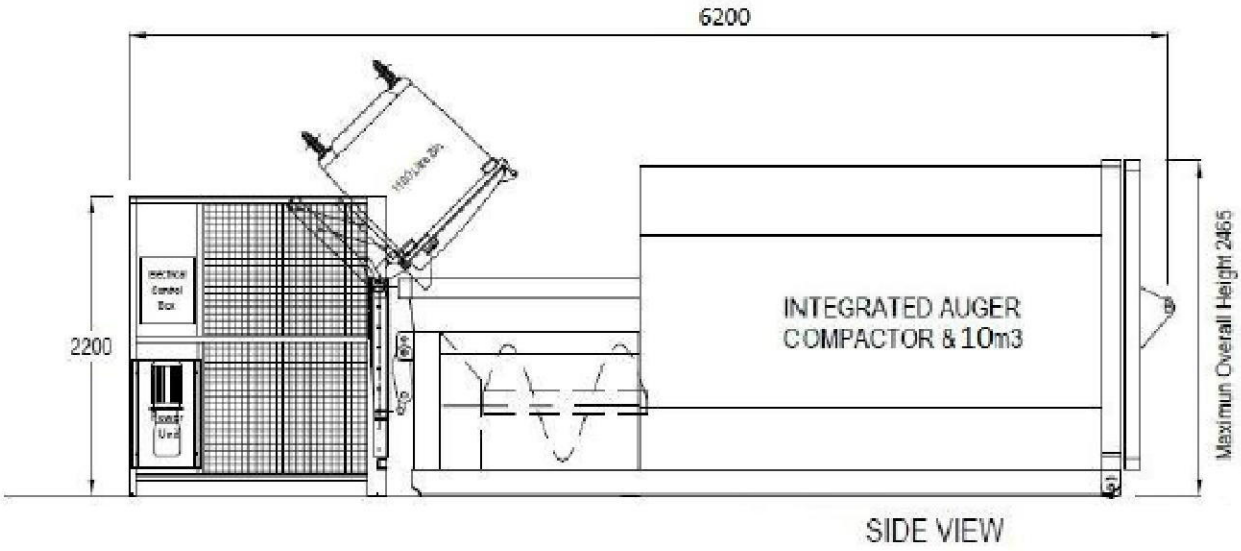


Figure 37: 6.0m Integrated Auger schematic side view

SOURCE: Penrith City Council Residential Flat Building Waste Management Guidelines

APPENDIX B.5 MULTI BIN LIFTER

Multi Bin Lifter

The multi bin lifter is designed to safely empty wheelie bins into large dumpsters and compactors.

The multi bin lifter has been designed to operate using 240,660 & 1100 litre wheelie bins.

With easy operating push button instructions, the bin lifter is complemented by a safety cage.

Features	Multi Bin Lifter
Lifting capacity	
Bin compatibility	240,660 & 1100 litre bins
Operation method	Automatic
Hydraulic	yes
Dimensions	1745mm (W) x 3050mm (L)
Safety	Safety cage & control box
Emergency stop	yes
Tipping height	1376mm variable
Clearance	3700mm variable
Suitability in tipping into	bins , dumpsters and compactors
Power	3 phase, 20 Amp, 5 pin, D type circuit breaker
Can it be customised?	yes
Weighing & data capture	no

Refer to supplier's information and specification.

APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX C.1 TYPICAL BIN SPECIFICATIONS

Mobile bins

Mobile bins come in a variety of sizes and are designed for lifting and emptying by purpose-built equipment.

Mobile bins with capacities of up to 1700L must comply with *AS4123.6-2006 Mobile waste containers* which specifies standard sizes and sets out the colour designations for the bodies and lids of mobile waste containers indicating the type of materials they are used to collect.

The most common bin sizes are provided below, although not all sizes are shown. The dimensions are a guide only and differ slightly between manufacturers. Some bins have flat or domed lids and are used with different lifting devices. Refer to *AS4123.6-2006* for further details.

Table G1.1: Average dimension ranges for two-wheel mobile bins

Wheelie bin

Bin capacity	80L	120L		140L		240L	360L
Height (mm)	870	940	1065	1080	1100		
Depth (mm)	530	530		540		735	820
Width (mm)	450	485		500		580	600
Approximate footprint (m^2)	0.24	0.26–0.33		0.27-0.33		0.41–0.43	0.49
Approximate weight (kg)	8.5	9.5		10.4		15.5	23
Approximate maximum load (kg)	32	48		56		96	Not known

Sources include Sulo, Single Waste, Cleanaway, SUEZ, just wheelie bins and Perth Waste for two-wheel mobile bins

Table G1.2: Average dimension ranges for four-wheel bulk bins

Dome or flat lid container

Bin capacity	660L	770L	1100L	1300L	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m^2)	0.86–1.16	1.51	1.33–1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known	440	Not known	Not known

Sources include Sulo, Signal Waste, Cleanaway, SUEZ, Just Wheelie Bins and Perth Waste

SOURCE: Better practice guide for resource recovery in residential developments 2019, NSW Environmental Protection Authority

Front Loading Steel Skips:

1.5 Cubic Metre
Height: 0.9 Metres
Width: 0.9 Metres
Depth: 1.8 Metres

3 Cubic Metre
Height: 1.2 Metres
Width: 1.4 Metres
Depth: 1.8 Metres

4.5 Cubic Metre
Height: 1.5 Metres
Width: 1.4 Metres
Depth: 1.8 Metres

SOURCE: https://www.securewastesolutions.com.au/bin-sizes

APPENDIX C.2 HOOK LIFT COLLECTION VEHICLE

3.10.1 Hook Lift Collection Vehicle Specifications

Vehicle Class	Heavy Rigid Vehicle Dimensions
Overall Length (m)	7.0
Operational Length- Loaded (m)	8.4
Design Width (m)	2.8
Design Height (m)	3.7
Swept Circle (m)	21.6
Clearance (travel height) (m)	4.5
Roadway/ramp grade (max)	1:6.5 (15.4%)
Rate of change of grade (max)	1:16 (6.25%) in 7.0m of travel
Gross Weight (max tonnes)	28.0
Front Chassis Clearance	13^0
Rear Chassis Clearance	16^0

Table 9: Standard dimensions sourced from manufacture specifications

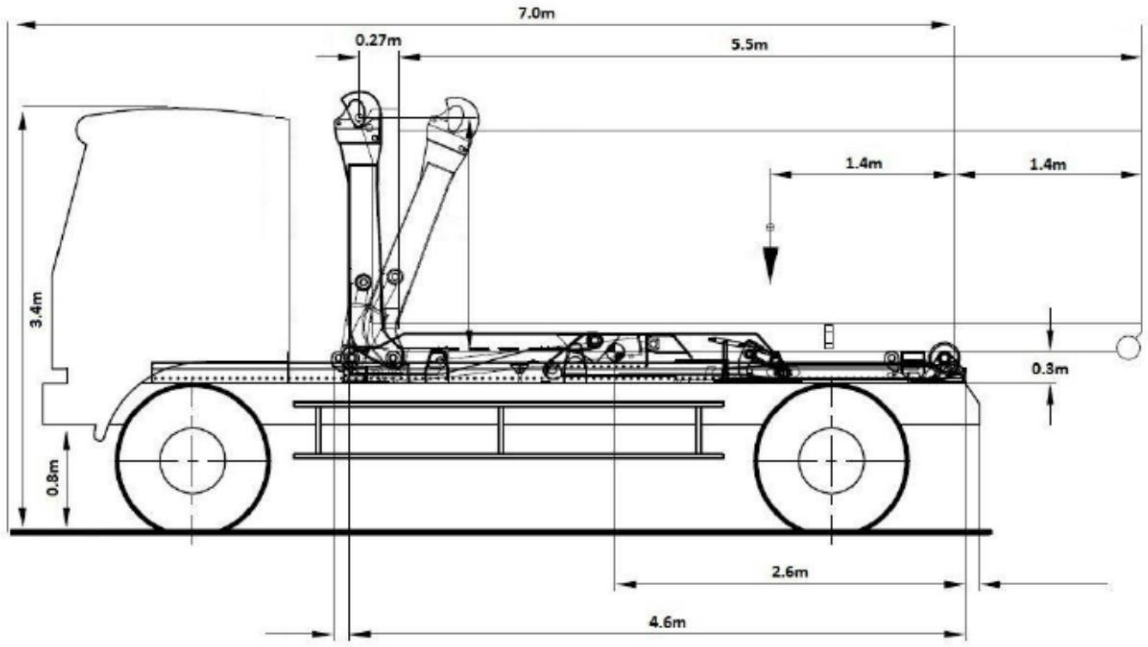


Figure 33: 7m Heavy Rigid Waste Collection Vehicle specifications

SOURCE: Penrith City Council Residential Flat Building Waste Management Guidelines

APPENDIX C.3 HEAVY RIGID COLLECTION VEHICLE

2.3.2 Heavy Rigid Waste Collection Vehicle

Note: The following vehicle to be used for developments comprised of 80 or more dwellings. Alternate solutions which propose the use of the low entry 9.7m heavy rigid waste collection vehicle (section 2.3.1) will be reviewed in accordance with section 2.5.

Vehicle Classifications	Heavy Rigid Vehicle Dimensions
Overall Length (m)	10.5
Operational Length (m)	12.5
Design Width (m)	2.8
Design Height (m)	3.7
Swept Circle (m)	22.5
Clearance (travel height) (m)	4.5
Roadway/ramp grade (max)	1:6.5 (15.4%)
Rate of change of grade (max)	1:16 (6.25%) in 7.0m of travel
Gross Weight (max tonnes)	28.0
Front Chassis Clearance	13°
Rear Chassis Clearance	16°

Table 2: Standard dimensions in accordance with AS 2890.2

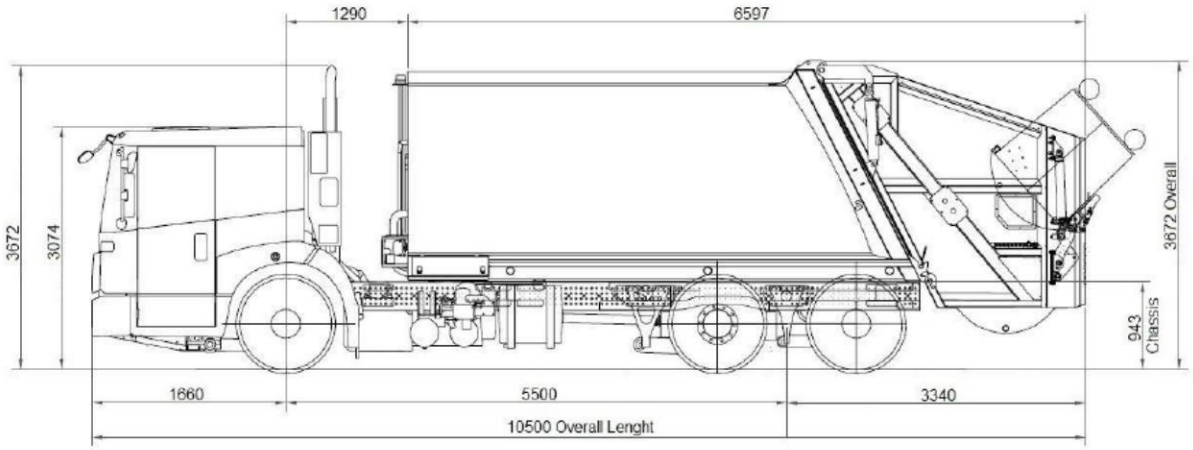


Figure 2: 10.5m Heavy Rigid Rear Load Waste Collection Vehicle specifications

SOURCE: Penrith City Council Residential Flat Building Waste Management Guidelines

APPENDIX C.4 SIGNAGE FOR WASTE & RECYCLING BINS

Waste signs

Signs and educational materials perform several functions including:

- informing residents why it is important to recover resources and protect the environment
- providing clear instructions on how to use the bins and services provided
- alerting people to any dangers or hazards within the bin storage areas.

All waste, recycling and organic bins should be Australian Standard colours and clearly and correctly labelled, such as by a sticker on the lid and/or the body of the bin.

Communal bin storage areas should be clearly signposted with signs outlining how to correctly separate waste into the bins provided. The local council responsible for waste services may be a good source of signs and posters and can advise on what signs are suitable.

Information on who to contact to find out more about the recycling and/or other resource recovery services in the building should also be displayed in communal areas, such as on a noticeboard.

The Planet Ark website also has resources available free of charge for use by businesses and councils. These signs can be found at businessrecycling.com.au/research/signage.cfm

Figure I1.1: Examples of waste wall posters (EPA supplied)

Figure I1.2: Examples of bin lid stickers (EPA supplied)

SOURCE: Better practice guide for resource recovery in residential developments 2019, NSW Environmental Protection Authority

Problem waste signs

The EPA has also produced a range of images and signs that can be used for problem wastes, such as fluoro globes and tubes, household and car batteries, e-waste and smoke detectors. To access these resources, contact the NSW EPA. Some examples are shown below.

Figure I2.1: Problem waste signs

Safety signs

The use of safety signs for waste resource recovery rooms must comply with *AS1319 Safety signs for occupational environments*. Safety signs must be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Suitable signs should be decided for each development as required.

Figure I3.1: Example safety signs

SOURCE: Better practice guide for resource recovery in residential developments 2019, NSW Environmental Protection Authority

APPENDIX C.5 TYPICAL BIN MOVERS

Typical applications:

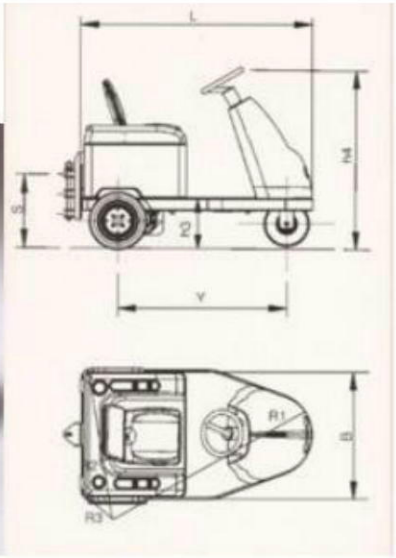
- Move trolleys, waste bin trailers and 660/1100L bins up and down a ramp incline.
- Quiet, smooth operation with zero emissions and simple to use, no driver's licence required
- Suitable for:
    - High rise building & apartment basements
    - Large factories & warehouse with sloped ground
    - Caravan parks & other large outdoor areas

Features:

- 1 tonne tow capacity of inclines up to 8 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 4.5 km/h max speed
- 2 x 80amp batteries – includes charger
- Powerful transaxle
- Hitch to suit 660L bins

Safety Features:

- Intuitive paddle lever control
- Stops and repels the unit if activated when reversing.
- Site assessment recommended to assess ramp incline steepness *(see Useful Contacts)*



		UNIT M.	BULL 2	BULL 4
Manufacturer	DEC			
Model	BULL			
Platform loading cap.	Nominal capacity	kg	-----	-----
Pull capacity	Pull nominal capacity	kg	2000	4000
Power type	Electric - endotermic		electric	electric
Controltype	Standing / seated thiller / steer		seated / steer	seated / steer
Tyres	Pn=pneum. Se=superelastic		Pn	Pn
Wheels	N. front/rear - x drive	n.	1/2X	1/2X
Platform dimensions	L x B (lengh x width)	mm	-----	-----
Platform hight	h6 = unload clearence	mm	-----	-----
Overal dimensions	L = lenght B = width h1 = foot leve h3 = Seat height h4 = Steer height	mm mm mm mm mm	1500 900 1820 310 1250	1600 930 1960 340 1330
Turning radius	R1 = front min. external R2 = rear min. external R3 = front min. internal	mm mm mm	1400 1000 400	1500 1000 400
Aisle width	A = 180° turn	mm	2200	2300
Tow hook height	s = center from ground	mm	220-350-490	240-380-520

APPENDIX D: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX D.1 TYPICAL WORM FARM SPECIFICATIONS

Worm farms

Worm farms or vermiculture systems transform food and other organic material into vermicast (worm compost) and vermi-liquid (liquid extraction from a worm farm). Seafood, seafood shells, meat or bones, and dairy products are not an acceptable part of the worms' diet and should not be appled to these systems. Worm farms can occupy a small footprint and be located on balconies or in gardens. The worm farm should be placed in a sheltered position to avoid getting too hot in summer.

Worm farms come in different sizes and designs and are sold through hardware stores and often at local government offices. Medium and large-scale worm farms can service many households and commercial acticities. These larger systems need a management process to ensure they are properly maintained.

Onsite composting

Compost tumblers and bins and compost bays transform food and other organic material into useful soil enhancer (compost). They are more versatlie than worm farms as they can generally process a wider range of materials, including woody garden organics and can be placed in the sun. A variety of compost bins and tumblers are available from hardware stores or some local councils. There are also various online resources on how to construct them using recycling materials such as timber pallets. The footprint area requirement for a typical single household compost bin is about 1m x 1m x 1m.

Before setting up an onsite composter or worm-farm system, check with council for any local requirements such as setback distances from property boundaries.

SOURCE: Better practice guide for resource recovery in residential developments 2019, NSW Environmental Protection Authority

APPENDIX D.2 TYPICAL APARTMENT STYLE COMPOST BINS

Apartment Style Compost bin – available from hardware stores

Suitable for:

- Vegetables
- Coffee grounds and filters
- Tea and tea bags
- Crushed eggshells (but not eggs)
- Nutshells
- Houseplants
- Leaves
- Cardboard rolls, cereal
- Boxes, brown paper bags
- Clean paper
- Shredded newspaper
- Fireplace ashes
- Wood chips, sawdust,
- Toothpicks, burnt matches
- Cotton and wool rags
- Dryer and vacuum cleaner lint
- Hair and fur
- Hay and straw

APPENDIX D.3 TYPICAL BOH BINS FOR RETAIL/COMMERCIAL USE