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2 Kamira Avenue, Villawood NSW 2163
Mixed Use Development

OPERATIONAL WASTE MANAGEMENT PLAN

23/01/2024
Report No. 5639
Revision A

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GLOSSARY OF ABBREVIATIONS AND 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
Bin-carting Route	Travel route for transferring bins from the storage area to a nominated collection point
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 general waste 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
DA	Development Application
DCP	Development Control Plan
EPA	Environmental Protection Authority
HRV	Heavy Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
L	Litre(s)
LEP	Local Environmental Plans guide planning decisions for local government areas
Liquid Waste	Non-hazardous liquid waste generated by commercial premises that must be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
Mixed Use Development	A development comprised of two or more different uses
MUD	Multi-Unit Dwellings comprise of a development with more than one dwelling. This ranges from dual occupancies and attached dwellings to high-rise residential developments
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 described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities

Onsite Collection	When the collection vehicle enters the property and services the development within the property boundary from a designated loading area
Owners Corporation	An organisation or group of persons that is identified by a particular name and acts, or may act, as an entity
Service Bins	Bin set side to be placed under a chute while the remainder of the bins are being collected
SRV	Small Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
WHS	Workplace Health and Safety
Wheel-in wheel-out service	A type of waste collection service offered by local councils where the council waste collection personnel enter the premises to collect the bins and returns them to the property

1.0 ACKNOWLEDGEMENT OF COUNTRY

We acknowledge Australia's First Nations People as the Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present. We honour Aboriginal and Torres Strait Islander people and their connection to land, waters and seas, and their vital contribution to the vibrant nation that we share, Australia.

2.0 INTRODUCTION

Elephants Foot Consulting (EFC) has been engaged to prepare the following waste management plan for the operational management of waste generated by the mixed use development located at 2 Kamira Avenue, Villawood NSW 2163.

Waste management strategies and audits are required for new developments in order to support the design and sustainable performance of the building. It is EFC'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 operational waste management plan (OWMP) identifies the different waste streams likely to be generated during the operational phase of the development, as well as 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 OWMP is integrated into the overall management of the building and is clearly communicated to all relevant stakeholders.

2.1 SCOPE OF REPORT

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 of, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report. A construction and demolition WMP will need to be provided separately. EFC can supply this if required.

2.2 REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application, which is supplied by EFC 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 EFC,
- 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 EFC will not be liable for plans or results that are not suitable for purpose due to incorrect or unsuitable information or otherwise,
- EFC 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,
- EFC cannot be held accountable for late changes to the design after the OWMP has been submitted to Council,
- EFC 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,
- EFC are not required to provide information on collection vehicle swept paths, head heights, internal manoeuvring or loading requirements. It is assumed this information will be provided by a traffic consultant,
- 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.

3.0 LEGISLATION & GUIDANCE

Waste management and resource recovery regulation in Australia is administered by the Australian Constitution, Commonwealth laws, and international agreements. State and territory governments maintain primary responsibility for controlling development and regulating waste. The following legislation has been enacted in New South Wales, and provides the lawful underpinnings of this OWMP.

- NSW Environmental Planning & Assessment Act 1979
- NSW Protection of the Environment Operations Act 1997
- NSW Waste Avoidance & Resource Recovery Act 2001

At the local level, councils, or Local Government Areas (LGAs) require OWMPs to be included in new development applications. This OWMP is specifically required by:

- Fairfield Citywide Development Control Plan 2013
- Fairfield Local Environmental Plan 2013
- Villawood Town Centre Development Control Plan 2020
- Villawood Local Environmental Plan 2020

The primary purpose of a development control plan (DCP) is to guide development according to the aims of the corresponding local environmental plan (LEP). The DCP must be read in conjunction with the provisions of the relevant LEP.

Information provided in this OWMP comes from a wide range of waste management guidance at the local, state, and federal levels. The primary sources of guidance include:

- Villawood Town Centre Development Control Plan 2020
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Better practice guide for resource recovery in residential developments 2019
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

3.1 COUNCIL OBJECTIVES

Council considers the responsibility for reducing the demand on the world's resources and limiting the need for landfill space to be shared by all communities and local town centres. As such, Council aims to:

- Minimise the impact of service area access on pedestrians and the retail frontage.
- Ensure that sufficient provision is made for garbage storage and collection areas for new mixed use commercial and residential development.
- Ensure that the streetscape retains an active frontage and the building enhances the visual amenity of the town centre by ensuring the location and provision of services considers the presentation of the development to the street.

4.0 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of Fairfield City Council, and consists of two (2) buildings with a total of 228 residential units:

- Building A with twelve (12) levels (Basement to Level 10)
  - 158 residential units in total (Level 1 to Level 10)
    - separated into four (4) cores
  - 10 retail/commercial tenancies with a total GFA of 2,446 m^2
- Building C with nine (9) levels (Basement to Level 7)
  - 70 residential units in total (Level 1 to Level 7)
    - separated into two (2) cores
  - Four (4) retail/medical tenancies with a total GFA of 692 m^2

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

NB: Building B is subject to a separate development application (DA).

4.1 SITE LOCATION

The site is legally described as Lot 37 DP202006 and is located at 2 Kamira Avenue, Villawood NSW 2163, as shown in Figure.1 (boundaries are indicative only). The site has frontages to Kamira Avenue and Villawood Road, and Kamira Court. Vehicular access is via Villawood Road.

Figure 1: Site Location

Source: NSW Planning Portal

5.0 RESIDENTIAL WASTE MANAGEMENT

The following section outlines best practice waste management for the residential component of the development, including waste generation estimates and waste disposal and collection procedures.

5.1 WASTE GENERATION ESTIMATES

Fairfield Council's *Waste Management Plan template for Development Application* has been referenced to calculate the total number of bins required for the residential units. Calculations are based on generic waste and recycling rates. Actual volumes of waste and recycling generated in operation differ according to the residents' actual waste management practices.

The following table shows the estimated volume (L) of general waste and recyclables generated by the residential component of the development.

Table 1: Estimated Waste and Recycling Volumes – Building A

Core	# Units	General Waste Generation Rate (L/unit/week)	Generated General Waste (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recycling (L/week)
3	28	120	3360	40	1120
4	57	120	6840	40	2280
5	44	120	5280	40	1760
6	14	120	1680	40	560
TOTAL	**143**		**17160**		**5720**
Bins and Collections		Bin Size (L)	660	Bin Size (L)	240
		Bins/Week	26.0	Bins/Week	23.8
		Collections/Week	2	Collections/Week	1
		Total Bins	13	Total Bins	24
		Bins Per Day – Core 1	0.7	Bins Per Day – Core 1	4.7
		Bins Per Day – Core 2	1.5	Bins Per Day – Core 2	9.5
		Bins Per Day – Core 3	1.1	Bins Per Day – Core 3	7.3
		Bins Per Day – Core 4	0.4	Bins Per Day – Core 4	2.3

**Note: An additional 660L MGB should be provided for each chute discharge for use during collection periods. These bins are not included in the above figures.*

***Note: It is strongly recommended bins/equipment at the base of each chute allow for 2-days' worth of waste or recycling generation.*

Table 2: Estimated Waste and Recycling Volumes – Building C

Core	# Units	General Waste Generation Rate (L/unit/week)	Generated General Waste (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recycling (L/week)
1	38	120	4560	80	3040
2	32	120	3840	80	2560
TOTAL	**70**		**8400**		**5600**
Bins and Collections		General Waste Bin Size (L)	660	Recycling Bin Size (L)	240
		General Waste Bins per Week	12.7	Recycling Bins per Week	23.3
		General Waste Collections per Week	2	Recycling Collections per Week	1
		Total General Waste Bins Required for Collection	7	Total Recycling Bins Required for Collection	24
		Bins Per Day – Core 1	1.0	Bins Per Day – Building A	12.7
		Bins Per Day – Core 2	0.8	Bins Per Day – Building C	10.7

**Note: An additional 660L MGB should be provided for each chute discharge for use during collection periods. These bins are not included in the above figures.*

5.2 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:

Building A:

General Waste: 15 x 660L MGBs collected **2 x weekly**

Recycling: 40 x 240L MGBs collected **1 x weekly**
(one for each core of each residential level)

Service Bins: 2 x 660L MGBs

Building C:

General Waste: 7 x 660L MGBs collected **1 x weekly**

Recycling: 24 x 240L MGBs collected **1 x weekly**
(one for each residential level + 4 additional for capacity)

Service Bins: 2 x 660L MGBs

During operation, it is the responsibility of the building manager to monitor the number of bins required for the residential component. Waste and recycling volumes may change according to residents' attitudes to waste disposal and recycling, building occupancy levels or development's management. Any requirements for adjusting the capacity of the waste facilities can be achieved by changing the number of bins, the bin sizes or collection frequencies. Building management will be required to negotiate any changes to bins or collections with the collection service provider.

5.3 WASTE DISPOSAL PROCEDURES

One (1) single waste chute will be installed with access on each residential level of each core (six in total). Residents will wrap or bag their general waste before placing in the chute. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm.

The general waste will discharge from the chute into 660L MGBs on linear tracks (where applicable) in the residential waste rooms located on Basement level (see APPENDIX A.1). General waste will not be compacted.

A separate cupboard for the storage of 240L MGBs will be provided next to each waste chute for the storage of commingled recyclables. Residents will be responsible for loosely placing their recyclables into the 240L MGBs. Recyclables must not be bagged. The caretaker will be responsible for transporting the 240L MGBs via the lifts to the bin holding rooms on Ground for decanting into 660L MGBs for collection.

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

5.3.1 COMMON AREAS

Residential common areas such as lobbies, amenities and circulation areas will be supplied with suitably branded waste and recycling bins where considered appropriate. General waste and recycling receptacles should be placed in convenient locations. The building manager will monitor the fullness of these bins and empty into the main collection bins as required.

5.4 WASTE COLLECTION PROCEDURES

Council will be engaged to collect the residential waste and recycling in accordance with Council's collection schedule. This report assumes waste will be collected twice weekly and recycling once weekly.

On the nominated waste collection day, the building caretaker will be responsible for transporting the 660L MGBs via the goods lifts to the temporary bin holding rooms located adjacent to the loading docks on Ground level (see APPENDIX A.2). It is recommended that extra 660L service bins are placed under the chute to collect discharge while the other bins are being serviced.

To service the bins, a Council collection vehicle will enter the site from Villawood Road and park in the loading bay (see APPENDIX A.1). The building caretaker will provide the driver with access to the waste collection room. Once the bins are serviced, the collection vehicle will exit the site onto Villawood Road in a forward direction.

All access and clearances to the waste collection room must be able to accommodate a 12.5m long HRV per AS2890.2-2002.

It is the responsibility of the caretaker to ensure that the loading area is clear of any vehicles or obstructions prior to waste collection. When waste collection is complete, the building caretaker will return the bins to resume operational use.

5.5 BULKY WASTE PROCEDURES

An area will be made available for the storage of discarded residential bulky items (e.g. whitegoods, furniture, etc.). This room should be located within close proximity of the garbage and recycling bin collection room and must have a minimum doorway width of 1.6m to allow for easy movement of large waste items in and out of the room.

Council requires that $10m^2$ be provided for the first 40 units and $2m^2$ for every 10 units thereafter. It is recommended that a bulky goods room be provided at the base of each building. This equates to $32m^2$ for Building A and $16m^2$ for Building C.

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the bulky waste rooms on Ground (see APPENDIX A.2). 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, a Council collection vehicle will enter the site from Villawood Road and park atop the turntable in the loading bay. The building caretaker will provide the driver with access to the bulky waste room. Once bulky items have been loaded, the collection vehicle will exit the site onto Villawood Road in a forward direction.

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

6.0 COMMERCIAL AND RETAIL WASTE MANAGEMENT

The following section outlines best practice waste management for the commercial and retail components of the development, including waste generation estimates and waste disposal and collection procedures.

6.1 WASTE GENERATION ESTIMATES

The NSW EPA's *Better practice guide for resource recovery in residential developments 2019* has been referenced to calculate the total number of bins required for the anticipated tenants. Calculations are based on generic figures, and waste generation rates may differ according to the tenants' actual waste management practice.

The following table shows the estimated volume (L) of general waste and recyclables that will be generated by the commercial and retail tenants. Estimates are based on a seven-day operating week.

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager once the proposed development is operational. Building management will be required to negotiate any changes to bins or collections with the collection service provider. Seasonal peak periods such as public and school holidays should also be considered.

Table 3: Estimated Waste and Recycling Volumes – Building A

Tenancy	Generation Rate Type	NLA (m^2)	General Waste Generation Rates (L/100m2/day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m^2/day)	Generated Recycling (L/week)	Food Waste Generation Rate (L/100m^2/day)	Generated Food Waste (L/week)
Supermarket	Supermarkets	1147	240	19269.6	300	24087	25	2007.3
Community	Cultural & Recreational	118	5	41.3	10	82.6	5	41.3
Retail	Restaurants	237	400	6636	280	4645.2	100	1659.0
Retail	Retail: other non-food	82	50	287	100	574	5	28.7
Retail	Restaurants	200	400	5600	280	3920	100	1400.0
Retail	Retail: other non-food	137	50	479.5	100	959	5	48.0
Retail	Restaurants	202	400	5656	280	3959.2	100	1414.0
Retail	Retail: other non-food	105	50	367.5	100	735	5	36.8
Retail	Retail: other non-food	107	50	374.5	100	749	5	37.5
Retail	Retail: other non-food	111	50	388.5	100	777	5	38.9
TOTAL		**2446**		**39099.9**		**40488**		**6711.3**
Equipment and Collections		Bin Size (L)		1100	Bin Size (L)	1100	Bin Size (L)	240
		Bins Per Week		36	Bins Per Week	37	Bins Per Week	28
		Collections per Week		3	Collections per Week	3	Collections per Week	3
		Total Bins		12	Total Bins	13	Total Bins	10

6.2 BIN SUMMARY BUILDING A

Based on the estimated waste generated by the retail and commercial tenancies for Building A, the recommended bin quantities and collection frequencies are as follows:

General Waste: 12 x 1100L MGBs collected **3 x weekly**

Cardboard/Paper Recyclables: 7 x 1100L MGBs collected **3 x weekly**

Commingled Recyclables: 6 x 1100L MGBs collected **3 x weekly**

Food Waste: 10 x 240L MGBs collected **3 x weekly**

Table 4: Estimated Waste and Recycling Volumes – Building C

Tenancy	Generation Rate Type	NLA (m^2)	General Waste Generation Rates (L/100m2/day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m^2/day)	Generated Recycling (L/week)	Recycling Generation Rate (L/100m^2/day)	Generated Recycling (L/week)
Health Services	Medical	204	20	840	10	420	5	71.4
Medical Centre	Medical	337	20	840	10	420	5	118.0
Health Services	Medical	75	20	420	10	210	5	26.3
Retail	Restaurants	76	400	2128	280	1489.6	100	532.0
TOTAL		**692**		**4228**		**2539.6**		**747.6**
Equipment and Collections		Bin Size (L)	660	Bin Size (L)	660	Bin Size (L)	240	
		Bins Per Week	7	Bins Per Week	4	Bins Per Week	4	
		Collections per Week	2	Collections per Week	2	Collections per Week	2	
		Total Bins	4	Total Bins	2	Total Bins	2	

**Per number of doctor's consulting rooms.*

6.3 BIN SUMMARY BUILDING C

Based on the estimated waste generated by the retail and commercial tenancies for Building C, the recommended bin quantities and collection frequencies are as follows:

General Waste: 4 x 660L MGBs collected **2 x weekly**

Cardboard/Paper Recyclables: 1 x 660L MGBs collected **2 x weekly**

Commingled Recyclables: 1 x 660L MGBs collected **2 x weekly**

Food Waste: 2 x 240L MGBs collected **2 x weekly**

6.4 WASTE DISPOSAL PROCEDURES

On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recyclables to the waste rooms and place into the appropriate collection bins (see APPENDIX A.1). Waste will not be compacted, and recyclables are not baled.

6.5 WASTE COLLECTION PROCEDURES

A private waste collection contractor will be engaged to service the retail waste and recycling bins per an agreed schedule. This report assumes waste and recycling is collected 3 x weekly for Building A and 2 x weekly for Building C.

On the day of service, a private waste collection vehicle will enter the site from Villawood Road and park atop the turntable in the loading bay. The building caretaker will provide the driver with access to the commercial/retail waste rooms. Once the bins are serviced, the collection vehicle will exit the site onto Villawood Road in a forward direction.

Please note that the collection of commercial/retail bins should occur on separate days from the collection of residential bins to ensure proper segregation of waste streams. For this reason, it is recommended collections be scheduled to 3 x weekly maximum for the retail/commercial component.

6.6 OTHER WASTE MANAGEMENT CONSIDERATIONS

Based on the types of tenancies anticipated for this development, the following waste management practices are recommended.

6.6.1 GLASS

The retail tenancies managing food waste such as the restaurants/cafés and supermarket are likely to produce glass waste and therefore a glass crusher would be beneficial.

It is recommended that a supplier be contacted to provide a machine on trial to ascertain the volume and collection frequency.

6.6.2 KITCHEN, OFFICE TEA ROOMS AND FOOD PREPARATION AREAS

Any food preparation area, including kitchens and office tea rooms will be provided with dedicated source separation bins including a general waste bin, a recycling bin and a food waste bin. Cleaners or nominated staff will be responsible for monitoring these bins and emptying them as required.

6.6.3 BATHROOMS

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.

6.6.4 PRINTING & PHOTOCOPYING ROOMS

It is recommended that printing rooms and photocopying rooms are supplied with bins for the collection of paper, as well as separate receptacles for ink toner cartridges for recycling. The cleaners or nominated staff are responsible for monitoring these bins and ensuring the items are collected and recycled by an appropriate contractor.

6.6.5 FOOD WASTE

During daily operations staff will be responsible for the collection of food waste back of house. At the end of the day, nominated staff or cleaners will bring the food waste bins to the central food waste area for collection. The building management will be responsible for providing either an on-site food waste processing system or food waste bins and collection service through a private contractor.

6.6.6 LIQUID WASTE

Liquid wastes such cleaning products, chemicals, paints, and cooking oil, etc., will be stored in a secure space that is bunded and drained to a grease trap in accordance with State government authorities and legislation.

6.6.7 PROBLEM WASTE

The building manager is responsible for making arrangements for the disposal and recycling of problem waste streams with an appropriate contractor. Problem wastes cannot be placed in general waste as they can have adverse impacts to human health and the environment if disposed of in landfill. Retail and Commercial tenants will need to liaise with the building manager when disposing of problem waste streams.

Problem waste streams include:

- Chemical Waste
- Liquid wastes
- Toner cartridges
- Lightbulbs
- e-waste
- Batteries

6.6.8 MEDICAL WASTE

The medical centre and potentially the health services will generate medical waste in addition to general waste and recycling.

Medical waste is any solid waste that is hazardous or contains potentially infectious material generated from biological and medical sources and activities. Medical waste can include (but is not limited to) sharps and pharmaceutical waste, clinical waste, cytotoxic waste and radioactive waste. The medical waste stream types and their management are further outlined in Appendix D.6.

It is the medical tenant's responsibility to determine the types of medical waste that would be generated by their operations and to arrange for the appropriate bins and collection services for the relevant medical waste types.

The tenants are also responsible for appointing a medical waste collection contractor prior to the operation of the site to provide and service the appropriate medical waste bins.

Where there are multiple clinical tenancies with a development, the site should have a medical waste room containing a clinical waste bin per tenancy. The medical waste room will hold clinical waste only, any other medical waste stream will be kept within the clinical tenancy in appropriate back of house storage.

Medical waste must be managed and disposed of in accordance with the *Protection of the Environment Operations Act* 1997 and the *Protection of the Environment Operations (Waste) Regulation* 2005.

Please refer to Table 5 for storage and collection requirements for any medical waste streams to be generated by the site in operation.

Table 5: Storage and Collection Requirements for Medical Waste

Area	Location
Storage	According to best practice as detailed in Waste Management Association of Australia, Biohazardous Waste Industry Group, *Manual for the Management of Biohazardous Waste*, 6th edition 2010, storage can be in a dedicated and purpose-built room or dedicated storage area for mobile garbage bins back of house. The appropriate storage will depend on the type of medical waste, volumes and servicing processes. In accordance with NSW Health's *Clinical and Related Waste Management for Health Services* 2017, Health services must provide an enclosed structure such as a shed, garage, cage or fenced area or separate loading bay to store medical waste. The storage area for anatomical and/or clinical waste may require refrigeration to prevent decomposition of the waste, if this waste stream is not removed on a frequent basis. Any medical waste holding area must: • Be located away from food and clean storage areas, • Be inaccessible to the public, • Have a lockable door, • Have rigid impervious flooring, • Allow for regular cleaning, and • Prevent odour and vermin. An EPA licence may be required to store Hazardous Wastes.
Containers	All medical waste must be stored in the correct medical waste container with correct colour coding and labelling in accordance the *Australian Dangerous Goods Code Edition 7.3 (ADG Code).* All containers of medical waste to be stored in a secure location.
Spillages	Clean up facilities, spills kits, appropriate drainage and bunding should be provided within the Waste Storage Area. Ensure all necessary equipment required to clean and disinfect the area in case of accidental spillage is easily available and accessible. It is essential that personnel involved in spill management receive education and training in emergency procedures and handling requirements. Spill kits that have been used should be disposed of with the type of waste that has been cleaned up, e.g. used cytotoxic spill kits should be disposed of with cytotoxic waste.
Mixed waste	Any waste mixed with medical waste must be treated as medical waste
Sharps	Sharps containers should be placed near to where the sharps are generated. Full containers will be sealed and then transported utility rooms/ designated storage area to awaiting collection by contractors.
Collections	It is intended that as per normal practice for these types of facilities, that the appointed contractor will service the medical waste containers/bins from their operational location within the facility and replace them at the same time with empty containers/bins. Medical waste shall remain within the storage areas and only be moved during collections. Collections will be performed by a transporter licensed by the EPA to collect, transport and dispose of the medical waste stream accordingly.

7.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 6: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata, Body Corporate or Management	• Ensure all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organise internal waste audits/visual assessments on a regular basis • Purchase any on-going waste management equipment or maintenance of equipment once building is operational; and • Manage any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	• Maintain and clean chute doors on each level; • Coordinate general waste and recycling collections; • Clean and transport bins as required; • Organise replacement or maintenance requirements for bins; • Organise, maintain and clean the waste holding area; • Organise bulky goods collection when required • Investigate and ensure prompt clean-up of illegally dumped waste materials. • Prevent storm water pollution by taking necessary precautions (secure bin rooms, prevent overfilling of bins) • Abide by all relevant WH&S legislation, regulations, and guidelines; • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management; • Assess any manual handling risks and prepare a manual handling control plan for waste and bin transfers; • Ensure site safety for residents, children, visitors, staff and contractors; and • Ensure effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Residents	• Dispose of all general waste and recycling in the allocated waste chutes and/or MGBs provided; • Ensure adequate separation of general waste and recycling; and • Comply with the provisions of Council and the OWMP.
Retail/Commercial Tenants	• Manage the back of house storage of generated waste and recycling during daily operation. • Correctly separate waste and recycling streams; bag general waste and ensure recyclables are not bagged. • Flatten cardboard within the recycling bin. • If required, arrange for storing used and unused cooking oil in a bunded area, • Organise grease interceptor trap servicing, • Ensure dry basket arrestors are provided to the floor wastes in the food preparation, and • Ensure the suitable storage for chemicals, pesticides and cleaning products waste back of house.
Waste Collection Contractor	• Provide a reliable and appropriate waste collection service; • Provide feedback to building managers/residents regarding contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/ Landscaping Contractor	• Remove all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Developer	• Purchase all equipment required to implement this OWMP prior to the occupation of the building to be provided to the strata or Body Corporate.

8.0 SOURCE SEPARATION

Better practice waste management includes the avoidance, reuse, and recovery of unwanted items, which can be achieved through source separation. The table below outlines what is typically included in various waste streams and how they can be managed. Refer to your local council for a list of accepted materials. Planet Ark can be accessed online to find other facilities that recover unwanted items.

Table 7: Operational Waste Streams

Waste Stream	Description	Typical Destination	Waste Stream Management
General Waste	The remaining portion of the waste stream that is not recovered for re-use, processing, or recycling.	Landfill	Waste should be bagged before placing in chutes, or in designated waste bins.
Paper and Cardboard Recyclables	Recyclable materials that can be re-processed into new products.	Resource Recovery Centre	Bulky cardboard must not be placed in any chute. Cardboard to be flattened before placing in the designated cardboard bin.
Commingled Recyclables	A mixture of items usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons).	Materials Recovery Facility (MRF)	Commingled recyclables must not be bagged, and instead should be placed loosely in the designated recycling bins.
Secure Documents	Printed paper materials that contain sensitive information.	Recycling Facility	Secured bins for private contractor removal.
Green Waste	Unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches)	Resource Recovery Centre	Landscape Maintenance Contractors will remove the green waste from site during scheduled maintenance.
Food Waste	Unwanted or uneaten kitchen scraps that are easily compostable/ biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds).	Composting facility or Landfill	Food waste can be composted on-site, off-site, or else included in the general waste stream.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Building manager arranges collection for e-waste recycling as needed by residents. Commercial/ retail tenants arrange for recycling of their own e-waste.
Bulky Items	Items that are to too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc.	Resource Recovery Centre or Landfill	Residents liaise with building manager to store in Bulky Goods Room. Building manager arranges with Council for removal. Commercial/retail tenants are responsible for removal of their bulky items.
Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
Medical Waste	Any solid waste that is hazardous or contains potentially infectious material generated from biological and medical sources and activities.	Incineration or Materials Recovery Facility	Secure clinical bins for private contractor removal.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager arranges collection by appropriate recycling services when required.

9.0 EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each resident and commercial/retail tenant. 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 communal waste bins.

Education and communication must be provided regularly to encourage behaviour change and account for transient building personnel such as new residents, tenants, or cleaning staff. 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;
- Descriptions of items accepted in the recycling and general waste streams (refer to Council guidance);
- How to dispose of bulky goods and any other items that are not general waste or recycling (refer to Council guidance);
- 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.

9.1 SIGNAGE

Signage and education are essential components to support best practice waste management including resource recovery, source separation, and diversion of waste from landfill.

Signage should include:

- Clear and correctly labelled waste and recycling bins,
- Instructions for separating and disposing of waste items. Different languages should be considered,
- Locations of, and directions to, the waste storage areas with directional signs, arrows, or lines,
- The identification of all hazards or potential dangers associated with the waste facilities, and
- Emergency contact information should there be issues with the waste systems or services in the building.

The building manager is responsible for waste room signage including safety signage. 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 each bin.

All chute doors on all residential levels will be labelled with signs directing chute operations and use of chute door.

All signage should conform to the relevant Australian Standards.

9.2 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

10.0 EQUIPMENT SUMMARY

Table 8: Equipment Summary

	Part	Qty	Notes
Chutes	Please refer to supplier's information	6	(See Appendix B.1 for Typical Single Chute Layout)
Chute Equipment	Waste 2-bin 660L MGB Linear Track System 3-bin 660L MGB Linear Track System	 3 2	(See Appendix B.3 for Typical Linear System)
Other Equipment	Suitable Bin Moving Equipment	1	(See APPENDIX C.4 for Typical Bin Movers)

11.0 WASTE ROOMS

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 9: Waste Room Areas

Building	Level	Waste Room Type	Equipment & MGBs	Estimated Area Required (m^2)	Actual Area Provided (m^2)
A	B	Core 3 Chute Discharge Room	2-bin 660L MGB Linear Track System 3 x 660L MGBs general waste 10 x 240L MGBs recyclables	18	19
A	B	Core 4 Chute Discharge Room	3-bin 660L MGB Linear Track System 6 x 660L MGBs general waste 10 x 240L MGBs recyclables	29	26
A	B	Core 5 Chute Discharge Room	3-bin 660L MGB Linear Track System 4 x 660L MGBs general waste 10 x 240L MGBs recyclables	25	31
A	B	Core 6 Chute Discharge Room	2 x 660L MGBs general waste 10 x 240L MGBs recyclables	13	25
A	G	Residential Bin Holding Room	15 x 660L MGBs general waste 40 x 240L MGBs recyclables	65	41
A	G	Bulky Goods Room *Residential*		32	TBD
A	G	Bulky Goods Room *Retail*		-	12
A	G	Retail/Commercial Waste Room	12 x 1100L MGBs general waste 7 x 1100L MGBs paper/cardboard 6 x 1100L MGBs recyclables 10 x 240L MGBs food waste	81	57
C	B	Core 1 Chute Discharge Room	2-bin 660L MGB Linear Track System 4 x 660L MGBs general waste 13 x 240L MGBs recyclables	30	20
C	B	Core 2 Chute Discharge Room	2-bin 660L MGB Linear Track System 3 x 660L MGBs general waste 11 x 240L MGBs recyclables	26	30
C	G	Residential Bin Holding Room	7 x 660L MGBs general waste 24 x 240L MGBs recyclables	35	24
C	G	Bulky Goods Room		16	15
C	G	Retail/Commercial Waste Room	4 x 660L MGBs general waste 1 x 660L MGBs paper/cardboard 1 x 660L MGBs recyclables 2 x 240L MGBs food waste	14	10

EFC recommends bins sizes, collection frequencies and/or equipment for best practice waste management at this site, however EFC acknowledges there are a range of suitable options that may alter waste room requirements (e.g. floor area, accessibility, head height, etc.)

The waste room areas have been calculated based on equipment requirements and/or bin dimensions with an additional 70% of bin GFA factored in for manoeuvrability for waste rooms and 30% for bin holding rooms.

In addition, all doorways and passageways facilitating the movement of bins and waste items must be at least 1500mm wide per Council's DCP, or 1600mm for bulky waste. The following table provides further waste room requirements.

Table 10: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Rooms	• Ceiling clearance height must be a minimum of 3000mm (subject to penetration location) • The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles • All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room • 200mm clearance is required around compaction equipment • Where a chute offset is required, the angle of the offset must not exceed 40 degrees (subject to number of consecutive offset and/or up to 1500mm)
Residential Bin Holding Room and/or Bin Collection Area	• Bins must not be stacked in rows that are more than two bins deep
Bulky Waste Rooms	• May be a dedicated room or screened area within another waste room • Must be in close proximity to the collection area • Area must also be allocated for the segregation of e-waste, gas bottles, cardboard, etc. • Doorway should be a minimum of 1600mm wide
Retail/Commercial Waste Room	• In order to ensure staff safety, all bins should be arranged so they can be accessed without moving another bin
Medical Waste Room	• Storage area base in an impervious surface surrounded by a bund appropriate to contain any spill • All loading/unloading takes place within the bunded area • Base and walls of bunded area are free of gaps or cracks • Signage is posted with the biohazard symbol and other labelling appropriate to the types of waste stored in that area • Bunded area must be drained to a sump or sewer to collect spills and wash water • Any refrigerated facilities are to be contained within a secure area

12.0 BIN MOVEMENTS

The building caretaker is responsible for the transportation of bins as required from their designated operational locations to the bin holding room as required and returning them once emptied to resume operational use.

Transfer of bins should minimise manual handling where possible, as bins become heavy when full. The building manager must assess manual handling risks and provide any relevant documentation to key personal.

The routes along the bin moving path should;

- Allow for a continuous route that is wholly within the property boundary.
- Be free from obstruction and obstacles such as steps and kerbs.
- Be constructed of solid materials with a non-slip surface
- Be A minimum of 300mm wider than the largest bin used onsite.
- If bins are moved manually, the route must not exceed a grade of 1:14.
- If a bin moving device is used, the route cannot exceed the maximum operating grade of the device. This is typically a grade of 1:4, however this will vary depending on the model of bin moving device acquired for the site.

As the distance of the bin moving paths exceeds 10m, a bin moving device is required to aid the movement of full bins. The developer is responsible for suppling all equipment required for moving bins this includes any bin lifters, bin moving devices and waste transfer bins. This equipment must be new and appropriate for the site. The developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations.

Once the site is operational (and the developers is no longer involved) the building proprietors/strata/body corporate will be responsible for maintaining, repairing and replacing waste management equipment.

Bins may have to be fitted with hitches to enable the simultaneous transportation of multiple bins to the collection area. Council must be informed of any hitch attachments required to be installed on bins.

13.0 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Fairfield Development Control Plan 2013,* in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

The *NSW Better practice guide for resource recovery in residential developments (2019)* also states that better practice bin storage areas should achieve more than the minimum compliance requirements, which are as follows:

- Ensuring BCA compliance, including ventilation. Where required, ventilation system must comply with AS1668.4-2012 The use of ventilation and air conditioning in buildings.
- Ensuring storage areas are well lit (sensor lighting preferred) and have lighting available 24 hours a day.
- Provision of bin washing facilities, including taps for hot and cold water provided through a centralised mixing valve. The taps must be protected from bins and be located where they can be easily accessed even when the area is at bin capacity.
- Floor constructed of concrete at least 75mm thick.
- Floor graded so that any water is directed to a sewer authority approved drainage connection to ensure washing bins and/or waste storage areas do not discharge flow into the stormwater drain.
- Provision of smooth, cleanable and durable floor and wall surfaces that extend up the wall to a height equivalent to any bins held in the area.
- Ensuring ceilings are finished with a smooth-faced non-absorbent material capable of being cleaned.
- All surfaces (walls, ceiling and floors) finished in a light colour.

12.1 ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two-pack epoxy;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- Tap height and light switch 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 finished floor level;
- Optional automatic odour and pest control system installed
- 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;
- Conform to the Building Code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured
- Waste and recycling rooms must have their own exhaust ventilation system either;
    - Mechanically - exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum. Mechanical exhaust systems shall comply with AS1668.4.2012 and not cause any inconvenience, noise or odour problem; or
    - Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area.

13.0 USEFUL CONTACTS

EFC does not warrant or make representation for goods or services provided by suppliers.

LOCAL COUNCIL

Fairfield Customer Service	Ph: (02) 9725 0222	E: mail@fairfieldcity.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

Capital City Waste Services	Ph: 02 9599 9999	E: service@ccws.net.au
Remondis	Ph: 02 9032 7100	
Suez Environmental	Ph: 13 13 35	
Wastewise NSW	Ph: 1300 550 408	E: admin@wastewise.com.au

BIN MOVING DEVICE SUPPLIERS

Electrodrive	Ph: 1800 333 002	E: sales@electrodrive.com.au
Sitecraft	Ph: 1300 363 152	E: sales@sitecraft.com.au
Spacepac	Ph: 1300 763 444	

ORGANIC DIGESTERS AND DEHYDRATORS

Closed Loop	Ph: 1300 762 166	
Orca		E: contact.australia@feedtheorca.com
Soil Food	Ph: 1300 556 628	
Waste Master	Ph: 1800 614 272	E: hello@wastemasterpacific.com.au

COOKING OIL CONTAINERS AND DISPOSAL

Auscol	Ph: 1800 629 476	E: sales@auscol.com

ODOUR CONTROL

EF Neutralizer	Ph: 1300 435 374	E: info@elephantsfoot.com.au

SOURCE SPERATION BINS

Source Separation Systems	Ph: 1300 739 913	E: info@sourceseparationsystems.com.au

MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

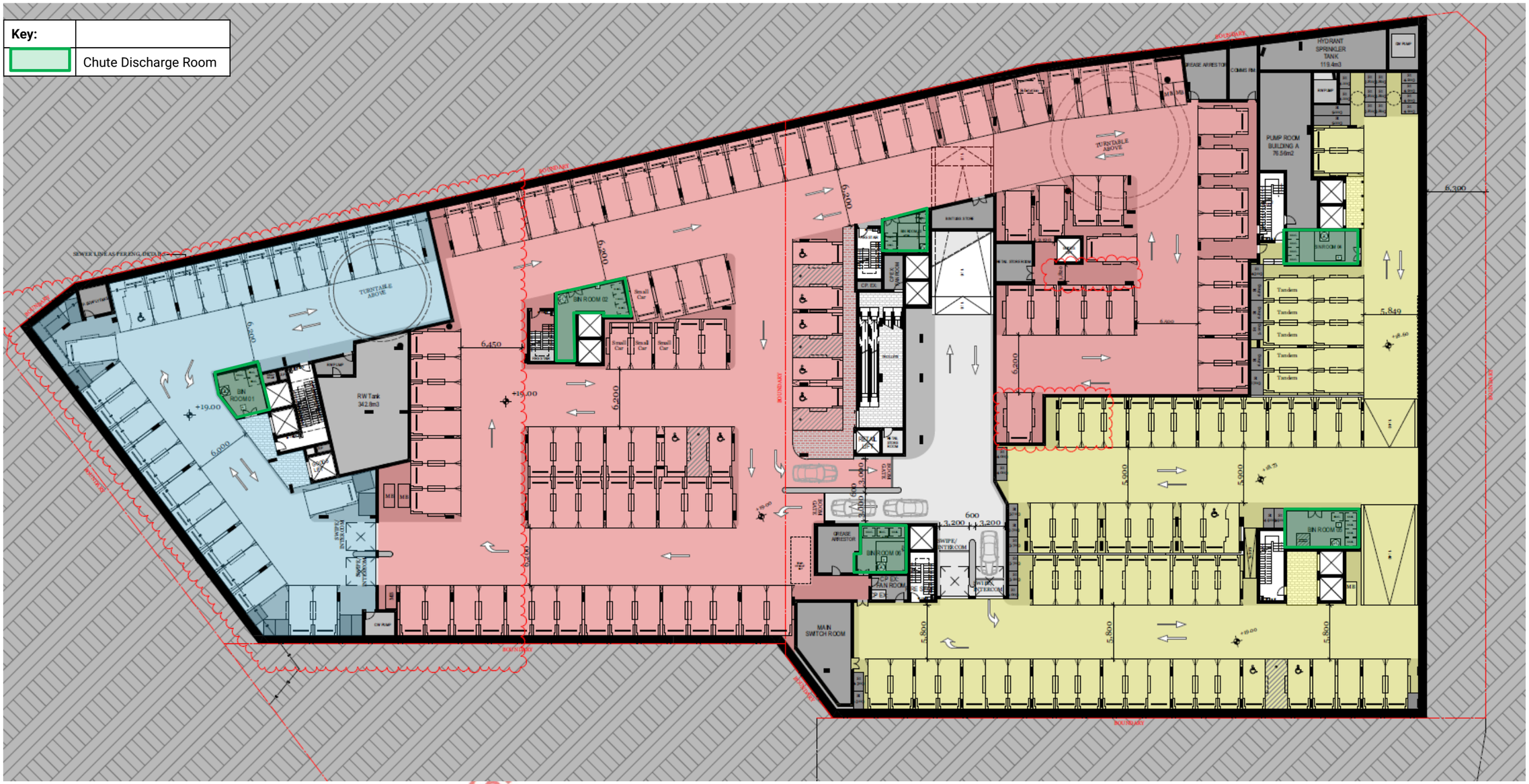
SULO	Ph: 1300 364 388	E: sales@sulo.com.au
OTTO Australia	Ph: 02 9153 6999	

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

Elephants Foot	Ph: 1800 025 073	E: info@elephantsfoot.com.au

APPENDIX A: ARCHITECTURAL PLANS

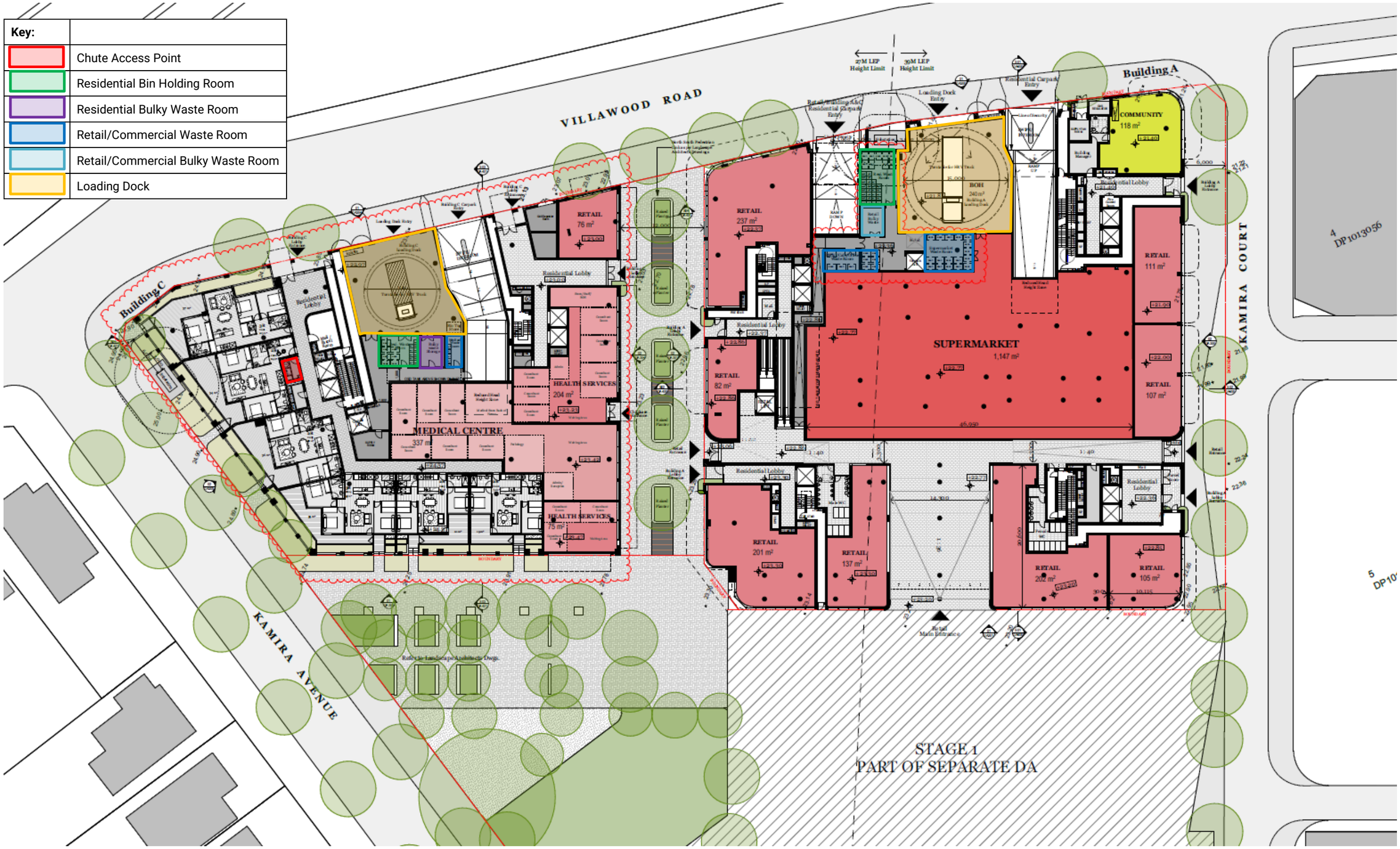
APPENDIX: A.1 BASEMENT FLOOR PLAN



Source: DKO Architecture (NSW) Pty Ltd, Drawing Number DA200[B], Basement Plan, 02.08.2023

APPENDIX: A.2 GROUND FLOOR PLAN

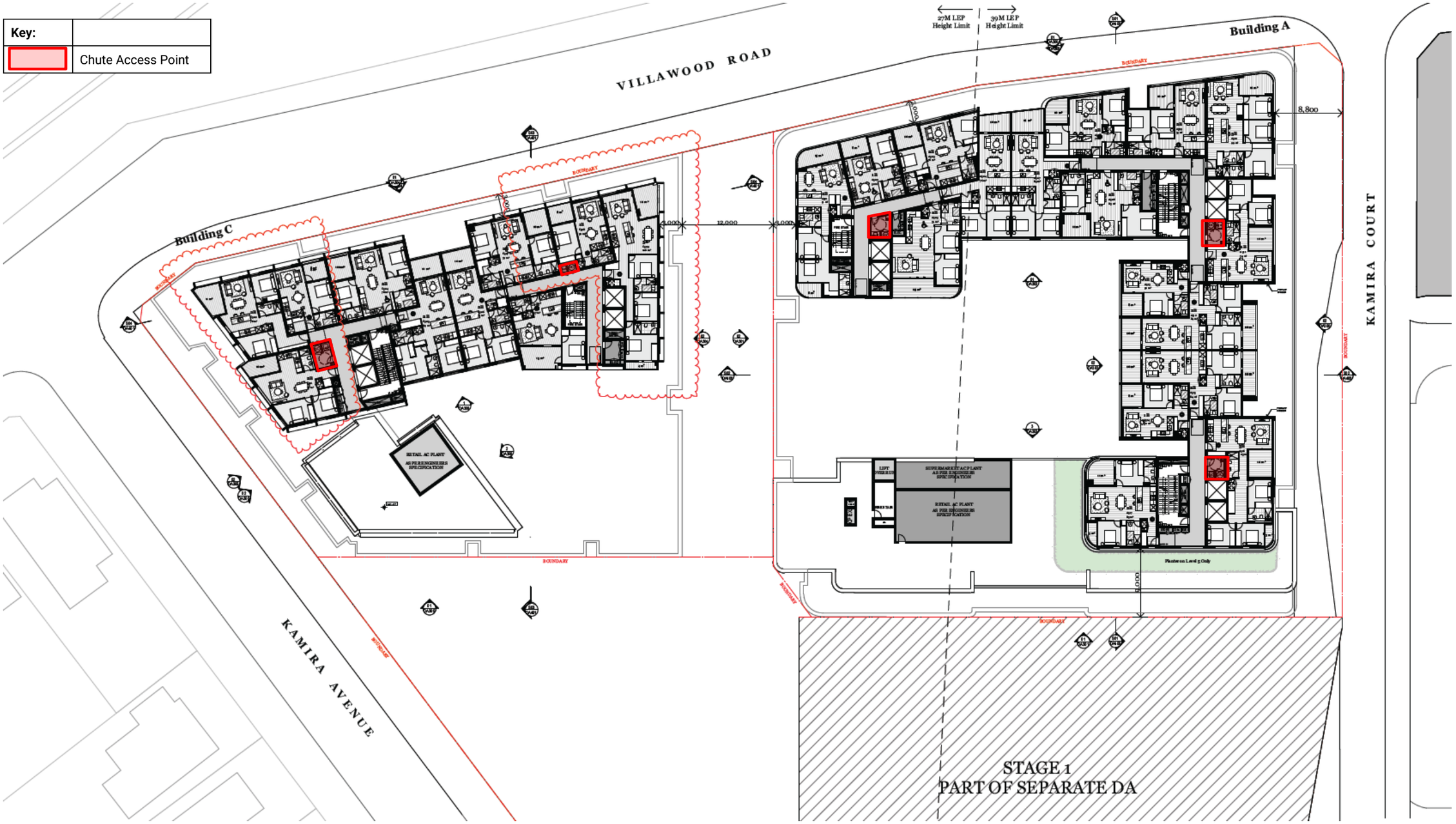
Key:	
	Chute Access Point
	Residential Bin Holding Room
	Residential Bulky Waste Room
	Retail/Commercial Waste Room
	Retail/Commercial Bulky Waste Room
	Loading Dock



Source: DKO Architecture (NSW) Pty Ltd, Drawing Number DA201[B], Ground Floor Plan, 02.08.2023

APPENDIX: A.3 TYPICAL FLOOR PLAN: LEVEL 1

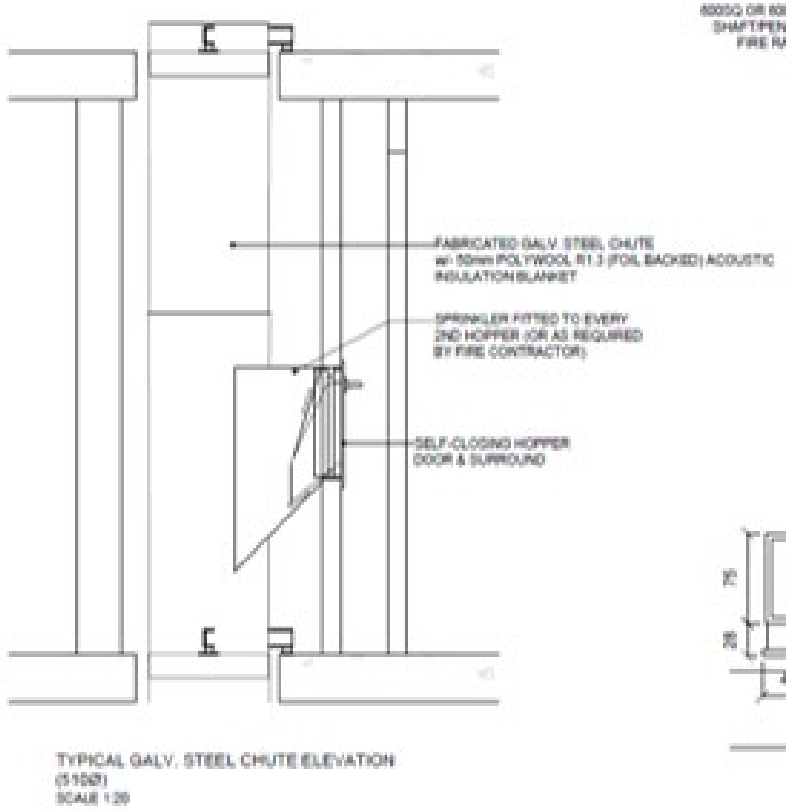
Key:	
	Chute Access Point



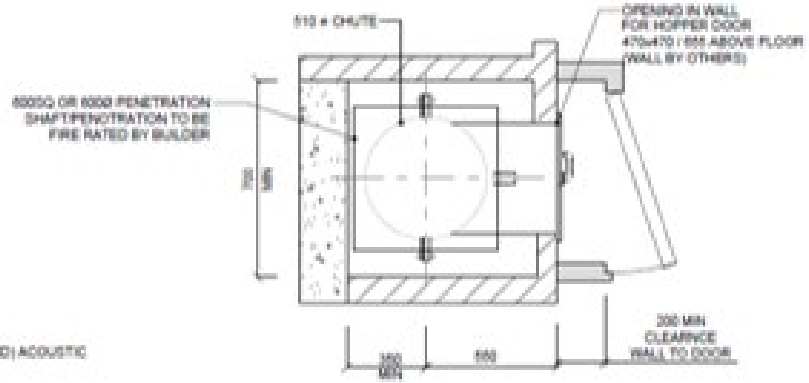
Source: DKO Architecture (NSW) Pty Ltd, Drawing Number DA206[B], Level 5 & 6 Typical Plan

APPENDIX B: INSTALLATION EQUIPMENT

APPENDIX: B.1 TYPICAL SINGLE CHUTE LAYOUT

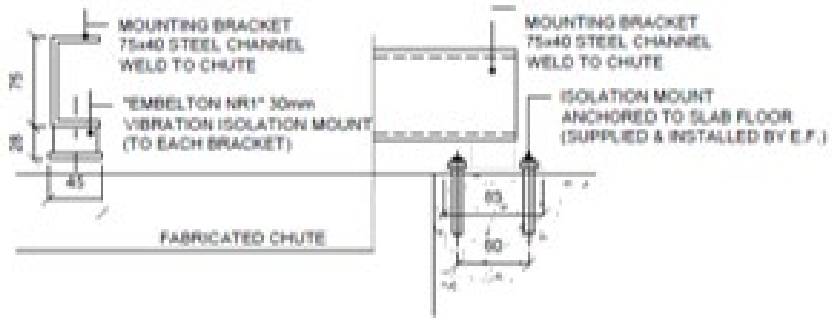


TYPICAL GALV. STEEL CHUTE ELEVATION
(510Ø)
SCALE 1:20



TYPICAL GALV. STEEL SINGLE CHUTE LAYOUT
(510Ø)
SCALE 1:20

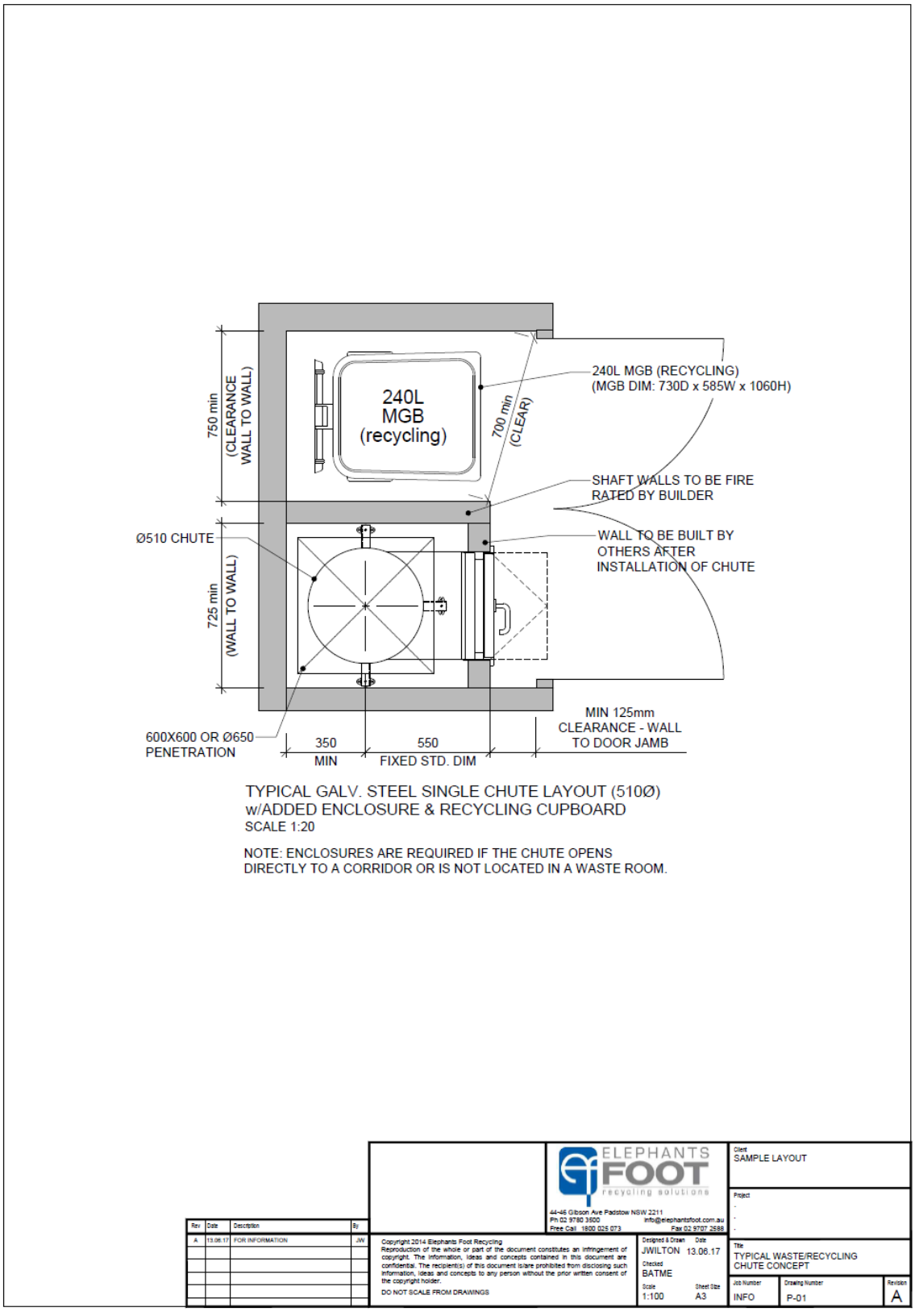
NOTE: ENCLOSURES ARE REQUIRED IF THE CHUTE OPENS
DIRECTLY TO A CORRIDOR OR IS NOT LOCATED IN A WASTE ROOM



MOUNTING DETAIL
SCALE 1:5

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

APPENDIX: B.2 EXAMPLE RESIDENTIAL LEVEL RECYCLING BIN LAYOUT



Please Note: This is an example only – please refer to supplier's information and specification

APPENDIX: B.3 TYPICAL LINEAR TRACK SYSTEM FOR 660L MGBS

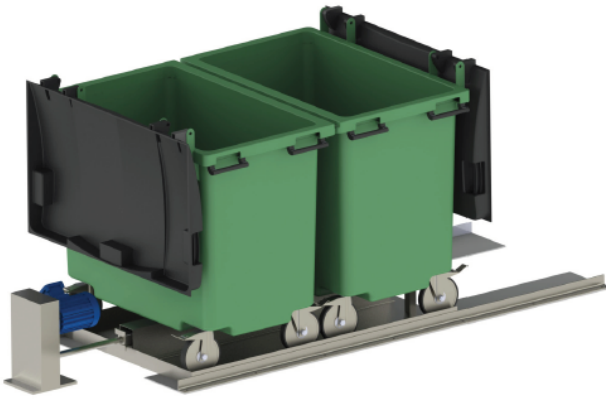
ELEPHANTS® FOOT recycling solutions

ELEPHANTS FOOT RECYCLING SOLUTIONS
44-46 GIBSON AVE, PADSTOW NSW 2211
E info@elephantsfoot.com.au W elephantsfoot.com.au
Free Call: 1300 4 ELEPHANT (1300 435 374)

660 LITRE LINEAR TRACK SYSTEM

PRODUCT INFORMATION

Elephants Foot 660 Litre bin Linear Track System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Linear Track System collects waste or recycling being disposed from the floors above through the chute system, discharging the material via a hopper that feeds the bins. Electromechanically driven with automated operation, the system utilises linear motion to automatically change over full bins. Once all the bins are filled, an indicator light will illuminate signifying that the bins are ready for withdrawal and collection. Available with or without compaction unit, our standard 660 litre bin Linear Track System is available in standard 2 or 3. Our 4 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	0.55
Maximum bin load	265 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, or 4

OPTIONAL EXTRAS

- Compaction unit – Please refer to the bin compactor product information sheet for details and specifications
- Enhanced safety add on's – Interlocking barriers, occupancy sensors or safety light curtains (presence sensing light barriers)
- Full bin SMS and email notification
- CMMS and BMS integration
- Extend warranty – Terms and conditions apply

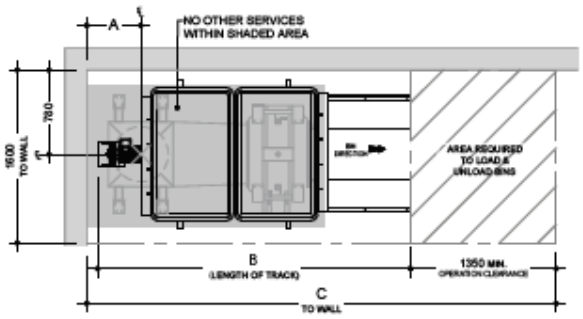
STANDARD FEATURES & BENEFITS

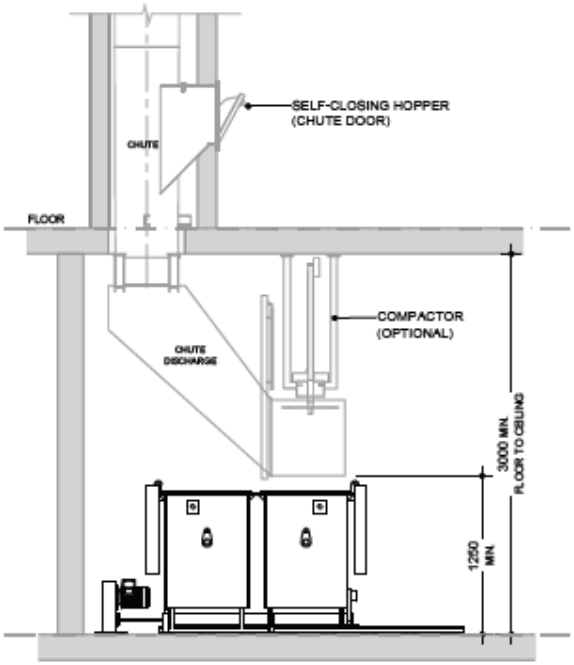
- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet and efficient system operation
- Maximise safety for residents, caretakers and collectors
- Restrained design with minimal moving parts
- Can suit low ceiling clearances
- Floor contact components fully galvanised steel
- Retro fitting options to suit other chutes systems
- Compliant with relevant Building Codes and Standards
- Standard 12 month warranty

ELEPHANTS FOOT recycling solutions

ELEPHANTS FOOT RECYCLING SOLUTIONS
44-46 GIBSON AVE, PADSTOW NSW 2211
E info@elephantsfoot.com.au W elephantsfoot.com.au
Free Call: 1300 4 ELEPHANT (1300 435 374)

LINEAR TRACK SYSTEM





660 LITRE BIN

660 LITRE BIN LINEAR TRACK SYSTEM			
No. of Bins	Reference (mm)		
	A	B	C
2	500	2950	4350
3	1450	4650	6050
4	2300	6300	7750

Notes:

Bins not provided by Elephants Foot

Drawings shown are for general information purposes only and provide minimum equipment spacial requirements for waste room design.

These drawings are not intended for site specific use or for construction. Each project is unique and will be designed to suit.

Additional equipment options, systems and configurations are available. For design assessment, information and advice, please contact an Elephants Foot design consultant on 1300 435 374

Please Note: This is an example only – please 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

APPENDIX: C.2 SIGNAGE FOR WASTE AND 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)

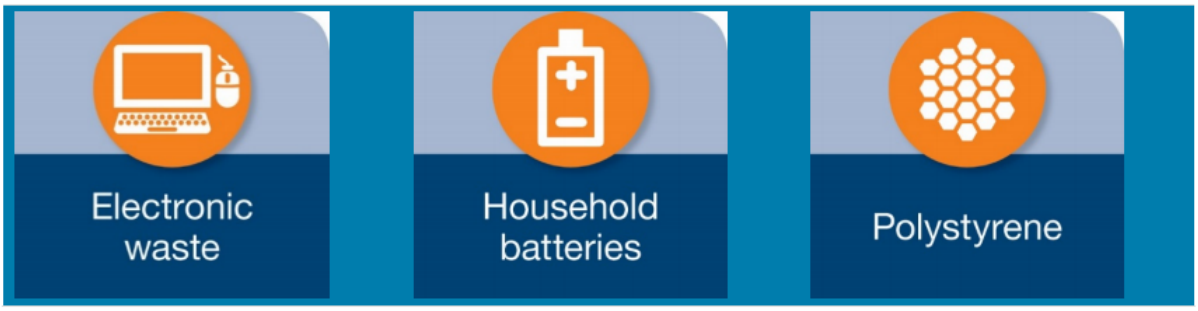
Figure I1.2: Examples of bin lid stickers (EPA supplied)

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.3 TYPICAL COLLECTION VEHICLE INFORMATION

General

Appropriate heavy rigid vehicle standards should be incorporated into the road and street designs in new developments where onsite collections are proposed. Road and street designs must comply with relevant Acts, regulations, guidelines, and codes administered by Austroads, Standards Australia, NSW Roads and Maritime Services, WorkSafe NSW and any local council traffic requirements.

Applicants and building designers should consult with councils and other relevant authorities before designing new roads or streets and access points for waste collection vehicles to establish specific design requirements.

Table H4.1: Australian Standards for turning circles for medium and heavy rigid class vehicles

Vehicle class	Overall length (m)	Design width (m)	Design turning radius (m)	Swept circle (m)	Clearance (travel) height (m)
Medium rigid vehicle	8.80	2.5	10.0	21.6	4.5
Heavy rigid vehicle	12.5	2.5	12.5	27.8	4.5

Source: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority

Large collection vehicles

Waste collection vehicles may be side-loading, rear-loading, front-lift-loading, hook or crane lift trucks. Vehicle dimensions vary by collection service, manufacturer, make and model. It is not possible to provide definitive dimensions, so architects and developers should consult with the local council and/or contractors.

The following characteristics represent typical collection vehicles and are provided for guidance only. Reference to *AS2890.2 Parking facilities: off-street commercial vehicle facilities* for detailed requirements, including vehicle dimensions, is recommended.

Table B2.1: Collection vehicle dimensions

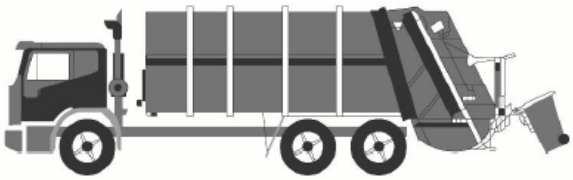
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	13.0
Maximum payload (t)	10.0	10.8	11.0	14.5	9.5
Turning circle (m)	25.0	21.4	25.0	25.0	18

* The maximum reach of a side arm is 3 m.

Sources: JJ Richards, SUEZ, MacDonald Johnson, Cleanaway, Garwood, Ros Roca, Bingo and Edbro. Figures shown represent the maximum dimensions for each vehicle type.

Rear-loading collection vehicles

These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



Rear-loading waste collection vehicle

Side-loading collection vehicles

This is the most commonly used vehicle for domestic waste, recycling and organics collections. It is only suitable for collecting mobile bins up to 360L in capacity.

Side-loading waste collection vehicle

Front-lift-loading collection vehicles

These vehicles are commonly used for collecting commercial and industrial waste. They can only collect specially designed front-lift bulk bins and not mobile bins.

Front-lift-loading waste collection vehicle

Small collection vehicles

Typically, councils and their contractors operate with large collection vehicles (heavy rigid class vehicles) because they carry greater payloads and allow for more cost-effective collection services. Some councils, or their contractors, may have smaller collection vehicles in their fleet. Early discussion with the council is important to confirm this, but it should not be assumed that the council will have access to small collection vehicles.

The waste management systems and the location of the collection point should always be designed so that the council can provide the standard domestic waste service.

Source: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority

APPENDIX: C.4 TYPICAL BIN MOVERS

Battery powered tug with a 1 or 2 tonne tow capacity

Features at a glance

One tonne (Evo 1T) or two tonne (Evo 2T) tow capacity
Auto latching hitch
Three speed motor with emergency stop

Typical applications

The Tug Evo is suitable for airports, factories, warehouses, apartment buildings or large facilities. This powered tug is also suitable for transporting medical carts around hospitals or moving heavy specialist equipment.

Features:

- 1 or 2 tonne tow capacity of inclines up to 6 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 5 km/h max speed
- 2 x 12V 42Ah MK-gel batteries with 24V smart charger.
- Powerful transaxle

Safety Features:

- Intuitive control with standard automatic safety brake, forward and reverse drive.
- Emergency stop button.

Emergency back-off button

Source: http://www.electrodrive.com.au/products/tugs/tug-evo.aspx

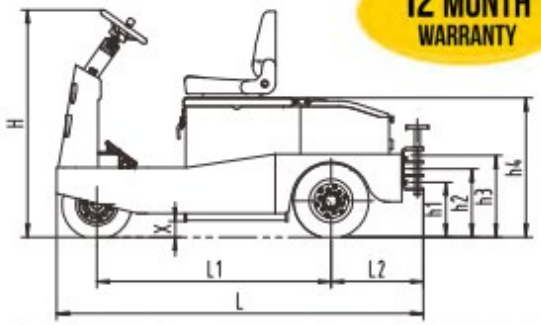
APPENDIX: C.5 TYPICAL SEATED BIN MOVERS

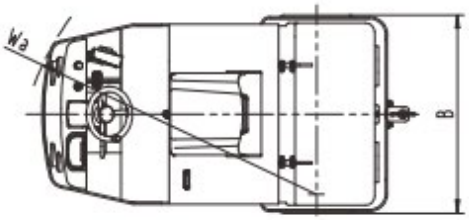
SITECRAFT
MATERIALS HANDLING EQUIPMENT
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

- Towing capacities from 2000 kg to 6,000 kg
- **Full AC electric system** has a brake-releasing function, making the unit easy and effortless to operate; The maintenance-free motor completely solves the issues of DC motor carbon brush.
- Batteries located in the lowest part of frame ensures excellent stability
- Quick open back service cover for easy maintenance and part replacement
- CANbus technology reduces wiring complexity and increases reliability
- H type axle design provides excellent stability
- New high-range steering design; light steering and easy to maintain.
- New large-screen instrument display provides information clearly and directly to the operator.

12 MONTH WARRANTY





Model		ST-2000AC	ST-3000AC	ST-5000AC	ST-6000AC
Towing Capacity	Kg	2000	3000	5000	6000
Drawbar Centre Height	h1/h2/h3 mm	280/350/420	280/350/420	280/350/420	280/350/420
Motor	Kw / V	3Kw / 36V	3Kw / 36V	5Kw / 48V	5Kw / 48V
Total Size	L x B x H mm	1720 x 968 x 1270	1720 x 968 x 1270	1975 x 1100 x 1270	1975 x 1100 x 1270
Total Weight (With Batteries)	Kg	740	780	1240	1280
Wheel Size	Solid Rubber	15*4-8	15*4-8	15*4-8	15*4-8
Wheelbase	L1 mm	1055	1055	1280	1280
Rear Hanging Distance	L2 mm	382	382	500	500
Seat Height	h4 mm	910	910	910	910
Ground Clearance	X mm	90	90	90	90
Turning Radius	Wa mm	1500	1500	1650	1650
Maximum Speed	Km/h	10	8	14	12
Battery	V/Ah	36/200	36/250	48/360	48/400
Battery Weight	Kg	200	250	610	650
Charger	On-board V/Ah	36/30	36/30	48/50	48/50

SITECRAFT
MATERIALS HANDLING EQUIPMENT
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

ST3000-AC tow tug complete with 6 x 250AH heavy duty batteries

Optional steel / aluminium trailers for moving waste bins, linen trolleys, food trolleys, delivery boxes, etc ...

Source: https://www.sitecraft.net.au/materials-handling/tow-tugs-powered-vehicles/electric-tow-vehicles/

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 EXAMPLE APARTMENT STYLE COMPOST BIN

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 COOKING OIL CONTAINERS

Drums 205L

Pour in Bulk Tank

View Brochure

Oil Kaddy System

View Brochure

Eco Systems

Direct-Connect to Fryer

Source: http://www.auscol.com/services/collection-systems/

APPENDIX: D.4 TYPICAL SOURCE SEPARATION BINS

Source: https://www.sourceseparationsystems.com.au/

APPENDIX: D.5 TYPICAL GLASS CRUSHER

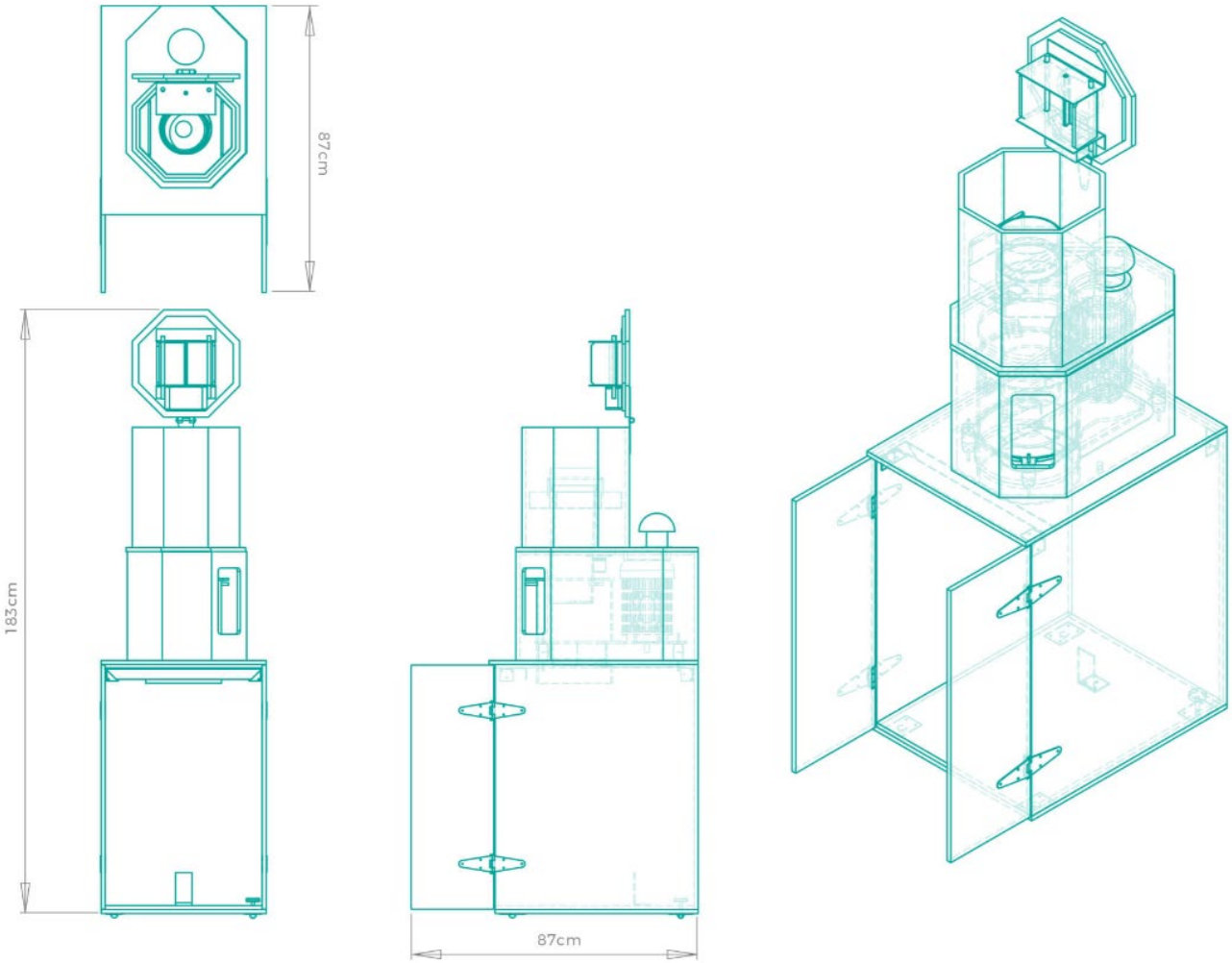
BottleCycler is an innovative glass-crushing machine that's transforming how Australia's events and hospitality industry recycles glass. We're proud to be a finalist in the Premier's Sustainability Awards.

This recognition reflects how we're shaking up the way the hospitality industry does glass. Finally, an easy and effective way for hospitality venues to recycle glass on-the-go.

Our sleek and compact machine blends right into your existing bar area. With a contemporary stainless-steel finish, it crushes glass quickly and quietly, and looks good too.

The intelligent bin holds up to 300 bottles, saving you the hassle of constantly emptying bins.

We're made for hospitality – it's glass recycling made easy.



Source: https://bottlecycler.com/our-machine/

APPENDIX: D.6 MEDICAL WASTE STREAMS AND MANAGEMENT

The following are the various medical waste streams and their storage guidelines as detailed in NSW Health's *Clinical and Related Waste Management for Health Services* 2017.

Medical Waste Stream	Medical Waste Stream Description and Management	Container Example
Sharps Waste	Any clinical object capable of inflicting a penetrating injury which may or may not be contaminated with blood and or body substance. This includes needles, ampoules and any other sharp objects or instruments designed to perform penetrating procedures. Sharps container should be located adjacent to the work area where sharps are used. When the sharps residue container is filled to the black line, the container should be sealed and labelled.	
Pharmaceutical Waste	Pharmaceutical waste refers to any waste pharmaceuticals or other chemical substances specified as regulated goods in the Poisons and Therapeutic Goods Act 2008. Includes any substance specified in a Schedule of the Poisons List under the Act, as well as any therapeutic good which is unscheduled. It also includes expired or discarded pharmaceuticals, filters or other material contaminated by pharmaceutical products. Pharmaceutical waste bins must be lockable	
Clinical Waste	Clinical waste with the potential to cause injury, infection or offence: • Unrecognisable human tissue (excluding hair, teeth, nails and anatomical waste) • Bulk blood or other body fluids (or body substances) • Material and equipment visibly stained by blood or body fluids (includes incontinence pads and disposable nappies that come from an infectious patient)[3] • Lab specimens, cultures or other waste from lab investigations • Waste from medical or veterinary research • Genetically Modified Organisms (GMOs) For incineration or autoclaving and shredding. Autoclave tape and bag indicators must be used to show autoclaving has been completed. Fluid may be able to be discharged into sewer depending on Liquid Trade Agreement between the health service and water utility All clinical waste once treated by a process acceptable to NSW Health may be reclassified in accordance with the Waste Classification.	

Cytotoxic Waste	Material contaminated with residues or preparations containing materials toxic or otherwise harmful to cells. This includes any residual cytotoxic drug or laboratory chemical and any discarded material or clinical waste associated with the preparation or administration or excretion of cytotoxic drugs May include Genetically Modified Organisms (GMOs) or tissues containing GMOs. If Cytotoxic waste generated it must be placed within an approved purple cytotoxic bag or container. When this container is full, it is to be placed in a locked purple cytotoxic waste wheelie bin. Once the larger wheelie bin is full, its collection should be organized.	
Radioactive	Waste material, including sharps and clinical waste contaminated with a radioisotope which arises from the medical or research use of radionuclides, e.g. during nuclear medicine, radioimmunoassay and bacteriological procedures, and may be in solid, liquid or gaseous form, and which emits a level of radiation above the level set by regulatory authorities. Radioactive material to be stored onsite in appropriate storage area until it decays to below the thresholds of a "radioactive substance" as defined under the Radiation Control Act and Regulation. Handling and storage to comply with a Radiation Management Plan in accordance with the Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (ARPANSA 2008).	
Anatomical Waste	Identifiable human body parts such as limbs, organs, placenta and recognisable or large pathological specimens resulting from investigation or treatment of a patient It does not include deceased bodies.	

Please note: Containers shown above are examples only, please refer to supplier information.