



Consulting.TM
an Elephants Foot Company

Building C4 Stage 2 Midtown Precinct
Macquarie Park
Residential Development

OPERATIONAL WASTE MANAGEMENT PLAN

11/11/2025
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Client

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GLOSSARY OF ABBREVIATIONS AND TERMS

TERM	DESCRIPTION
<i>Baler</i>	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
<i>Bin-carting Route</i>	Travel route for transferring bins from the storage area to a nominated collection point
<i>Chute</i>	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
<i>Chute Discharge</i>	The point at which refuse exits from the refuse chute
<i>Chute Discharge Room</i>	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
<i>Collection Area/Point</i>	The identified position or area where general waste or recyclables are loaded onto the collection vehicle
<i>Compactor</i>	A machine for compressing waste into disposable or reusable containers
<i>Composter</i>	A container/machine used for composting specific food scraps
<i>Crate</i>	A plastic box used for the collection of recyclable materials
<i>DA</i>	Development Application
<i>DCP</i>	Development Control Plan
<i>EPA</i>	Environmental Protection Authority
<i>HRV</i>	Heavy Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
<i>L</i>	Litre(s)
<i>LEP</i>	Local Environmental Plans guide planning decisions for local government areas
<i>Liquid Waste</i>	Non-hazardous liquid waste generated by commercial premises that must be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
<i>Mixed Use Development</i>	A development comprised of two or more different uses
<i>MUD</i>	Multi-Unit Dwellings comprise of a development with more than one dwelling. This ranges from dual occupancies and attached dwellings to high-rise residential developments
<i>Mobile Garbage Bin(s) (MGB)</i>	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
<i>MRV</i>	Medium Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities

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

1.0 ACKNOWLEDGEMENT OF COUNTRY

Elephants Foot Consulting 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

Elephants Foot Consulting (EFC) has been engaged to prepare the following waste management plan for the operational management of waste generated by the residential development located at Building C4 Stage 2 Midtown Precinct, Macquarie Park.

Waste management strategies and audits are required for new developments in order to support the design and sustainable performance of the building. It is EFC's belief that a successful waste management strategy contains three key objectives:

- i. **Promote responsible source separation** to reduce the amount of waste that goes to landfill by implementing convenient and efficient waste management systems.
- ii. **Ensure adequate waste provisions and robust procedures** that will cater for potential changes during the operational phase of the development.
- iii. **Comply** with all relevant council codes, policies, and guidelines.

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

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

2.1 SCOPE OF REPORT

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

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

2.2 REPORT CONDITIONS

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

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

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

3.0 LEGISLATION & GUIDANCE

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

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

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

- City of Ryde Development Control Plan 2014
- City of Ryde Local Environmental Plan 2014

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

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

- City of Ryde Development Control Plan 2014 – Part 7.2 Waste Minimisation and Management
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Better practice guide for resource recovery in residential developments 2019
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

4.0 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of City of Ryde Council, and consists of:

- Two building with 24 levels in the Building C4.1 and 17 levels in the Building C4.2. As well as 2 basement levels shared by both buildings. Which consists of;
 - 519 residential units in total separated into the following
 - C4.1 – Tower has a total of 303 units across two cores;
 - C4.1 North has 113 units
 - C4.1 South has 190 units
 - C4.2 – Tower has a total of 211 units across two cores;
 - C4.2 Social North has 113 units
 - C4.2 Social South has 98 units
 - 5 Townhouses
 - A 331m² office tenancy for Community Housing Providers in the C4.2

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 in the Ivanhoe Precinct in Macquarie Park as shown in Figure.1. The site has street frontages to proposed new roads.

Figure 1: Site Location



Source: Ivanhoe Estate Masterplan

5.0 RESIDENTIAL WASTE MANAGEMENT

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

5.1 RESIDENTIAL WASTE GENERATION ESTIMATES

The *City of Ryde Development Control Plan 2014 – Part 7.2 Waste Minimisation and Management* has been referenced to calculate the total number of general waste and recycling bins required. The NSW EPA's *Better Practice Guide For Resource Recovery In New Development* (2019) has been referenced to calculate the number of FOGO bins required.

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

Table 1: Estimated Waste and Recycling Volumes – Residential

Building/ Core	# Units	General Waste Generation Rate	Generated General Waste	Recycling Generation Rate	Generated Recycling	
		(L/unit/week)	(L/week)	(L/unit/week)	(L/week)	
<i>C4.1 - North (BTS)</i>	113	120	13560	80	9040	
<i>C4.1 South (Social)</i>	190	120	22800	80	15200	
<i>C4.2 - Social North</i>	113	120	13560	80	9040	
<i>C4.2 - Social South</i>	98	120	11760	80	7840	
<i>Townhouses</i>	5	140	700	240	1200	
TOTAL	519		62380		42320	
Bins and Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	660	
		General Waste Bins per Week	56.71	Recycling Bins per Week	64.12	
		General Waste Collections per Week	3	Recycling Collections	2	
		Total General Waste Bins Required for Collection	19	Total Recycling Bins Required for Collection	33	
	Number of Waste Bins Per Day	<i>C4.1 - North (BTS)</i>	1.76	Number of Recycling Bins Per Day	<i>C4.1 - North (BTS)</i>	1.96
		<i>C4.1 South (Social)</i>	2.96		<i>C4.1 South (Social)</i>	3.29
		<i>C4.2 - Social North</i>	1.76		<i>C4.2 - Social North</i>	1.96
		<i>C4.2 - Social South</i>	1.53		<i>C4.2 - Social South</i>	1.70

5.2 RESIDENTIAL BIN SUMMARY

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

General Waste: 19 x 1100L Bins collected **3 x weekly**

5x 140L Bins collected **1x weekly**

Recycling: 33 x 660L Bins collected **2 x weekly**

5x 240L Bins collected **1x weekly**

Food Organics: 5x 240L Bins collected **1x weekly**

Service Bins: 3x 1100L Bins & 3x 660L Bins

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

5.2.1 RESIDENTIAL BIN SUMMARY - EACH BUILDING CORE

The following section outlines the number of bins required for each residential building core or component.

C4.1 North Tower

General Waste: 4 x 1100L Bins collected **3 x weekly**

Recycling: 7 x 660L Bins collected **2 x weekly**

Service Bins: 1x 1100L Bins & 1x 660L Bins

Food Organics: 1x 240L Bins collected **1x weekly**

C4.1 South Tower

General Waste: 7 x 1100L Bins collected **3 x weekly**

Recycling: 12 x 660L Bins collected **2 x weekly**

Service Bins: 1x 1100L Bins & 1x 660L Bins

Food Organics: 1x 240L Bins collected **1x weekly**

C4.2 Social Tower North

General Waste: 4 x 1100L Bins collected **3 x weekly**

Recycling: 7 x 660L Bins collected **2 x weekly**

Service Bins: 1x 1100L Bins & 1x 660L Bins

Food Organics: 1x 240L Bins collected **1x weekly**

C4.2 Social Tower South

General Waste: 4 x 1100L Bins collected **3 x weekly**

Recycling: 6 x 660L Bins collected **2 x weekly**

Service Bins: 1x 1100L Bins & 1x 660L Bins

Food Organics: 1x 240L Bins collected **1x weekly**

Townhouses

General Waste: 5 x 140L Bins collected **1 x weekly**

Recycling: 5 x 240L Bins collected **1 x weekly**

Food Organics: 1x 240L Bins collected **1x weekly**

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 days' worth of waste and recycling generation. Based on the estimated waste and recycling generated by each core, the following equipment is recommended:

C4.1 North

Waste Chute: 1x 2-Bin 1100L Bin Linear System will hold **1 day's waste**

Recycling Chute: 1x 2-Bin 660L Bin Linear System will hold **1 day's waste**

C4.1 South

Waste Chute: 1x 3-Bin 1100L Bin Carousel System will hold about **1 day's waste**

Recycling Chute: 1x 4-Bin 660L Bin Carousel System will hold **1 day's waste**

C4.2 Social Tower North

Waste Chute: 1x 2-Bin 1100L Bin Linear System will hold **1 day's waste**

Recycling Chute: 1x 3-Bin 660L Bin Linear System will hold **1 day's waste**

C4.2 Social Tower South

Waste Chute: 1x 2-Bin 1100L Bin Linear System will hold **1 day's waste**

Recycling Chute: 1x 2-Bin 660L Bin Linear System will hold **1 day's waste**

The equipment recommended in the Chute Discharge Rooms is to manage 1 days' worth of estimated waste and recycling volumes from that building core. Therefore, this represents the minimum equipment required in the Chute Discharge Room. More bins or large volume handling equipment can be included in these rooms.

5.4 RESIDENTIAL WASTE DISPOSAL PROCEDURES

The following sections outline the waste and recycling disposal procedures for the residents within the proposed site.

5.4.1 RESIDENTIAL WASTE DISPOSAL PROCEDURES – UNITS

For the units, dual chute systems, comprising of a waste chute and a recycling chute will be installed in each core with access provided on each residential level. The residents will be responsible for walking their waste and recycling to the disposal point on their level and placing their waste and recycling into the correct chute.

Residents will wrap or bag their general waste before placing in the waste chute. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm. Recycling (comingle only) must not be bagged when disposed of into the recycling chute. Cardboard boxes or large containers should also not be disposed of in the chute and a separate cardboard collection bins must be made available and managed by the building caretaker.

The general waste will discharge from the waste chute into 1100L Bins on linear tracks and the comingled recyclables will discharge into 660L Bins on linear tracks in the chute discharge

rooms. The building manager will monitor the fullness of the bins under the chutes and rotate with empty bins as required.

The full and spare bins will be kept in the Residential Bin Holding Room.

5.4.2 RESIDENTIAL WASTE DISPOSAL PROCEDURES - TOWNHOUSES

The resident of the townhouses will be provided with their own bin to be contained within the courtyard of the townhouse.

On the evening before collection days either the residents or building manager will move their bins from their property on ground level to the basement 1 level bin holding room via the internal car ramps. If the building manager does the moving, residents must grant access to the building manager to enter the property.

Due the distance and ramp the bins are moved, health and safety procedures should be considered.

Once the bins have been serviced in the basement 1 level residential bin holding room, the building manager or residents will be responsible for returning their bins to their property on ground level.

5.4.3 RESIDENTIAL FOGO DISPOSAL PROCEDURES

Bins for FOGO will be provided in the Bin Holding Room on Basement Level 1. The residents will be responsible for walking their own FOGO down to the Bin Holding Room and placing it into the bins.

The majority of organics waste generated from multi-unit residential developments 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 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.

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

5.5 RESIDENTIAL WASTE COLLECTION PROCEDURES

Council will be engaged to collect the residential waste, recycling and FOGO in accordance with Council's collection schedule. This report assumes waste will be collected three times weekly and recycling twice weekly. This is consistent with the other buildings within Midtown Precinct as per the Operational Waste Management Plan for the Masterplan of Midtown Precinct.

It has also been assumed that the FOGO will be collected weekly.

On the nominated waste collection day, the building caretaker will be responsible for transporting the 1100L bins, 660L bins and 240L bins to the Residential Bin Holding Room

located on basement level 1. It is recommended that extra 1100L and 660L service bins are placed under the chute to collect discharge while the other bins are being serviced.

To service the bins, a Council collection vehicle will enter the site and park in the loading bay on Basement Level 1. The waste collection staff will collect the bins from the Residential Bin Holding Room via collect and return arrangement. Once the bins are serviced, the collection vehicle will exit the site in a forward direction.

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

5.6 RESIDENTIAL BULKY WASTE PROCEDURES

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

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

On the day of bulky waste collection, a Council collection vehicle will enter the site and park in the loading bay. The building caretaker will provide the driver with access to the bulky waste storage room. Once bulky items have been loaded, the collection vehicle will exit the site in a forward direction.

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

6.0 COMMUNITY HOUSING PROVIDER (CHP) OFFICE WASTE MANAGEMENT

The following section outlines best practice waste management for the community housing provider (CHP) office components of the development, including waste generation estimates and waste disposal and collection procedures.

6.1 CHP OFFICE WASTE GENERATION ESTIMATES

The NSW EPA's *Better Practice Guide For Resource Recovery In Residential Developments 2019* has been referenced to calculate the total number of bins required for the anticipated tenants. Calculations are based on generic figures, and waste generation rates may differ according to the tenants' actual waste management practice.

The following table shows the estimated volume (L) of general waste and recyclables that will be generated by the CHP Offices.

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

Table 2: Estimated Waste and Recycling Volumes – Commercial and Retail

Waste Generation Rate Type	NLA (m ²)	General Waste Generation Rates (L/100m ² /day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m ² /day)	Generated Recycling (L/week)
Offices	331	10	165.5	15	248.25
Equipment and collections	General Waste Bin Size (L)		660	Recycling Bin Size (L)	
	General Waste Bins Per Week		0.251	Recycling Bins Per Week	
	General Waste Collections per Week		1	Recycling Collections per Week	
	Total General Waste Bins Required		1	Total Recycling Bins Required	
					1

6.2 CHP OFFICE BIN SUMMARY

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

General Waste: 1 x 660L Bins collected **1 x weekly**

Recycling: 1 x 660L Bins collected **1 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager once the proposed development is operational. Building management will be required to negotiate any changes to bins or collections with the collection service provider.

6.3 CHP OFFICE WASTE DISPOSAL PROCEDURES

The operators of the CHP Office will be responsible for their internal waste management within the tenancy.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recyclables to Commercial Bin Room and place the waste items into the correct bins.

6.4 CHP OFFICE WASTE COLLECTION PROCEDURES

A private waste collection contractor will be engaged to service the commercial waste and recycling bins per an agreed schedule. This report assumes waste and recycling is collected once weekly.

To service the bins, a Council collection vehicle will enter the site and park in the loading bay on Basement Level 1. The waste collection staff will collect the bins from the Commercial Bin Room via collect and return arrangement. Once the bins are serviced, the collection vehicle will exit the site in a forward direction.

Please note that the collection of commercial/retail bins should occur on separate days from the collection of residential bins to ensure minimise conflicting uses of the loading bay.

7.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 3: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata, Body Corporate or Management	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Maintain and clean chute doors on each level; • Co-ordinate general waste, recycling and FOGO collections; • Clean and transport bins as required; • Organise replacement or maintenance requirements for bins; • Organise, maintain and clean the waste holding area; • Organise bulky goods collection when required • Investigate and ensure prompt clean-up of illegally dumped waste materials. • Prevent storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) • Abide by all relevant WH&S legislation, regulations, and guidelines; • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management; • Assess any manual handling risks and prepare a manual handling control plan for waste and bin transfers; • Ensure site safety for residents, children, visitors, staff and contractors; and • Ensure effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
CHP Office Staff	<ul style="list-style-type: none"> • Manage the back of house storage of generated waste and recycling during daily operation. • Correctly separate waste and recycling streams; bag general waste and ensure recyclables are not bagged. • Flatten cardboard within the recycling bin. • Transport items to the office waste room as required.
Residents	<ul style="list-style-type: none"> • Dispose of all general waste, recycling and FOGO in the allocated chutes and/or bins provided. • Ensure adequate separation of general waste, recycling and FOGO; and • Comply with the provisions of Council and the OWMP.
Waste Collection Contractor	<ul style="list-style-type: none"> • Provide a reliable and appropriate waste collection service; • Provide feedback to building managers/residents regarding contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/Landscaping Contractor	<ul style="list-style-type: none"> • Remove all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Developer	<ul style="list-style-type: none"> • Purchase all equipment required to implement this OWMP prior to the occupation of the building to be provided to the strata/body corporate.

8.0 SOURCE SEPARATION

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

Table 4: 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 reuse, 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 recycling chute or in designated recycling bins. Bulky cardboard must not be placed in any chute. Cardboard should be flattened before placing in the designated cardboard 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.
Green Waste	Green waste consists of unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches)	Resource Recovery Centre	Landscape Maintenance Contractors will remove the green waste from site during scheduled maintenance.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Building manager arranges collection for e-waste recycling as needed by residents.
Bulky 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 to store in Bulky Goods Room. Building manager arranges with Council for removal.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager arranges collection by appropriate recycling services when required.

9.0 EDUCATION

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

Education and communication must be provided 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).

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

9.1 SIGNAGE

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

Signage should include:

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

The building manager is responsible for waste room signage including safety signage. Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating what type of waste or recyclables is to be placed in each bin.

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

All signage should conform to the relevant Australian Standards.

9.2 POLLUTION PREVENTION

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

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

10.0 BIN MOVING PATHS

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

For the terrace bins either the residents or building manager will be responsible for transporting the bins from the private residences to the residential bin holding room and returning the emptied bins.

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

The routes along the bin moving path should;

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

As the distance of the bin moving paths exceeds 10m, a bin moving device is required to aid the movement of full bins. The developer is responsible for 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/body corporate will be responsible for maintaining, repairing and replacing waste management equipment.

11.0 WASTE ROOMS

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

The equipment recommended in the Chute Discharge Rooms is to manage 1 days' worth of estimated waste and recycling volumes from that building core. Therefore, this represents the minimum equipment required in these rooms. More bins or large volume handling equipment can be included in these rooms.

Table 5: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area Required (m ²)
	Chute Discharge Room –C4.1 North Tower	<i>Minimum</i> 1x 2-bin Track for 1100L Bins (waste) 1x 2-bin Track for 660L Bins (recycling) 1x 1100L Bin (service bin) 1x 660L Bin (service bin)	>35
B1	Chute Discharge Room –C4.1 Tower South	<i>Minimum</i> 1x 4-bin Carousel for 660L Bins (recycling) 1x 660L Bin (service bin)	>59
B2		<i>Minimum</i> 1x 3-bin Track for 1100L Bins (waste) 1x 1100L Bin (service bin)	
B1	Bulky Waste Storage Room –C4 Market Tower		>25
B1	Chute Discharge Room –C4 Social Tower – North Core	<i>Minimum</i> 1x 2-bin Linear for 1100L Bins (waste) 1x 3-bin Linear for 660L Bins (recycling) 1x 1100L Bin (service bin) 1x 660L Bin (service bin)	>40
B1	Chute Discharge Room –C4.2 Social Tower – South	<i>Minimum</i> 1x 2-bin Linear for 1100L Bins (waste) 1x 1100L Bin (service bin)	>40
B2		<i>Minimum</i> 1x 2-bin Linear for 660L Bins (recycling) 1x 660L Bin (service bin)	
B1	Bulky Waste Storage Room –C4 Social Tower		>25
B1	Residential Bin Holding Room (Collection Area)	19x 1100L Bins (waste) 33x 660L Bins (recycling) 5x 240L Bins (Food Organics) 5x 240L Bins (waste -townhouses) 5x 240L Bins (recycling – townhouses)	>180
B1	Commercial Bin Room	1x 660L Bin (waste) 1x 660L Bin (recycling)	>5

The waste room areas have been calculated based on equipment requirements and/or bin dimensions with an additional 90% of bin GFA factored in for manoeuvrability.

In addition, all doorways and passageways facilitating the movement of bins and/or bulky waste items it is recommended that the doorways 1600mm wide.

The following table provides further waste room requirements.

Table 6: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Room	<ul style="list-style-type: none"> • Ceiling clearance height should be a minimum of 3000mm (unless a chute engineer has stated otherwise) • The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles (subject to penetration location) • All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room • 200mm clearance is required around compaction equipment • Where a chute offset is required, the angle of the offset must not exceed 40 degrees (Subject to number of consecutive offset and/pr up to 1500mm) • Where two sets of volume management equipment are placed under the chutes, a 200mm clearance is required between the equipment.
Residential Bin Holding Room and/or Bin Collection Area	<ul style="list-style-type: none"> • Bins must not be stacked in rows that are more than two bins deep
Bulky Goods Waste Storage Room	<ul style="list-style-type: none"> • 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 1500mm wide

12.0 EQUIPMENT SUMMARY

Table 7: Equipment Summary

	Part	Qty	Notes
Chutes	Please refer to supplier's information	8	See Appendix B.1 for Typical Dual Chute Layout
Chute Discharge Equipment	Waste 3-bin 1100L Bin Track System	1	See APPENDIX B.5 for Typical Carousel for 1100L Bins
	Waste 2-bin 1100L Bin Linear Track System	3	See APPENDIX B.2 for Typical Linear System for 1100L Bins
	Recycling 4-bin 660L Bin Carousel	1	See APPENDIX B.4 for Typical Carousel for 660L Bins
	Recycling 2-bin 1100L Bin Linear Track System	3	See APPENDIX B.3 for Typical Linear System for 660L Bins
Other Equipment	Suitable Bin Moving Equipment	1	See APPENDIX C.4 for Example Bin Movers

13.0 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Ryde Development Control Plan 2014*, in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

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

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

12.1 ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two-pack epoxy;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- Tap height and light switch height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above finished floor level;
- Optional automatic odour and pest control system installed
- If 660L or 1100L bins are utilised, 2 x 820mm (minimum) double-doors must be used;
- All personnel doors are hinged, lockable and self-closing;
- Conform to the Building Code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured
- Waste and recycling rooms must have their own exhaust ventilation system either;
 - Mechanically - exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum. Mechanical exhaust systems shall comply with AS1668.4.2012 and not cause any inconvenience, noise or odour problem; or
 - Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area.

13.0 USEFUL CONTACTS

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

PRIVATE WASTE COLLECTION PROVIDER

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

BIN MOVING DEVICE SUPPLIERS

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

ORGANIC DIGESTERS AND DEHYDRATORS

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

COOKING OIL CONTAINERS AND DISPOSAL

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

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

Source Separation Systems	Ph: 1300 739 913	E: info@sourceseparationsystems.com.au
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MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

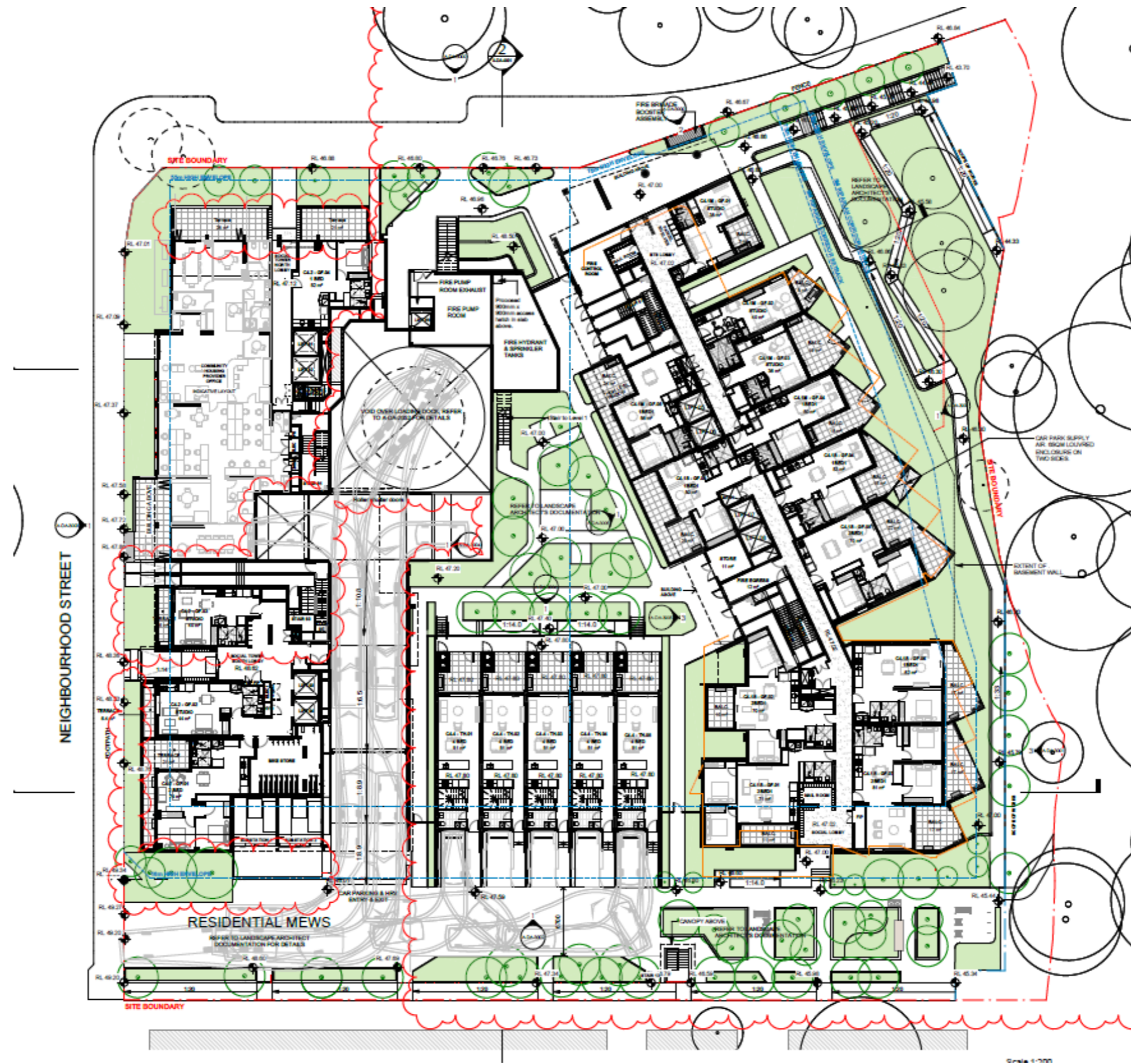
SULO	Ph: 1300 364 388	E: sales@sulo.com.au
OTTO Australia	Ph: 02 9153 6999	

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

Elephants Foot	Ph: 1800 025 073	E: info@elephantsfoot.com.au
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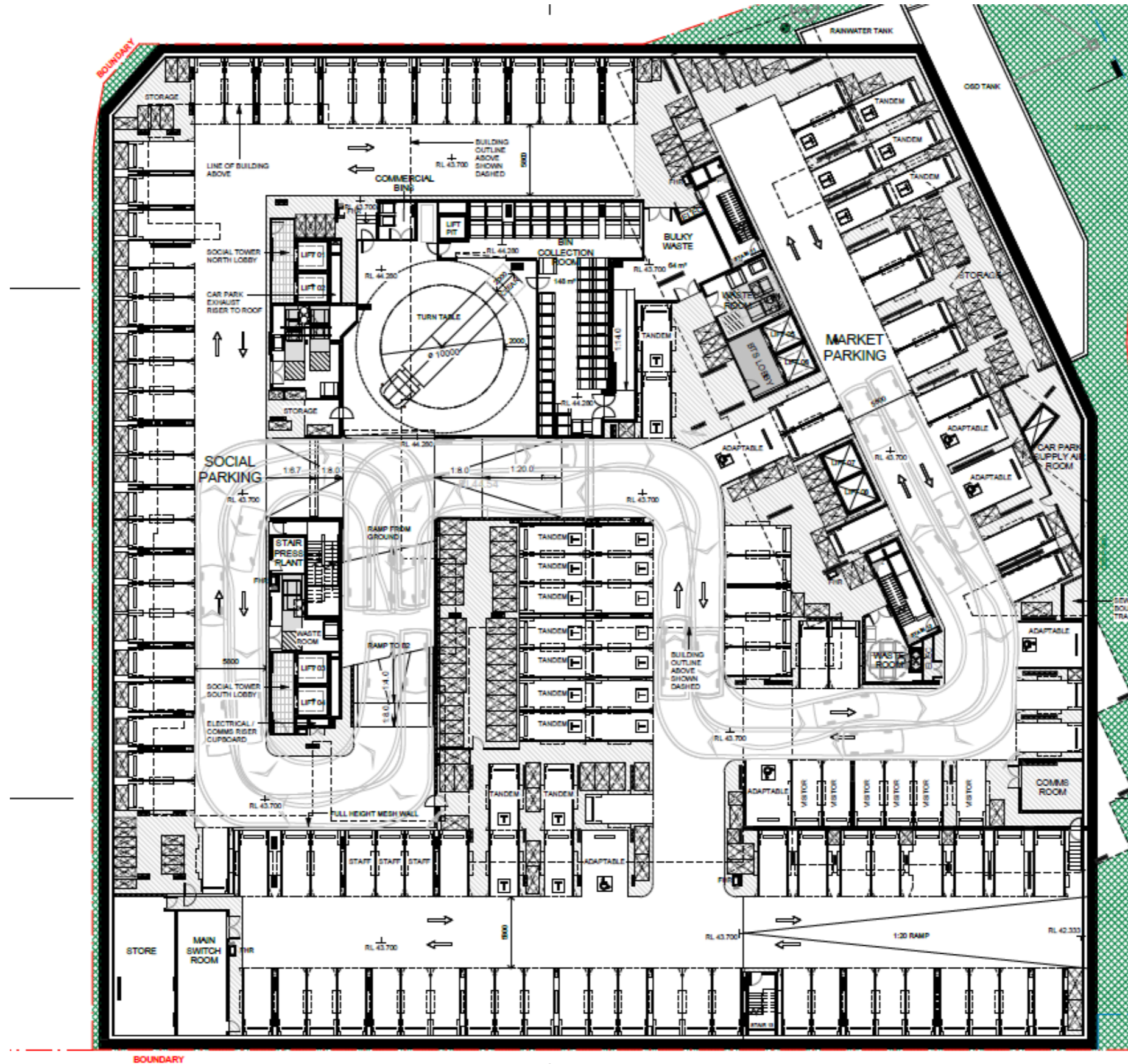
APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 GROUND FLOOR PLAN



Source: Cox Architecture, Drawing No A-DA-2100, Rev 4 - Ground Floor Plan

APPENDIX: A.2 BASEMENT LEVEL 1 PLAN

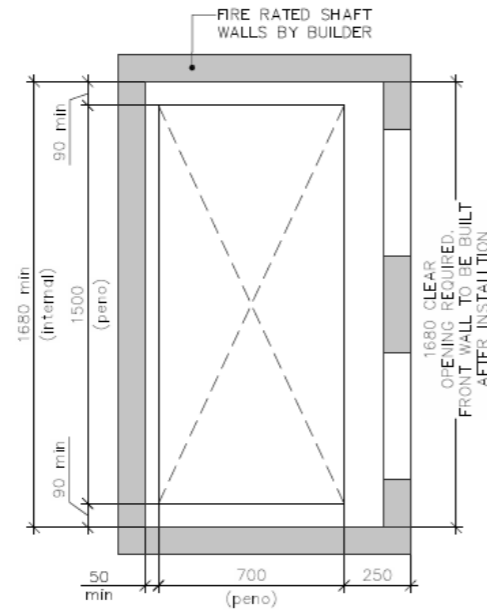


Source: Cox Architecture, Drawing No A-DA-2052, Rev 4 - Basement 1 Plan

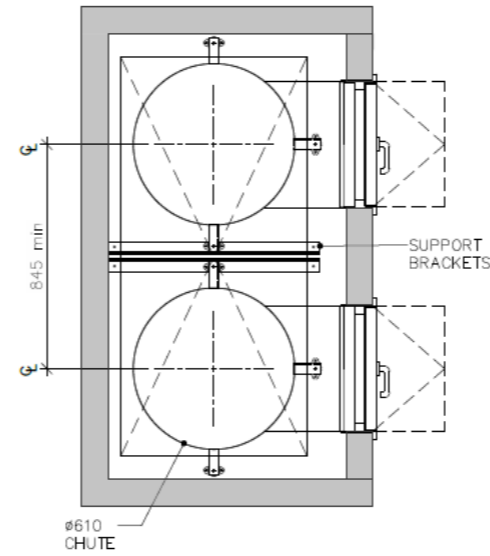
APPENDIX B: INSTALLATION EQUIPMENT



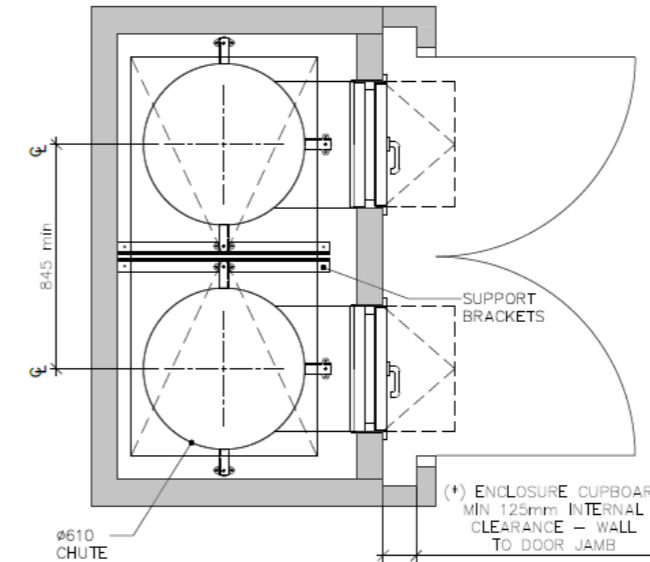
CHUTE SHAFT & PENETRATION SET-OUT DUAL Ø610 STEEL



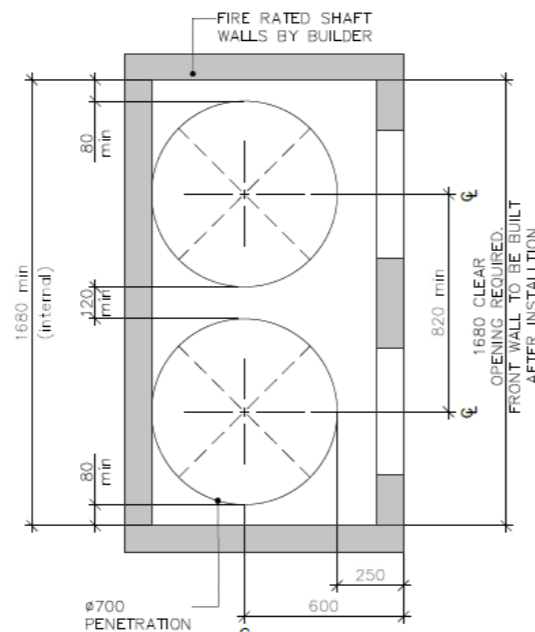
01 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT PENETRATION SET-OUT



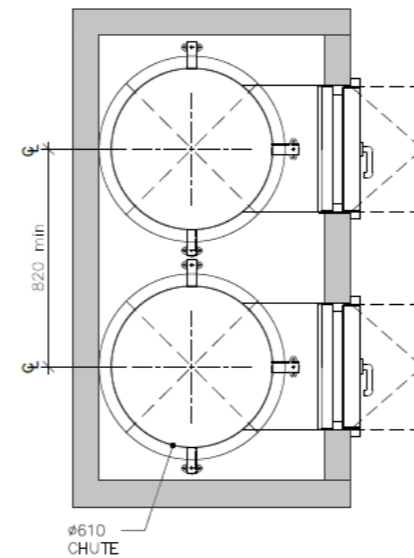
02 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT



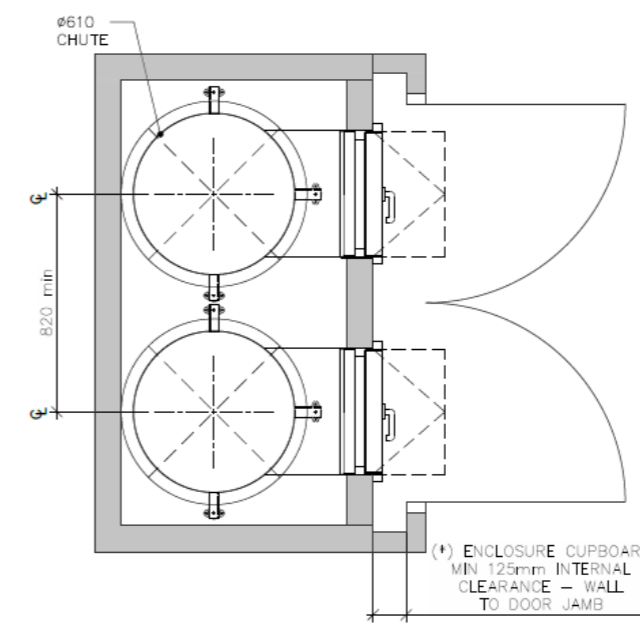
03 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT with ENCLASURE CUPBOARD (*)



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



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



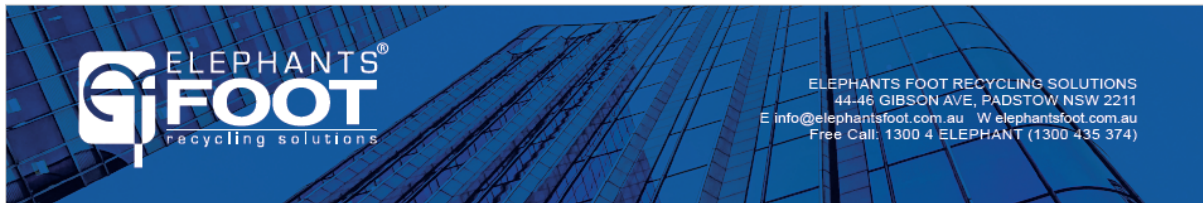
06 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT with ENCLASURE CUPBOARD (*)

(* 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.

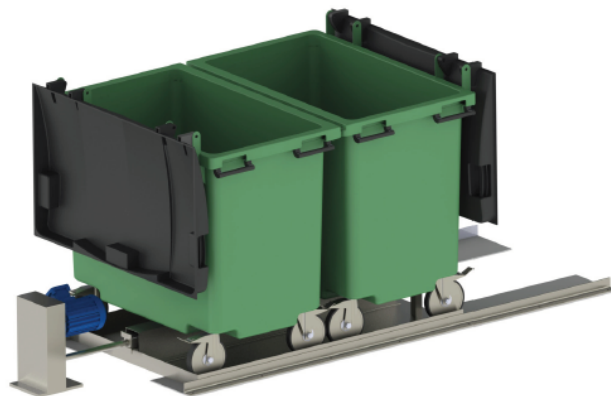
APPENDIX: B.2 TYPICAL LINEAR TRACK SYSTEM FOR 660L BINS



660 LITRE LINEAR TRACK SYSTEM

PRODUCT INFORMATION

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



SPECIFICATIONS

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

OPTIONAL EXTRAS

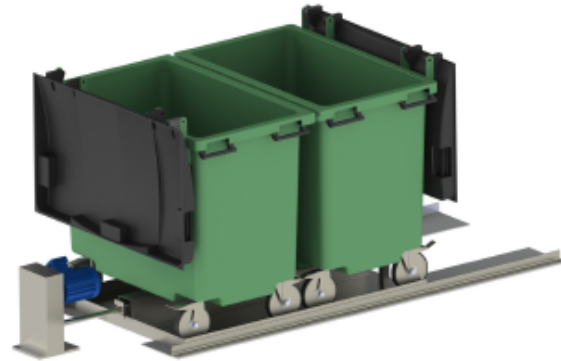
- Compaction unit – Please refer to the bin compactor product information sheet for details and specifications
- Enhanced safety add on's – Interlocking barriers, occupancy sensors or safety light curtains (presence sensing light barriers)
- Full bin SMS and email notification
- CMMS and BMS integration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

STANDARD FEATURES & BENEFITS

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

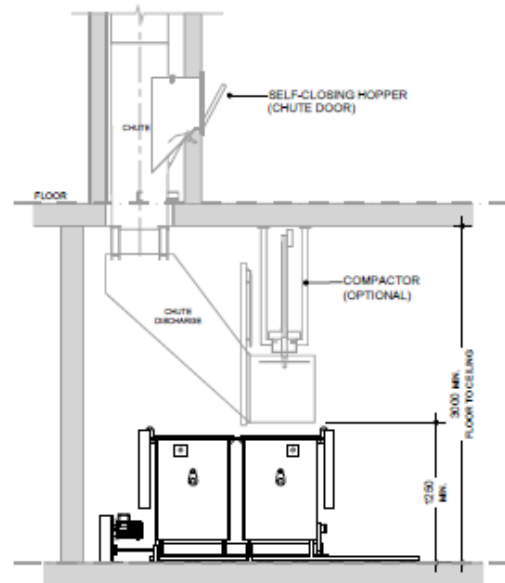
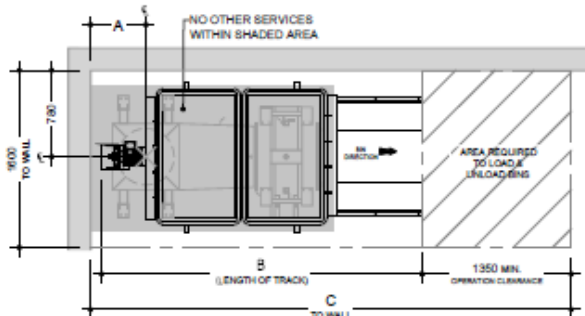


660 LITRE LINEAR TRACK SYSTEM



No. of Bins	Reference (mm)		
	A	B	C
2	500	2950	4350
3	1450	4850	6050
4	2300	6300	7750

Available with or without compaction unit, our standard 240 litre bin Linear Track System can support 2, 3 or 4 bin quantities.



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 TYPICAL LINEAR TRACK SYSTEM FOR 1100L BINS



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

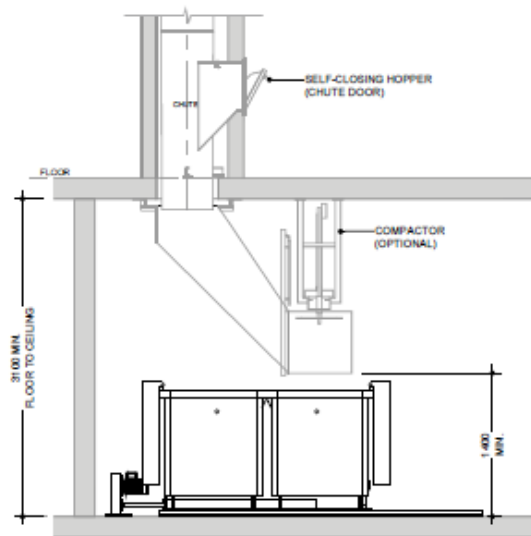
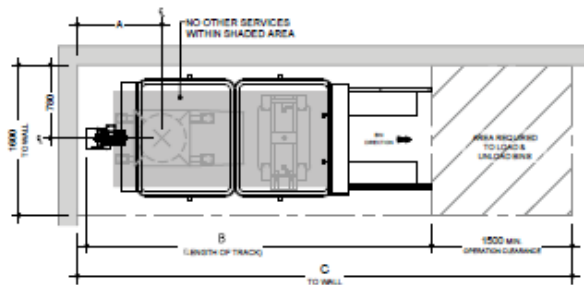
- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development.
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet 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.4 TYPICAL CAROUSEL SYSTEM FOR 660L 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)

660 LITRE CAROUSEL SYSTEM

PRODUCT INFORMATION

Elephants Foot 660 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	265 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, 4 or 5

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

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

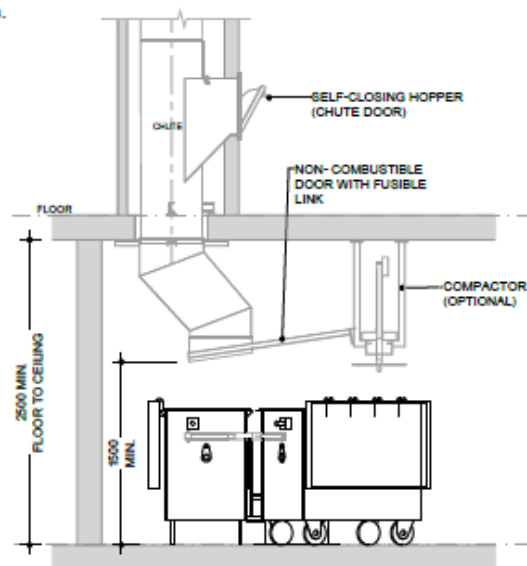
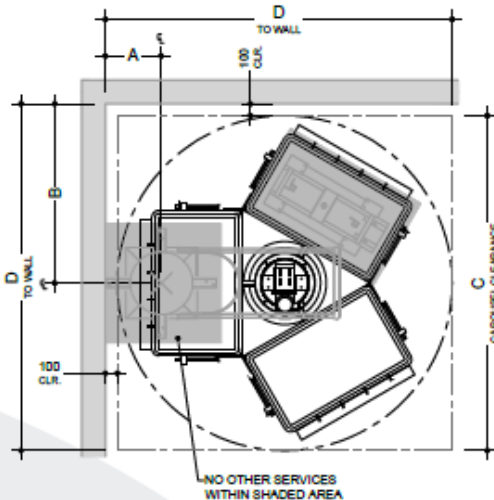


660 LITRE CAROUSEL SYSTEM



No. of Bins	Reference (mm)			
	A	B	C	D
2	500	1450	2700	2850
3	500	1550	2850	2950
4	500	1750	3300	3450
5	500	2050	3760	3900

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.



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.5 TYPICAL 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

STANDARD FEATURES & BENEFITS

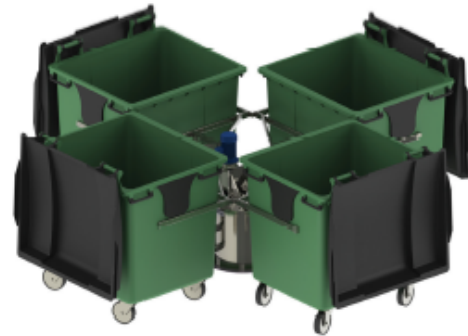
- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development.
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet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

OPTIONAL EXTRAS

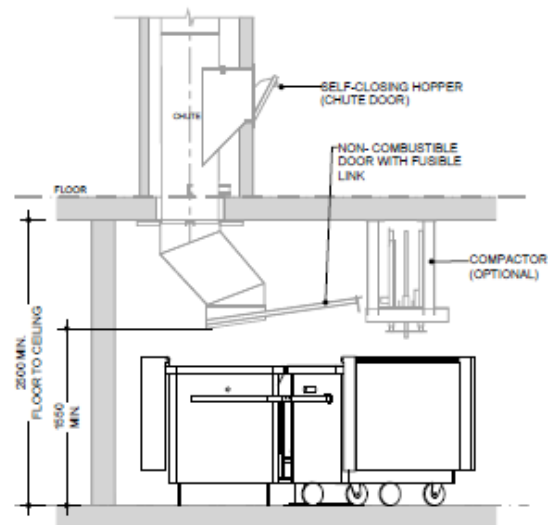
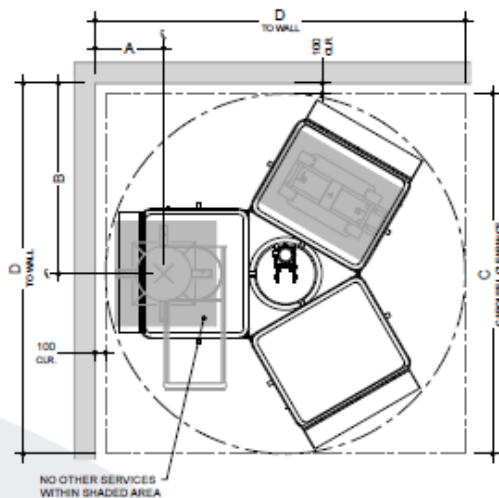
- Compaction unit – Please refer to the bin compactor product information sheet for details and specifications
- Enhanced safety add on's - Interlocking barriers, occupancy sensors or safety light curtains (presence sensing light barriers)
- Full bin SMS and email notification
- CMMS and BMS integration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

1,100 LITRE CAROUSEL SYSTEM

No. of Bins	Reference (mm)			
	A	B	C	D
2	650	1700	3200	3350
3	650	1850	3480	3800
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 special 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 TYPICAL COLLECTION VEHICLE INFORMATION

General

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

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

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

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

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

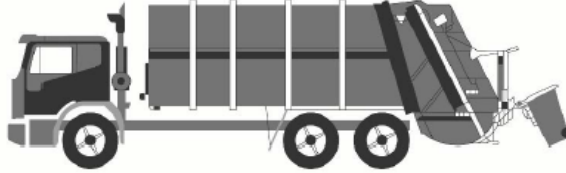
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0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

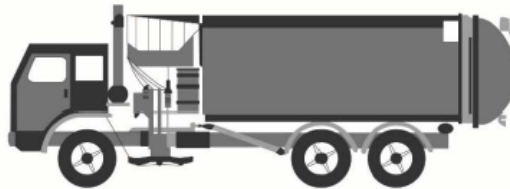
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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

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

APPENDIX: C.4 TYPICAL BIN MOVERS

Battery powered tug with a 1 or 2 tonne tow capacity



Features at a glance

One tonne (Evo 1T) or two tonne (Evo 2T) tow capacity

Auto latching hitch

Three speed motor with emergency stop

Typical applications

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

Features:

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

Safety Features:

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

Emergency back-off button

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

APPENDIX: C.5 TYPICAL SEATED BIN MOVERS

SITECRAFT



MATERIALS HANDLING EQUIPMENT

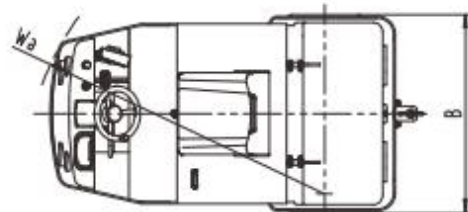
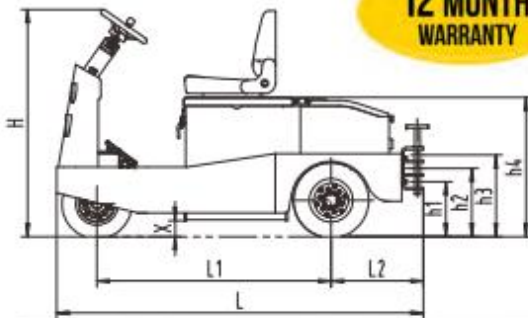
17 Macquarie Drive, Thomastown, VIC 3074
 Phone: 1300 363 152 Fax: 1300 722 383
 E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

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



**12 MONTH
WARRANTY**



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

SITECRAFT

MATERIALS HANDLING EQUIPMENT

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

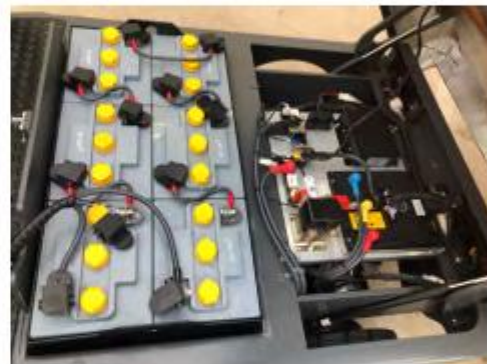
SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR



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



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



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



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

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