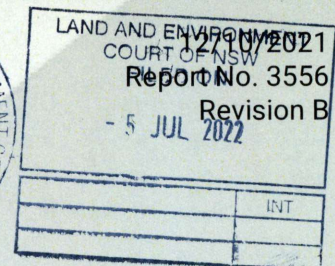




**Consulting.**<sup>TM</sup>  
an Elephants Foot Company

71-73 Thomas Street, Parramatta  
Boarding House Development

## OPERATIONAL WASTE MANAGEMENT PLAN



Client

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## REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	11/10/2021	J. Parker	A. Armstrong	Draft
B	12/10/2021	J. Parker	A. Armstrong	Final

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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>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 aside 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 INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for the operational management of waste generated by the boarding house development located at 71-73 Thomas Street, Parramatta.

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

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

To achieve these objectives, this 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.

## 1.1 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. EFRS can supply this if required.

## 1.2 REPORT CONDITIONS

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

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



## 2 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:

- Parramatta Development Control Plan 2011
- Parramatta Local Environmental Plan 2011

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 Parramatta Council: Waste Management Guidelines for New Development Applications 2016
- 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

### 2.1 COUNCIL OBJECTIVES

The City of Parramatta Council considers waste management to be highly important for the protection and enhancement of both the natural and built environments. A such, Council aims to:

- Ensure that the disposal of waste generated by a building's occupants over its lifetime is managed appropriately, efficiently and provides for maximum recovery, recycle or reuse.
- Ensure that waste storage facilities are located appropriately and do not impact negatively on the streetscape.
- Ensure that waste can be effectively collected and managed.
- Assist in achieving Federal and State targets for waste minimisation and resource recovery.
- Minimise the overall environmental impacts of waste in line with the principles of Ecologically Sustainable Development (ESD).

### 3 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of City of Parramatta Council and consists of a boarding house with 82 rooms over 4 levels.

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

#### 3.1 SITE LOCATION

The site is located at 71-73 Thomas Street, Parramatta, as shown in Figure.1. The site has frontages to Thomas Street and Pemberton Street, with vehicle access to the basement via Pemberton Street.

Figure 1. Site Location



Source: Google Maps



## 4 BOARDING HOUSE WASTE MANAGEMENT

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

### 4.1 WASTE GENERATION ESTIMATES

The City of Parramatta Council *Waste Management Guidelines for New Development Applications* has been referenced to calculate the total number of bins required. Calculations are based on generic figures, and waste generation rates may differ according to the residents' actual waste management practice.

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

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

Table 1: Estimated General Waste and Recycling Volumes

# Rooms	General Waste Generation Rate (L/occupant/week)	Generated General Waste (L/week)	Recycling Generation Rate (L/occupant/week)	Generated Recycling (L/week)
82	40	3280	40	3280
Bins and Collections	Bin Size (L)	660	Bin Size (L)	660
	Collections per Week	2	Collections per Week	2
	<b>Total Bins Required for Collection</b>	<b>3</b>	<b>Total Bins Required for Collection</b>	<b>3</b>

### 4.2 BIN SUMMARY

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

**General Waste:** 3 x 660L MGBs collected **2 x weekly**

**Recycling:** 3 x 660L MGBs collected **2 x weekly**

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

### 4.3 WASTE DISPOSAL PROCEDURES

The residents will be provided with a communal waste bin area on level 1 containing 660L MGBs for general waste and recycling. The residents will be responsible for transferring their own waste and recycling to the communal waste bin area, via the lifts, depositing it into the correct bin.

#### 4.3.1 COMMON AREAS

Residential common areas such as the common room, amenities and circulation areas will be supplied with suitably branded general waste and recycling bins where considered appropriate. These bins will be monitored by the building caretaker/cleaners and emptied into collection bins in the communal waste bin area when required.

### 4.4 WASTE COLLECTION PROCEDURES

General waste and recycling generated at this development will be collected by a private waste contractor in-line with an agreed schedule. This report is based on the assumption that both general waste and recycling will be serviced twice weekly.

On collection days, the contractors waste collection vehicle will pull-up on Thomas Street, adjacent to the location of the communal waste bin area. Collection staff will then access the waste room and service the bins via a wheel-in/wheel-out strategy. Each bin will be returned to the waste room once it has been serviced, to resume operational use.

It is the responsibility of the caretaker to ensure that collection staff are able to access the communal waste bin area. This will likely be via an electronic key system.



## 5 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 2: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Building Management	<ul style="list-style-type: none"> <li>Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights;</li> <li>Organising internal waste audits/visual assessments on a regular basis</li> <li>Purchasing any on-going waste management equipment or maintenance of equipment once building is operational; and</li> <li>Managing any non-compliances/complaints reported through waste audits.</li> </ul>
Building Manager or Caretaker	<ul style="list-style-type: none"> <li>Coordinating general waste and recycling collections;</li> <li>Cleaning and transporting bins as required;</li> <li>Organising replacement or maintenance requirements for bins;</li> <li>Organising, maintaining and cleaning the waste holding area;</li> <li>Organising bulky goods collection when required</li> <li>Investigating and ensuring prompt clean-up of illegally dumped waste materials.</li> <li>Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins)</li> <li>Abiding by all relevant WH&amp;S legislation, regulations, and guidelines;</li> <li>Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management;</li> <li>Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers;</li> <li>Ensuring site safety for residents, children, visitors, staff and contractors; and</li> <li>Ensuring effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.</li> </ul>
Residents	<ul style="list-style-type: none"> <li>Dispose of all general waste and recycling in the allocated MGBs provided;</li> <li>Ensure adequate separation of general waste and recycling; and</li> <li>Compliance with the provisions of Council and the OWMP.</li> </ul>
Waste Collection Contractor	<ul style="list-style-type: none"> <li>Provide a reliable and appropriate waste collection service;</li> <li>Provide feedback to building managers/residents regarding contamination of recyclables; and</li> <li>Work with building managers to customise waste systems where possible.</li> </ul>
Gardening/Landscaping Contractor	<ul style="list-style-type: none"> <li>Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.</li> </ul>
Developer	<ul style="list-style-type: none"> <li>Purchasing all equipment required to implement this OWMP prior to the occupation of the building to be provided to the strata.</li> </ul>

## 6 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 3: Operational Waste Streams

Waste Stream	Description	Typical Destination	Waste Stream Management
<b>General Waste</b>	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	General waste should be bagged before placing in the designated general waste bins.
<b>Recycling</b>	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 bins.  Cardboard should be flattened before placing into the recycling bins.
<b>Green Waste</b>	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.
<b>Food Waste</b>	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.
<b>Electronic Waste</b>	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.
<b>Bulky Items</b>	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 are responsible for removal of their bulky items.
<b>Sanitary Waste</b>	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
<b>Other</b>	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.



## 7 EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each occupant. 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 contamination in communal waste bins.

### 7.1 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 signage should conform to the relevant Australian Standards.

### 7.2 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



## 8 WASTE ROOMS

The areas allocated for waste storage are detailed in the table below and are estimates only. Final areas will depend on the layout of the room and the bins.

Table 4: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area Required (m <sup>2</sup> )
L1	Communal Waste Bin Area	3 x 660L MGBs <b>General Waste</b> 3 x 660L MGBs <b>Recycling</b>	15

EFRS recommends bins sizes, collection frequencies and/or equipment for best practice waste management at this site, however EFRS 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 should be at least 1200mm wide. The following table provides further waste room requirements.

Table 5: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Communal Waste Bin Area	<ul style="list-style-type: none"> <li>Bins should be arranged so that all bins are accessible. Bins are not be placed in front another or in such away as to restrict access to the other bins for use.</li> <li>Doorway should be a minimum of 1200mm wide.</li> </ul>

## 9 BIN MOVING PATHS

The internal manoeuvring of bins at this site is expected to be kept to a minimum. The building caretaker will be responsible for any movement of bins that does occur outside of servicing times.

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 personnel.

The routes along any bin moving paths 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.

## 10 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Parramatta Development Control Plan* (2011) and City of Parramatta Council: *Waste Management Guidelines for New Development Applications* (2016), 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.

### 10.1 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/m<sup>2</sup> 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.



## 11 USEFUL CONTACTS

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

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### LOCAL COUNCIL

Parramatta Customer Service	Ph: (02) 9806 5524	E: <a href="mailto:council@cityofparramatta.nsw.gov.au">council@cityofparramatta.nsw.gov.au</a>
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### PRIVATE WASTE COLLECTION PROVIDER

Capital City Waste Services	Ph: 02 9599 9999	E: <a href="mailto:service@ccws.net.au">service@ccws.net.au</a>
Remondis	Ph: 02 9032 7100	
Suez Environmental	Ph: 13 13 35	
Wastewise NSW	Ph: 1300 550 408	E: <a href="mailto:admin@wastewise.com.au">admin@wastewise.com.au</a>

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### BIN MOVING DEVICE SUPPLIERS

Electrodrive	Ph: 1800 333 002	E: <a href="mailto:sales@electrodrive.com.au">sales@electrodrive.com.au</a>
Sitecraft	Ph: 1300 363 152	E: <a href="mailto:sales@sitecraft.com.au">sales@sitecraft.com.au</a>
Spacepac	Ph: 1300 763 444	

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### ORGANIC DIGESTERS AND DEHYDRATORS

Closed Loop	Ph: 1300 762 166	
Orca		E: <a href="mailto:contact.australia@feedtheorca.com">contact.australia@feedtheorca.com</a>
Soil Food	Ph: 1300 556 628	
Waste Master	Ph: 1800 614 272	E: <a href="mailto:hello@wastemasterpacific.com.au">hello@wastemasterpacific.com.au</a>

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### COOKING OIL CONTAINERS AND DISPOSAL

Auscol	Ph: 1800 629 476	E: <a href="mailto:sales@auscol.com">sales@auscol.com</a>
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### ODOUR CONTROL

Purifying Solutions	Ph: 1300 636 877	E: <a href="mailto:sales@purifyingsolutions.com.au">sales@purifyingsolutions.com.au</a>
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### SOURCE SEPARATION BINS

Source Separation Systems	Ph: 1300 739 913	E: <a href="mailto:info@sourceseparationsystems.com.au">info@sourceseparationsystems.com.au</a>
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### MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

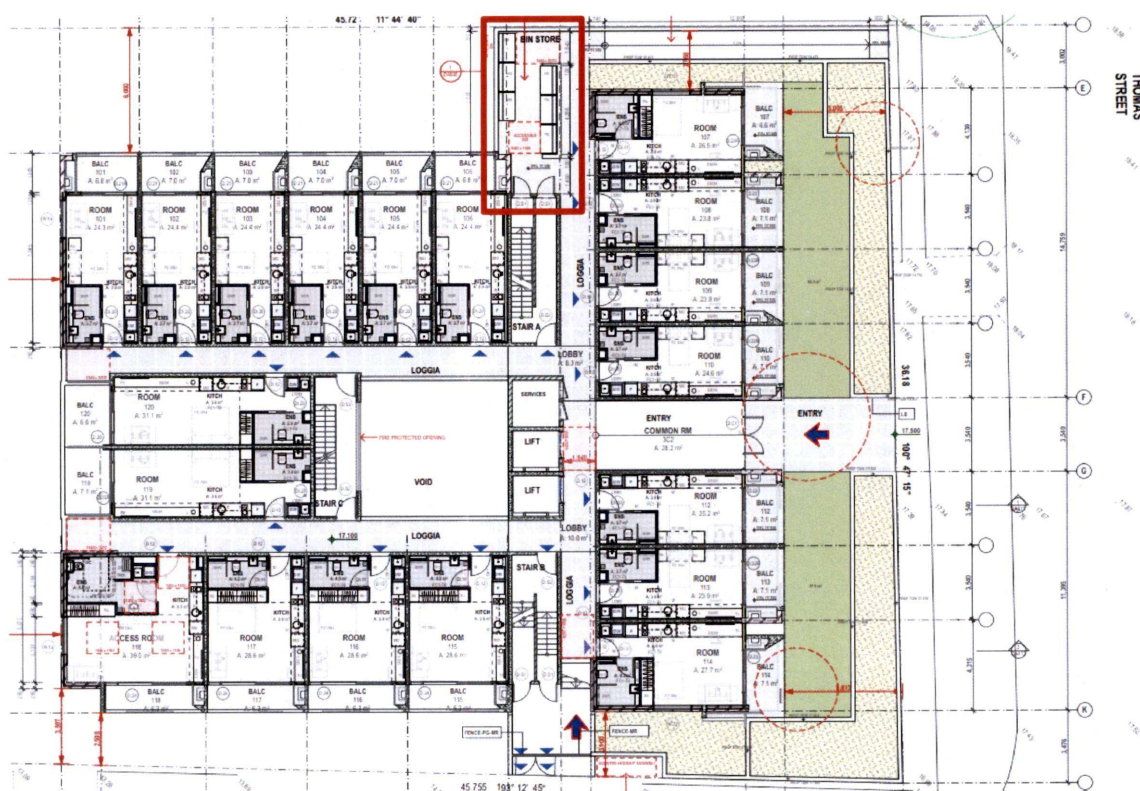
SULO	Ph: 1300 364 388	E: <a href="mailto:sales@sulo.com.au">sales@sulo.com.au</a>
OTTO Australia	Ph: 02 9153 6999	

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### CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

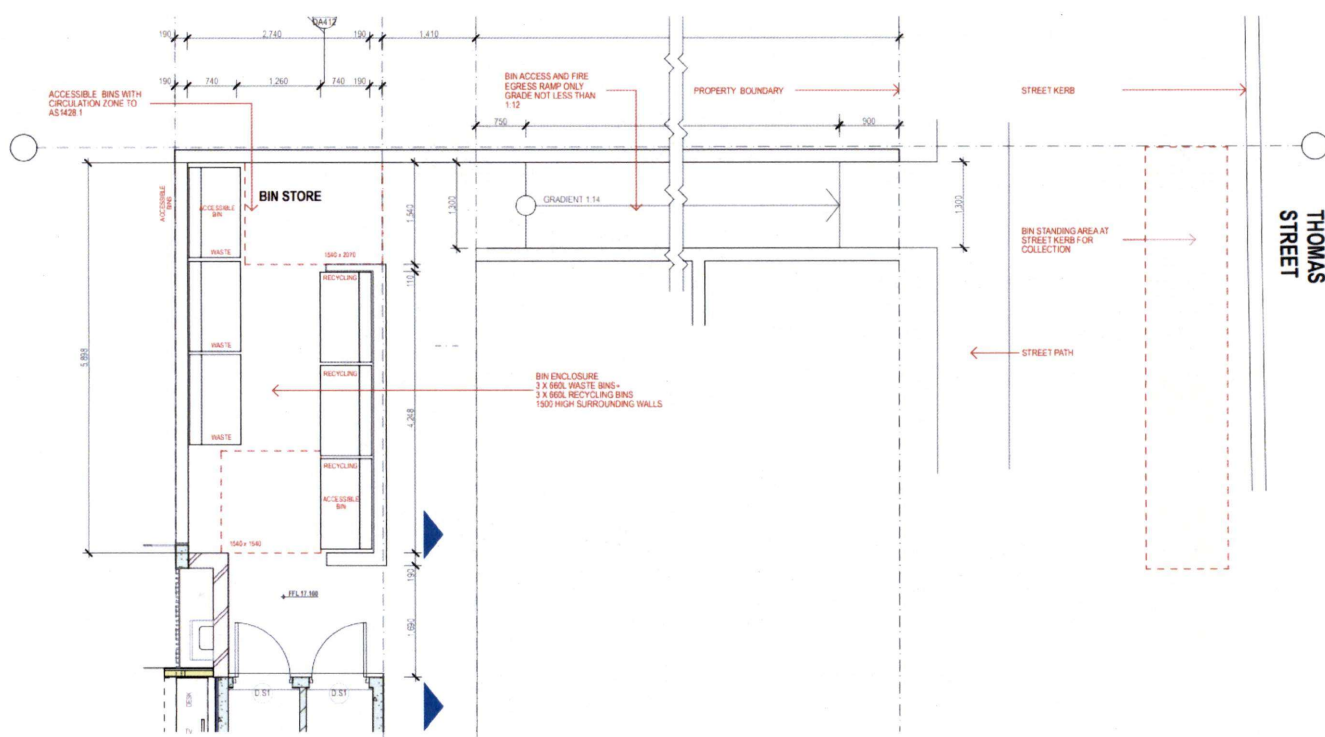
Elephants Foot Recycling Solutions	Ph: 1800 025 073	E: <a href="mailto:info@elephantsfoot.com.au">info@elephantsfoot.com.au</a>
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## APPENDIX A: ARCHITECTURAL PLANS



Source: VOARC Projects, Drawing No. DA203, Iss.A, 08/10/21 – Building Floor Plan: Level 01





Source: VOARC Projects, Drawing No. DA605, Iss.A, 08/10/21 – Bin Storage Area: Detailed Layout Plan

## APPENDIX B: PRIMARY WASTE MANAGEMENT PROVISIONS

## APPENDIX: B.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 <sup>2</sup> )	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 <sup>2</sup> )	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: B.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](http://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: B.3 TYPICAL COLLECTION VEHICLE INFORMATION

### General

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

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

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

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

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

### Large collection vehicles

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

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

Table B2.1: Collection vehicle dimensions

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

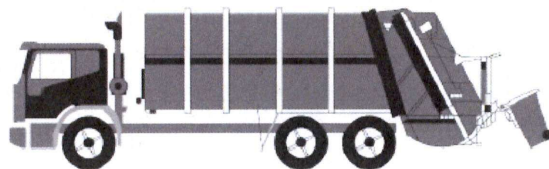
\* The maximum reach of a side arm is 3 m.

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



### Rear-loading collection vehicles

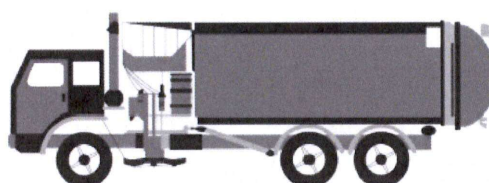
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



Rear-loading waste collection vehicle

### Side-loading collection vehicles

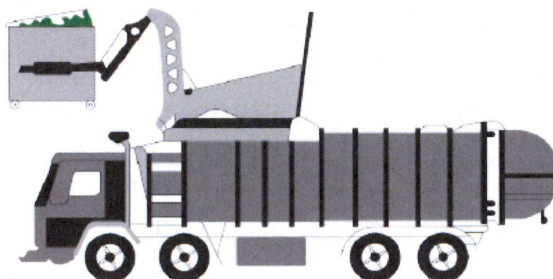
This is the most commonly used vehicle for domestic waste, recycling and organics collections. It is only suitable for collecting mobile bins up to 360L in capacity.



Side-loading waste collection vehicle

### Front-lift-loading collection vehicles

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



Front-lift-loading waste collection vehicle

### Small collection vehicles

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

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

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

## APPENDIX: B.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>

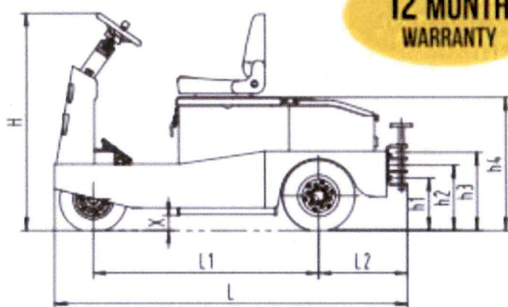
## APPENDIX: B.5 TYPICAL SEATED BIN MOVERS

**SITECRAFT**   
MATERIALS HANDLING EQUIPMENT

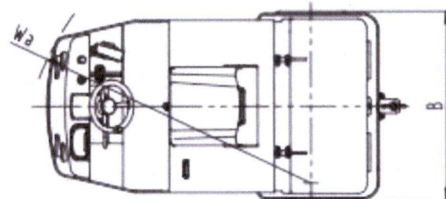
17 Macquarie Drive, Thomastown, VIC 3074  
Phone: 1300 363 152 Fax: 1300 722 383  
E: sales@sitecraft.com.au ABN: 36 423 328 526

### 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

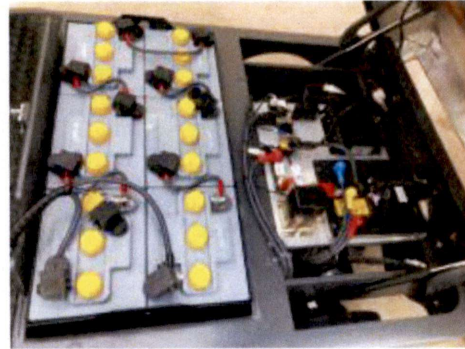
**SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR**



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>