# 10-14 Lethbridge St Penrith

Residential Development

# OPERATIONAL WASTE MANAGEMENT PLAN

12/11/2021
Report No. SO1054
Revision E

Client

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# REVISION REFERENCE

| Revision | Date | Prepared by | Reviewed by | Description |
|---|---|---|---|---|
| A | 4/06/2021 | H Wilkes | A Armstrong | Draft |
| B | 30/06/2021 | H Wilkes | A Armstrong | Amendment |
| C | 14/10/2021 | H Wilkes | A Armstrong | Amendment |
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| E | 12/11/2021 | H Wilkes | A Armstrong | Updated Plans |

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# GLOSSARY OF ABBREVIATIONS AND TERMS

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

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

# 1.0 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 residential development located at 10-14 Lethbridge St Penrith.

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 to this report.

## 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 chute 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.

# 2.0 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:

- Penrith Development Control Plan 2014
- Penrith Local Environmental Plan 2010

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:

- Penrith City Council's *Residential Flat Building Waste Management Guidelines*
- 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

Penrith City Council recognises waste management as a key component to providing sustainable living for residents in terms of economic, social, and environmental outcomes. In this regard, Council's waste management service will take into consideration:

- Site planning of the development accommodates on-site waste collection and allows the waste collection vehicle to enter/exit, manoeuvre within the site and access the nominated collection point in a safe and efficient manner.
- Site planning of the development ensures amenity and safety of all users (including residents, caretakers, cleaners and waste collection staff) at all stages of the waste management process.
- Waste management system selection ensures that it is safe and convenient for resident use; and
- Adequate waste storage area(s) are provided within the development site to store all required waste bins.

# 3.0 DEVELOPMENT OVERVIEW

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

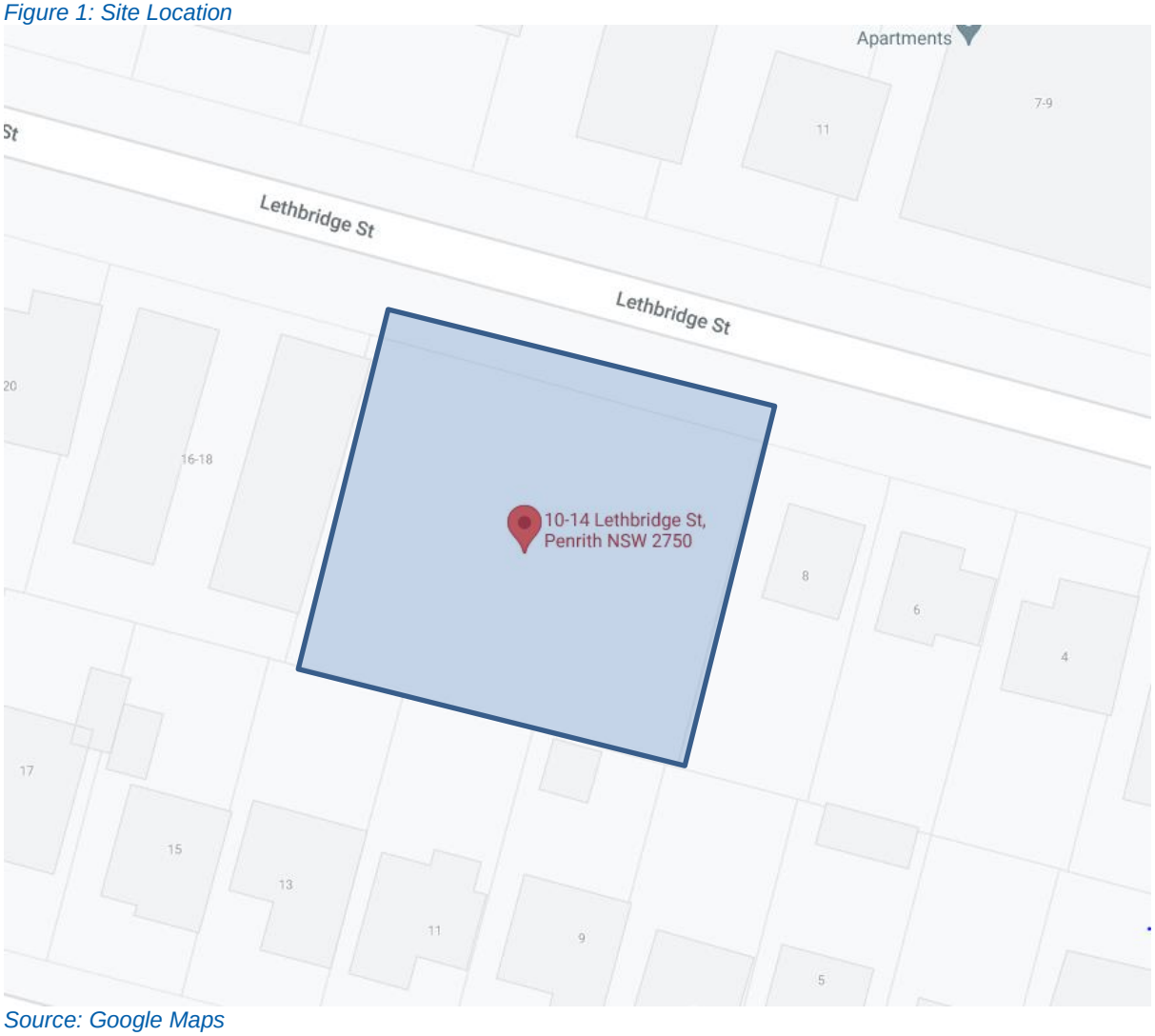
- One building with 6 levels and 2 basement levels
  - 36 residential units in total

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 10-14 Lethbridge st Penrith, as shown in Figure.1. The site has frontages and vehicle access via Lethbridge st.

*Figure 1: Site Location*




*Source: Google Maps*

# 4.0 RESIDENTIAL WASTE MANAGEMENT

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

## 4.1 WASTE GENERATION ESTIMATES

Penrith Council's *Residential Flat Building Waste Management Guidelines* has been referenced to calculate the total number of bins required for the residential units.

*Residential Flat Building Waste Management Guidelines* state that bins should be provided in accordance with the rates shown in Figure 2.

*Figure 2: Penrith Council - Waste Generation Rates for Respective Bin Allocations*

| Weekly Waste Generation Volumes (L) | 240L Bin Allocation | 660L Bin Allocation | 1100L Bin Allocation |
|---|---|---|---|
| Residual | 2 dwellings per bin | 9 dwellings per bin | 18 dwellings per bin |
| Recycling | 2 dwellings per bin | 9 dwellings per bin | 18 dwellings per bin |

*Source: Section 3.4 Waste Generation Calculations, Residential Flat Building Waste Management Guidelines*

The site will use 1100L MGBs, therefore the waste generation rate would be as follows:

**Garbage:** 1100L MGB/18 dwellings = 61.1
=61.1L/unit/week

**Recycling:** 1100L MGB/18 dwellings = 61.1
=61.1L/unit/week

Calculations are based on generic generation rates. Volume of waste and recycling generated in operation may differ according to the residents' waste management practices.

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

*Table 1: Estimated Waste and Recycling Volumes – Residential*

| # Units | General Waste Generation Rate (L/unit/week) | Generated General Waste (L/week) | Recycling Generation Rate (L/unit/week) | Generated Recycling (L/week) |
|---|---|---|---|---|
| *36* | 61.1 | 2199.6 | 61.1 | 2199.6 |
| **TOTAL** | | **2199.6** | | **2199.6** |
| Bins and Collections | General Waste Bin Size (L) | 1100 | Recycling Bin Size (L) | 1100 |
| | General Waste Bins per Week | 2.00 | Recycling Bins per Week | 2.00 |
| | General Waste Collections per Week | 2 | Recycling Collections per Week | 1 |
| | Total General Waste Bins Required for Collection | 2 | Total Recycling Bins Required for Collection | 2 |
| | Number of Waste Bins Per Day | 0.29 | Number of Recycling Bins Per Day | 0.29 |

**Note: An additional 1100L MGB should be provided for each chute discharge for use during collection periods. These bins are not included in the above figures.*

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

## 4.2 BIN SUMMARY

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

**General Waste**: 2 x 1100L MGBs collected **2 x weekly**

**Recycling**: 2 x 1100L MGBs collected **1 x weekly**

**Service Bins:** 2x 1100L MGB

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

## 4.3 WASTE DISPOSAL PROCEDURES

Dual chute systems, comprising of one waste chute and one recycling chute, will be installed with access provided on each residential level. The residents will be responsible for walking their waste and recycling to the disposal point on their level and placing their items into the correct chute.

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

The general waste will discharge from the waste chute into 1100L MGBs on linear tracks and the comingled recyclables will discharge into 1100L MGBs on linear tracks in the Chute Discharge Room on the Basement Level. The building manager will be responsible for monitoring the fullness of the bins under the chute and rotating the bins as required.

## 4.4 WASTE COLLECTION PROCEDURES

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

On the nominated waste collection day, the building caretaker will be responsible for transporting the 1100L MGBs to the Bin Holding Area located on the ground level. It is recommended that extra 1100L service bins are placed under the chute to collect discharge while the other bins are being serviced.

To service the bins, the collection vehicle will enter the site from Lethbridge St and park in the loading bay adjacent to the Bin Holding Area. The bins will be collected directly from the Bin Holding Area via a collect and return arrangement. Once the bins are serviced, the collection vehicle will exit the site onto Lethbridge St in a forward direction.

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

As soon as possible after the servicing of bins has been completed, the building caretaker will return the empty bins to the Chute Discharge Room to resume operational use.

## 4.5 BULKY WASTE PROCEDURES

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

Penrith Council requires new developments to provide a bulky goods room at the following rate:

*Figure 3: Penrith Council's Bulky Goods Area Rate*

$$\text{Bulky Household Waste Area } (m^2) = \left[ \text{Number of Units} \times 8 \right] \div 52$$

*Source: Section 3.5.3 Bulky Household Waste Collection Room, Residential Flat Building Waste Management Guidelines*

Therefore the site will require the following bulky waste storage area

= (36 x 8) / 52
=288/52
=5.53

**Therefore, the site will need a bulky waste room a minimum of 6m$^2$**

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the bulky waste storage room. It is the caretaker's responsibility to arrange collection dates with Council or a private contractor and then coordinate with the residents.

On the day of bulky waste collection, the building manager will move the bulky waste items to await in the Bin Holding Area for collection. a collection vehicle will enter the site from Lethbridge st and park in the loading bay. The building caretaker will provide the driver with access to the Bin Holding Area for collection. Once bulky items have been loaded, the collection vehicle will exit the site onto Lethbridge st.

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

# 5.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

*Table 2: Stakeholder Roles and Responsibilities*

| Roles | Responsibilities |
|---|---|
| Strata or Management | • Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights;<br>• Organising internal waste audits/visual assessments on a regular basis<br>• Purchasing any on-going waste management equipment or maintenance of equipment once building is operational; and<br>• Managing any non-compliances/complaints reported through waste audits. |
| Building Manager or Waste Caretaker | • Maintaining and cleaning chute doors on each level;<br>• Coordinating general waste and recycling collections;<br>• Cleaning and transporting bins as required;<br>• Organising replacement or maintenance requirements for bins;<br>• Organising, maintaining and cleaning the waste holding area;<br>• Organising bulky goods collection when required<br>• Investigating and ensuring prompt clean-up of illegally dumped waste materials.<br>• Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins)<br>• Abiding by all relevant WH&S legislation, regulations, and guidelines;<br>• Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management;<br>• Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers;<br>• Ensuring site safety for residents, children, visitors, staff and contractors; and<br>• Ensuring effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors. |
| Residents | • Dispose of all general waste and recycling in the allocated waste chutes and/or MGBs provided;<br>• Ensure adequate separation of general waste and recycling; and<br>• Compliance with the provisions of Council and the OWMP. |
| Waste Collection Contractor | • Provide a reliable and appropriate waste collection service;<br>• Provide feedback to building managers/residents regarding contamination of recyclables; and<br>• Work with building managers to customise waste systems where possible. |
| Gardening/ Landscaping Contractor | • Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location. |
| Developer | • Purchasing all equipment required to implement this OWMP prior to the occupation of the building to be provided to the strata. |

# 6.0 SOURCE SEPARATION

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

*Table 3: Operational Waste Streams*

| Waste Stream | Description | Typical Destination | Waste Stream Management |
|---|---|---|---|
| **General Waste** | The remaining portion of the waste stream that is not recovered for re-use, processing, or recycling. May include soft plastics, food scraps, polystyrene, etc. | Landfill | Waste should be bagged before placing in chutes. |
| **Recycling** | A mixture of items that are commonly recycled usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons). Also included cardboard and paper products. | Resource Recovery Centre | Recycling must not be bagged, and instead should be placed loosely in the recycling chute or in designated recycling bins.<br><br>Bulky cardboard must not be placed in any chute. Cardboard should be flattened before placing in the designated cardboard bin. |
| **Green Waste** | Green waste consists of unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches) | Resource Recovery Centre | Landscape Maintenance Contractors will remove the green waste from site during scheduled maintenance. |
| **Electronic Waste** | Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc. | Resource Recovery Centre | Building manager arranges collection for e-waste recycling as needed by residents. Commercial tenants arrange for recycling of their own e-waste. |
| **Bulky Items** | Items that are to too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc. | Resource Recovery Centre or Landfill | Residents liaise with building manager to store in Bulky Goods Room. Building manager arranges with Council for removal. Commercial tenants are responsible for removal of their bulky items. |
| **Other** | Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc. | Resource Recovery Facility | Building manager arranges collection by appropriate recycling services when required. |

# 7.0 EDUCATION

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

Education and communication must be provided consistently on a regular basis to encourage behaviour change and account for transient building personnel such as new residents, tenants, or cleaning staff. It is also recommended that the owners' corporation website contain information for residents' referral regarding use of the chute. Information should include:

- Directions on using the chute doors;
- Descriptions of items accepted in the recycling and general waste streams (refer to Council guidance);
- How to dispose of bulky goods and any other items that are not general waste or recycling (refer to Council guidance);
- Residents' obligations to health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

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

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

All signage should conform to the relevant Australian Standards.

## 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

# 8.0 EQUIPMENT SUMMARY

*Table 4: Equipment Summary*

| | Part | Qty | Notes |
|---|---|---|---|
| Chutes | Please refer to supplier's information | 2 | (See Appendix B.1 for Typical Chute Section) |
| Chute Equipment | Waste<br>2-bin 1100L MGB Linear Track System | 1 | (See Appendix B.2 for Typical Linear System) |
| | Recycling<br>2-bin 1100L MGB Linear Track System | 1 | See Appendix B.2 for Typical Linear System) |
| Other Equipment | Suitable Bin Moving Equipment | Recommended | (See for Typical Bin Mover) |

# 9.0 WASTE ROOMS

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

*Table 5: Waste Room Areas*

| Level | Waste Room Type | Equipment | Estimated Area Required ($m^2$) |
|---|---|---|---|
| B | Chute Discharge Room | 1x 2-bin linear track for 1100L MGBs (waste)<br>1x 2-bin linear track for 1100L MGBs (recycling)<br>2x 1100L MGBs (service bins) | >22 |
| G | Bin Holding Room (collection area) | 2x 1100L MGBs (waste)<br>2x 1100L MGBs (recycling) | >12 |
| G | Bulky Goods Waste Storage Room | | >6 |

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

In addition, all doorways and passageways facilitating the movement of bins and/or bulky waste items must be at least 1800mm wide in accordance with Penrith Council's *Residential Flat Building Waste Management Guidelines*. The following table provides further waste room requirements.

*Table 6: Waste Room Requirements*

| Waste Room Type | Waste Room Requirements |
|---|---|
| Chute Discharge Room | • Ceiling clearance height must be a minimum of 3000mm<br>• The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles (subject to penetration location)<br>• All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room<br>• 200mm clearance is required around compaction equipment |

| | |
|---|---|
| | • Where a chute offset is required, the angle of the offset must not exceed 40 degrees (Subject to number of consecutive offset and/pr up to 1500mm)<br>• Where two sets of volume management equipment are placed under the chutes, a 200mm clearance is required between the equipment. |
| Residential Bin Holding Room and/or Bin Collection Area | • Bins must not be stacked in rows that are more than two bins deep |
| Bulky Goods Waste Storage Room | • May be a dedicated room or screened area within another waste room<br>• Must be in close proximity to the collection area<br>• Area must also be allocated for the segregation of e-waste, gas bottles, cardboard, etc.<br>• Doorway should be a minimum of 1800mm wide |

# 10.0 BIN MOVING PATHS

The building manager is responsible for the transportation of bins as required from their designated operational locations to the bin holding room as required and returning them once emptied to resume operational use. The service lift will be used to move the bins between levels.

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

The routes along the bin moving path should;

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

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

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

## 11.1 CONSTRUCTION REQUIREMENTS

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

The *NSW Better Practice Guide for Resource Recovery in Residential Developments (2019)* also states that better practice bin storage areas should achieve more than the minimum compliance requirements, which are as follows:

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

### 11.1.1 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.

# 12.0 USEFUL CONTACTS

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

### PRIVATE WASTE COLLECTION PROVIDER

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

### BIN MOVING DEVICE SUPPLIERS

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

### ORGANIC DIGESTERS AND DEHYDRATORS

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

### COOKING OIL CONTAINERS AND DISPOSAL

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

### ODOUR CONTROL

| | | |
|---|---|---|
| Purifying Solutions | Ph: 1300 636 877 | E: sales@purifyingsolutions.com.au |

### SOURCE SPERATION BINS

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

### MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

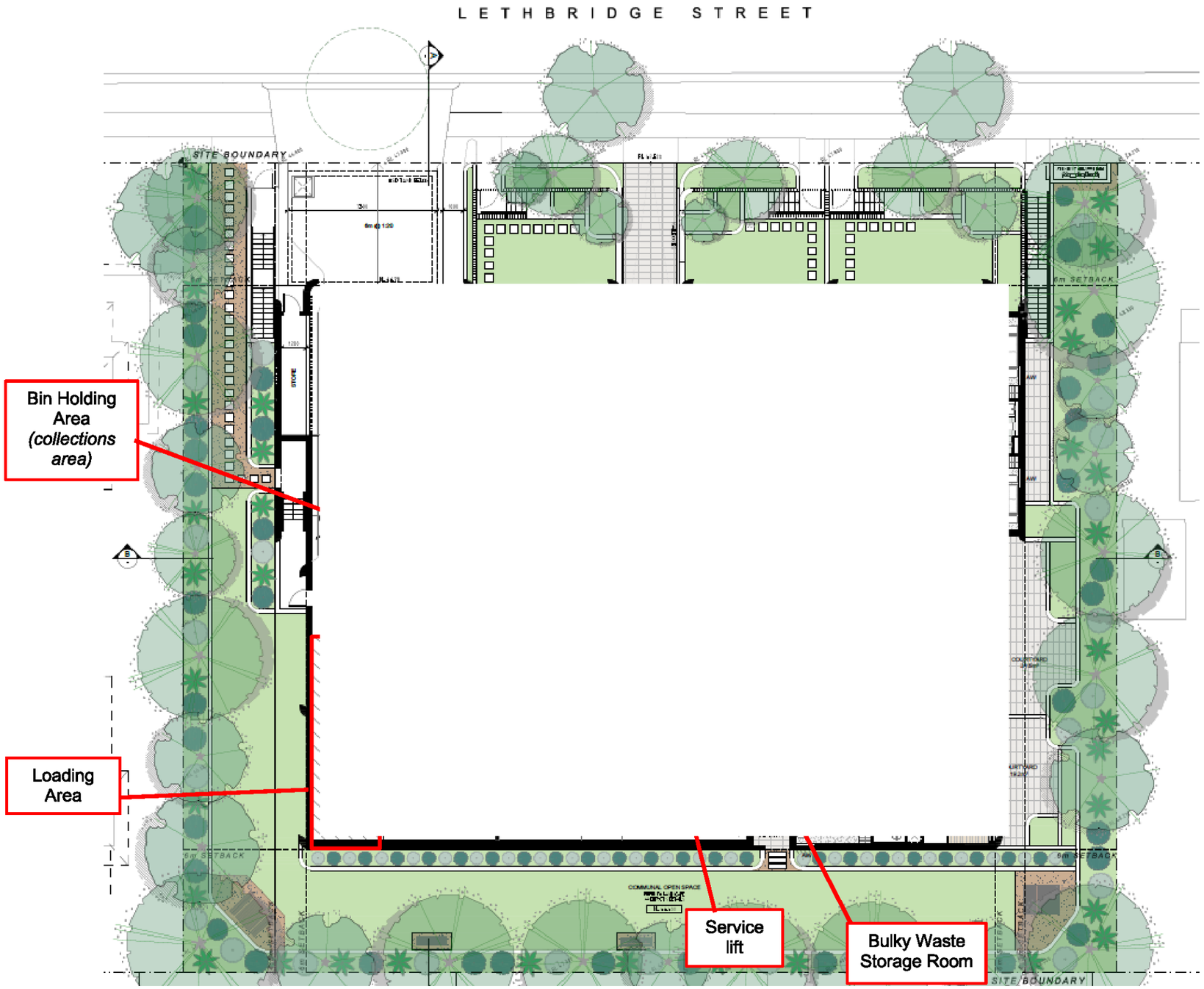
| | | |
|---|---|---|
| SULO | Ph: 1300 364 388 | E: sales@sulo.com.au |
| OTTO Australia | Ph: 02 9153 6999 | |

### CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

| | | |
|---|---|---|
| Elephants Foot Recycling Solutions | Ph: 1800 025 073 | E: info@elephantsfoot.com.au |

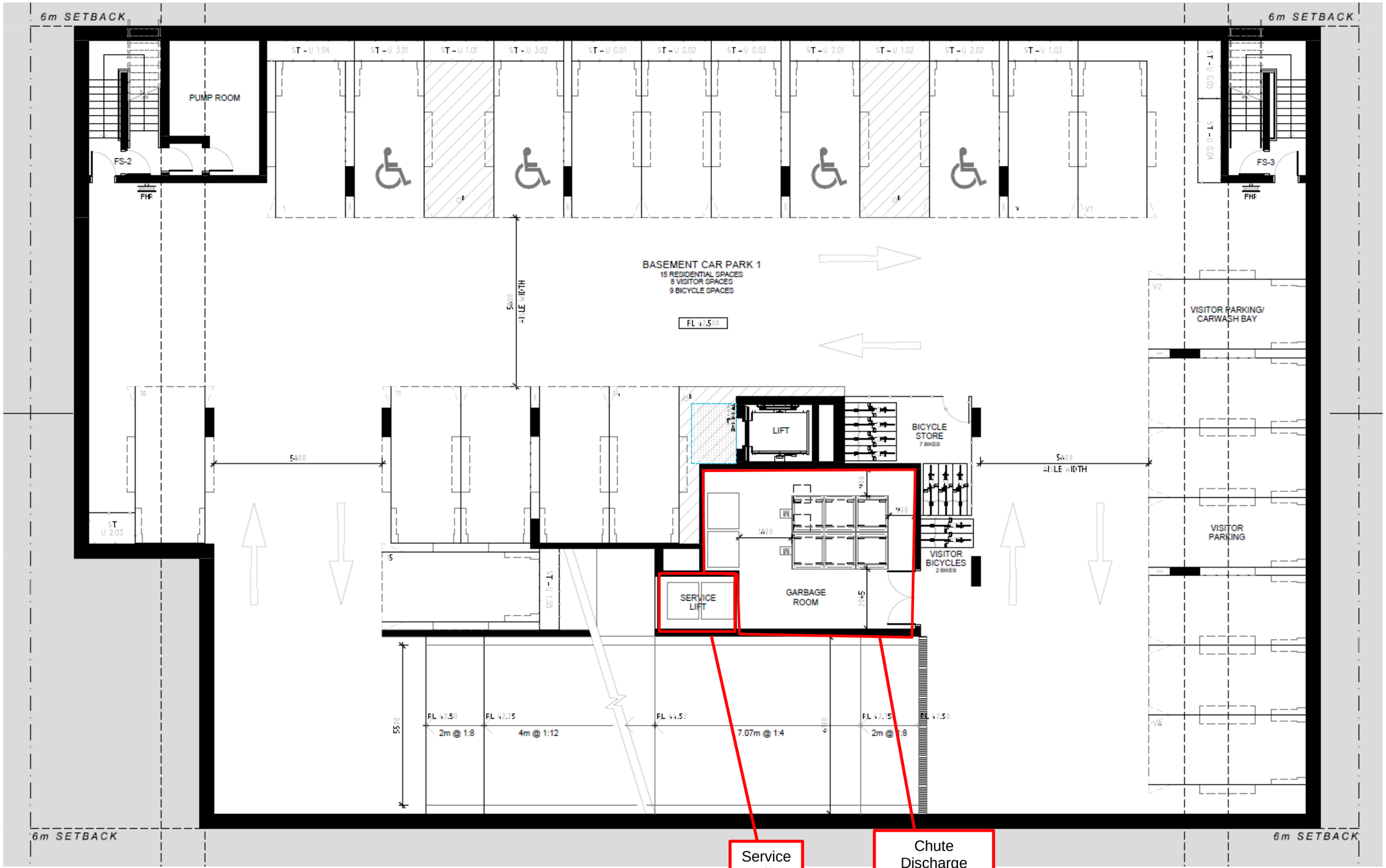
# APPENDIX A: ARCHITECTURAL PLANS

## APPENDIX A.1 GROUND FLOOR PLAN — WASTE FACILITES




Source: PBD Architects, 10-14 Lethbridge St Penrith, Drawing No DA102 Issue A – Ground Floor Plan

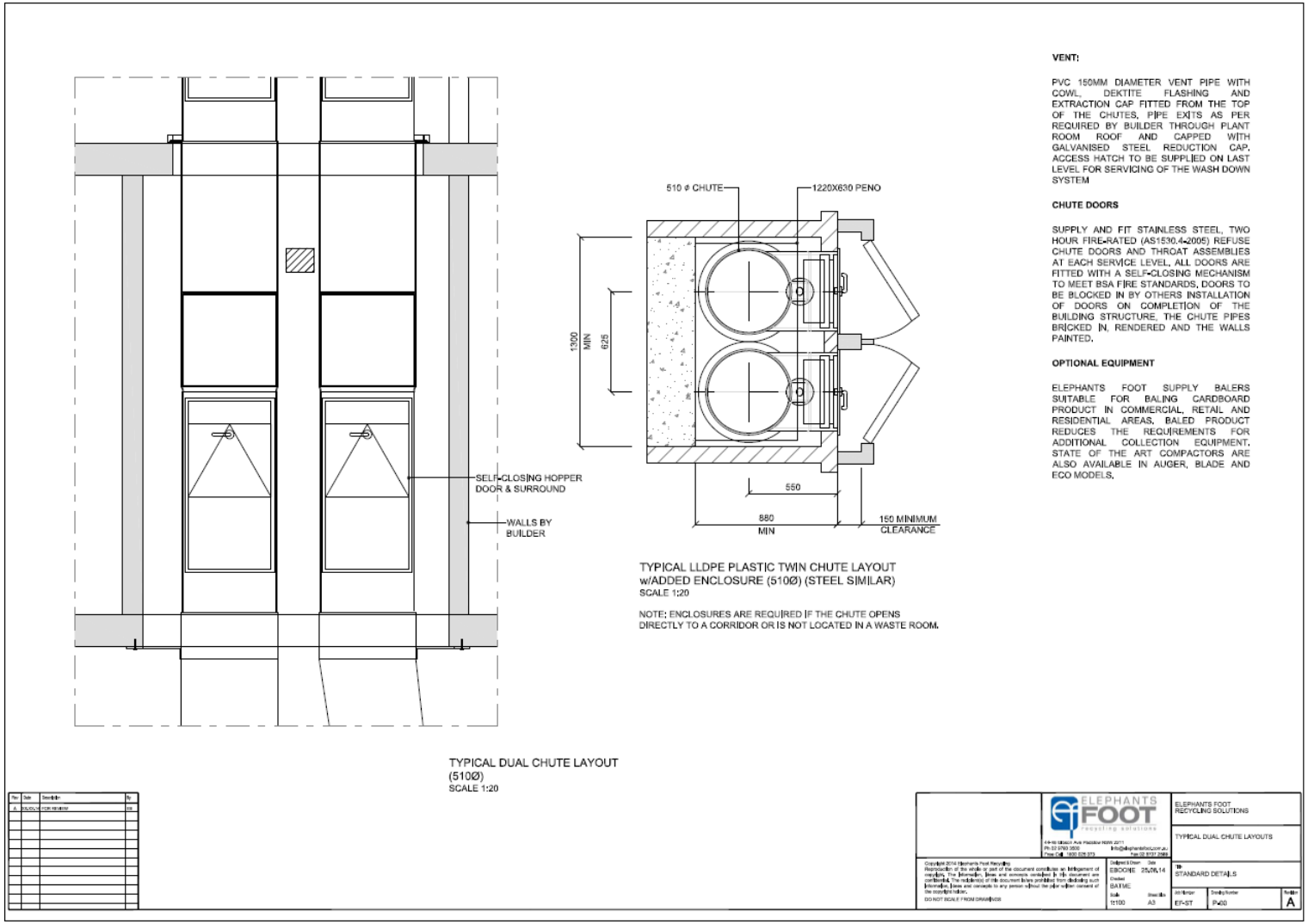
# APPENDIX A.2 BASEMENT LEVEL 1 – WASTE FACILITES




Source: PBD Architects, 10-14 Lethbridge St Penrith, Drawing No DA101 Issue A – Basement Floor Plan

# APPENDIX B: INSTALLATION EQUIPMENT

# APPENDIX B.1 TYPICAL DUAL CHUTE LAYOUT




*Please note: this is an example only – please refer to supplier's information and specification.*

# APPENDIX B.2 TYPICAL LINEAR TRACK SYSTEM FOR 1100L MGBS

ELEPHANTS FOOT recycling solutions

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

## 1100 LITRE LINEAR TRACK SYSTEM

### PRODUCT INFORMATION

Elephants Foot 1100 Litre bin Linear Track System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Linear Track System collects waste or recycling being disposed from the floors above through the chute system, discharging the material via a hopper that feeds the bins. Electromechanically driven with automated operation, the system utilises linear motion to automatically change over full bins. Once all the bins are filled, an indicator light will illuminate signifying that the bins are ready for withdrawal and collection. Available with or without compaction unit, our standard 660 litre bin Linear Track System is available in the standard 2 bin option. Our 3 Bin option is available as a special order.

### SPECIFICATIONS

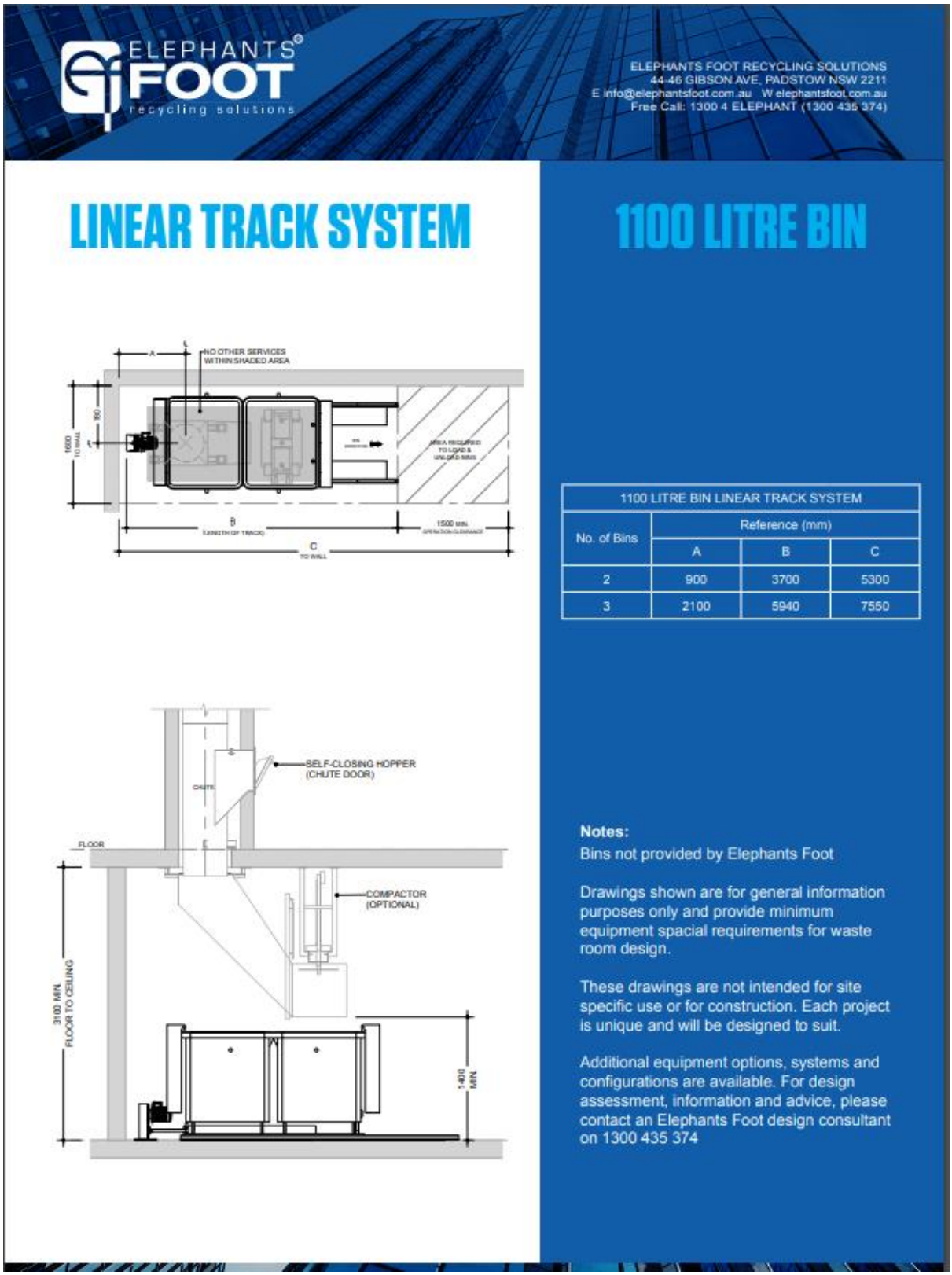
| | |
|---|---|
| System Control | Electric PLC |
| Power Supply | 415 V AC / 10A / 5 PIN |
| Motor Size (kW) | 1.1 |
| Maximum bin load | 440 kg |
| Noise (dBA) | <85 |
| Bin Size (L) | 1100 |
| Cycle time (sec) | 60 |
| Bin Quantity options | 2 or 3 |

### OPTIONAL EXTRAS

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

### STANDARD FEATURES & BENEFITS

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




*Please note: this is an example only – please refer to supplier's information and specification.*

# APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS

# APPENDIX C.1 TYPICAL BIN SPECIFICATIONS

The bin dimensions provided reflect the bins currently used to serve Penrith's residential waste streams:

- Council's standard bin allocations for RFB developments are 660L and 1100L bins for both general and recycling waste streams.
- Where the development incorporates a **dual waste chute system**, Council may allocate 240L **mobile garbage bins** for the development to allow safe disposal of cardboard boxes and larger cardboard objects that cannot be placed in the chute system.

| Size | Height (mm) | Width (mm) | Depth (mm) |
|---|---|---|---|
| 240L Bin | 1100 | 600 | 740 |
| 660L Bin | 1400 | 800 | 1260 |
| 1100L Bin | 1330 | 1090 | 1240 |

Table 5: Standard Bin Size and Dimensions

Figure 10: Image of typical 240L, 660L and 1100L waste collection bins

*Source: Penrith City Council, Residential Flat Building Waste Management Guidelines*

# APPENDIX C.2 SIGNAGE FOR WASTE & RECYCLING BINS

## Waste signs

Signs and educational materials perform several functions including:

- informing residents why it is important to recover resources and protect the environment
- providing clear instructions on how to use the bins and services provided
- alerting people to any dangers or hazards within the bin storage areas.

All waste, recycling and organic bins should be Australian Standard colours and clearly and correctly labelled, such as by a sticker on the lid and/or the body of the bin.

Communal bin storage areas should be clearly signposted with signs outlining how to correctly separate waste into the bins provided. The local council responsible for waste services may be a good source of signs and posters and can advise on what signs are suitable.

Information on who to contact to find out more about the recycling and/or other resource recovery services in the building should also be displayed in communal areas, such as on a noticeboard.

The Planet Ark website also has resources available free of charge for use by businesses and councils. These signs can be found at businessrecycling.com.au/research/signage.cfm

**Figure I1.1: Examples of waste wall posters (EPA supplied)**

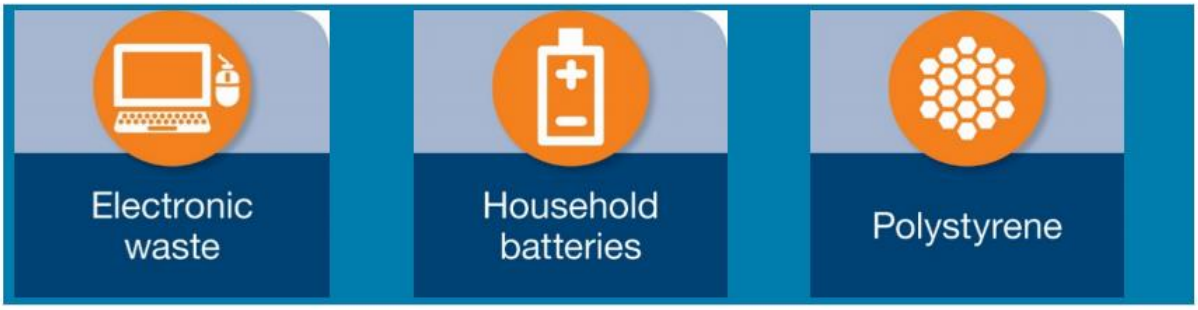

**Figure I1.2: Examples of bin lid stickers (EPA supplied)**


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

## Problem waste signs

The EPA has also produced a range of images and signs that can be used for problem wastes, such as fluoro globes and tubes, household and car batteries, e-waste and smoke detectors. To access these resources, contact the NSW EPA. Some examples are shown below.

**Figure I2.1: Problem waste signs**




## Safety signs

The use of safety signs for waste resource recovery rooms must comply with *AS1319 Safety signs for occupational environments*. Safety signs must be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Suitable signs should be decided for each development as required.

**Figure I3.1: Example safety signs**


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

# APPENDIX C.5 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](http://www.electrodrive.com.au/products/tugs/tug-evo.aspx)*

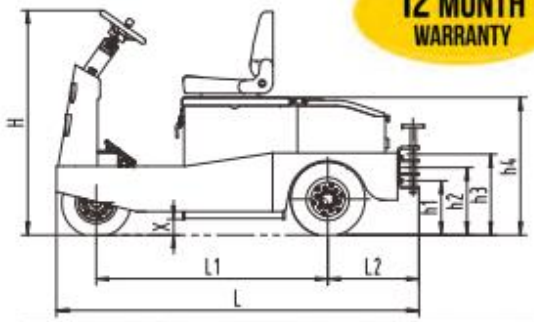
# APPENDIX C.6 TYPICAL SEATED BIN MOVERS

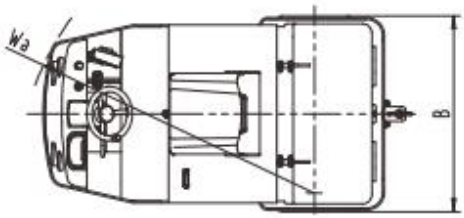
SITECRAFT
MATERIALS HANDLING EQUIPMENT
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

## 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/