ELEPHANTS FOOT Consulting

154-158 Pacific Pde, Dee Why

Mixed Use Development

OPERATIONAL WASTE MANAGEMENT PLAN

28/11/2024
Report No. 6284
Revision C

Client

Harrington Dee Why Pty Limited

Architect

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C	28/11/24	S. Lee	J. Parker	Amendment

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GLOSSARY OF ABBREVIATIONS AND TERMS

TERM	DESCRIPTION
Bin Lifter	A device used to mechanically lift bins for the purpose of emptying them into larger bins and/or compactors.
Bin Mover	Either a handheld device (commonly referred to as a bin tug) or a ride-on device (typically a tractor or Class C vehicle with an attached bin trailer) used to facilitate the movement of bins across long distances or up ramps
Bulky Waste	Recycling items that are too large to be deposited into bins, including furniture, whitegoods, electronics and mattresses
Collection Area/Point	Designated area or point where bins are loaded onto the collection vehicle for servicing
Comingled Recycling	Waste stream for the recycling of plastic bottles, other plastics, paper, glass and metal containers
Communal Bin Room	A central, shared bin room accessible to all residents or staff to dispose of their waste stream
DA	Development Application
DCP	Development Control Plan
EPA	Environment Protect Authority
FOGO	Food Organics and Garden Organics
General Waste	All non-recyclable and non-hazardous waste that is sent to landfill
HRV	Heavy Rigid Vehicle
Kerbside Collection	A collection arrangement whereby bins are presented in a single row along the kerb and serviced by a collection vehicle on the street.
L	Litre
LEP	Local Environmental Plan
Mixed Use Development	A development comprising a combination of both residential and commercial units or two or more different land uses within the one development.
Mobile Bins	Containers with a capacity up to and including 1100L designed to be collected by a rear-loading vehicle
Multi-unit Residential Development	Also known as MUD's, residential flat buildings, or apartment blocks, this is a residential development with multiple units that typically share facilities and services such as bins and collections.
MRV	Medium Rigid Vehicle
Owners Corporation	An organisation or group of persons that is identified by a particular name and that acts, or may act, as an entity
Paper/ Cardboard Recycling	Waste stream for the recycling of paper and cardboard only.

Recycling	Waste stream that combines all recycling, including comingled recycling, paper/cardboard and metals.
Source Separation Receptacles	Communal containers used throughout the development for the day-to-day disposal of different waste streams
Waste Stream	A classification used to describe waste of a particular type (eg. food waste stream)

1.0 INTRODUCTION

Elephants Foot Consulting (EFC) has been engaged to prepare the following Operational Waste Management Plan (OWMP) to satisfy the conditions of the Development Application Northern Beaches Council requires for the mixed-use development located at 154-158 Pacific Pde, Dee Why.

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

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

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

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

To achieve these objectives, this OWMP identifies and details the following components:

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

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

1.1 SCOPE OF REPORT

This 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.

1.2 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.

2.0 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:

- Warringah Development Control Plan 2011
- Warringah Local Environmental Plan 2011

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

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

- Northern Beaches Council: Waste Management Guidelines 2016 - Chapter 6
- Northern Beaches Council: Waste Management Guidelines 2016 - Appendices
- NSW Better Practice Guide For Resource Recovery In Residential Developments 2019
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

3.0 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of Northern Beaches council, and consists of one building divided into the following:

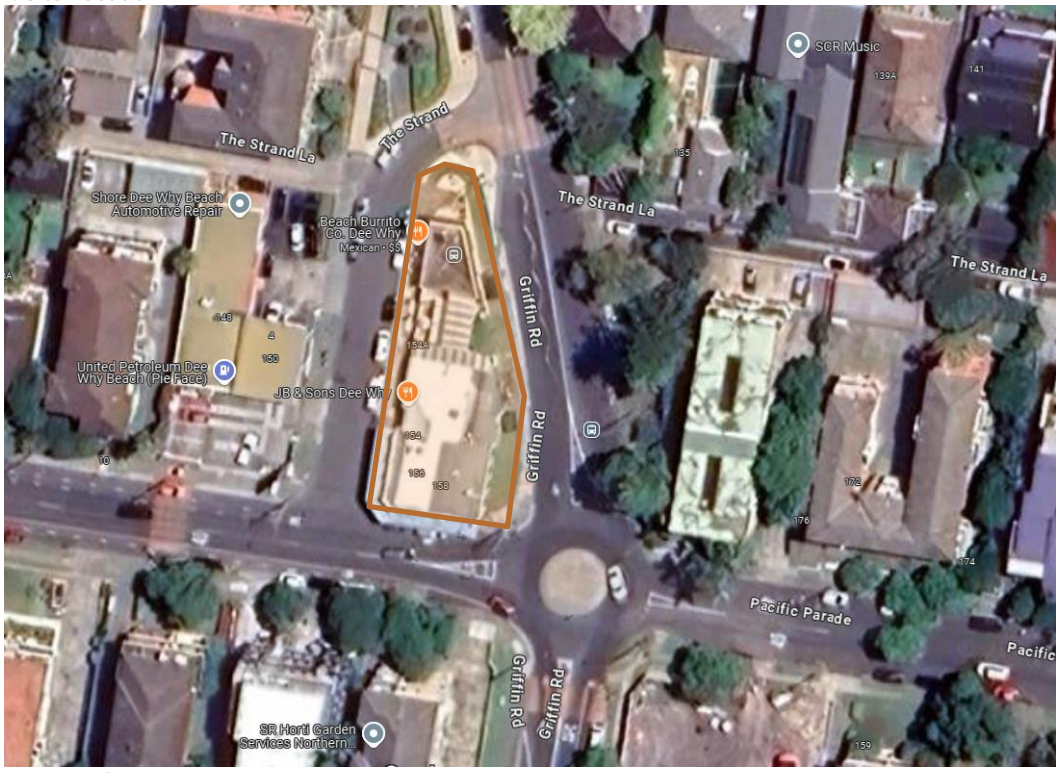
- 9 residential units in total
- 1 retail shop
- 1 restaurant
- 2 basement levels with a car lift

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 154-158 Pacific Pde, Dee Why, as shown in Figure.1 (boundaries are indicative only). The site has frontages and vehicle access to Pacific Parade, The Strand and Griffin Rd.

Figure 1: Site Location



Source: Google Maps 2024

4.0 RESIDENTIAL WASTE MANAGEMENT

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

4.1 RESIDENTIAL WASTE GENERATION ESTIMATES

Northern Beaches Council Waste Management Guidelines has been referenced to calculate the total number of bins required for the residential units. Calculations are based on generic general waste, comingled recycling, paper/cardboard recycling and FOGO. 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, comingled recyclables, paper/cardboard recyclables generated by the residential component of the development. According to the Northern Beaches Council *Waste Management Guidelines Appendix A*, residential developments with 9 units should be allocated 2 vegetation 240L bins for FOGO.

Table 1: Estimated General Waste and Recycling Volumes - Residential

# Units	General Waste Generation Rate (L/unit/week)	Generated General Waste (L/week)	Comingled Recycling Generation Rate (L/unit/week)	Generated Comingled Recycling (L/week)	Paper/ Cardboard Recycling Generation Rate (L/unit/week)	Generated Paper/ Cardboard Recycling (L/week)
9	80	720	40	360	60	540
Bins & Collections	General Waste Bin Size (L)	240	Comingled Recycling Bin Size (L)	240	Paper/ Cardboard Recycling Bin Size (L)	240
	General Waste Bins per Day	0.4	Comingled Recycling Bins per Day	0.2	Paper/ Cardboard Recycling Bins per Day	0.3
	General Waste Collections per Week	1	Comingled Recycling Collections per Week	0.5	Paper/ Cardboard Recycling Collections per Week	1
	Total General Waste Bins Required	**3**	**Total Comingled Recycling Bins Required**	**3**	**Total Paper/ Cardboard Recycling Bins Required**	**3**

4.2 RESIDENTIAL BIN SUMMARY

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

General Waste: 3 x 240L bins collected **1 x weekly**

Comingled Recycling: 3 x 240L bins collected **fortnightly**

Paper/Cardboard Recycling: 3 x 240L bins collected **1 x weekly**

FOGO: 2 x 240L bins collected **fortnightly**

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

4.3 RESIDENTIAL WASTE DISPOSAL PROCEDURES

All residents will have access to a storage area within their own unit capable of holding separate receptacles for general waste, comingled recyclables, paper/cardboard recyclables and FOGO. This is typically located within kitchen areas beneath the workbench. This space should be sized to accommodate 40L receptacles (minimum) to account for 2 days' worth of general waste and recycling and 20L for FOGO storage.

4.3.1 RESIDENTIAL GENERAL WASTE AND RECYCLING DISPOSAL PROCEDURES

Residents will be provided with a communal bin room on the ground level containing shared 240L bins for general waste, comingled recyclables and paper/cardboard recyclables, respectively.

Residents will be responsible for walking their own general waste and recycling to the communal bin room and placing their general waste into the general waste bins and recycling into their labelled recycling bins. General waste should be bagged when placed into the general waste bins and recycling should not be bagged and instead, be placed loosely into the recycling bins.

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

4.3.2 RESIDENTIAL FOGO DISPOSAL PROCEDURES

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

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

Similarly to general waste and recycling, residents will be responsible for walking their own FOGO to the communal bin room and placing FOGO waste into the allocated 240L FOGO bins.

4.4 RESIDENTIAL BIN COLLECTION PROCEDURES

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

Prior to collections, the caretaker will be responsible for transporting the bins from the communal bin room to the kerbside of The Strand located on ground level. The Caretaker is also responsible for ensuring that the bins are adequately arranged for an efficient collection.

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

On the day of collection, a Council collection vehicle will park along the kerbside of The Strand. The collection staff will exit the vehicle, collect the bins and then return the empty bins once serviced.

Upon completion of servicing, the collection vehicle will continue along The Strand in a forward direction. The Caretaker is responsible for returning the bins to their operational location to resume use.

All access and clearances to the collection point must be able to accommodate an HRV per Council's collection vehicle.

4.5 OTHER RESIDENTIAL WASTE MANAGEMENT CONSIDERATIONS

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

4.5.1 LANDSCAPED AREAS AND GARDEN ORGANICS

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

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

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

4.5.2 RESIDENTIAL BULKY WASTE PROCEDURES

Bulky waste will be collected through the *Council's Bulky Goods Collection Service*, which allows for up to two free collections per year. Residents must pre-book these collections, within the 12-month period starting from the date of the first booking. If a second collection is needed, it should be booked before the end of this 12-month period, or the anniversary date resets upon the next booking that is made.

Residents need to coordinate with building management to determine where to place the bulky items for collection. The placement should be visible to collection staff but must not block pedestrian or vehicle traffic and should avoid hallways, stairwells, or emergency exits. The exact location will be communicated to the council collection service.

On the night before the scheduled collection, bulky items will be placed in the designated area, which should not exceed 3m². On the collection day, a Council vehicle will enter through The Strand and park next to the bulky items. Collection staff will then pick up the items from the collection point. Once bulky items have been loaded onto the vehicle, the collection vehicle will exit the site onto The Strand in a forward direction.

5.0 COMMERCIAL AND RETAIL WASTE MANAGEMENT

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

5.1 COMMERCIAL AND RETAIL WASTE GENERATION ESTIMATES

The Northern Beaches Council *Waste Management Guidelines* has been referenced to calculate the total number of bins required for the anticipated tenants. Calculations are based on generic generation rates. Actual volumes of waste and recycling may differ in operation according to the tenants' actual waste management practices.

The following table shows the estimated volume (L) of general waste and recycling that will be generated by the commercial and retail tenants.

The total GFA of the retail component has been divided into halves to consider the waste generation of future possible tenancies. It is assumed that retail tenancies will share bins, bin storage facilities and collections.

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

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

Tenancy Type	**Floor Area** (m^2)	**General Waste Generation Rate** (L/100m^2/day)	**Generated General Waste** (L/week)	**Recycling Generation Rate** (L/100m^2/day)	**Generated Recycling** (L/week)
Restaurant	117	660	5405	200	1638
Retail: Food Trading	56	20	78	0	0
Retail: Non-food	56	50	194	50	194
TOTAL	228		**5677**		**1832**
Bins & Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		General Waste Bins per Day	0.7	Recycling Bins per Day	0.2
		General Waste Collections per Week	2	Recycling Collections per Week	1
		Total General Waste Bins Required	**3**	**Total Recycling Bins Required**	**2**

5.2 COMMERCIAL AND RETAIL BIN SUMMARY

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

General Waste: 3 x 1100L bins collected **2 x weekly**

Recycling: 2 x 1100L 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. Seasonal peak periods should also be considered.

5.3 COMMERCIAL AND RETAIL WASTE DISPOSAL PROCEDURES

All tenancies will be responsible for their own general waste and recycling disposal procedures within their own vicinity.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recycling to the commercial/retail bin room and place into the appropriate collection bins.

5.4 COMMERCIAL AND RETAIL WASTE COLLECTION PROCEDURES

A private waste contractor will be engaged to service the commercial/retail general waste and recycling bins as per an agreed collection schedule. This report assumes that general waste will be collected twice weekly, and recycling collected weekly.

On the day of service, a private waste collection vehicle will park along The Strand and park at the kerbside. The building caretaker will provide the driver with access to the commercial/retail waste room. Once the bins are serviced via a wheel out and wheel back arrangement, the collection vehicle will continue along The Strand in a forward direction.

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

5.5 OTHER COMMERCIAL AND RETAIL WASTE MANAGEMENT CONSIDERATIONS

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

5.5.1 WASHROOM FACILITIES

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

5.5.2 RE-USEABLE COMMERCIAL ITEMS

Space will be provided back of house for the storage of re-usable commercial items such as crates, pallets, kegs and strip out waste. The building manager will be responsible for ensuring that storage of these items in public places is completely avoided.

5.5.3 LIQUID WASTE

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

5.5.4 PROBLEM WASTE

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

Problem waste streams include:

- Chemical Waste
- Liquid wastes
- Toner cartridges
- Lightbulbs
- eWaste
- Batteries

6.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 3: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata, Body Corporate or Management	• Co-ordinate the waste strategy within the site. • Ensure all waste service providers submit monthly reports on all equipment movements and waste quantities/weights. • Organise internal waste audits/visual assessments on a regular basis. • Purchase any on-going waste management equipment or maintenance of equipment once building is operational; and • Manage any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	• Co-ordinate general waste, recycling and FOGO collections • Clean and transport bins as required. • Organise replacement or maintenance requirements for bins. • Organise, maintain and clean bin storage areas. • Organise bulky waste collections when required. • Investigate and ensure prompt clean-up of illegally dumped waste materials. • Prevent storm water pollution by taking necessary precautions (secure bin rooms, prevent overfilling of bins). • Abide by all relevant WH&S legislation, regulations, and guidelines. • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management. • Assess any manual handling risks and prepare a manual handling control plan for bin transfers. • Ensure site safety for residents, children, visitors, staff and contractors; and • Ensure effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Residents	• Dispose of all general waste, recycling and FOGO in the allocated bins provided. • Ensure adequate separation of general waste, recycling and FOGO; and • Comply with the provisions of Council and the OWMP.
Retail/Commercial Tenants	• Management co-ordinates own private contractor collections. • Manage general waste and recycling within their tenancy during daily operations. • Correctly separate general waste and recycling streams. • Flatten cardboard within the recycling bin. • If required, arrange for storing used and unused cooking oil in a bunded area, • Organise grease interceptor trap servicing, and • Ensure the suitable storage for chemicals, pesticides and cleaning products waste back of house.
Waste Collection Contractor	• Provide a reliable and appropriate bin collection service. • Provide feedback to building managers/residents regarding contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/ Landscaping Contractor	• Remove all garden organics generated during gardening maintenance activities for recycling at an offsite location.
Developer	• Purchase all equipment required to implement this OWMP prior to the occupation of the building to be provided to the Strata or Body Corporate.

7.0 SOURCE SEPERATION

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

Table 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 re-use, processing, or recycling. May include soft plastics, food scraps, polystyrene, etc.	Landfill	General waste should be bagged before placing in designated general waste bins.
Paper and Cardboard Recycling	Cardboard and paper products are recyclable materials that can be re-processed into new products.	Resource Recovery Centre	Cardboard should be flattened before placing in the designated cardboard bin.
Commingled 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).	Materials Recovery Facility (MRF)	Commingled recycling must not be bagged, and instead should be placed loosely in the designated recycling bins.
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.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Building manager arranges collection for e-waste recycling as needed by residents. Commercial tenants arrange for recycling of their own e-waste.
Bulky Waste Items	Items that are to too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc.	Resource Recovery Centre or Landfill	Residents arrange with Council for removal. Commercial tenants are responsible for removal of their bulky items.
Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
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.

8.0 EDUCATION

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

Education and communication must be provided consistently on a regular basis to encourage behaviour change and account for transient building personnel such as new residents, tenants, or cleaning staff. Information should include:

- 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 cross contamination among waste streams.

8.1 SIGNAGE

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

Signage should include:

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

The building manager 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.

9.0 POLLUTION PREVENTION

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

- Promoting adequate waste disposal into the bins
- Securing all bin rooms (whilst affording access to staff/contractors)
- Prevent overfilling of bins, keep all bin lids closed and bungs leak-free

- Taking action to prevent dumping or unauthorised use of waste areas
- Require collection contractor/s to clean up any spillage when clearing bins

10.0 BIN WASHING

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

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

11.0 BIN MOVING PATHS

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

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

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

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

12.0 WASTE ROOMS

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

Table 5: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area Required (m^2)	Actual Area Provided (m^2)
Ground Floor Level	Residential Communal Bin Room	**General:** 3x240L MGBs **Comingled Recycling**: 3x240L MGBs **Paper/Cardboard:** 3x240L MGBs **FOGO:** 2x240L MGBs	10	TBC
	Commercial / Retail Bin Room	**General:** 3x1100L MGBs **Recycling**: 2x1100L MGBs	16	TBC

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

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

In addition, all doorways and passageways facilitating the movement of bins and/or bulky waste items must be at least 1500mm wide.

The following table provides further waste room requirements.

Table 6: Waste Room Requirements

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

13.0 CONSTRUCTION REQUIRMENTS

Waste room construction must comply with the minimum standards as outlined in the *Warringah Development Control Plan 2011,* 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.

13.1 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.

14.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Northern Beaches Council Customer Service	Ph: 1300 434 434	E: council@northernbeaches.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

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

BIN MOVING DEVICE SUPPLIERS

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

BALER SUPPLIERS

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

ORGANIC DIGESTERS AND DEHYDRATORS

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

COOKING OIL CONTAINERS AND DISPOSAL

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

ODOUR CONTROL

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

SOURCE SPERATION BINS

Method Recycling	Ph: 0499 890 455

BINS AND BIN EQUIPMENT

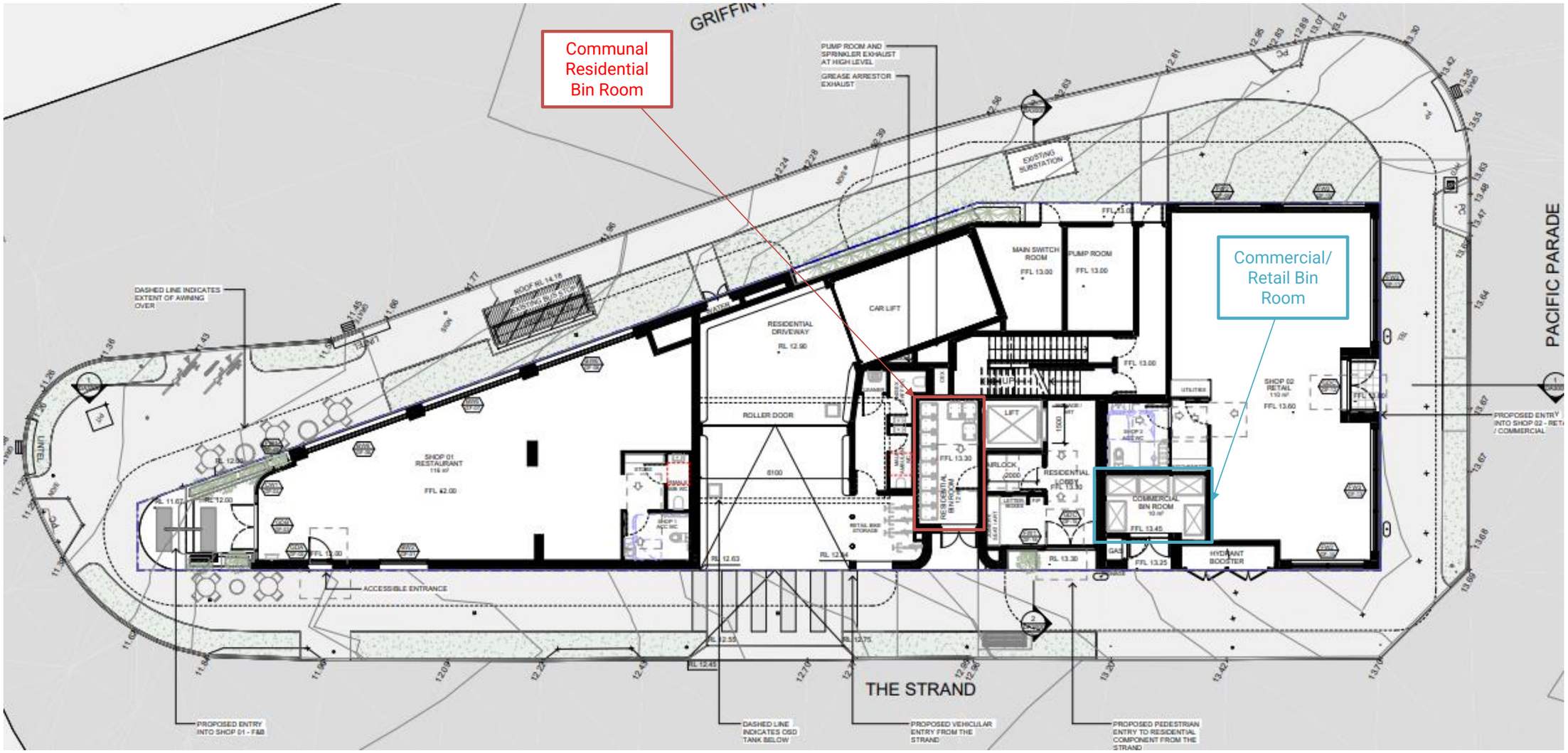
Elephants Foot Equipment	Ph: 1300 435 374	E: equipment@elephantsfoot.com.au
SULO	Ph: 1300 364 388	E: sulosales@pactgroup.com

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

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

APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 GROUND FLOOR PLAN



Source: Platform Architects, Project Number: DA1002, Revision: DA1, 20/11/24 - Ground Floor 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

Wheelie bin

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

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

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

Dome or flat lid container

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

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

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

APPENDIX: 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

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 EXAMPLE COLLECTION VEHICLE INFORMATION

General

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

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

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

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

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

Large collection vehicles

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

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

Table B2.1: Collection vehicle dimensions

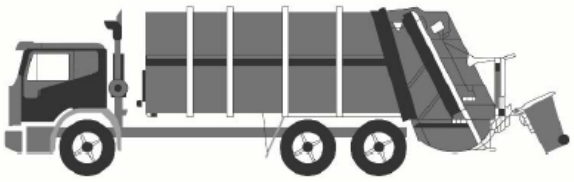
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0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

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

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

Rear-loading collection vehicles

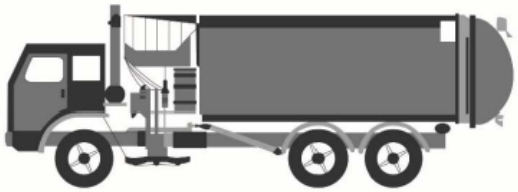
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



Rear-loading waste collection vehicle

Side-loading collection vehicles

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



Side-loading waste collection vehicle

Front-lift-loading collection vehicles

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

Front-lift-loading waste collection vehicle

Small collection vehicles

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

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

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

APPENDIX C: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX: C.1 EXAMPLE HANDHELD BIN MOVERS

movexx
smart electric tugs

MOVEXX T2500
BIN MOVER BATTERY ELECTRIC

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

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

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

SPECIFICATION

MODEL	DIMENSIONS (MM)	OPTIONS	PULL - PUSH CAPACITY (KG)	BATTERY
T2500-D	511 (w) x 757 (l)	* Centre mount 2x 240 lt. wheelie bin attachment	2500	AGM batteries 2x 85AH up to 8 hrs continuous operation

TOWING CAPACITY - ON FLAT GROUND (all models)	TOWING CAPACITY - SLOPE (all models)
Towing up to 4x 660 lt. Wheelie Bin	Towing up to 2x 660 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)
Towing up to 4x 1100 lt. Wheelie Bin	Towing up to 1x 1100 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)
	**Electromagnetic brake for use on ramps and slopes

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

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: C.2 EXAMPLE BIN LIFTER FOR 240L BINS

versatip

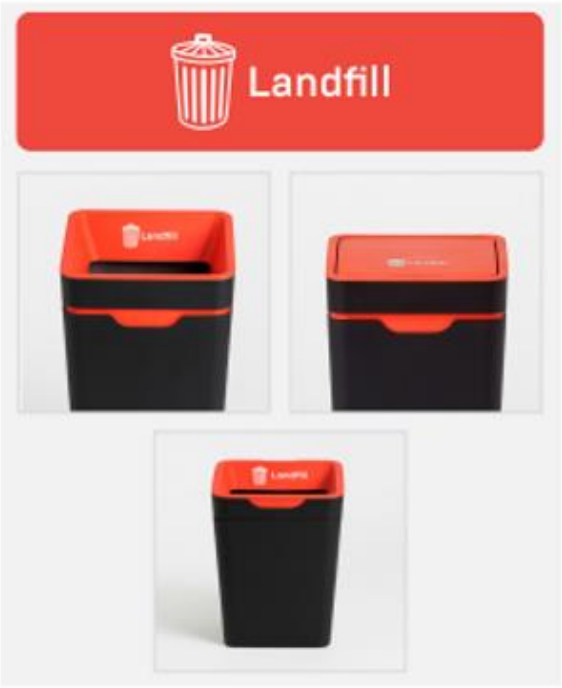
Versatip Bin Tipper – 1500mm Tip

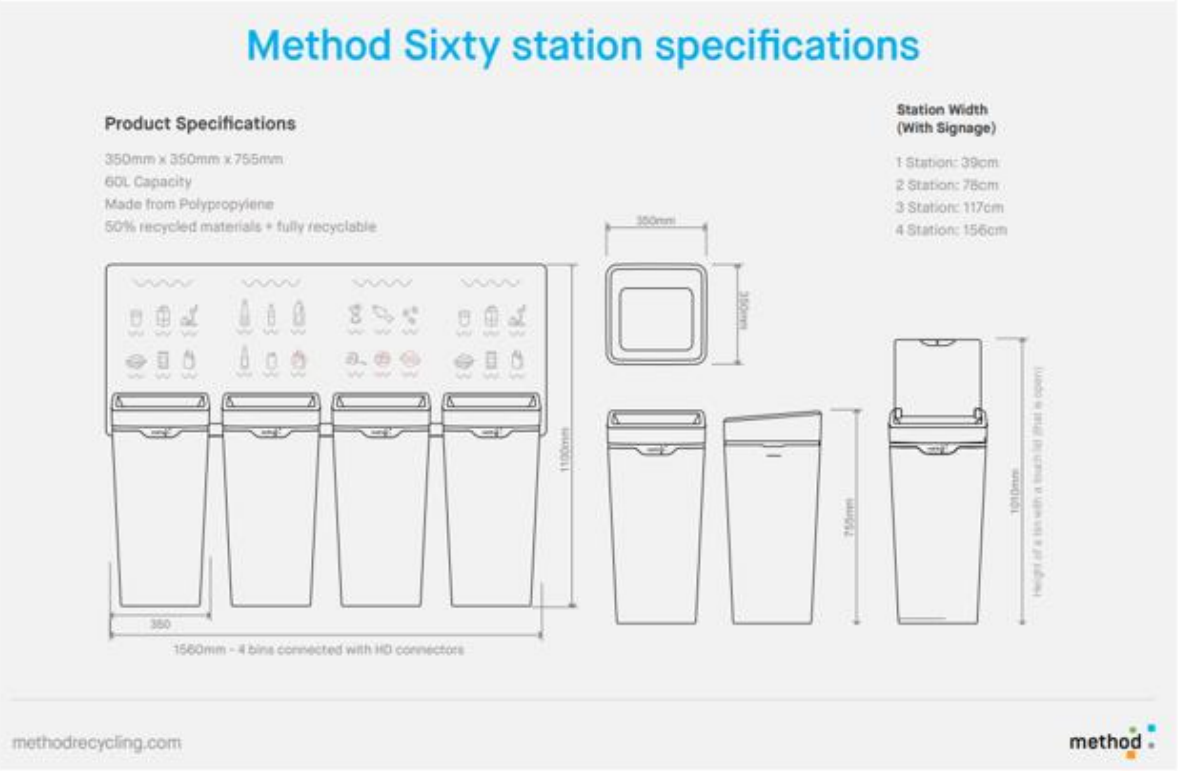
Specifications

Product Code	69121009
Product Name	1500mm Tip – Battery Powered
Capacity (kg)	250
Height (mm)	2085
Length (mm)	1330
Power Source	Battery Powered
Tipping Height (mm)	1500
Width (mm)	990

Please Note: This is an example only – please contact supplier for specific recommendations.
Source: Elephants Foot Equipment - www.elephantsfoot.com.au/equipment/

APPENDIX: C.3 EXAMPLE SOURCE SEPARATION RECEPTACLES





Source: Method Recycling - www.methodrecycling.com