



**ELEPHANTS
FOOT**
Consulting

Leppington Civic Centre - SSD-99319962
Mixed use development

WASTE MANAGEMENT PLAN

28/05/2026
Report No. 5970
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Client

Leppington (1) 88 Development Pty Ltd

Architect

DKO

[DKO – Architecture, Interior Design, Urban Design](#)

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GLOSSARY OF ABBREVIATIONS AND TERMS

TERM	DESCRIPTION
<i>Bin-Carting Route</i>	Travel path for transporting bins from their allocated storage location to the nominated collection point
<i>Bin Hoist</i>	A device used for lifting or lowering bins between different levels
<i>Bin Lifter</i>	A device used to mechanically lift bins for the purpose of emptying them into larger bins and/or compactors.
<i>Bin Mover</i>	Either a handheld device (commonly referred to as a bin tug) or a ride-on device (typically a tractor or Class C vehicle with an attached bin trailer) used to facilitate the movement of bins across long distances or up ramps
<i>Bulk Bins</i>	Containers with a capacity greater than 1100L designed to be collected by a front-loading vehicle
<i>Bulky Waste</i>	Recycling items that are too large to be deposited into bins, including furniture, whitegoods, electronics and mattresses
<i>Chute</i>	A vertical pipe passing from floor to floor of a building with openings at each level for the disposal of general waste, recycling or FOGO.
<i>Chute Discharge</i>	The termination point of a chute whereby the chute offsets deposited general waste, recycling or FOGO into bins
<i>Chute Discharge Room</i>	A room enclosing the termination point of the chute/s, including bins and volume handling equipment that is accessible only to the building caretaker
<i>Collection Area/Point</i>	Designated area or point where bins are loaded onto the collection vehicle for servicing
<i>Compactor</i>	A device used for compressing general waste inside it's bin typically at a ratio of 2:1
<i>Comingled Recycling</i>	Waste stream for the recycling of plastic bottles, other plastics, paper, glass and metal containers
<i>Communal Bin Room</i>	A central, shared bin room accessible to all residents or staff to dispose of their waste stream
<i>DA</i>	Development Application
<i>DCP</i>	Development Control Plan
<i>eDiverter</i>	A single chute fitted with a diversion system to allow two separate waste streams (typically general waste and recycling) to be disposed of concurrently.
<i>EPA</i>	Environment Protect Authority
<i>FOGO</i>	Food Organics and Garden Organics
<i>General Waste</i>	All non-recyclable and non-hazardous waste that is sent to landfill
<i>HRV</i>	Heavy Rigid Vehicle

<i>Kerbside Collection</i>	A collection arrangement whereby bins are presented in a single row along the kerb and serviced by a collection vehicle on the street.
<i>L</i>	Litre
<i>LEP</i>	Local Environmental Plan
<i>Mixed Use Development</i>	A development comprising a combination of both residential and commercial units or two or more different land uses within the one development.
<i>Mobile Bins</i>	Containers with a capacity up to and including 1100L designed to be collected by a rear-loading vehicle
<i>Multi-unit Residential Development</i>	Also known as MUD's, residential flat buildings, or apartment blocks, this is a residential development with multiple units that typically share facilities and services such as bins and collections.
<i>MRV</i>	Medium Rigid Vehicle
<i>Onsite Collection</i>	A collection arrangement whereby all bins are serviced by a collection vehicle within the property boundary, either in the building's basement or at grade and off-street.
<i>Owners Corporation</i>	An organisation or group of persons that is identified by a particular name and that acts, or may act, as an entity
<i>Paper/ Cardboard Recycling</i>	Waste stream for the recycling of paper and cardboard only.
<i>Recycling</i>	Waste stream that combines all recycling, including comingled recycling, paper/cardboard and metals.
<i>Ro-Ro Compactor Unit</i>	A large, portable compactor unit which is collected and serviced by a hook lift vehicle
<i>Service Bins</i>	Supplementary bins which are provided to residents or staff for use during collection periods either in communal bin rooms or under chutes
<i>Source Separation Receptacles</i>	Communal containers used throughout the development for the day-to-day disposal of different waste streams
<i>SRV</i>	Small Rigid Vehicle
<i>Volume Handling Equipment</i>	Equipment which comes in the form of either carousel or linear tracks positioned at the base of the chute/s to mechanically replace full bins with empty bins
<i>Waste Stream</i>	A classification used to describe waste of a particular type (e.g. food waste stream)
<i>WHS</i>	Workplace Health and Safety
<i>Wheel-Out Wheel Back</i>	A collection arrangement whereby a collection vehicle parks on the street and collection staff exit the vehicle to wheel each bin from a designated storage area to the vehicle for servicing and returns them upon completion.

1.0 ACKNOWLEDGEMENT OF COUNTRY

Elephants Foot Consulting (EFC) acknowledges that every project we work on takes place on First Peoples land. We recognise Aboriginal and Torres Strait Islander People as Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present.

2.0 INTRODUCTION

This Waste Management Plan (WMP) has been prepared by Elephants Foot Consulting on behalf of Leppington (1) 88 Development Pty Ltd to address the project-specific Secretary's Environmental Assessment Requirements (SEARs) issued the proposed State Significant Development Application (SSDA) SSD-99319962. The development is located at 173-183 Rickard Road, Leppington (the Site) and is located within the South West Growth Area (**SWGA**) within the Camden Local Government Area (**LGA**).

The project seeks detailed development consent for the construction of a mixed-use development to deliver Leppington Civic Centre, comprising shop top housing to support residential development and commercial land uses at 173-183 Rickard Road, Leppington.

Specifically, the SSDA seeks consent for:

- Demolition and earthworks to prepare the site for future development.
- Delivery of new roads and approximately 6,500 sqm of open space.
- Delivery of 8 residential buildings to accommodate a total of 1493 units, comprising of:
 - Build to Sell Apartments: 864
 - Build to Rent Apartments: 412
 - Affordable Apartments 217 (representing circa 15% of total residential yield)
- Delivery of a 156-key hotel (non-residential).
- Approximately 40,500 sqm of non-residential Gross Floor Area (GFA).
- Loading and car parking facilities on the lower ground and basement levels.

The proposed development is supported by concurrent rezoning application to seek amendments to Appendix 5 Camden Growth Centres Precinct Plan within the *State Environmental Planning Policy (Precincts – Western Parkland City) 2021* pursuant to the concurrent rezoning process through the Housing Delivery Authority (**HDA**) planning pathway. This concurrent rezoning will provide the rezoning and variations to development standards required to facilitate the delivery of the Leppington Civic Centre and Leppington Town Centre, generally in accordance with the Leppington Town Centre State-Assessed Rezoning Proposal (**SARP**).

Robust waste management strategies are required for new developments 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 and recycling provisions and procedures** are established 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 WMP identifies and details the following components:

- Waste streams expected to be generated onsite and anticipated volumes;
- Suitable bin sizes and quantities;
- Waste and recycling disposal procedures;
- Bin room size estimations and equipment recommendations; and
- Waste collection strategies, locations and frequencies.

It is vital that this WMP is integrated into the overall management of the building and is clearly communicated to all relevant stakeholders.

2.1 SCOPE OF REPORT

This WMP only applies to the **operational** phase of the proposed development; therefore, the requirements outlined in this WMP 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.

2.2 SEARS REPORTING

I, Ruban Jayaratnam, confirm this Operational Waste Management Plan addresses the requirement of SEAR No. 17 Waste Management and relevant State and local legislation, policies, and guidelines. I further confirm that none of the information contained in the Operational Waste Management Plan is false or misleading.

Regards

R. Jayaratnam

Table 1: SEARs Reporting Requirements (SEARS)

SEARs Request	Elephant Footh Response
• Provide the measures to be implemented to manage, reuse, recycle and safely dispose of waste, including in accordance with any council waste management requirements. • Identify appropriately sited waste storage areas, collection access paths/roads, and appropriate servicing arrangements for the site.	Please refer to sections 5, 6, 7, 9, 13, 14, 15 and 16

2.3 REPORT CONDITIONS

The purpose of this report is to document an WMP as part of a development application, which is supplied by EFC with the following limitations:

- Drawings, estimates and information contained in this WMP 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 WMP 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/caretaker 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 WMP 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 WMP unless specifically stated,
- Any manual handling equipment recommended in this WMP 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 WMP has been submitted to Council,
- EFC will provide specifications and recommendations on bin access and travel paths within the WMP, 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 WMP is only finalised once the draft watermark has been removed. If the draft watermark is present, the information in the WMP 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 WMP.

- 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 WMPs to be included in new development applications. This WMP is specifically required by:

- Camden Development Control Plan 2019
- Camden Local Environmental Plan 2010

The primary purpose of a Development Control Plan (DCP) is to guide the planning process 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 WMP comes from a wide range of waste management guidance at the local, state, and federal levels. The primary sources of guidance include:

- Camden Council Waste Management Guidelines, 2019: Section 4.6 Mixed Use Developments
- NSW Better Practice Guide For Resource Recovery In Residential Developments 2019
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste and Sustainable Materials Strategy 2041
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

4.0 DEVELOPMENT OVERVIEW

The project seeks detailed development consent for the construction of Leppington Civic Centre, comprising shop top housing to support residential development and commercial land uses at 173-183 Rickard Road, Leppington.

- Specifically, The SSDA seeks detailed consent for the following works:
 - Demolition of existing structures, clearing of vegetation and site preparation works across the site.
 - Subdivision of the site to create separate lots and road reserves.
 - Bulk earthworks and civil infrastructure works across the site.
 - Construction of an internal street (road) network.
 - Construction of 8 residential buildings to accommodate a total of 1493 units, comprising of:
 - Build to Sell Apartments: 864
 - Build to Rent Apartments: 412
 - Affordable Apartments 217 (representing circa 15% of total residential yield)
 - *Delivery of approximately 40,500m² of non-residential floor space, including:*
 - Hotel (with ancillary function spaces)
 - Centre-based child care facility, accommodating approx. 70 children.
 - Pub (licensed)
 - Shop – neighbourhood supermarket, discount department store (DDS), other retail
 - Retail liquor store
 - Food and beverage premises
 - Vehicle repair station – Tyre and auto, carwash
 - Recreation facility (indoor) – Indoor swim school, Gym
 - *Delivery of retail and residential parking spaces across seven (7) basement levels*
 - *Delivery of an active and connected public domain, including:*
 - *Approximately 6,500sqm of public open space in the form of north-south and east-west linear parks that connect with the broader town centre.*
 - *communal open space for all residential occupants and visitors.*
 - *Street landscaping, tree planting and public domain works throughout the site.*

- Installation of building signage to support wayfinding and building identification across the precinct.

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

4.1 SITE LOCATION

The site is located at 173-183 Rickard Road, Leppington as shown in Figure.1 (boundaries are indicative only). The site has frontages to Rickard Road, Byron Road extension with vehicle access via Byron Road or the proposed local road.

Figure 1: Site Location



Source: Urbis

5.0 RESIDENTIAL WASTE MANAGEMENT

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

5.1 RESIDENTIAL WASTE GENERATION ESTIMATES

The *Camden Development Control Plan 2019* and 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 residential units. Calculations are based on generic general waste, recycling and Food Organics and Garden Organics (FOGO) rates. Actual volumes of general waste, recycling and FOGO generated in operation may differ according to the residents' actual waste management practices.

The following tables shows the estimated volume (L) of general waste, recycling and FOGO generated by the residential component of the development.

Table 2: Estimated Waste and Recycling Volumes – Residential

Tower	# Units	General Waste Generation Rate (L/unit/week)	Generated General Waste (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recycling (L/week)	FOGO Waste Generation Rate (L/unit/week)	Generated FOGO Waste (L/week)
1	144	120	17280	120	17280	25	3600
2	210	120	25200	120	25200	25	5250
3	217	120	26040	120	26040	25	5425
4	168	120	20160	120	20160	25	4200
5	204	120	24480	120	24480	25	5100
6	138	120	16560	120	16560	25	3450
7	238	120	28560	120	28560	25	5950
8	174	120	20880	120	20880	25	4350
TOTAL	1493		179160		179160		37325
Bins & Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100	FOGO Waste Bin Size (L)	240
		General Waste Collections per Week	2	Recycling Collections per Week	2	FOGO Waste Collections per Week	1
		Total General Waste Bins Required	85	Total Recycling Bins Required	85	Total FOGO Waste Bins Required	159
Bins per Tower		Tower/Core	# Bins	Tower/Core	# Bins	Tower/Core	# Bins
		1	8	1	8	1	15
		2	12	2	12	2	22
		3	12	3	12	3	23
		4	10	4	10	4	18
		5	12	5	12	5	22
		6	8	6	8	6	15
		7	13	7	13	7	25
		8	10	8	10	8	19

Note: An additional bin 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.

Note: At the time of writing, Council do not have an active FOGO collection service. Provision for FOGO bins at this development have been included to account for a future FOGO collection service

5.2 RESIDENTIAL BIN SUMMARY

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

General Waste: 85 x 1100L bins collected **2 x weekly**

Recycling: 85 x 1100L bins collected **2 x weekly**

FOGO: 159 x 240L bins collected **1 x weekly**

Service Bins: 16 x 1100L bins

During operation, it is the responsibility of the building manager/caretaker to monitor the number of bins required for the residential component of the development. General waste, recycling and FOGO volumes may change according to residents' attitudes to waste disposal, building occupancy levels or the development's management. Any requirements for adjusting the capacity of the waste facilities may 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 RESIDENTIAL CHUTE DISCHARGE EQUIPMENT SUMMARY

It is strongly recommended that the bins and equipment at the base of each chute allows for at least 1 day's worth of general waste and recycling generation. Based on the estimated general waste and recycling volumes generated by each building/core, the following equipment is recommended:

Table 3: Chute Discharge Equipment Summary

Volume Handling Equipment							
General Waste				Recycling			
Tower	Generated General Waste (L/week)	# 1100L Bins Required for 1 day's Capacity	Recommended Chute Discharge Equipment	Tower	Generated Recycling (L/week)	# 1100L Bins Required for 1 day's Capacity	Recommended Chute Discharge Equipment
1	17280	2.24	3-Bin Linear System	1	17280	2.24	3-Bin Linear System
2	25200	3.27	4-Bin Carousel System	2	25200	3.27	4-Bin Carousel System
3	26040	3.38	4-Bin Carousel System	3	26040	3.38	4-Bin Carousel System
4	20160	2.62	3-Bin Linear System	4	20160	2.62	3-Bin Linear System
5	24480	3.18	4-Bin Carousel System	5	24480	3.18	4-Bin Carousel System
6	16560	2.15	3-Bin Linear System	6	16560	2.15	3-Bin Linear System
7	28560	3.71	4-Bin Carousel System	7	28560	3.71	4-Bin Carousel System
8	20880	2.71	3-Bin Linear System	8	20880	2.71	3-Bin Linear System

The above is a recommendation only and equivalent volume handling equipment may be used subject to equipment supplier's recommendation/review.

5.4 RESIDENTIAL WASTE DISPOSAL PROCEDURES

Each residential unit will be provided with a storage area capable of holding separate receptacles for general waste, recycling and FOGO. This is typically located within kitchen areas beneath the workbench. This space should be sized to accommodate 40L receptacles (minimum) to account for 2 days' worth of general waste, recycling and 20L for FOGO storage.

5.4.1 RESIDENTIAL GENERAL WASTE AND RECYCLING DISPOSAL PROCEDURES

Dual chute systems comprising of a single general waste chute and single recycling chute will be installed in each building core. Access will be provided to all residents on each residential level.

Residents will be responsible for walking their general waste and recycling to their allocated disposal point and placing their general waste into the general waste chute and recycling into the recycling chute.

Residents will wrap or bag their general waste before placing in the general waste chute. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm. Residents will be responsible for loosely placing their recycling into the recycling chute. Recycling should be clean and must not be bagged as soft plastics contaminate recycling.

Cardboard boxes or large containers should not be disposed of in the recycling chute. These items should be disposed of directly into the collection bins in coordination with the building manager/caretaker.

The general waste will discharge from the chute into 1100L bins on linear tracks and the recycling will discharge into 1100L bins on linear tracks in the Chute Discharge Rooms located on the ground level. Please note; compaction is not recommended for 1100L bins due to the weight of compacted materials.

The building manager/caretaker will monitor bin capacities under the dual chute systems and exchange full bins with empty bins on the track systems when required.

Full and spare bins will be kept in the Bin Holding Rooms located next to the loading bays found on lower ground and ground floors.

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

5.4.2 RESIDENTIAL FOGO DISPOSAL PROCEDURES

The majority of organics waste generated from multi-unit residential developments (MUD's) comprises of food waste as opposed to garden waste. As such, calculations and management recommendations provided in this report considers that FOGO bins will primarily comprise of food organics.

The residents of each unit will be provided with a kitchen caddy for the separation of FOGO. Food organics must be contained in accordance with Camden's Council's future FOGO collection service procedures (for example a compostable liner). Any plant clippings from residential units can also be disposed of with the FOGO.

The building will be provided with a Communal FOGO Bin Room which contains 240L bins for FOGO. The residents will be responsible for walking their own FOGO down to the Communal FOGO Bin Room and placing it into the bins.

Building management is responsible for ensuring that the Communal FOGO Bin Room and FOGO bins are washed down frequently to ensure that hygiene and odour is managed.

5.5 RESIDENTIAL BIN COLLECTION PROCEDURES

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

Prior to collections, the building manager/caretaker will be responsible for transporting the bins from Chute Discharge Room/s to the allocated collection points located on both the lower ground and ground levels. The building manager/caretaker is also responsible for ensuring that the bins are adequately arranged for an efficient collection. It is recommended that additional 1100L service bins be placed under the chute to collect discharge while the other bins are being serviced.

It is the responsibility of the building manager/caretaker to ensure that the loading area is clear of any vehicles or obstructions prior to waste collection.

On the day of collection, a Council collection vehicle will enter the site from Byron Road and park in either of the loading bays found on the ground floor and lower ground of the development. For the loading bay located on the lower ground it will utilise the turntable with the rear of the truck facing the residential bin holding room. The building manager/caretaker will be responsible for ensuring that the collection staff have access to the collection point. The collection staff will exit the vehicle and collect the bins from the Collection Points and return the empty bins once serviced.

Upon completion of servicing, the collection vehicle will exit the site onto either Byron Road or the local road in a forward direction. The building manager/caretaker is responsible for returning the bins to their operational location to resume use.

All access and clearances to the waste collection point must be able to accommodate a HRV per AS2890.2-2002/ Council's collection vehicle.

5.6 OTHER RESIDENTIAL WASTE MANAGEMENT CONSIDERATIONS

The following sections outline other waste management considerations for the residential components.

5.6.1 RESIDENTIAL COMMON AREAS

Residential common areas will be supplied with suitably branded source separation receptacles where considered appropriate. Receptacles should be placed in convenient locations which are accessible to all residents. The building manager/caretaker will monitor the capacity of these receptacles and empty the contents into the central collection bins as required.

5.6.2 LANDSCAPED AREAS AND GARDEN ORGANICS

Garden organics generated from landscaped areas and indoor foliage typically consists of lawn clippings, cuttings, leaves and branches.

Garden organics generated from landscaped areas will be managed and removed from the site by the designated landscaping contractors as they carry out scheduled landscaping maintenance works.

Garden organics generated from within residential units will be managed by the residents and should be disposed of into the FOGO bins.

5.6.3 RESIDENTIAL BULKY WASTE PROCEDURES

An area will be made available for the storage of discarded residential bulky waste items (e.g. whitegoods, furniture, etc.). This room should be located within close proximity of the collection point and must have a minimum doorway width of 1.5m to facilitate the movement of large items in and out of the room.

Camden Council requires that size of the Bulky Waste Room provided is proportional to the number of units in the building at a rate of 6m² for every 20 units with maximum area of 24m². Based on this rate, the Bulky Waste Rooms for each of the towers required for each building is 24m².

As dual chute systems are proposed across the development, additional space is required to accommodate two 1100L recycling bins for bulk cardboard disposal within each bulky waste room.

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the Bulky Waste Room. It is the caretaker's responsibility to arrange collection dates with Council and coordinate these times with the residents.

Prior to bulky waste collections, the building manager/caretaker will transport the bulky waste items from the Bulky Waste Rooms on basement 01 of the following buildings to the residential bin holding rooms located on the lower ground and ground floor of the development.

On the day of collection, a Council collection vehicle will park on either loading bay located in the development. Collection staff will collect the bulky waste items from the Collection Points (Bin Holding Rooms). Once bulky items have been loaded onto the vehicle, the Council collection vehicle will move along Rickard Road or local road in a forward direction.

6.0 HOTEL WASTE MANAGEMENT

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

6.1 HOTEL WASTE GENERATION ESTIMATES

The *Camden Council: Waste Management Guideline August 2019* and *City of Sydney Council's Guidelines for Waste Management in New Developments 2018* has been referenced to calculate the total number of bins required for the hotel. Calculations are based on generic general waste and recycling rates. Actual volumes of general waste and recycling generated in operation may differ according to the hotels' actual waste management practices.

The following tables shows the estimated volume (L) of general waste and recycling generated by the hotel development.

The following estimates are based on a seven-day operating week.

Table 4: Estimated General Waste and Recycling Volumes – Hotel

Hotel	Rooms	General Waste Generation Rate (L/room/day)	Generated General Waste (L/week)	Recycling Generation Rate (L/room/day)	Generated Recycling (L/week)
	156	10	7800	5	3900
Tenancy Type	Floor Area	General Waste Generation Rate (L/100m ² /day)	Generated General Waste (L/week)	Recycling Generation Rate (L/100m ² /day)	Generated Recycling (L/week)
Restaurant	675	200	9450	200	9450
Offices	490	10	343	10	343
Gymnasiums	195	20	273	15	205
TOTAL			17866		13898
Bins & Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		General Waste Bins per Day	2.3	Recycling Bins per Day	1.8
		General Waste Collections per Week	5	Recycling Collections per Week	5
		Total General Waste Bins Required	4	Total Recycling Bins Required	3

Table 5: Estimated Food Waste Volumes – Hotel

Tenancy Type	Floor Area (m ²)	Food Waste Generation Rate (L/100m ² /day)	Generated Food Waste (L/week)
Gymnasiums	195	5	68
Offices	490	5	172
Restaurant	675	100	4725
TOTAL	1360		4965
Bins & Collections		Food Waste Bin Size (L)	240
		Food Waste Bins per Day	3.0
		Food Waste Collections per Week	5
		Total Food Waste Bins Required	5

6.2 HOTEL BIN SUMMARY

Based on the estimated waste and recycling volumes generated by the hotel development, the recommended bin quantities and collection frequencies are as follows:

General Waste: 4 x 1100L bins collected **5 x weekly**

Recycling: 3 x 1100L bins collected **5 x weekly**

Food Waste: 5 x 240L bins collected **5 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager/caretaker 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 should also be considered.

6.3 HOTEL WASTE DISPOSAL PROCEDURES

6.3.1 HOTEL SUITES

All hotel suites will be supplied with general waste and recycling source separation receptacles suitable for two days' storage capacity. Guests are encouraged to dispose of general waste into the designated general waste receptacle and recycling into the designated recycling receptacle.

On a daily basis hotel cleaners will collect bagged waste and loose recycling from each suite whilst undertaking cleaning duties and transfer items to the central Hotel Bin Room, via the lifts.

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

6.3.2 HOTEL DINING

Kitchens within the hotel dining areas will be provided with general waste and recycling source separation bins for use during daily operations.

Hotel staff will be responsible for monitoring the capacity of bins and transferring bagged waste and loose recycling to the central Hotel Bin Room when required.

6.3.3 COMMON AREAS

Hotel common areas will be supplied with suitably branded source separation receptacles where considered appropriate. Receptacles should be placed in convenient locations which are accessible to guests and staff.

Hotel cleaners will monitor the capacity of these receptacles and empty the contents into the central collection bins as required.

6.3.4 LANDSCAPED AREAS AND GARDEN ORGANICS

Garden organics generated from surrounding landscaped areas and indoor foliage typically consists of lawn clippings, cuttings, leaves and branches.

Garden organics generated from surrounding landscaped areas will be managed and removed from the site by the designated landscaping contractors as they carry out scheduled landscaping maintenance works.

6.3.5 WASHROOM FACILITIES

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.

6.4 HOTEL BIN COLLECTION PROCEDURES

A private waste contractor will be engaged to collect the hotel general waste and recycling to an agreed collection schedule. This report assumes that general waste and recycling will be collected five times weekly.

Prior to the day of collection, the Hotel management will move the bins from the hotel bin room to retail bin room located next to located bay on the ground floor. On the day of collection, a collection vehicle will enter the site from local road and park in the loading bay located on the ground floor. Hotel Management will be responsible for ensuring that the collection staff have access to the collection point. The collection staff will exit the vehicle and collect the bins from the collection point and return the empty bins once serviced.

Upon completion of servicing, the collection vehicle will exit the site onto local Road in a forward direction. The building manager/caretaker is responsible for returning the bins to their operational location to resume use.

Please note: The collection of hotel bins should occur on separate days from the collection of residential bins to ensure proper segregation of waste streams.

7.0 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.

7.1 WASTE GENERATION ESTIMATES

The *Camden Development Control Plan 2019* and *City of Sydney Guidelines for Waste Management in New Developments 2018* has been referenced to calculate the total number of bins required for the anticipated tenants. Calculations are based on generic generation rates. Actual volumes of waste and recycling may differ in operation according to the tenants' actual waste management practices.

The following tables shows the estimated volume (L) of general waste; recycling and food waste that will be generated by the retail tenants. It is assumed that tenancies will share bins, bin storage facilities and collections. These estimates are based on a seven-day operating week.

Table 6: Estimated Food Waste Volumes – Retail

Tenancy Type	Floor Area (m ²)	Food Waste Generation Rate (L/100m ² /day)	Generated Food Waste (L/week)
Food and Beverage	1054	100	7378
Mini Majors	3349	25	5861
Car Wash	140	5	49
Tyre & Auto	193	5	68
Family Entertainment	679	5	238
Pub	656	40	1837
Swim School	648	5	227
Fitness	1060	5	371
General Retailing	10500	5	3675
TOTAL	18279		19703
Bins & Collections		Food Waste Bin Size (L)	240
		Food Waste Bins per Day	11.7
		Food Waste Collections per Week	5
		Total Food Waste Bins Required	17

Table 7: Estimated Waste Volumes – Retail

Tenancy Type	NLA m ²	Waste Generation Rate (L/100m ² /Day)	Generated Waste (L/Week)	Compacted Generated Waste (3:1) (L/Week)
Fitness	1060	20	1484	494.7
Swim School	648	20	907.2	302.4
Retail	10500	80	58800	19600.0
Food & Beverage	1054	180	13280.4	4426.8
Pub	656	100	4592	1530.7
Family Entertainment	679	5	237.65	79.2
Car wash	140	80	784	261.3
Tyre & Auto	193	200	2702	900.7
Mini Major	3349	180	42197.4	14065.8
TOTALS			124984.65	41661.6
Bins and Collections		Equipment Size (L)		23000
		Equipment/ Week		1.81

Table 8: Estimated Recycling Volumes – Retail

Tenancy Type	NLA m ²	Recycling Generation Rate (L/100m ² /Day)	Generated Recyclables (L/Week)	Compacted Paper/ Cardboard (Compacted 5:1) (2/3 of Total Recycling) (L/Week)	Commingled Recyclables (1/3 of Total Recycling) (L/Week)
Fitness	1060	15	1113	144.7	389.6
Swim School	648	15	680.4	88.5	238.1
Retail	10500	80	58800	7644.0	20580.0
Food & Beverage	1054	180	13280.4	1726.5	4648.1
Pub	656	150	6888	895.4	2410.8
Family Entertainment	679	10	475.3	61.8	166.4
Car wash	140	80	784	101.9	274.4
Tyre & Auto	193	150	2026.5	263.4	709.3
Mini Major	3349	450	105493.5	13714.2	36922.7
TOTALS			189541.1	24640.34	66339.39
Bins and Collections		Bin Size (L)		23000	1100
		Bins/ Week		1.071	60.31
		Collection/Week			5
		Total Bins			13

Table 9: Estimated Waste, Food and Recycling Volumes – Childcare

# Children	General Waste Generation Rate (L/child/day)	Generated General Waste (L/week)	Recycling Generation Rate (L/child/day)	Generated Recycling (L/week)	Food Waste Generation Rate (L/child/day)	Generated Food waste (L/week)
70	5	2450	5	2450	15	7350
Bins & Collections	General Waste Bin Size (L)	240	Recycling Bin Size (L)	240	Food Waste Bin Size (L)	240
	General Waste Bins per Day	1.5	Recycling Bins per Day	1.5	Food Waste Bins per Day	4.4
	General Waste Collections per Week	4	Recycling Collections per Week	4	Food waste Collections per Week	4
	Total General Waste Bins Required	3	Total Recycling Bins Required	3	Total Food waste Bins Required	8

7.2 BIN SUMMARY

Based on the estimated waste and recycling volumes generated the commercial and retail tenancies, the recommended bin quantities and collection frequencies are as follows:

- General Waste:** 1 x 23m³ compactor (3:1 compaction ratio) collected **2 x weekly.**
- Recycled Paper/Cardboard:** 1 x 23m³ compactor (5:1 compaction ratio) collected **1 x weekly.**
- Commingled Recycling:** 13 x 1100L bins collected **5 x weekly.**
- Food Waste:** 17 x 240L Bins collected **5 x weekly.**

The childcare facility will not utilise the compactors/bins listed above and will have its own separate waste room, bins and collection contract in place as per the below:

- General Waste:** 3 x 240L bins collected **4 x weekly.**
- Recycling:** 3 x 240L bins collected **4 x weekly.**
- Food Waste:** 8 x 240L Bins collected **4 x weekly.**

Compactor/bin sizes, quantities, and/or collection frequencies may be modified by management once the proposed development is operational. 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.

7.3 WASTE DISPOSAL PROCEDURES

All tenancies will be responsible for their own general waste, food waste and recycling disposal procedures within their own vicinity. On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recycling to the retail bin room on the ground floor and place into the appropriate collection bins.

7.4 WASTE COLLECTION PROCEDURES

A private waste contractor will be engaged to service the retail general waste and recycling bins as per an agreed collection schedule. This report assumes that all waste streams are collected five times per week.

On the day of service, a private waste collection vehicle will enter the site from the local road and park in the loading area located on the ground floor. The building manager/caretaker will provide the driver with access to the retail bin room. Once the bins are serviced, the collection vehicle will exit the site onto local road in a forward direction.

Please note: The collection of retail bins should occur on separate days from the collection of residential bins to ensure proper segregation of waste streams.

7.5 SEPERATE CHILDCARE WASTE DISPOSAL AND COLLECTION PROCEDURES

Waste generated by childcare centres typically consists of soiled nappies, wipes, food scraps, other general waste, and recyclables. Dedicated bins should be allocated for general waste (including disposable nappies) and recycling.

Childcare staff will be responsible for storing the waste and recyclables back of house during daily operations. General waste and recycling receptacles should be paired next to each other

in convenient locations such as offices, kitchens, and playrooms. The receptacles should be kept in locations that cannot be accessed by the children.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport the waste and recyclables to the separate childcare bin room and place into the designated 240L bins.

A private waste collection contractor will be engaged to service the childcare waste and recycling bins per an agreed schedule. This report assumed that waste and recycling will be collected 4 x weekly.

Prior to day of collection, the bins will be transported from the childcare bin room to the collection point located on the ground floor. On the day of service, a private waste collection vehicle will enter the site from local road and park in the loading bay next to the retail bin room. The bins will be collected directly from the retail bin room via a collect and return arrangement. The childcare management is responsible for returning the bins to their operational location to resume use.

It is recommended that collection occurs outside the childcare operating hours to minimise conflicts with other traffic movements.

7.6 MAJOR SUPERMARKET AND RETAIL TENANCIES

Both major supermarket and retail tenancies are 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 the designing the layout of their loading docks.

Waste and recyclables generated by major supermarket and retail tenancies will be stored and managed separately from all other tenancies (commercial/retail, and the medical facility). In general, it is expected that the supermarket staff will dispose of waste and recyclables near the loading area, and an appointed waste collection contractor will remove the waste from the loading area or waste room on an arranged schedule.

7.6.1 ESTIMATED WASTE AND RECYCLING

The *City of Sydney Guidelines for Waste Management in New Developments 2018* has been referenced to calculate the estimated general waste; food waste and recycling generated by the major tenants. Calculations are based on generic figures; waste generation rates may differ according to the tenants' waste management practice.

The table below estimates the volumes of waste and recyclables likely to be generated by both major supermarket and retail tenancies. A seven-day operating week is assumed. All figures and calculations are based on the architectural plans.

Table 10: Estimated General and Recyclables Volumes – Major Supermarket and Retail Tenancies

Tenancy Type	Floor Area (m ²)	General Waste Generation Rate (L/100m ² /day)	Generated General Waste (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)
Major Supermarket	4347	75	22822	400	121716	25	7607
Major Retail	5703	40	15968	300	119763	10	3992
TOTAL	10050		22822		121716		7607

Note: Waste Room Areas and Equipments are to be determined by the Coles and Kmart tenancies

7.6.2 WASTE COLLECTION AND DISPOSAL PROCEDURES

Both major supermarket and retail tenancies will be responsible for back of house waste management throughout daily operations. At the end of the day or as required nominated Coles and Kmart staff will transport the waste and recycling to the loading dock and place the items into the correct equipment.

All waste management for major supermarket and retail tenancies will be handled in the loading dock area and removed from the loading dock by their appointed waste services provider. This will be outlined in further detail, separately with the major supermarket and retail tenancies' waste management plan according to the nationwide store policies and procedures.

To be outlined separately with major supermarket and retail tenancies' waste management plan according to the nationwide store policies and procedures. All waste collection will occur via the dedicated loading dock located on the lower ground.

7.7 OTHER RETAIL WASTE MANAGEMENT CONSIDERATIONS

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

7.7.1 WASHROOM FACILITIES

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.

7.7.2 LIQUID WASTE

Liquid wastes as such cleaning products, chemicals, paints, solvents, and motor and cooking oil will be stored in a secure room and enclosed by a low wall intended to contain any liquid spillage or inundation to other areas. Liquid waste will be drained to a grease trap, in accordance with legislation and the requirements of State government authorities and agencies. Further information can be provided by the Services Consultant.

7.7.3 PROBLEM WASTE

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

Problem waste streams include chemical waste, liquid wastes, toner cartridges, lightbulbs, e-waste and batteries.

8.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 11: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata, Body Corporate or Management	- Co-ordinate the waste strategy within the site. - 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	- Co-ordinate general waste, recycling and FOGO collections - Clean and transport bins as required. - Maintain and clean chute doors on each level. - Organise replacement or maintenance requirements for bins. - Organise, maintain and clean bin storage areas. - Organise bulky waste collections 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 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.
Retail Tenants	- Management co-ordinates own private contractor collections. - Manage general waste and recycling within their tenancy during daily operations. - Correctly separate general waste and recycling streams. - 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, and - Ensure the suitable storage for chemicals, pesticides and cleaning products waste back of house.
Waste Collection Contractor	- Provide a reliable and appropriate bin collection service. - Provide feedback to building managers/residents regarding contamination of recyclables; and - Work with building managers/caretakers to customise waste systems where possible.
Gardening/Landscaping Contractor	Remove all garden organics generated during gardening maintenance activities for recycling at an offsite location.
Developer	Purchase all equipment required to implement this WMP prior to the occupation of the building to be provided to the Strata or Body Corporate.

9.0 SOURCE SEPERATION

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 12: 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. May include soft plastics, food scraps, polystyrene, etc.	Landfill	Waste should be bagged before placing in chutes, or in designated waste bins.
Recycling	A mixture of items that are commonly recycled usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons). Also included cardboard and paper products.	Resource Recovery Centre	Recycling must not be bagged, and instead should be placed loosely in the designated recycling chute. Bulky cardboard must not be placed in any chute. Cardboard should be flattened before placing in the designated recycling bin.
FOGO	FOGO consists of unwanted or uneaten kitchen scraps that are easily compostable/biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds) and garden organics including lawn clippings, leaves, pruning's and branches.	Composting Facility	FOGO should be bagged in compostable liners when deposited into the chute/s or bins and will be collected by Council. Garden organics will be collected in Council or private contractor bins and removed from site.
Food Waste	Food waste consists of 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/caretaker arranges collection for e-waste recycling as needed by residents. Commercial tenants arrange for recycling of their own e-waste.
Bulky Waste Items	Items that are 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/caretaker to store in Bulky Waste Room. Building manager/caretaker arranges with Council for removal. Retail tenants are responsible for removal of their bulky items.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager/caretaker arranges collection by appropriate recycling services when required.

10.0 EDUCATION

Educational material encouraging correct separation of general waste, recycling and FOGO must be provided to each resident and 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 provide information in multiple languages to support correct behaviours, and to minimise the possibility of chute blockages and contamination in communal bins.

Education and communication must be provided consistently on a regular basis 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 general waste, recycling and FOGO streams (refer to Council guidance);
- How to dispose of bulky waste and any other items that are not general waste, recycling or FOGO (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).

10.1 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 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/caretaker 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.

11.0 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

12.0 BIN WASHING

The bins will be cleaned by the building manager/caretaker periodically to ensure hygiene and minimise odour.

Bin washing can occur within the bin rooms, using the room clean down facilities (i.e tap connection and drain). Alternatively, a specialist bin washing contractor can be engaged to clean the bins to an agreed schedule. The specialist bin contractor would collect the bins from the bin holding area and clean the bins with their specialised vehicle.

13.0 BIN MOVING PATHS

The building manager/caretaker is responsible for the transportation of bins from their designated operational locations to the collection area, returning them once emptied to resume operational use.

Any movement of bins should minimise manual handling where possible, as bins become heavy when full. The building manager/caretaker 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.

If the distance of the bin moving paths exceeds 10m, a bin moving device will be required to aid the movement of full bins. The developer is responsible for supplying 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 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.

14.0 EQUIPMENT SUMMARY

Table 13: Equipment Summary

	Part	Qty	Notes
Chutes	Please refer to supplier's information	8	(See APPENDIX: B.1 for Typical Dual Chute Layout)
Chute Equipment	Waste 3-bin 1100L Bin Linear Track System 4-bin 1100L Bin Carousel System	6 2	(See APPENDIX: B.2 for Typical Linear System) (See APPENDIX: B.3 for Typical Carousel)
	Recycling 3-bin 1100L Bin Linear Track System 4-bin 1100L Bin Carousel System	6 2	(See APPENDIX: B.2 for Typical Linear System) (See APPENDIX: B.3 for Typical Carousel)
Other Equipment	Suitable Bin Moving Equipment	2	(See APPENDIX: D.1 and APPENDIX: D.2 for Typical Bin Movers)

15.0 WASTE ROOMS

The areas allocated for waste storage and collection areas are detailed in the table below and are estimates only.

The equipment recommended in the chute discharge rooms is to manage 1 day's worth of estimated general waste and recycling from that building core. Therefore, this represents the minimum equipment required in these rooms to satisfy best practice requirements. Additional bins or volume handling equipment can be included in these rooms to increase days of capacity or manual labour required in operation.

Table 14: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area Required (m ²)	Actual Area Required (m ²)
Basement 01	Chute Discharge Room – Tower 1	General Waste: 1 x 3-1100L bin Linear system General Waste service bin: 1 x 1100L bin Recycling: 1 x 3-1100L bin linear system Recycling service bin: 1 x 1100L bin General Waste: 8 x 1100L bins Recycling: 8 x 1100L bins	94.0	128.4
Basement 01	FOGO Bin Room – Tower 1	15 x 240L bins	13.0	13.1
Basement 01	Bulky Waste Room – Tower 1		24.0	24.6
Basement 01	Chute Discharge Room – Tower 2	General Waste: 1 x 4-1100L bin carousel system General Waste service bin: 1 x 1100L bin Recycling: 1 x 4-1100L bin carousel system Recycling service bin: 1 x 1100L bin General Waste: 12 x 1100L bins Recycling: 12 x 1100L bins	129.0	139.2
Basement 01	FOGO Bin Room – Tower 2	22 x 240L bins	19.0	19.0



Basement 01	Bulky Waste Room – Tower 2		24.0	25.2
Basement 01	Chute Discharge Room – Tower 3	General waste: 1 x 4-1100L bin carousel system General waste service bin: 1 x 1100L bin Recycling: 1 x 4-1100L bin carousel system Recycling service bin: 1 x 1100L bin General waste: 12 x 1100L bins Recycling: 12 x 1100L bins	129.0	156.0
Basement 01	FOGO Bin Room – Tower 3	23 x 240L bins	20.0	31.0
Basement 01	Bulky Waste Room – Tower 3		24.0	32.7
Basement 01	Chute Discharge Room – Tower 4	General waste: 1 x 3-1100L bin linear system General waste service bin: 1 x 1100L bin Recycling: 1 x 3-1100L bin linear system Recycling service bin: 1 x 1100L bin General waste: 10 x 1100L bins Recycling: 10 x 1100L bins	95.8	95.8
Basement 01	FOGO Bin Room – Tower 4	18 x 240L bins	16.0	19.5
Basement 01	Bulky Waste Room – Tower 4		24.0	25.9
Basement 01	Chute Discharge Room – Tower 5	General waste: 1 x 4-1100L bin carousel system General waste service bin: 1 x 1100L bin Recycling: 1 x 4-1100L bin carousel system Recycling service bin: 1 x 1100L bin	129.0	121.3



		General Waste: 12 x 1100L bins Recycling: 12 x 1100L bins		
Basement 01	FOGO Bin Room – Tower 5	22 x 240L bins	19.0	18.8
Basement 01	Bulky Waste Room – Tower 5		24.0	24.3
Basement 01	Chute Discharge Room – Tower 6	General waste: 1 x 3-1100L bin linear system General waste service bin: 1 x 1100L bin Recycling: 1 x 3-1100L bin linear system Recycling service bin: 1 x 1100L bin General Waste: 8 x 1100L bins Recycling: 8 x 1100L bins	94.0	107.4
Basement 01	FOGO Bin Room – Tower 6	15 x 240L bins	13.0	13.0
Basement 01	Bulky Waste Room – Tower 6		24.0	24.2
Basement 01	Chute Discharge Room – Tower 7	General waste: 1 x 4-1100L bin carousel system General waste service bin: 1 x 1100L bin Recycling: 1 x 4-1100L bin carousel system Recycling service bin: 1 x 1100L bin General Waste: 13 x 1100L bins Recycling: 13 x 1100L bins	134.0	165.2
Basement 01	FOGO Bin Room – Tower 7	25 x 240L bins	22.0	21.4
Basement 01	Bulky Waste Room – Tower 7		24.0	28.9
Basement 01	Chute Discharge	General waste: 1 x 3-1100L bin linear system	105.0	146.4



	Room – Tower 8	General waste service bin: 1 x 1100L bin Recycling: 1 x 3-1100L bin linear system Recycling service bins: 1 x 1100L bins General Waste: 10 x 1100L bins Recycling: 10 x 1100L bins		
Basement 01	FOGO Bin Room – Tower 8	19 x 240L bins	17.0	20.6
Basement 01	Bulky Waste Room – Tower 8		24.0	72.3
Lower Ground Floor	Residential Bin Holding Room (lower ground-Towers 1 to 4)	General waste: 46 x 1100L bins Recycling: 46 x 1100L bins FOGO: 78 x 240L bins 1x bin mover	336.0	393.3
Loading Dock (Ground Floor)	Retail Compactors	General Waste: 1 x 23m ³ compactor Recycled Paper/Cardboard: 1 x 23m ³ compactor	61.0	61
Ground Floor	Residential Bin Holding Room (Ground – Towers 5 to 8)	General waste: 47 x 1100L bins Recycling: 47 x 1100L bins FOGO: 81 x 240L bins 1 x bin mover	345	449.0
Basement 01	Hotel Bin Room	General waste: 4 x 1100L bins Recycling: 3 x 1100L bins Food waste: 5 x 240L bins	25.0	25.9
Ground Floor	Retail Bin Room (Collection Point)	<u>Larger of the two options:</u> Option 1: Include hotel bins General waste: 4 x 1100L bins Recycling: 3 x 1100L bins Commingled Recycling: 13 x 1100L bins Food waste: 22 x 240L bins Option 2: Include Childcare bins General waste: 3 x 240L bins Recycling: 3 x 240L bins Commingled Recycling: 13 x 1100L bins Food waste: 25 x 240L bins	77.0	76.0

Level 1	Childcare Bin Room	General waste: 3 x 240L bins Recycling: 3 x 240L bins Food waste: 8 x 240L bins	11.0	24.6

EFC recommends bins sizes, collection frequencies and/or equipment for best practice waste management at this site, however EFC also acknowledges there are a range of other 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.

In addition, all doorways and passageways facilitating the movement of bins and/or bulky waste items must be at least 1800mm wide.

The following table provides further waste room requirements.

Table 15: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Room	• 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 chute 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 30 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.
Communal FOGO Rooms	• Bins should be arranged so that all bins are accessible. Bins are not to be placed in front of one another or in such a way as to restrict access to the other bins for use. • Rooms must be well ventilated either naturally or mechanically in accordance with AS1668.4.2012 • Cleaning facilities such as hose cock and drainage for odour and hygiene control must be provided. • It is recommended a dustpan and broom is provided in this room for residents to clean up unexpected spillages when using bins.
Bulky Waste Room	• 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 1800mm wide
Retail/Hotel Bin/Childcare Bin Room	• In order to ensure staff safety, all bins should be arranged so they can be accessed without moving another bin • Bins must be coordinated with the hinge of the lid facing the back. This is to allow for ideal access to the bin.

16.0 MITIGATION MEASURES

The table below presents a summary of measures to mitigate waste-related impacts during the construction and operational phases of the activity.

Mitigation Name	When is Mitigation Measure to be complied with	Mitigation Measure	Action/responsible
Recycling and Reuse	Operation	Provide recycling bins to recover valuable materials from waste.	Retail tenants will dispose of their recycling into the bins provided. Residents will dispose their general waste and recycling into the allocated disposal point found on on each level.
Food Organics and Garden Organics	Operation	Provide FOGO bins to help divert organic waste from landfills.	Residents will dispose of their FOGO into the bins provided within the residential FOGO room. This could include food scraps, garden clippings, and other biodegradable materials. Retail tenants will dispose of their FO into the 240L FO bins provided in the Retail Bin Room.
Education	Operation	Educational material encouraging correct separation of general waste, recycling and FOGO must be provided to each worker, resident and tenant.	Building management provide information in multiple languages to support correct behaviours, and to minimise the possibility of chute blockages and contamination in communal bins. The building operator will ensure everyone is aware of the importance of waste minimisation and how to dispose of waste correctly. Signage will be provided in the chute rooms and bin rooms.
Policy and Regulation Compliance	Operation	Regularly review and update waste management plans to comply with environmental regulations.	Building management to regularly review the policies to ensure they remain in line with evolving environmental regulations, and best practices.

17.0 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Camden Development Control Plan 2019*, 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.

17.1 ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two-pack epoxy;
- All corners coved and sealed 1,200mm up, this is to eliminate build-up of dirt;
- Hot and cold water 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.

18.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Camden Customer Service Ph: (02) 4654 7777 E: mail@camden.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

Capital City Waste Services Ph: 02 9599 9999 E: service@ccws.net.au
 Sydney Waste Ph: 02 8661 0031
 Waste Clear Ph: 1300 525 352 E: admin@wasteclear.com.au

BIN MOVING DEVICE SUPPLIERS

Elephants Foot Equipment Ph: 1300 435 374 E: equipment@elephantsfoot.com.au
 Sitecraft Ph: 1300 363 152 E: sales@sitecraft.com.au

BALER SUPPLIERS

Elephants Foot Equipment Ph: 1300 435 374 E: equipment@elephantsfoot.com.au

ORGANIC DIGESTERS AND DEHYDRATORS

Elephants Foot Equipment Ph: 1300 435 374 E: equipment@elephantsfoot.com.au
 Waste Master Ph: 1800 614 272 E: hello@wastemasterpacific.com.au

COOKING OIL CONTAINERS AND DISPOSAL

Cookers Ph: 1300 882 299 E: info@cookers.com.au
 Auscol Ph: 1800 629 476 E: sales@auscol.com

ODOUR CONTROL

Elephants Foot Equipment Ph: 1300 435 374 E: equipment@elephantsfoot.com.au

SOURCE SPERATION BINS

Method Recycling Ph: 0499 890 455

BINS AND BIN EQUIPMENT

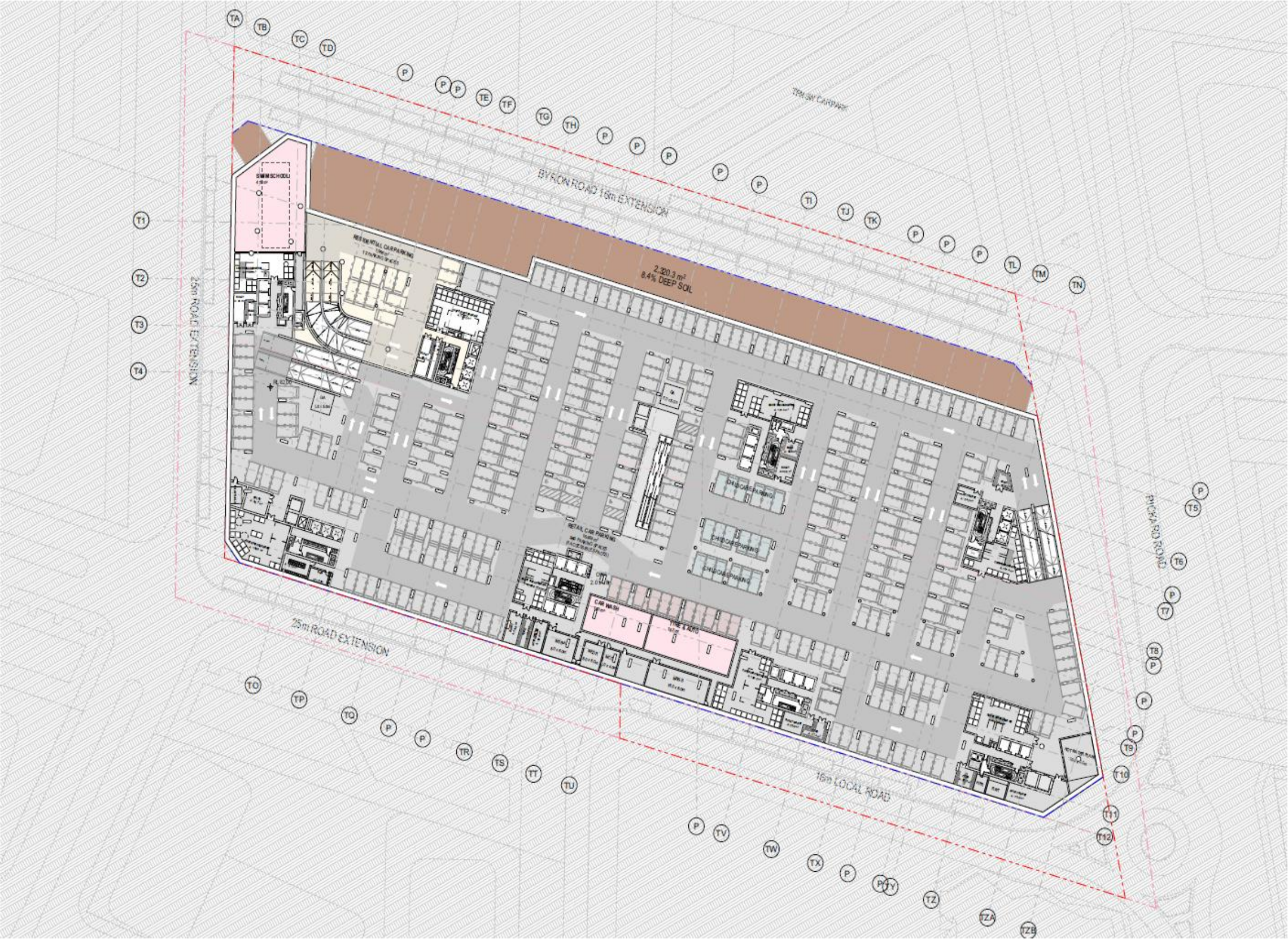
Elephants Foot Equipment Ph: 1300 435 374 E: equipment@elephantsfoot.com.au
 SULO Ph: 1300 364 388 E: sulosales@pactgroup.com

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

Elephants Foot Chute Solutions Ph: 1300 435 374 E: chutes@elephantsfoot.com.au

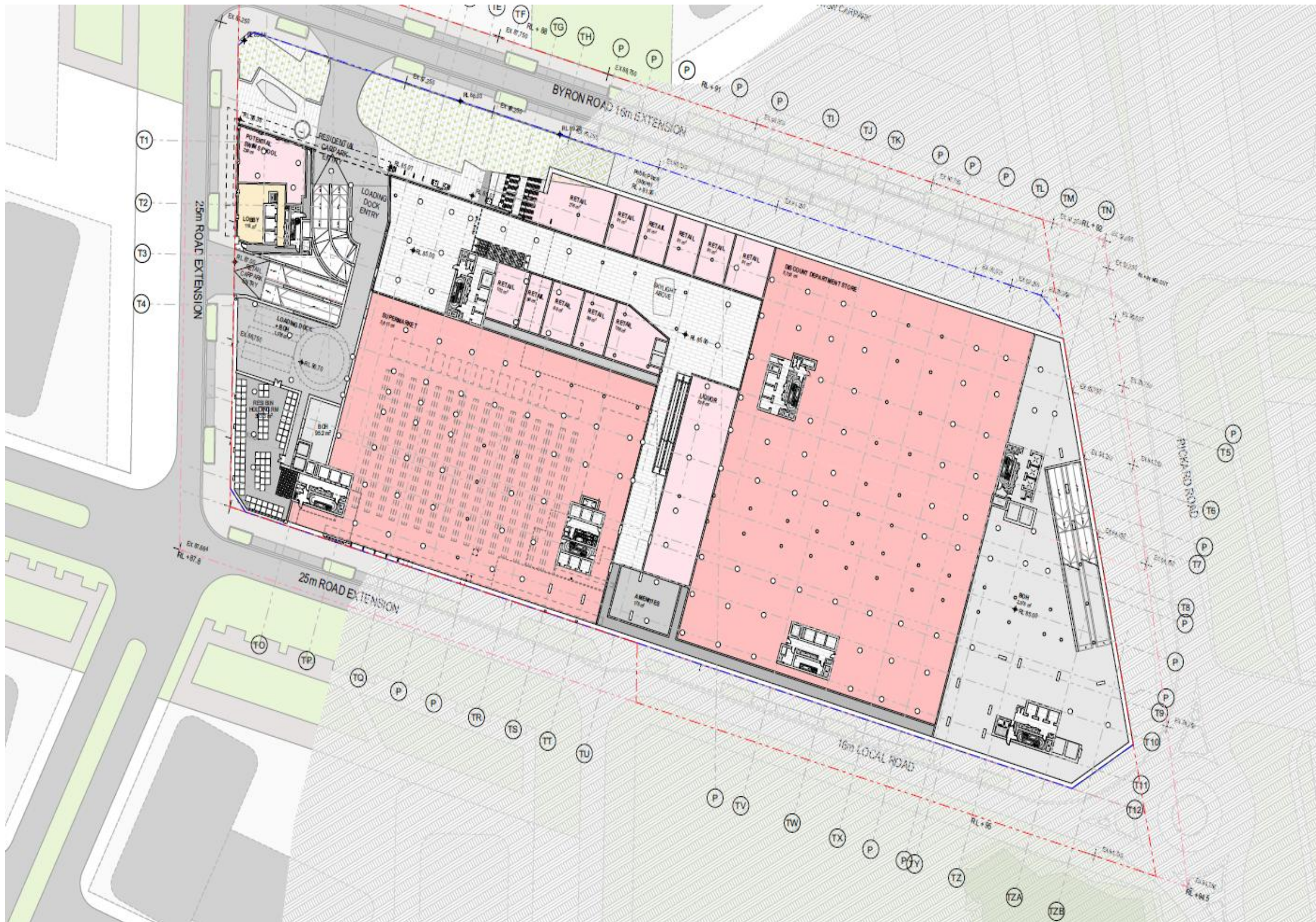
APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 BASEMENT 01 FLOOR PLAN



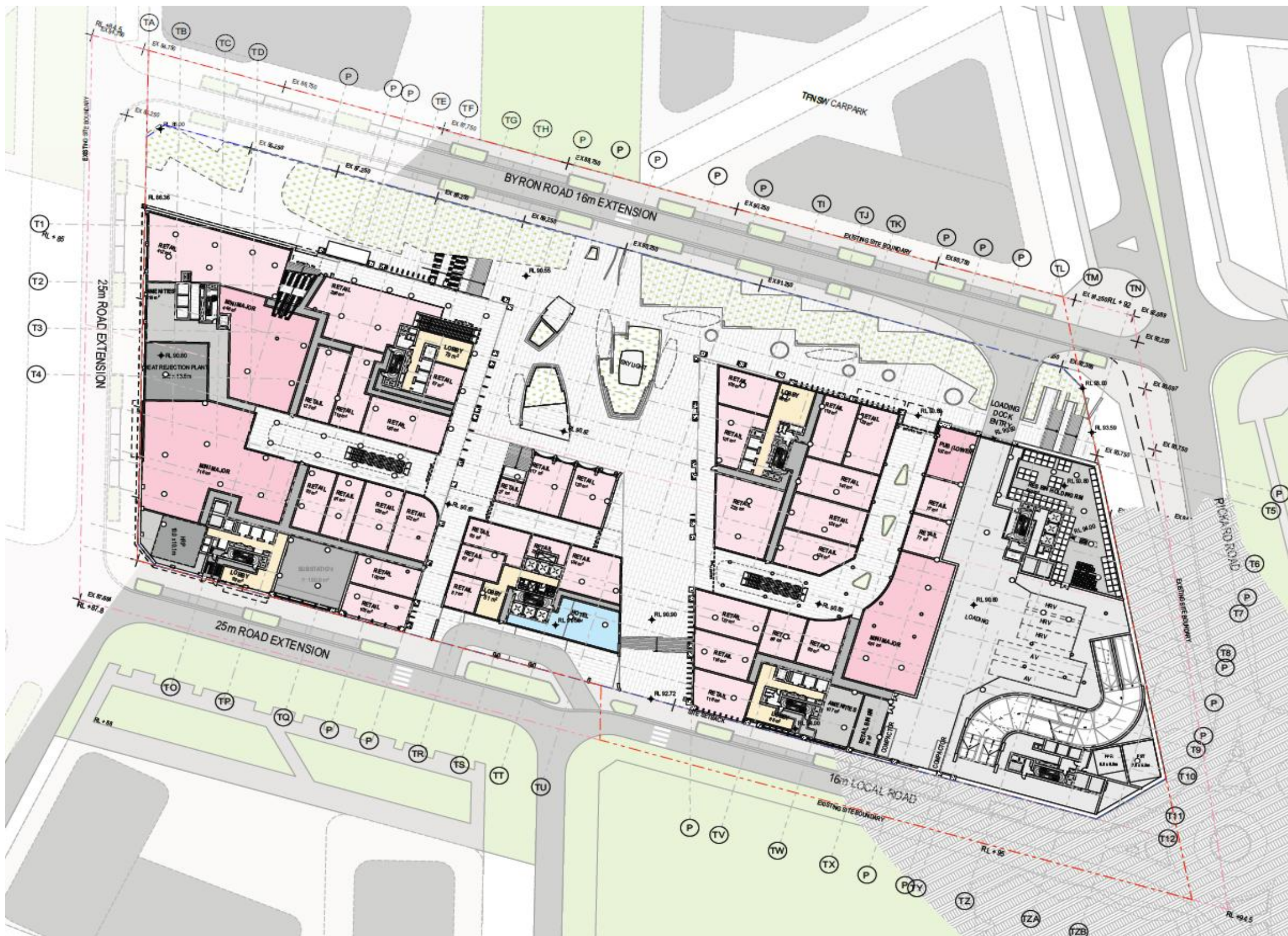
Source: DKO, Drawing no. DA206, Rev P3 - Basement 01

APPENDIX: A.2 LOWER GROUND FLOOR PLAN



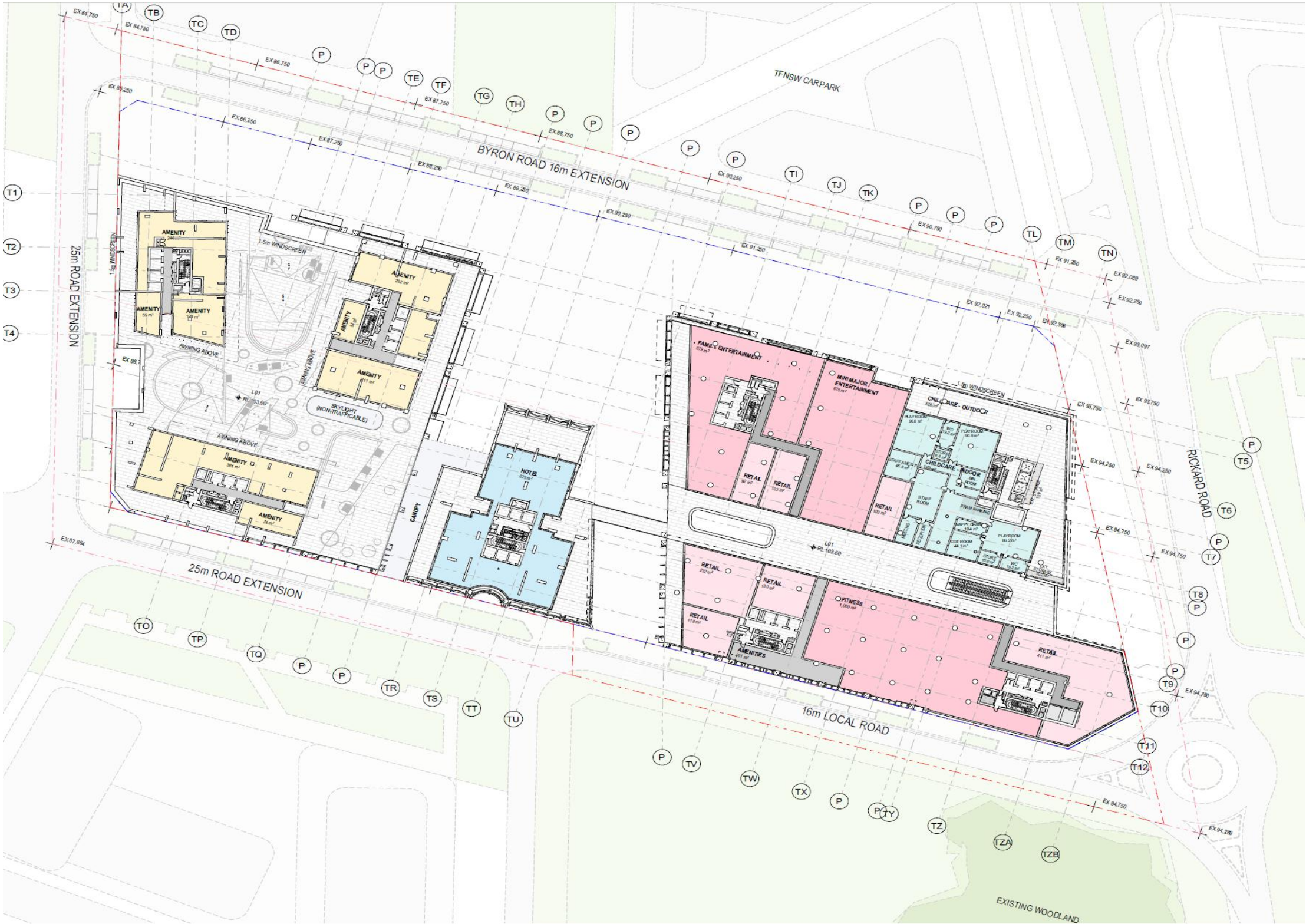
Source: DKO, Drawing No. DA207, Rev. P3 – Lower Ground

APPENDIX: A.3 GROUND FLOOR PLAN



Source: DKO, Drawing No. DA208, Rev. P3 - Ground Floor

APPENDIX: A.4 LEVEL 1 FLOOR PLAN



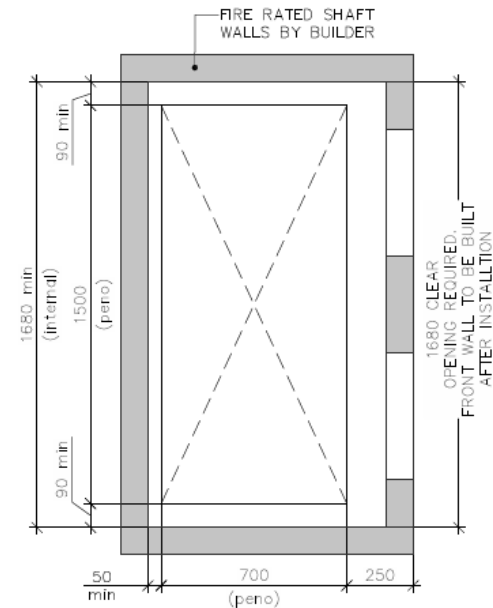
Source: DKO, Drawing No. DA208, Rev. P3 – Level 1 Floor

APPENDIX B: INSTALLATION EQUIPMENT

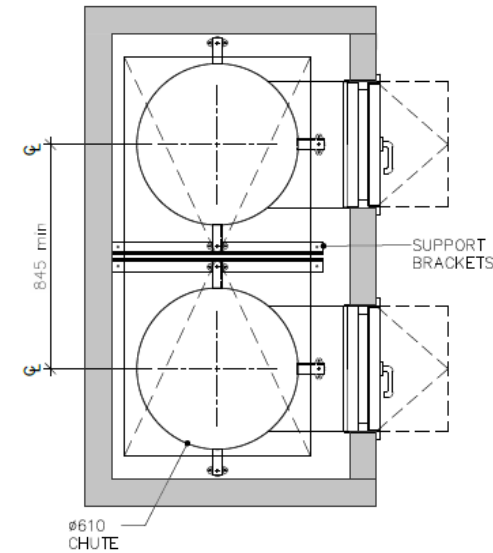


CHUTE SHAFT & PENETRATION SET-OUT

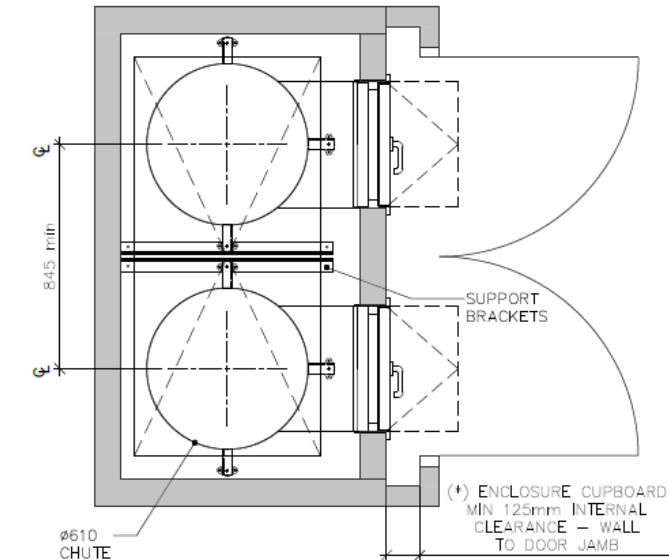
DUAL Ø610 STEEL



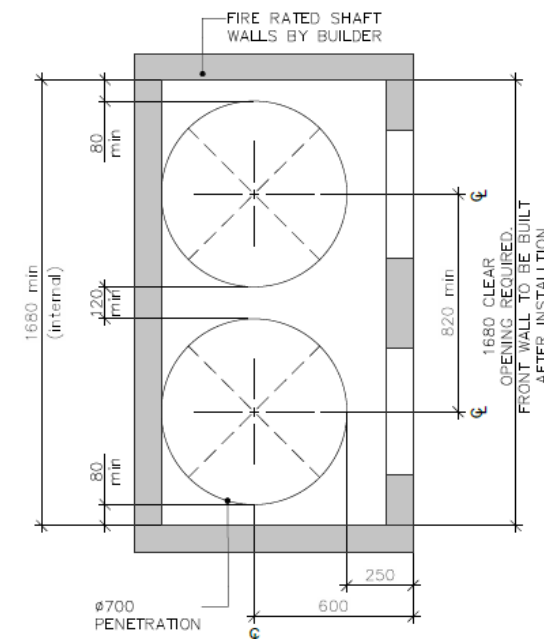
01 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT PENETRATION SET-OUT



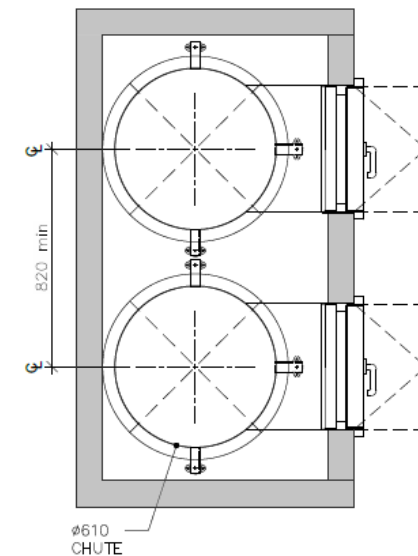
02 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT



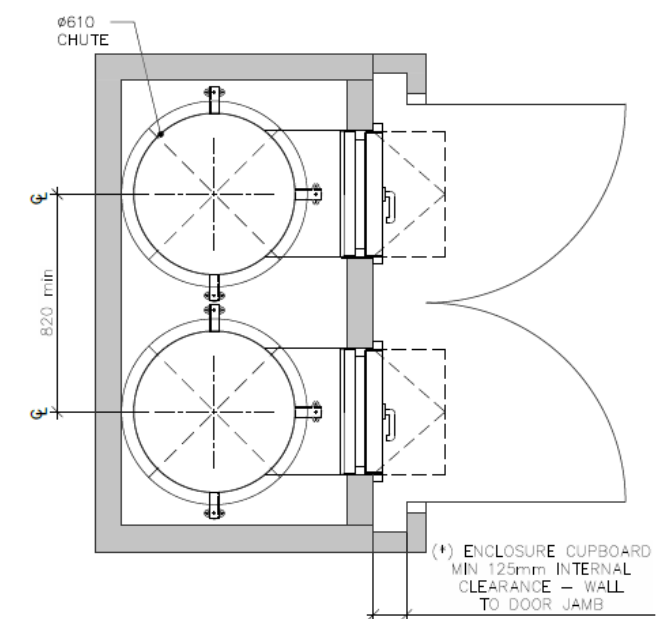
03 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT with ENCLOSURE CUPBOARD (*)



04 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT WITH CIRCULAR PENETRATION SET-OUT



05 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT (W/ CIRCULAR PENETRATION)



06 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT with ENCLOSURE CUPBOARD (*)

(*) 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.

SCALE 1:25 @ A3

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

APPENDIX: B.2 TYPICAL LINEAR TRACK SYSTEM FOR 1100L BINS



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)

1100 LITRE LINEAR TRACK SYSTEM

PRODUCT INFORMATION

Elephants Foot 1100 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 the standard 2 bin option. Our 3 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	1.1
Maximum bin load	440 kg
Noise (dBA)	<85
Bin Size (L)	1100
Cycle time (sec)	60
Bin Quantity options	2 or 3

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

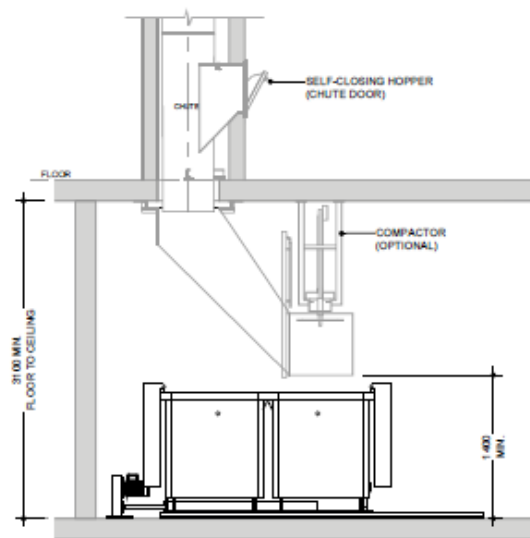
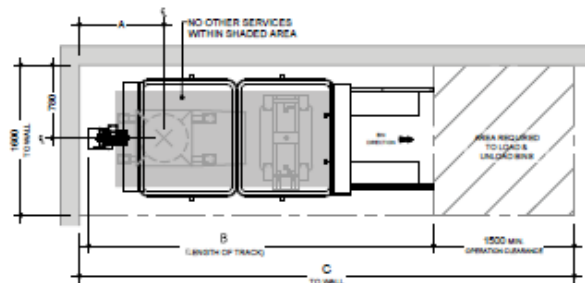


1,100 LITRE LINEAR TRACK SYSTEM



No. of Bins	Reference (mm)		
	A	B	C
2	900	3700	5300
3	2100	5940	7550

Available with or without compaction unit, our standard 1100 litre bin Linear Track System is available in the standard 2 bin option. Our 3 Bin option is available as a special order.



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: B.3 EXAMPLE CAROUSEL SYSTEM FOR 1100L BINS



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)

1100 LITRE CAROUSEL SYSTEM

PRODUCT INFORMATION

Elephants Foot 1100 Litre bin Carousel System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Carousel 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 positioned on the unit. Electromechanically driven with automated operation, the Carousel System automatically replaces full bins by a revolving circular platform. Once all the bins on the system 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 660litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	0.37
Maximum bin load	440 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, 4 or 5

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

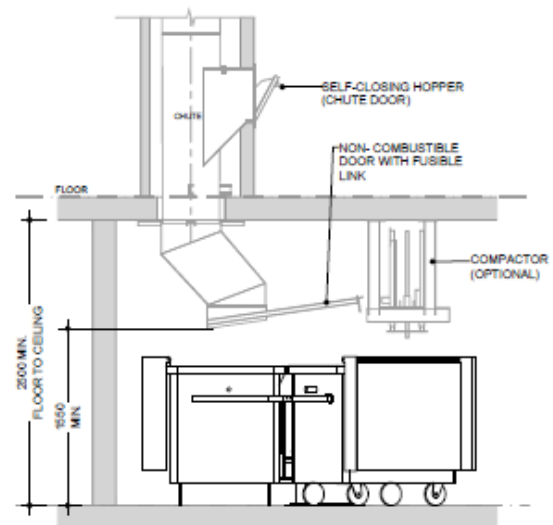
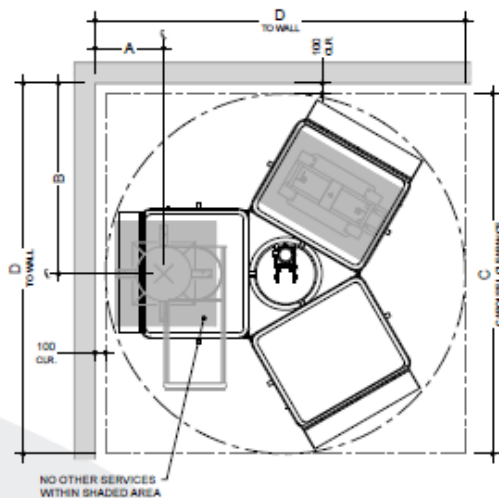
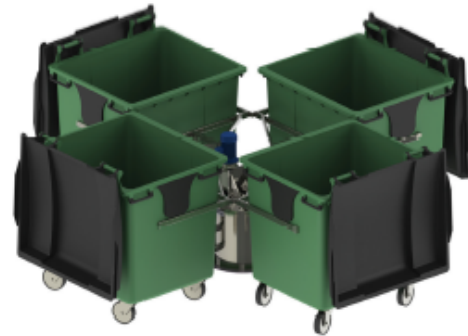
- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development.
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet 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



1,100 LITRE CAROUSEL SYSTEM

No. of Bins	Reference (mm)			
	A	B	C	D
2	650	1700	3200	3350
3	650	1850	3480	3600
4	650	2050	3940	4050

Available with or without compaction unit, our standard 1100 litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 Bin option is available as a special order.



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



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

Wheelie bin

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



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

Dome or flat lid container

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 EXAMPLE 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

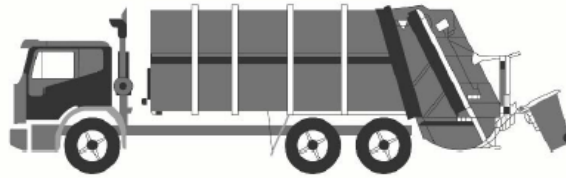
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	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

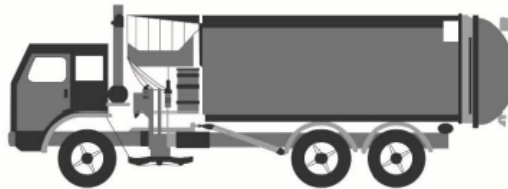
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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 D: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX: D.1 EXAMPLE HANDHELD BIN MOVERS

movexx
smart electric tugs

MOVEXX T2500 BIN MOVER BATTERY ELECTRIC

Movexx T2500 Tow Tug is an extremely user friendly battery powered mobile towing unit that is ideal for applications where trolleys and rolling objects need to be moved from one place to another simply, efficiently and without physical effort. Some standard features included are: battery indicator, on board battery charger, battery, adjustable handle, dual speed and electric brake.

These units are fitted with an electromagnetic brake system for use on ramps and slopes

Features

- Electromagnetic brake for use on ramps and slopes
- Adjustable height handle



SPECIFICATION				
MODEL	DIMENSIONS (MM)	OPTIONS	PULL - PUSH CAPACITY (KG)	BATTERY
T2500-D	511 (w) x 757 (l)	* Centre mount 2x 240 lt. wheelie bin attachment	2500	AGM batteries 2x 85AH up to 8 hrs continuous operation
TOWING CAPACITY - ON FLAT GROUND (all models)			TOWING CAPACITY - SLOPE (all models)	
Towing up to 4x 660 lt. Wheelie Bin			Towing up to 2x 660 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)	
Towing up to 4x 1100 lt. Wheelie Bin			Towing up to 1x 1100 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)	
**Electromagnetic brake for use on ramps and slopes				



Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: D.2 EXAMPLE SEATED BIN MOVERS



MOTREC MT180 36V BATTERY ELECTRIC BIN MOVER

This hardworking tow device delivers outstanding performance. With its efficient motor and 4,500kg push-pull capacity. The MT180 is ideal for moving bin trailer also narrow enough to fit through most door openings. From its all-steel construction to its all-wheel braking, this tow tractor is built for years of heavy use in total comfort and safety. All this combined with superior AC technology makes short work of tough requests.

Features

- Front & rear brakes
- Pneumatic Tyres
- Comfortable ergonomic adjustable seat
- Complete with headlight, break lights, tailing lights & horn



SPECIFICATION

MODEL	DIMENSIONS (MM)	OPTIONAL EXTRAS	PULL - PUSH CAPACITY (KG)	BATTERY
MT180 36V	760 (w) x 2030 (l) x 1160 (h)	Flashing light on pole Conditional registration kit Cabin includes windscreen Weather Curtains	4500	48v TPPL battery pack, 157AH

TOWING CAPACITY - ON FLAT GROUND / SLOPE (all models) (all models)

Towing up to 5x 660 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)

Towing up to 4x 1100 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)



Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: D.3 EXAMPLE BIN TRAILERS



BIN TRAILER WITH ALUMINUM RAMP

Bin trailer suitable for moving 240lt, 660lt and 1,100lt bins including a 1200mm rear ramp complete with locking latches and gas strut assist. Height draw bar fitted with a jockey wheel large pneumatic tyres with precision bearing hubs.



SPECIFICATION

MODEL	DIMENSION (MM)	SUITABLE FOR MOVING	PART NUMBERS	REAR RAMP DIMENSION (MM)
4x Bins Trailer	Internal - 1560 (l) x 1200 (w)	4x 240lt. Wheelie Bin	78811604	1200mm rear ramp complete with positive locking and gas strut assist
	External - 2300 (l) x 1500	2x 660lt. Wheelie Bin		
		1x 110lt. Wheelie Bin		
6x Bins Trailer	Internal - 2350 (l) x 1200 (w)	6x 240lt. Wheelie Bin	78811065	1200mm rear ramp complete with positive locking and gas strut assist
	External - 3100 (l) x 1500 (w)	3x 660lt. Wheelie Bin		
		2x 1100lt. Wheelie Bin		
8x Bins Trailer	Internal - 3200 (l) x 1200 (w)	8x 240lt. Wheelie Bin	78811066	1200mm rear ramp complete with positive locking and gas strut assist
	External - 3900 (l) x 1500 (w)	4x 660lt. Wheelie Bin		
		3x 1100lt. Wheelie Bin		
10x Bins Trailer	Internal - 3900 (l) x 1200 (w)	10x 240lt. Wheelie Bin	78811067	1200mm rear ramp complete with positive locking and gas strut assist
	External - 4600 (l) x 1500 (w)	5x 660lt. Wheelie Bin		
		4x 1100lt. Wheelie Bin		

OPTIONS

- Full registration
- Upgrade Includes : Lights | Wiring | Suspension | aaa Tyres | Compliance Plate

Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: D.4 EXAMPLE BIN TOWING ATTACHMENTS



UNIVERSAL BIN TOWING ATTACHMENTS

SUITE 660LT / 1100LT WHEELIE BINS

PARTS & FEATURES

Front Only - Part Number: 78811672

- Suit Sulo & Otto 600lt / 1100lt MGBs
- Spring loaded draw bar folds up
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used

Rear Only - Part Number: 78811673

- Suit Sulo & Otto 600lt / 1100lt MGBs
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used

For Steel Bin Front Only - Part Number: 78811781

- Suit Sulo & Otto 600lt / 1100lt MGBs
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used

Direction Lock : 53191001

- Suit Sulo & Otto 600lt / 1100lt MGBs
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used



Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: D.5 EXAMPLE BALER

EF 300

This baler is suitable for premises with substantial waste. It produces an excellent bale of plastic or cardboard. It is an excellent starter machine for mill size bales.

EF300 baler produces bales of cardboard up to 250kg, making it possible to gain revenue on bales. It can be used to bale a range of materials including plastic and cardboard.

Features

- Two hand control for safe bale ejection
- Produces up to 250 kg bale cardboard which can be sold
- Visual bale full indicator informs operator when bale is full
- Automatic cycle saves labour time
- User friendly push button controls
- Robustly constructed for long life
- IP55 rated so machine can be situated outdoors

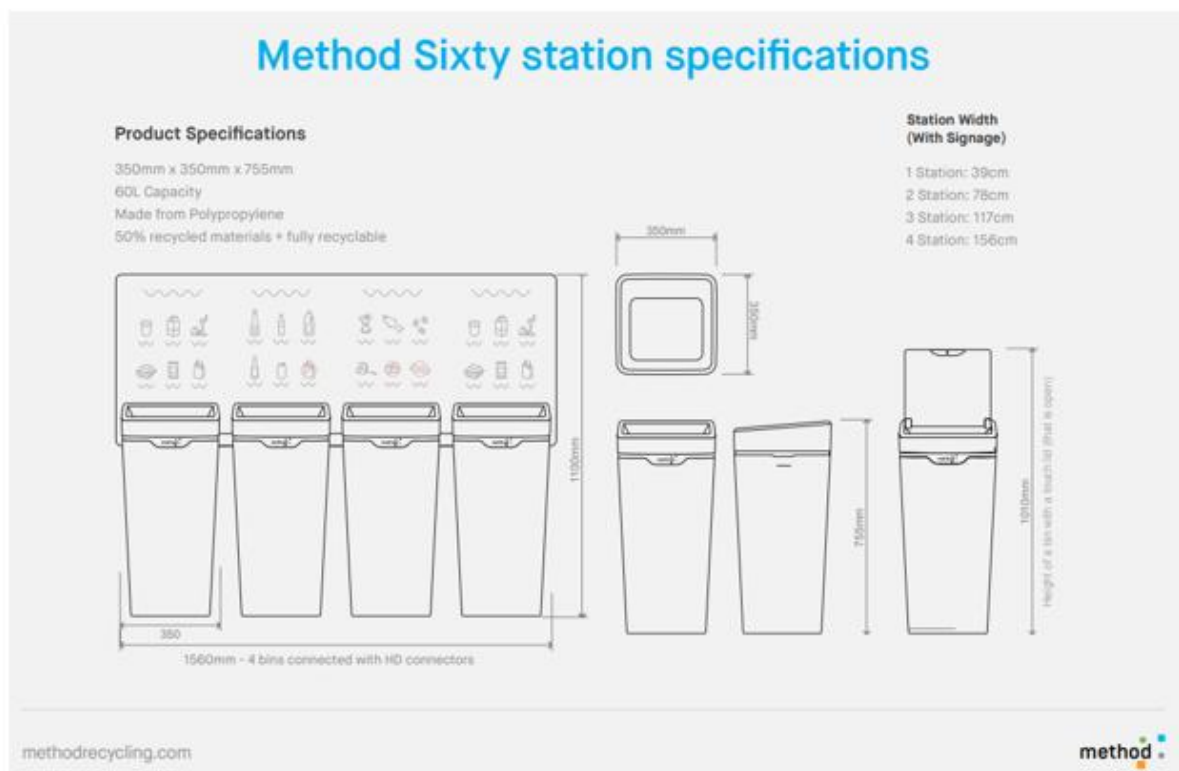
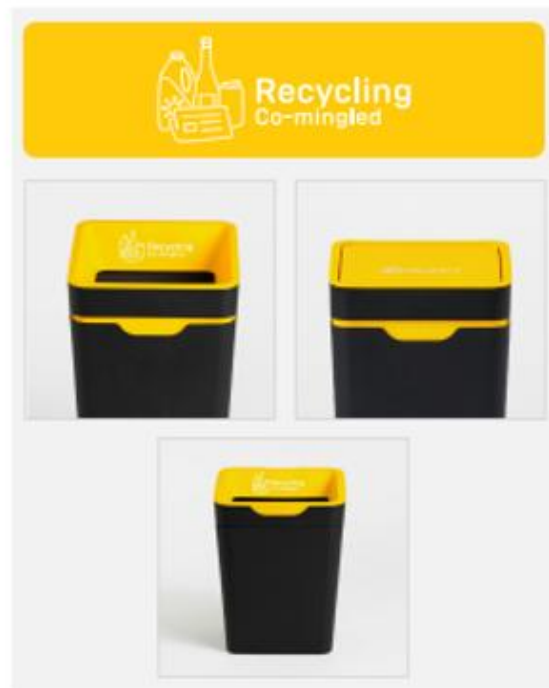
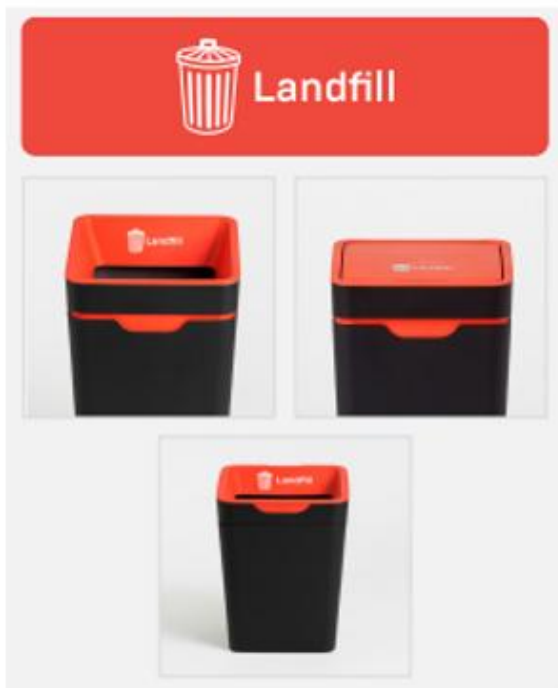


Specifications	
Dimensions HxWxD	2900x1500x1050
Feed Opening L x H (mm)	1100x500
Weight (Kg)	1900
Cycle Time (sec)	30
Compaction Force (T)	30
Power Supply (V)	415v 3 phase 20A
Motor (kW)	5.5kw
Chamber Height (mm)	1400
BALE DIMENSIONS	
HxWxD (mm):	900x700x1100
Bale Weight (kg):	Up to 250 (cardboard)

Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Elephants Foot Equipment - www.elephantsfoot.com.au/equipment/

APPENDIX: D.6 EXAMPLE SOURCE SEPARATION RECEPTACLES



Source: Method Recycling - www.methodrecycling.com