

# Casula Aged Care – 18 Randwick Close, Casula Aged Care Development

# **OPERATIONAL WASTE MANAGEMENT PLAN**

21/02/2020 Report No. Revision D

Client Summit Care

Architect Jackson Teece

ELEPHANTS FOOT RECYCLING SOLUTIONS • ABN 70 001 378 294 44-46 Gibson Ave Padstow NSW 2211 www.elephantsfoot.com.au

**T** +612 9780 3500 • **F** +612 9707 2588 **E** info@elephantsfoot.com.au



## SCOPE

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 for, 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. Elephants Foot Recycling Solutions (EFRS) can supply this if necessary.

## **REVISION REFERENCE**

Revision	Date	Prepared by	Reviewed by	Description	Signed
A	3/10/2019	A Armstrong	E Saidi	Draft	A. Anothering
В	14/10/2019	A Armstrong	E Saidi	Amendment	A. Anothering
С	4/11/2019	A Armstrong	E Saidi	Final	A. Anothering
D	21/02/2020	A Armstrong	E Saidi	Amendment	A. Anokuong

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# GLOSSARY OF TERMS

TERM	DESCRIPTION	
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	
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	
DCP	Development Control Plan	
EPA	Environmental Protection Authority	
General Waste	All domestic waste (Except recyclables and green waste)	
Green Waste	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers	
HRV	Heavy rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)	
L	Litre(s)	
MUD	Multi Unit Dwelling	
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	
Recycling	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines	
SRV	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33	



## 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 aged care development located at 18 Randwick Close, Casula.

Waste management strategies and audits are a 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 waste management plan is integrated into the overall management of the building and clearly communicated to all relevant stakeholders.



## **REPORT CONDITIONS**

The purpose of this report is to document an Operational Waste Management Plan (OWMP) as part of a development application and is supplied by EFRS with the following limitations:

- Drawings, estimates and information contained in this waste management plan have been prepared by analysing the information, plans and documents supplied by the client, and third parties including Council and government information. 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 managements approach to educating residents and tenants regarding waste management operations and responsibilities;
- The building manager will make adjustments as required based on actual waste volumes (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 or representation is made that the OWMP reflects the actual outcome and EFRS will not be liable to you for plans or outcomes that are not suitable for your purpose, whether as a result of 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 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 head heights, internal manoeuvring and loading requirements. These variables are considered to be within the applicable Traffic Consultants domain.
- Council are subject to changing waste and recycling policies and requirements at their own discretion. Information provided in this Waste Management Plan has been derived from Liverpool Councils current DCP 2008.

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



## DEVELOPMENT SUMMARY

The proposed development falls under the LGA of Liverpool City Council, and consists of 3 multi-level buildings (Building A, B & C)

- Building A incorporates:
  - 142 residential care units (RCU)
  - 24 independent living units (ILU)
  - Commercial areas including a theatre, dining areas, a hairdressing studio, physio and offices
- Building B incorporates:
  - 2 separate building cores incorporating a total of 38 ILU's
  - 4 shops with a combined GFA of 298m<sup>2</sup>
- Building C incorporates:
  - 30 ILU's

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

## SITE LOCATION

The site is located at 18 Randwick Close, Casula as shown in Figure.1. The site has frontages to Randwick Close and Kurrajong Road, with vehicle access via Kurrajong Road.



Figure 1: Site Plan



### LEGISLATION AND 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:

Liverpool Development Control Plan 2008

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:

- Liverpool City Council: Liverpool Development Control Plan 2008
- 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

## LIVERPOOL COUNCIL OBJECTIVES

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

- To minimise waste produced during demolition and construction of new development and maximise resource recovery.
- To ensure waste management for the end use of the development is designed to provide satisfactory amenity for occupants and provide appropriately designed collection systems.
- To minimise ongoing waste to landfill and maximise recycling of ongoing waste.



## STAKEHOLDER ROLES AND RESPONSIBILITIES

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

Table 1: Stakeholder Roles and Responsibilities

Roles	Responsibilities			
Building Caretaker	<ul> <li>Ensuring effective signage, communication and education is provided to occupants, tenants and cleaners;</li> <li>Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities;</li> <li>Ensuring site safety for residents, children, visitors, staff and contractors;</li> <li>Abiding by all relevant WH&amp;S legislation, regulations, and guidelines;</li> <li>Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers;</li> <li>Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins)</li> <li>General maintenance and cleaning of chute doors on each level;</li> <li>Cleaning and transporting of bins as required;</li> <li>Organising, maintaining and cleaning the general and recycled waste holding area;</li> <li>Organising both general waste and recycled waste pick-ups as required;</li> <li>Organising replacement or maintenance requirements for bins;</li> <li>Organising bulky goods collection when required; and</li> <li>Investigating and ensuring prompt clean-up of illegally dumped waste materials.</li> </ul>			
Residents and Tenants	<ul> <li>Dispose of all general waste and recycling in the allocated waste chutes and/or MGBs provided;</li> <li>Ensure adequate separation of general waste and recycling; and</li> <li>Compliance with the provisions of Council and the OWMP.</li> </ul>			
Waste Contractor	<ul> <li>Provide a reliable and appropriate waste collection service;</li> <li>Provide feedback to building managers/residents in regards to contamination of recyclables; and</li> <li>Work with building managers to customise waste systems where possible.</li> </ul>			
Gardening/Landscaping Contractor	• Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.			
Building Contractors	• Removing all construction related waste offsite in a manner that meets all authority requirements.			



### EDUCATION

Building management is responsible for education and signage within the site.

Proper signage and education are critical to ensure the waste and recycling operations at any building is successful. The importance of signage and education is two-fold:

- 1. To provide clear instructions on how to recycle and manage different types of waste
- 2. To inform residents, tenants, cleaners, and other waste generators on the significance of better practice waste management methods

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;
- Recycling and general waste descriptions (Council provides comprehensive information);
- How to dispose of bulky goods and any other items that are not general waste or recycling;
- Residents' obligations to health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

It is expected that leasing arrangements with retail and commercial operations contain direction on waste management services and expectations.

#### **SIGNA**GE

The main signage aspects to consider are:

- Clearly and correctly labelling waste and recycling bins.
- Providing clear instructions for separating and disposing of waste items. Different languages should be considered.
- Clearly posting locations of, and directions to, the waste storage areas with directional signs, arrows, or lines.
- Identifying all hazards or potential dangers associated with the waste facilities.
- Displaying 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 (see *APPENDIX B.2*). 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 the bin underneath.

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 and the NSW EPA's standard recycling signs.



## INDEPENDENT LIVING UNITS (ILU) WASTE MANAGEMENT

The *Liverpool City Council Development Control Plan 2008* has been referenced to calculate the total number of bins required for the ILU's. Calculations are based on generic figures; waste generation rates may differ according to the residents' waste management practice.

#### ESTIMATED WASTE VOLUMES AND PROVISIONS

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

Building/ Core	# Units	General Waste Generation Rate (L/unit/week)		Generated General Waste (L/week)	Recycling Generation Rate (L/unit/week)		Generated Recycling (L/week)
А	24		120	2880	120		2880
B1	22		120	2640	12	0	2640
B2	16		120	1920	12	0	1920
С	30	120		3600	120		3600
TOTAL	92			11040			11040
Bins and Collections		General Waste Bin Size (L)		1100	Recycling Bin Size (L)		1100
		General Waste Bins per Week		11	Recycling Bin	s per Week	11
		General Waste Collections per Week		3	Recycling Collections per Week		3
		Total Genaral Waste Bins Required for Collection		5	Total Recycling Bins Required for Collection		5
			Core A	1		Core A	1
		Number of Waste	Core B1	1	Number of Recycling Bins	Core B1	1
		Bins Per Day	Core B2	1		Core B2	1
			Core C	2	Per Day	Core C	2

#### Table 2: Calculated Waste Generation – ILU's

\*Note: An additional 660L MGB should be provided for each chute discharge for use during collection periods. These bins are not included in the above figures.

#### **BIN SUMMARY FOR COLLECTION**

General Waste:	5 x 1100L bins collected 3 x weekly
Recycling:	5 x 1100L bins collected 3 x weekly
Total:	10 x 1100L bins collected 2 x weekly

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 achieve 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.

#### ILU DISPOSAL PROCEDURE

4 x general waste chutes will be installed with access provided on all ILC levels of each building/building core. The chutes are to be used for the disposal of general waste only.

1 x 240L recycling bin will be provided in the compartment adjacent to the chute on each ICL level. The residents will be responsible for walking their waste and recycling to the disposal point on their level and placing their waste into the chute and recycling into the 240L bin provided.



The chute discharges waste into 1100L bins and is not compacted. The discharge is located in the waste discharge rooms on basement 1 for each building. The building manager is responsible for monitoring the fullness of the bins under the chute and rotating with empty bins as required.

The building manager or cleaner is also responsible for monitoring the capacity of 240L recycling bins on each level and transferring them to the central waste room to decant recyclables into 1100L bulk bins, via the designated bin lifter.

ILU common areas such as lobbies, amenities and circulation areas will be supplied with suitably branded waste and recycling bins where considered appropriate. These areas generate minimal waste, however general waste and recycling receptacles should be provided and located in convenient locations.

#### ILU SOURCE SEPARATION

Waste avoidance, recovery and reuse of discarded materials and responsible management of hazardous waste are all crucial elements of sustainable development. Effective waste management practices in developments significantly improve environmental, social, and economic outcomes on both a local and regional scale, and should be integrated into the waste management processes.

#### GENERAL WASTE

Residents will be supplied with a collection area in each unit to deposit general waste and collect recyclable material suitable for one day's storage. This is typically located generally in the kitchen, under bench or similar alternate area. Residents should wrap or bag their general waste; bagged general waste should not exceed 3kg in weight or 35cm x 35cm x 35cm in dimension.

#### RECYCLING

**Recycling must not be bagged**. It is recommended that residents use a crate or dedicated bin for collecting recyclables within the allocated residential space provided to ensure correct separation.

Cardboard furniture boxes or large cardboard containers should not be included in the general waste chute – a cardboard collection bin will be made available to residents to deposit flattened cardboard and will be managed by the waste caretaker. Residents should be advised of the location of these bins by building management.

#### GREEN WASTE

There will be green waste generated by the buildings landscaped areas. Any green waste will be collected and removed from site by the maintenance contractor during scheduled or arranged servicing of these areas.

#### BULKY GOODS

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

The recommended bulky goods storage room size is **12m**<sup>2</sup>.



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These areas are crucial to prevent residents from illegally dumping bulky waste on the footpath outside Councils scheduled collection times. Regular illegal dumping can attract other dumped waste, generate litter, detract significantly from the quality and appearance of the development and reduce amenity of the street.

Residents will be required to liaise with building management regarding the transportation and disposal of bulky goods. Ideally, bulky waste should be collected on a regular schedule so that the storage area does not become overfull and so that residents know when to place items in there for collection. Councils may arrange for more frequent collections of bulky waste for MUDs, however collection frequencies vary among different local government areas.

Donations to charitable organisations should be encouraged. Clean, sound furniture and household goods etc. are highly sought after to provide for the disadvantaged. Donations can be arranged with the assistance of the building manager/waste caretaker.



# RESIDEINTAL CARE UNIT (RCU) & COMMERCIAL WASTE MANAGEMENT

Residential care units will be dependent aged care. The occupants within the residential care units will have their meals, living need and cleaning conducted by the residential care unit staff. Therefore the waste generation rate will differ from the independent living units.

The waste generation rates for the RCU;'s have been derived from the NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments 2019.* 

Waste: 35L/Occupant/ Week Recycling: 7L/Occupant/ Week

Please note that calculations are based on generic figures; waste generation rates may differ according to the residents' waste management practice.

Building	# Rooms	Garbage Generation Rate (L/unit/week)	Generated Garbage (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recycling (L/week)
RCU	142	35	4970	7	994
TOTAL	142	4970		994	
		Garbage Bin Size (L)	1100	Recycling Bin Size (L)	1100
MGBs & Collection		Garbage Bins per Week	8	Recycling Bins per Week	1
		Garbage Collections per Week	3	Recycling Collections per Week	3
		Total Garbage Bins Required	2	Total Recycling Bins Required	1

#### Table 3: Calculated Waste Generation - RCU's

#### **RESIDENTIAL CARE UNITS WASTE MANAGEMENT**

Each resident's room will be supplied with small receptacles to collect waste and recyclable material suitable for 1 days' worth of storage.

The bins are emptied by contract cleaners/staff. The cleaners/staff circulate around each resident's room and also perform other cleaning tasks.

Cleaners empty the bins into bags which they transport around the building in a cart which is also used to store cleaning products, spare bags, PPE and consumables.

The cleaners or staff will transport and dispose of the waste in the central waste room on basement 1.

#### MEDICAL WASTE

The management of medical waste (as used in aged care facilities) is a highly specialised field. If not stored and treated appropriately, some materials can cause infections or injuries, while others can be highly toxic. As such the correct and safe handling of generated medical waste will be required at all times with all medical waste being removed off site by a specialist waste removal contractor.

The RCU facility will have dedicated medical waste bins supplied as per the medical waste contractor's recommendations for the site. Waste from out-of-date and partly used medicines, infectious medical wastes, hazardous wastes and sharps waste must be stored and disposed of according to specific industry-based regulations. Correct segregation and containment of all wastes is required under the Waste Act.



Size/Type of Vicinity	Generated Waste (# 240L Bins)	Collection	Comments
2-3 Doctors	1	Weekly	Medical waste requires locked 240L MGBs
4-6 Doctors	2	Weekly	Sharps bins supplied to each doctor and the treatment room. Full sharps containers are placed in the 240L MGBs
7-12 Doctors	3	Weekly	Replacement sharps containers provided by the medical waste service provider

Table 4: Estimated Medical Waste Bins

Based on Table. 4 above, it is likely that 2 x 240L medical waste bins will be required for the RCU component.

Medical waste bins will be kept in the central waste room, however they will be segregated and caged off with access granted to authorised personnel only.

Medical waste bins will be collected by the appointed contractor on a wheel in/wheel out basis and replacement bins provided to an agreed collection scheduled.

Please refer to Table. 5 for the storage and collection requirements for any medical waste.

Area	Location
Storage	An EPA license may be required to store Hazardous Wastes. Storage areas are to be free from odour and must discourage the harbourage of vermin. Health Care Facilities must provide an enclosed structure such as a shed, garage, cage, fenced area or separate loading bay to store waste. The holding area should be located away from food and clean storage areas, it must not be accessible to the public, have a lockable door and rigid impervious flooring. Clean up facilities, spills kits, appropriate drainage and bunding should be provided. Where wastes are stored in bins the bin must be locked and a specific area, with adequate drainage, for washing equipment should be designated
Containers	All containers of medical waste to be stored in a secure location. Loads contained in MGBs and trolleys should be less than 55kgs and bins must be colour coded and marked in accordance with the Waste Management Guidelines for Health Care Facilities
Spillage	Ensure all necessary equipment required to clean and disinfect the area in case of accidental spillage is easily available and accessible. It is essential that personnel involved in spill management receive education and training in emergency procedures and handling requirements. Spill kits that have been used should be disposed of with the type of waste that has been cleaned up, eg used cytotoxic spill kits should be disposed of with cytotoxic waste
Mixed waste	Any waste mixed with medical waste must be treated as medical waste
Sharps	Needles, syringes and surgical instruments must be handled so the disposal of these items does not incorporate cutting, bending or any other manipulation that could generate aerosols or splatter contaminated fluids. All sharps containers should be assessed for compliance with the current NSW Health Infection Control Policy and the relevant Australian Standard
Collections	Medical waste shall remain within the storage areas and only be moved during collections. Collections will be performed by a transporter licensed by the EPA to collect and transport

 Table 5: Storage and Collection Requirements

#### SHARPS WASTE

Sharps waste refers to objects or devices having sharp points or protuberances or cutting edges, capable of penetrating the skin or the container in which it is discarded. Examples of

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this are needles, lancets and scalpel blades. All glass used in clinical procedures e.g. vials, ampoules whether broken or unbroken, contaminated or not is best disposed as sharps.

Any sharp waste must be disposed of into sharp waste bins. Building management will be responsible for providing enough sharps bins for the facility and for arranging the private contractor to service the sharps bins.

Sharps waste must be segregated and disposed of into rigid, impenetrable containers, which comply with AS 4031-1992. bins will be serviced from their operational location by an appropriate contractor.

Figure 2: Typical Sharps Waste Bin



http://www.sterihealth.com.au/sites/sterihealth.com.au/files/fck\_images/file/Sharpsmart%20Accessories%20versi on%20SEPT%202010%20for%20web.pdf



# COMMERCIAL WASTE MANAGEMENT

NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments 2019* has been referenced to calculate the total number of bins required for the commercial areas. Calculations are based on generic figures; waste generation rates may differ according to the tenants' waste management practice.

#### ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of general waste and recycling generated by the commercial component of the development. A seven day operating week has been assumed. It has also been assumed that the RCU facilities and commercial tenancies will share bins, a waste room and collection service.

Туре	NLA (m²)	General Waste Generation Rates	Generated Garbage (L/week)	Recycling Generation Rate (L/100m²/day)	Generated Recycling (L/week)
Kitchen	89	400	2492	280	1744.4
Servery's	80	400	2240	280	1568
Theature	73	5	25.55	10	51.1
Café	67	100	469	120	562.8
Hairdresser	69	50	241.5	40	193.2
Physio	47	20	65.8	10	32.9
Admin/Offices	70	10	49	10	49
Shops - Standard Retail	298	50	1043	100	2086
TOTAL	793		6625.85		6287.4
	Bin Size (L)		1100	Bin Size (L)	1100
Collections and	General Waste Bins Per Week		7	Recycling Bins Per Week	6
Fauinment	Collectio	ons per Week	3	Collections per Week	3
Edubulour	Total W	aste Bins Required	3	Total Recycling Bins	2
		asie Dins Nequileu	3	Ivequiieu	2

#### Table 6: Calculated Waste Generation - Commercial

- Building A incorporates:
  - o 142 residential care units (RCU)
  - 24 independent living units (ILU)
  - Commercial areas including a theatre, dining areas, a hairdressing studio, physio and offices
- Building B incorporates:
  - 2 separate building cores incorporating a total of 38 ILU's
  - 4 shops with a combined GFA of 298m<sup>2</sup>
- Building C incorporates:
  - o 30 ILU's

It is the responsibility of the building manager to monitor the number of bins required for the retail and commercial office components. Waste volumes may change according to the development's management, customer base and tenancy attitudes to waste disposal and recycling. The bin numbers, sizes and collection frequencies may need to be altered to suit the building operation. Seasonal peak periods i.e. public and school holidays should also be considered.

#### KITCHEN, SERVERY, CAFE AND DINING AREAS WASTE MANAGEMENT

Food handling for food cooked or prepared, served and consumed on site will produce a typical waste composition of food scraps from plates, packaging waste and some plastics.



Waste, cardboard recycling and co-mingled recycling bins will be placed in receptacles BOH. It is the staff's responsibility to ensure that waste and recycling is separated and is disposed of in the appropriate bin.

Cardboard is a major component of the waste generated by kitchens. All cardboard should be flattened (to save bin space), placed in and collected from bulk bins. Whilst cardboard is bulky, it is generally lightweight however it can be contaminated with food or liquid which makes it unsuitable for recycling.

At the end of each day or when required, all waste will be transferred to the central waste room.

#### THEATURE, HAIRDRESSER, PHYSIO & OFFCES

The office and administration areas, library, cinema and common areas will be supplied with suitably branded waste and recycling bins, where considered appropriate. Waste and recycling receptacles should be placed in convenient locations.

The cleaners or building management will monitor use and ensure bins are exchanged and cleaned. Bags of waste will be transferred to the central waste room.

#### **RETAIL WASTE MANAGEMENT**

Tenants will be responsible for their own storage of general waste and recycling back of house (BOH) during daily operations. On completion of each trading day or as required, nominated retail staff or cleaners will transport their general waste and recycling to the central waste room and place waste and recycling into the appropriate collection bins.

Food handling for food cooked or prepared, served and consumed on site will produce a typical waste composition of food scraps from plates, packaging waste and some plastics. Café or restaurant staff will be responsible for their own BOH waste management.

Cardboard is a major component of the waste generated by retail tenancies. All cardboard should be flattened (to save bin space), placed in and collected from bulk bins. Whilst cardboard is bulky, it is generally lightweight however it can be contaminated with food or liquid which makes it unsuitable for recycling.

To ensure the proper management and disposal of waste, tenants must be made aware of the following practices:

- All general waste should be bagged and general waste bins should be plastic lined;
- Bagging of recyclables is not permitted;
- All interim waste storage is located BOH during operations;
- Individual recycling programs are recommended for retailers to ensure commingled recycling is correctly separated;
- Any food and beverage tenant will make arrangements for storing used and unused cooking oil in a bunded storage area;
- The operator will organise grease interceptor trap servicing;
- A suitable storage area needs to be provided and effectively bunded for chemicals, pesticides and cleaning products;
- Dry basket arrestors need to be provided to the floor wastes in the food preparation and waste storage areas; and
- All flattened cardboard will be collected and removed to the waste room recycling MGB





It is the responsibility of the building manager to monitor the number of bins required for the development. As waste volumes may change according to the development's management, customer base and retail tenancy attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation. Seasonal peak periods i.e. public and school holidays should also be considered.

#### WASHROOM FACILITIES

Washroom facilities in staff areas 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.

Building management will monitor use and ensure waste bins are exchanged and cleaned. **STAFF AREAS** 

Any staff tea points or food preparation areas will be supplied with a dedicated commingled bin for the collection of all recyclable glass, aluminium, steel and plastic items. Staff will be responsible for sorting this material and allocating recyclables into the correct collection facility.

## WASTE COLLECTION PROCEEDURE

On collection days, the building caretaker must ensure that all full 1100L waste and recycling bins are transferred and adequately presented in the central waste room for servicing by a private waste contractor.

A private waste contractor will service all waste and recycling bins required for the entire development on a 3 x weekly basis.

The collection vehicle will enter basement 1 via Kurrajong Road and pull into the designated vehicle loading bay.

Contractors will wheel each bin to the vehicle for servicing and return them to the waste room upon completion.

# EQUIPMENT SUMMARY

Table 7: Equipment Summary						
Component	Part	Qty	Notes			
Chutes	Please refer to supplier's information	4	(See APPENDIX C for Typical Chute Section)			
Equipment A	Recycling Bin lifter suitable for lifting 240L bins	1	(See APPENDIX A.1 for Typical Linear System) (See 0 for Typical Carousel)			
Equipment B	Suitable Bin Moving Equipment	Optional	Optional (See APPENDIX A for Typical Bin Mover)			



# WASTE ROOM AREAS

Chute discharge requires a minimum of 3000mm distance from floor to ceiling and needs to be free of service pipes and other overhead obstacles within the immediate space around the chute discharge.

Access to waste discharge rooms should be provided to the building manager/waste caretaker **only**. Under no circumstances should access be provided to any residents, or waste collection staff.

The areas allocated for waste storage and collections are detailed in below. The areas provided are estimates only. Final areas will depend upon room and bin layouts.

Table	8.	Waste	Room	Areas
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Level	Waste Room Type	Equipment & MGBs	Recommended Area (m <sup>2</sup> )
B1	ILU Waste Discharge Rooms (x 4)	Minimum 2 x 1100L Waste MGBs	8
B1	Collection Room (ILU, RCU and Commercial)	Waste:9 x 1100L MGBsRecycling:8 x 1100L MGBs240L Bin LifterCaged off medical MGBs2 x 240L MGBs	50
B1	ILU Bulky Goods Storage Room		12

#### WASTE ROOM CONSTRUCTION REQUIREMENTS

The NSW EPA Better practice guide for resource recovery in residential developments 2019 requirements are:

- Ensuring BCA compliance, including ventilation. Where required, ventilation system to 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 floors 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, ceilings and floors) finished in a light colour.

#### VENTILATION

Waste and recycling rooms must have their own exhaust ventilation system either;

- Mechanically exhausting at a rate of 5L/m<sup>2</sup> floor area, with a minimum rate of 100L/s minimum – to comply with AS1668; or
- Naturally permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area



## **USEFUL CONTACTS**

Elephants Foot Recycling Solutions does not warrant or make representation for goods or services provided by suppliers.

LIVERPOOL CITY COUNCIL CUSTOMER SERVICE

Phone: 1300 36 2170

Email: lcc@liverpool.nsw.gov.au

**SULO MGB** (MGB, Public Place Bins, Tugs and Bin Hitches) Phone: 1300 364 388

**RUD** (Public Place Bins, Recycling Bins) Phone: 07 3712 8000

**CLOSED LOOP** (Organic Dehydrator) Phone: 02 9339 9801

ELECTRODRIVE (Bin Mover) Phone: 1800 333 002

Email: <u>sales@electrodrive.com.au</u>

**MOVEXX** (Bin Movers) Phone: 1300 763 444 Email: Info@rud.com.au

**CAPITAL CITY WASTE SERVICES** (Private Waste Services Provider) Phone: 02 9599 9999

**REMONDIS** (Private Waste Services Provider) Phone: 13 73 73

**SITA ENVIRONMENTAL** (Private Waste Services Provider) Phone: 13 13 35

 WASTEWISE NSW (Private Waste Services Provider)

 Ph:1300550408
 Email: admin@wastewise.com.au

## NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC.

(NACRO) Phone: 03 9429 9884

Email: information@nacro.org.au

PURIFYING SOLUTIONS (Odour Control) Phone: 1300 636 877

Email: <a href="mailto:sales@purifyingsolutions.com.au">sales@purifyingsolutions.com.au</a>

**AUSCOL** (Recycling Oils & Animal Fats) Phone: 1800 629 476

ELEPHANTS FOOT RECYCLING SOLUTIONS (Chutes, Compactors and eDiverter Systems) 44 – 46 Gibson Avenue Padstow NSW 2211 Free call: 1800 025 073 Email: info@elephantsfoot.com.au



## APPENDICES

## APPENDIX A ARCHITECTURAL DRAWING EXCERPTS APPENDIX A.1 SITE PLAN



Excerpt – Jackson Teece, DA-030 Rev A 01/11/2019



#### APPENDIX A.2 BASEMENT 1 DISPLAYING WASTE DISCHARGE ROOMS



Excerpt – Jackson Teece, DA-109 Rev A 15/11/2019 – Basement 1



#### APPENDIX A.3 BASEMENT 1 DISPLAYING COLLECTION AREA



Excerpt – Jackson Teece, DA-109 Rev A 15/11/2019 – Basement 1



0401

1700L

2001

# APPENDIX BPRIMARY WASTE MANAGEMENT PROVISIONSAPPENDIX B.1TYPICAL BIN SPECIFICATIONS

#### Mobile bins

Mobile bins come in a variety of sizes and are designed for lifting and emptying by purpose-built equipment.

0.01

660L

Bin capacity

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.

4201

Diff capacity	UUL	120L		140L		2402	OUCL
Height (mm)	870	940	1065	1080	1100		
Depth (mm)	530	530		540		735	820
Width (mm)	450	485		500		580	600
Approximate footprint (m <sup>2</sup> )	0.24	0.26-0.33		0.27-0.33		0.41– 0.43	0.49
Approximate weight (kg)	8.5	9.5		10.4		15.5	23
Approximate maximum load (kg)	32	48		56		96	Not known

440

1100L

1300L

Wheelie bin

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

770L

Height (mm)12501425147014801470Depth (mm)8501100124512501250Width (mm)13701370137017701770Approx footprint (m²)0.86–1.161.511.33–1.742.212.21Approx weight (kg)45Not known65Not knownNot knownApprox maximum load310Not known440Not knownNot known						
Depth (mm)         850         1100         1245         1250         1250           Width (mm)         1370         1370         1370         1770         1770           Approx footprint (m²)         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	Height (mm)	1250	1425	1470	1480	1470
Width (mm)         1370         1370         1370         1770         1770           Approx footprint (m²)         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	Depth (mm)	850	1100	1245	1250	1250
Approx footprint (m <sup>2</sup> )         0.86–1.16         1.51         1.33–1.74         2.21         2.21           Approx weight (kg)         45         Not known         65         Not known         Not known           Approx maximum load         310         Not known         440         Not known         Not known	Width (mm)	1370	1370	1370	1770	1770
Approx weight (kg)45Not known65Not knownNot knownApprox maximum load310Not known440Not knownNot known(kg)	Approx footprint (m <sup>2</sup> )	0.86-1.16	1.51	1.33–1.74	2.21	2.21
Approx maximum load 310 Not known 440 Not known Not known (kg)	Approx weight (kg)	45	Not known	65	Not known	Not known
	Approx maximum load (kg)	310	Not known	440	Not known	Not known

Dome or flat lid container

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



#### APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

#### WASTE SIGNS

Signs for general waste, recycling and organics bins should comply with the standard signs promoted by the Department of Environment and Heritage.





#### SAFETY SIGNS

The design and use of safety signs for waste rooms and enclosures should comply with AS1319 Safety Signs for Occupational Environment. Safety signs should be used to regulate and control safety behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Each development will need to decide which signs are relevant for its set of circumstances and service provided.

Examples of Australian Standards:



Australian Standards are available from the SAI Global Limited website (www.saiglobal.com).

SOURCE: Environmental Protection Authority: Better Practice Guide for resource recovery in residential developments 2019



#### APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION

#### 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.

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

#### Table B2.1: Collection vehicle dimensions

\* 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.

SOURCE: Environmental Protection Authority: Better Practice Guide for resource recovery in residential developments 2019



#### APPENDIX B.4 EXAMPLE MOTORISED BIN TUG

## 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.



#### OPERATIONAL WASTE MANAGEMENT PLAN

## APPENDIX C INSTALLATION EQUIPMENT APPENDIX C.1 TYPICAL SINGLE WASTE CHUTE SPECIFICATIONS



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



#### APPENDIX C.2 TYPICAL 240L BIN LIFTER

#### 120-240 Litre Binlifter

The single bin lifter is designed to safely empty wheelie bins into large dumpsters and compactors. With easy operating push button instructions, the bin lifter is complemented by a safety cage.



Features	120-240 litre bin lifter
Lifting capacity	140 kg
Bin compatibility	120 & 240 litre bins
Operation method	Automatic
Hydraulic	yes
Dimensions	850mm (W) x 1800mm (L)
Safety	Safety cage & control box
Emergency stop	yes
Tipping height	1350mm variable
Clearance	2650mm
Suitability in tipping into	bins, dumpsters and compactors
Power	240 volt, 10amp
Can it be customised?	yes
Weighing & data capture	no

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



## APPENDIX D SECONDARY WASTE MANAGEMENT PROVISIONS APPENDIX D.1 EXAMPLE SOURCE SEPARATION BINS FOR RETAIL AND COMMERCIAL OPERATIONS



Source: https://www.sourceseparationsystems.com.au/