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an Elephants Foot Company

Scape Todman, 172-180 Anzac Pde & 116R Todman Ave
Kensington NSW 2033
Mixed Use Development

OPERATIONAL WASTE MANAGEMENT PLAN

13/03/2023
Report No. S0626
Revision H

Client

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GLOSSARY OF ABBREVIATIONS AND TERMS

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

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

1.0 ACKNOWLEDGEMENT OF COUNTRY

We acknowledge Australia's First Nations People as the Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present. We honour Aboriginal and Torres Strait Islander people and their connection to land, waters and seas, and their vital contribution to the vibrant nation that we share, Australia.

2.0 INTRODUCTION

Elephants Foot Consulting (EFC) has been engaged to prepare the following waste management plan for the operational management of waste generated by the mixed use development located at 172-180 Anzac Parade & 116R Todman Avenue, Kensington NSW 2033.

This development is designed to achieve a 5-star Green Star rating under Design & As Built V1.2, and all disciplines have been coordinated to meet these targets. This report has been prepared to demonstrate how the site has met the credit criteria for Credit 8B Operational Waste, Prescriptive Pathways: Facilities.

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

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

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

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

2.1 EXECUTIVE SUMMARY

Perpetual Trustee Company Limited ATF Scape Australia (Macquarie) Trust (“Scape”) are seeking development consent for Scape Todman (The Proposal) which includes the construction and use of a boarding house to provide purpose-built student accommodation and also commercial uses for the lower levels located at 172-180 Anzac Avenue & 116R Todman Avenue, Kensington NSW 2033.

The Proposal seeks to provide an array of high-quality affordable accommodation for academics, postgraduates and students within the locality whilst also providing active uses along the Todman Avenue and Anzac Parade frontages, which will not only enhance the lifestyles of people in the Randwick education and health precinct but also the local economy. Through the delivery of a variety of commercial and retail uses, The Proposal will create employment opportunities as well as public benefit with the provision of a public arcade and courtyard and revitalisation of the contributory facades fronting Anzac Parade.

2.2 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 has been provided separately by EFC.

2.3 REPORT CONDITIONS

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

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

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

3.0 LEGISLATION & GUIDANCE

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

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

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

- Randwick Comprehensive Development Control Plan 2013
- Randwick Local Environmental Plan 2012

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:

- Randwick City Council Waste Management Guidelines for Proposed Developments
- Draft Automated Waste Collection Systems for Kensington to Kingsford Town Centres
- 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

3.1 COUNCIL OBJECTIVES

Randwick City Council seeks to manage waste holistically and ensure that proposed developments include waste management provisions which integrate with Council's waste collection service. As such, Council aims to:

- Define and standardise the minimum design requirements for the effective and efficient management of wastes in developments,
- Encourage best practice in management of waste and recyclables thus helping to minimise the generation of waste and to maximise the recovery of recyclable materials,
- Minimise the overall impacts of waste management including protection of aesthetics, amenity, and public health; and
- Contribute to state-wide initiatives to achieve the target aims for waste reduction and resource recovery and reuse as specified in the NSW Waste Avoidance and Resource Recovery Strategy 2007.

4.0 DEVELOPMENT OVERVIEW

The proposed development falls under the Local Government Area (LGA) of Randwick City Council and will consist of:

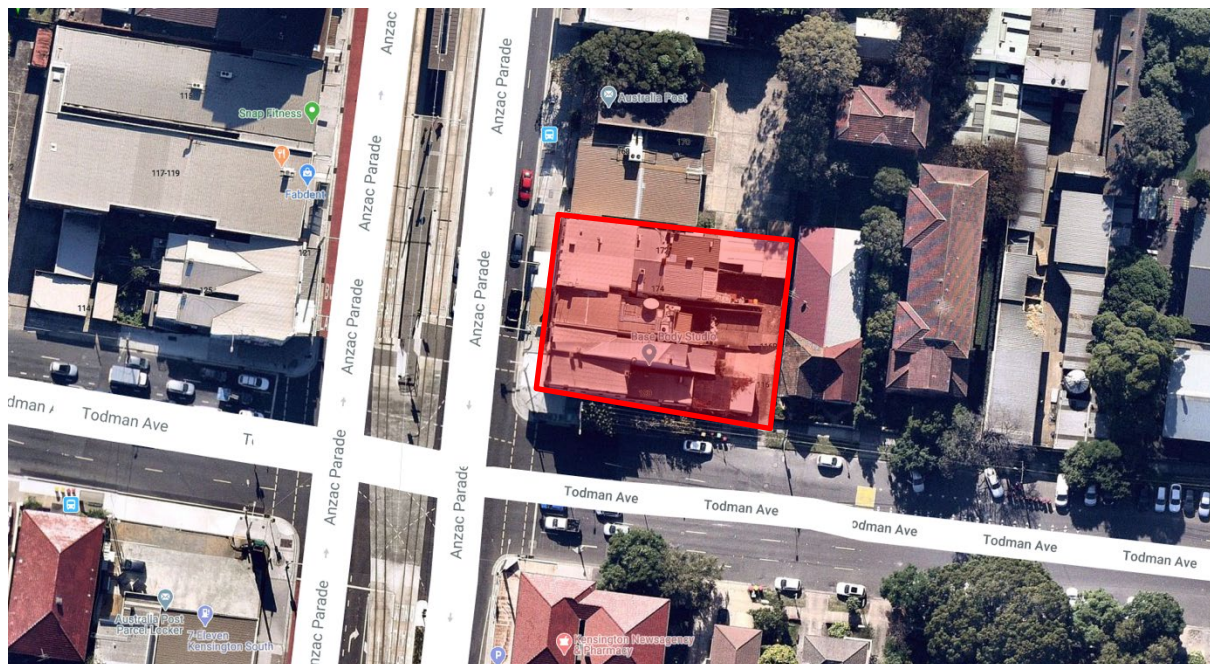
- One building with 17 levels
- Boarding house apartments
- Communal areas and commercial/retail tenants

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

4.1 SITE LOCATION

The site is located at 172-180 Anzac Parade & 116R Todman Avenue, Kensington NSW 2033, as shown in Figure.1 (boundaries are indicative only). The site has frontages to Anzac Parade and Todman Avenue with vehicular access via Todman Avenue.

Figure 1: Site Location



Source: Nearmap

5.0 GREEN STAR

The development has been designed to achieve a 5-star Green Star rating under the Green Star Design and As Built v1.3 tool. Under Credit 8 Operational Waste, the development has chosen option 8B Prescriptive Pathway: Facilities.

The waste management provisions within the development have been designed to achieve best practice waste management outcomes during operation. These provisions are in place to collect and separate distinct waste streams that are also accessible for collection by the relevant waste contractor.

Because the development falls under the LGA of Randwick City Council, the Randwick Comprehensive Development Control Plan 2013 and the Randwick City Council Waste Management Guidelines for Proposed Developments have been used as the applicable third-party best practice guidelines.

The waste generation rate for residents (including food waste) is adapted from the Randwick DCP. Since the City of Sydney is the only LGA that includes updated food waste generation rates for retail/commercial premises, these waste generation rates have been applied for the commercial/retail component of the development.

5.1 CREDIT 8B OPERATIONAL WASTE CRITERIA ASSESSMENT

This OWMP outlines the waste management design requirements and facilities within the building. Table 1 provides a review of green star credit 8B (Green Star Design and As Built v1.3) criteria as discussed in this report.

Table 1: Green Star Assessment

Requirements of Credit 8B Prescriptive Pathways	Operational Waste Management Plan Response
8B.1 Separation of Waste Streams Collection bins or storage containers shall be provided for building occupants to use to allow for separation of all applicable waste streams. The following waste streams must be provided with separate bins or containers: - General waste going to landfill. - Recycling streams to be collected by the building's waste collection service, including paper and cardboard, glass, and plastic. These streams may be collected in separate bins or in the same bin where commingled recycling is available. Commingled recycling is permissible to the extent that is accepted by the waste collection service. For example, if glass and plastic are collected as commingled recycling, then paper and cardboard are still required to have a separate recycling bin or container. And; - At least one other waste stream This waste stream should further reduce waste being sent to landfill. This may include collecting any of the following waste types: organic, e-waste, batteries, etc.	Sections 5.1, 8.1 & 9.1 identify the waste streams and discusses their management to ensure separation. Appendices D.1 & D.2 identify examples of the intended source separation bins to be implemented within the building. Appendix C.1 identifies examples of the intended collection bins to be implemented within the waste room.

These bin or containers must be clearly marked for each stream to allow for the separation of the applicable waste streams. Bins or containers must be evenly distributed throughout the building.	Section 12.1 outlines significance of including proper signage.
8B.2 Dedicated Waste Storage Area A dedicated area for the storage and collection of the applicable waste streams shall be provided. The storage area must be sized to accommodate all bins or containers, for all applicable waste streams, for at least one collection cycle. The calculations use to demonstrate that an area provided is adequately sized to handle the recyclable waste streams specified must be based on: • Waste generated by the project; and • Collection frequency for each waste stream. The calculation for waste generation rates must be based on figures outlined within third-party best practice guidelines. It is acceptable to provide more than one dedicated storage area when providing the appropriate waste storage space for the project. However, all storage areas dedicated to recycling must meet all the applicable requirements.	Sections 8.1 & 9.1 discuss the calculation for bin quantities and sizes required for waste room based on waste generation volumes and collection frequencies. Section 14.0 discusses the waste room configuration and sizing. Appendix A.1 identifies waste room location, equipment configuration and the location of the loading area.
8B.3 Access to Waste Storage Area Access to waste collection areas must adhere to best practices, as outlined within third-party best practice guidelines, in order for this requirement to be met.	Sections 8.4 & 9.4 discusses the access to for waste collection. Appendix A.1 shows the bin moving route between the waste room and loading bay. Please note: the loading bay and waste collection vehicle access has been assessed by the Traffic Consultant. For further information regarding waste collection vehicle access to the site, please refer to the Traffic Report.

6.0 PNEUMATIC WASTE

Development Consent Condition No. 19 calls for the provision of installation of an Automated Waste Collection System (AWCS). WSP, as a suitably qualified AWCS waste consultant, have reviewed the feasibility of implementing the described current AWCS for similar developments within the area and have concluded that an AWCS as currently specified is not recommended now or in the future. The documents can be referenced as part of this Section 4.56 Design Modification Application and are named;

- *Automated Waste Collection System Feasibility: Scape Kensington, Revision B, dated 27/10/2021*
- *Automated Waste Collection System Feasibility: Scape Kingsford, Revision B, dated 27/10/2021*

Council have engaged LCI to review the above reports by WSP and conduct an independent review of the feasibility of an AWCS. LCI have concluded in their reports that an AWCS is feasible for the above projects. The documents can be referenced as part of this Section 4.56 Design Modification Application;

- *AWCS Review 182-190 Anzac Pde & 157 Todman Ave, Kensington: 211007 Automated Waste Collection System, Revision C, 08/04/2022*
- *AWCS Review 391-397A Anzac Pde & 17 Bunnerong Rd, Kingsford: 211007 Automated Waste Collection System, Revision C, 07/04/2022*

To satisfy the above-mentioned conditions of consent, Scape has amended the design to capture the following;

- A third waste chute with a minimum diameter of 0.22m adjacent the proposed waste chutes, for future use for food/organic waste. See Table 6 for more information.
- A zone identified on Ground level for a future connection point to enable collection by a designated collection vehicle, as per Appendix A.2.
- Appropriate space for tanks and pipe infrastructure to the collection point for the system. This is outlined in Appendix A.2.
- Appropriate space on Ground level for bulky waste that cannot be accommodated by the AWCS. An area of 9m² has been identified for the interim strategy, and 9m² for the AWCS (not including the clearance zone around the southern-most tank).

Additionally, Council has provided the following query for response:

Confirmation is sought whether the proposed residential waste area has been designed as an automated waste collection system in accordance with the Council's endorsed policy. Given that this may reduce the required portion of the ground plane for waste services and enable an improved residential lobby configuration through the relocation of the substation further from the Todman Street frontage.

To which EFC respond:

Current plans indicate the residential waste room has been designed to accommodate an AWCS. The area allocated to the residential waste room cannot be reduced in consideration of the substation, as it will affect the operation of the AWCS. If Council wish for the substation to be located further from the Todman Street frontage, an alternative solution should be sought that does not affect the size of the residential waste room.

The AWCS will be retrofit at the conclusion of a three-year period, as granted by Council.

This report will address both an interim waste strategy and a waste strategy for future provision of a localised automated waste collection system (LACWS).

7.0 SUBJECT MATTER EXPERTS

SUBJECT MATTER EXPERTS

Developer	Carla Bisanti	Scape	1300 068 888	carla.bisanti@scape.com.au
Waste Consultant	Djanisa Trinder	Elephants Foot	(02) 9780 3577	djanisa.trinder@elephantsfoot.com.au
AWCS Consultant	Whitney Brunson	WSP	(07) 5503 5724	whitney.brunson@wsp.com
Planner	Asher Richardson	Willowtree	(02) 9929 6974	asher.richardson@willowtp.com.au
Architect	Kate Devine	Bayley Ward	(03) 9695 0222	kdevine@bayleyward.com

8.0 RESIDENTIAL WASTE MANAGEMENT

Randwick City Council considers boarding house establishments as residential dwellings. 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.

The proposed development has selected food waste as the additional segregated waste stream in line with Green Star Credit 8B.

8.1 WASTE GENERATION ESTIMATES

Randwick waste generation rates for boarding houses have been applied in Table 2. Since it is anticipated that food waste will be diverted from landfill, the generation rate has been modified to account for the segregation of this waste stream.

It is acknowledged that Randwick estimates that 40% of the general waste stream consists of food waste. Although it is the long-term goal of the development to divert all food waste from landfill, it will not be realistically feasible in the short-term. Therefore, the rate below has been modified to allow for 20% of general waste diverted for food waste collection.

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.

The following table shows the estimated volume (L) of general waste and recyclables generated by the residential component of the development. Actual volumes of waste and recycling generated in operation may differ according to the residents' actual waste management practices.

Table 2: Estimated Waste and Recycling Volumes – Residential

Tenancy Type	Occupants	General Waste Generation Rate (L/Occupant/Day)	Compacted General Waste(2:1) (L/week)	Recycling Generation Rate (L/Occupant/Day)	Generated Recycling (L/week)	Food Waste Generation Rate (L/Occupant/Day)	Generated Food Waste (L/week)
Boarding House	203	7	4973.5	3	4263	2	2842
TOTAL	203		4973.5		4263		2842
Bins and Collections		Bin Size (L)	1100	Bin Size (L)	1100	Bin Size (L)	240
		Bins per Week	5	Bins per Week	4	Bins per Week	12
		Collections per Week	1	Collections per Week	1	Collections per Week	1
		Bins Per Collection	5	Bins Per Collection	4	Bins Per Collection	12

**Note: Additional bins should be provided for under the 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.*

8.2 BIN SUMMARY

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

General Waste: 5 x 1100L MGBs collected **1 x weekly**

Commingled Recyclables: 4 x 1100L MGBs collected **1 x weekly**

Food Waste: 12 x 240L MGBs collected **1 x weekly**

Service Bins: 3 x 1100L MGBs and 4 x 240L MGBs

8.3 WASTE DISPOSAL PROCEDURES

One triple chute for disposal of general waste, recovery of recyclables, and collection of food waste, will be installed with access on each residential level.

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 separate cardboard collection bins must be made available and managed by the building caretaker.

Food waste is required to be wrapped in compostable kitchen caddy liners supplied by Council prior to being deposited into the chute. Compostable bags must comply with AS4736-2006 Biodegradable Plastic-Biodegradable Plastics Suitable for Composting and other Microbial Treatment.

8.3.1 INTERIM STRATEGY

The general waste and recyclables will discharge from the chutes into 1100L MGBs on linear track systems on Ground level (see APPENDIX A.1). General waste will be compacted. Recyclables will not be compacted. Food waste will discharge into 240L MGBs.

It is acknowledged that Council no longer accepts compaction of general waste due to potential damage it causes the bins. Since compaction of waste (2:1) is an important waste management strategy for this development, it is proposed that the bins will be owned and maintained by Scape.

Residents will be provided with food waste caddies either by Council or Scape to encourage segregation from the general waste stream.

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

8.3.2 LAWCS STRATEGY

Each waste stream will discharge into large collection tanks located on Ground level (see APPENDIX A.1).

8.3.3 COMMON AREAS

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

Boarding house residents will be able to access the communal areas and kitchen facilities. Receptacles for general waste, recyclables, and food waste will be located next to each other in the communal areas for residents to use.

Each day or as required, contracted cleaners will transport the waste and recyclables to the residential waste room on Ground level. They will also transfer the food waste receptacles to Ground and deposit into the designated food waste bins. All bins must be labelled appropriately to encourage proper segregation.

8.4 WASTE COLLECTION PROCEDURES

Council will be engaged to collect the residential waste and recycling in accordance with Council's collection schedule. This report assumes waste, recyclables, and food waste will be collected once weekly.

8.4.1 INTERIM STRATEGY

On the nominated collection days, a rear-load vehicle (MRV) will enter the site from Todman Avenue and park in the loading bay (see APPENDIX A.2). The building caretaker will provide the driver with access to the residential waste room. To ensure safety of personnel, any equipment within this room must be caged off. Once the bins are serviced, the collection vehicle will exit the site onto Todman Avenue in a forward direction. The turntable will be decommissioned once the laneway network is developed.

It is recommended that extra 1100L and 240L service bins are placed under the chutes to collect discharge while the other bins are being serviced.

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

Please note that collection of residential waste should occur on separate days from the collection of commercial/retail waste to ensure safe access to and management of the loading dock.

8.4.2 LAWCS STRATEGY

On the nominated collection days, a vacuum waste vehicle will enter the site from Todman Avenue and park in the loading bay on Ground level. The driver will connect to the outlet point where the waste material is sucked into a tank on the vehicle. Once servicing is complete, the collection vehicle will reverse and exit the site in a forward direction onto Todman Avenue.

8.5 BULKY WASTE PROCEDURES

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

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the bulky waste room on Ground (see APPENDIX A.1). It is the caretaker's responsibility to arrange collection dates with Council and then coordinate with the residents.

Prior to the scheduled collection day, the caretaker will be responsible for transporting the bulky goods to the designated loading area.

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

Note that the collection of bulky waste should occur on a day separate from the scheduled bin collections. Refer to Council's website for acceptable items and other information regarding bulky waste collection.

The bulky waste room should be a minimum of 20m² per Council's *Draft Automated Waste Collection Systems for Kensington and Kingsford Town Centres*.

9.0 COMMERCIAL AND RETAIL WASTE MANAGEMENT

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

9.1 WASTE GENERATION ESTIMATES

The proposed development has selected food waste as the additional segregated waste stream in line with Green Star Credit 8B. Since the City of Sydney Guidelines for Waste Management in New Developments incorporates food waste estimates, the waste generation rates from this guideline have been applied.

The following table shows the estimated volume (L) of general waste and recyclables that will be generated by the commercial and retail tenants. Calculations are based on standard waste generation rates, which may differ from the tenants' actual waste management practice.

The following estimates are based on a seven-day operating week for food and non-food retailers and a five-day operating week for commercial offices. It is assumed that commercial/retail tenancies will share waste bins, the waste storage room, and the waste collection service.

Table 3: Estimated Waste and Recycling Volumes – Commercial and Retail

Level	Type	NLA (m ²)	General Waste Generation Rates (L/100m2/day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m ² /day)	Paper/ Cardboard (L/week)	Commingled Recyclables (L/week)	Food Waste Generation Rate (L/100m ² /day)	Generated Food Waste (L/week)		
G	Retail	219	25	383.3	200	2042.0	1021.0	5	134.1		
1	Commercial	612	15	642.6	25	713.3	356.6	5	224.9		
2	Communal	417	20	583.8	50	972.0	486.0	5	204.3		
17	Communal Library	87	20	121.8	50	202.8	101.4	5	42.6		
TOTAL		1335		1731.5		3930.1	1965.0		606.0		
Collections		Bin Size (L)		1100	Bin Size (L)		1100	660	Bin Size (L)		240
		Bins/Week		2	Bins/Week		4	3	Bins/Week		3
		Collections/Week		2	Collections/Week		2	2	Collections/Week		2
		Total Bins		1	Total Bins		2	2	Total Bins		2

9.2 BIN SUMMARY

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

General Waste: 1 x 1100L MGBs collected **2 x weekly**

Cardboard/Paper Recyclables: 2 x 1100L MGBs collected **2 x weekly**

Commingled Recyclables: 2 x 660L MGBs collected **2 x weekly**

Food Waste: 2 x 240L MGBs collected **2 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager once the proposed development is operational. Building management will be required to negotiate any changes to bins or collections with the collection service provider. Seasonal peak periods such as public and school holidays should also be considered.

9.3 WASTE DISPOSAL PROCEDURES

Commercial and retail tenants will be responsible for the storage and maintenance of general waste, recycling, and food waste bins back of house. All three receptacles should be provided together in convenient locations such as staff tea rooms or kitchens.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste, recyclables, and food waste to Ground level and place into the appropriate collection bins in the Commercial/Retail Waste Room (see APPENDIX A.1). Waste will not be compacted, and recyclables are not baled.

9.4 WASTE COLLECTION PROCEDURES

It will be the responsibility of the building caretaker to engage a private waste collection contractor to service the commercial/retail bins on a regular basis.

On the day of collection, a rear-load private collection vehicle (SRV or MRV) will enter the site from Todman Avenue and park on the turntable. The driver will service the bins from the Commercial/retail Waste Room. Once servicing is complete, the collection vehicle will exit the site in a forward direction onto Todman Avenue (see APPENDIX A.2).

Quantities, sizes, and servicing of bins may be modified according to actual waste generation rates by the tenants. Please note that the collection of commercial/retail bins should occur on separate days from the collection of residential bins to ensure proper segregation of waste streams.

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

9.5 OTHER WASTE MANAGEMENT CONSIDERATIONS

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

9.5.1 KITCHEN, OFFICE TEA ROOMS AND FOOD PREPARATION AREAS

Any food preparation area, including kitchens and office tea rooms will be provided with dedicated source separation bins including a general waste bin, a recycling bin and a food waste bin. Cleaners or nominated staff will be responsible for monitoring these bins and emptying them as required.

9.5.2 BATHROOMS

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

9.5.3 PRINTING & PHOTOCOPYING ROOMS

It is recommended that printing rooms and photocopying rooms are supplied with bins for the collection of paper, as well as separate receptacles for ink toner cartridges for recycling. The cleaners or nominated staff are responsible for monitoring these bins and ensuring the items are collected and recycled by an appropriate contractor.

9.5.4 FOOD WASTE

During daily operations staff will be responsible for the collection of food waste back of house. At the end of the day, nominated staff or cleaners will bring the food waste bins to the central food waste area for collection. The building management will be responsible for providing either an on-site food waste processing system or food waste bins and collection service through a private contractor.

9.5.5 LIQUID WASTE

Liquid wastes such cleaning products, chemicals, paints, and cooking oil, etc., will be stored in a secure space that is bunded and drained to a grease trap in accordance with State government authorities and legislation.

9.5.6 PROBLEM WASTE

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

Problem waste streams include:

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

10.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 4: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata, Body Corporate or Management	• Ensure all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organise internal waste audits/visual assessments on a regular basis • Purchase any on-going waste management equipment or maintenance of equipment once building is operational; and • Manage any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	• Maintain and clean chute doors on each level; • Coordinate general waste and recycling collections; • Clean and transport bins as required; • Organise replacement or maintenance requirements for bins; • Organise, maintain and clean the waste holding area; • Organise bulky goods collection when required • Investigate and ensure prompt clean-up of illegally dumped waste materials. • Prevent storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) • Abide by all relevant WH&S legislation, regulations, and guidelines; • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management; • Assess any manual handling risks and prepare a manual handling control plan for waste and bin transfers; • Ensure site safety for residents, children, visitors, staff and contractors; and • Ensure effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Residents	• Dispose of all general waste and recycling in the allocated waste chutes and/or MGBs provided; • Ensure adequate separation of general waste and recycling; and • Compliance with the provisions of Council and the OWMP.
Retail/Commercial Tenants	• Manage the back of house storage of generated waste and recycling during daily operation. • Correctly separate waste and recycling streams; bag general waste and ensure recyclables are not bagged. • Flatten cardboard within the recycling bin. • If required, make arrangements for storing used and unused cooking oil in a bunded storage area, • Organise grease interceptor trap servicing, • Ensure dry basket arrestors are provided to the floor wastes in the food preparation, and • Ensure the suitable storage for chemicals, pesticides and cleaning products waste back of house.
Waste Collection Contractor	• Provide a reliable and appropriate waste collection service; • Provide feedback to building managers/residents regarding contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/Landscaping Contractor	• Remove all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Developer	• Purchase all equipment required to implement this OWMP prior to the occupation of the building to be provided to the strata/body corporate.

11.0 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 5: 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, or in designated waste bins.
Paper and Cardboard Recyclables	Recyclable materials that can be re-processed into new products.	Resource Recovery Centre	Bulky cardboard must not be placed in any chute. Cardboard should be flattened before placing in the designated cardboard bin.
Commingled Recyclables	A mixture of items commonly recycled through a MRF. Typically includes food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons).	Materials Recovery Facility (MRF)	Commingled recyclables must not be bagged, and instead should be placed loosely in the recycling chute or in designated recycling bins.
Secure Documents	Printed paper materials that contain sensitive information.	Recycling Facility	Secure documents are placed in allocated secure document bins. Private contractor removes bins from site.
Green Waste	Green waste consists of unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches)	Resource Recovery Centre	Green waste will be collected in private contractor bins and removed from site.
Food Waste	Unwanted or uneaten kitchen scraps that are easily compostable/ biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds).	Composting facility or Landfill	Residential food waste bins will be serviced by Council. Commercial/retail food waste bins will be collected by private contractor.
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 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. Commercial tenants are responsible for removal of their bulky items.
Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager arranges collection by appropriate recycling services when required.

12.0 EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each resident and commercial/retail tenant. This should include the correct disposal process for bulky waste such as old furniture, large discarded items, and other materials including electronic and chemical wastes. It is recommended that the building caretaker 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.

12.1 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.

12.2 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

13.0 EQUIPMENT SUMMARY

Table 6: Equipment Summary

	Part	Qty	Notes
Chutes	Chute for general waste and recyclables	2	See APPENDIX B1 for Typical Dual Chute Layout
	Chute for food waste 400mm dia.	1	Designed per job
Equipment <i>Interim Strategy</i>	<i>General Waste</i> 2-bin 1100L MGB Linear Track System with Compactor	1	See APPENDIX B.2 for Typical Linear System
	<i>Paper/Cardboard Recyclables</i> 2-bin 1100L MGB Linear Track System	1	See APPENDIX B.2 for Typical Linear System
Equipment <i>LAWCS Strategy</i>	LAWCS Tank RVAC Type C for general waste	1	Per supplier
	LAWCS Tank RVAC Type C for recyclables	1	
	LAWCS Tank RVAC Type B for food waste	1	

14.0 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.

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

Table 7: Waste Room Areas

Level	Waste Room Type	Activity Type	Equipment	Bins	Estimated Area Required (m ²)	Actual Area Provided (m ²)
G	Residential Chute Discharge Room	Residential <i>Interim Strategy</i>	1 x 2-bin 1100L linear track system + compactor (general waste) 1 x 2-bin 1100L linear track system (paper/cardboard recyclables)	5 x 1100L MGBs for general waste 4 x 1100L MGBs for commingled recyclables 3 x 1100L MGBs (service bins) 12 x 240L MGBs for food waste 4 x 240L MGBs (service bins)	58	87
LG	Residential Tank Discharge Room	Residential <i>LAWCS Strategy</i>	2 x LAWCS Tank RVAC Type C 1 x LAWCS Tank RVAC Type B 1 x LAWCS Tank RVAC Type A		98	98
G	Bulky Goods Storage	Residential			20m ²	9m ²
LG	Commercial/Retail Waste Room	Commercial/Retail		1 x 1100L MGBs for general waste 2 x 1100L MGBs for paper/cardboard 2 x 660L MGB for commingled recyclables 2 x 240L MGBs for food waste	15	22

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 2500mm wide per the Randwick Waste Management Guidelines. It is also Council's preference that the waste room doors open outwards.

The following table provides further waste room requirements.

Table 8: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Room	• Ceiling clearance height must be a minimum of 3000mm • The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles (subject to penetration location) • All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room • 200mm clearance is required around compaction equipment • Where a chute offset is required, the angle of the offset must not exceed 30 degrees (Subject to number of consecutive offset and/pr up to 1500mm) • Where two sets of volume management equipment are placed under the chutes, a 200mm clearance is required between the equipment. • Where the chute discharge room also acts as the collection point, the chute discharge and any equipment underneath the chute should be caged off to ensure the safety of personnel accessing the room.
Residential Food Waste Room	• To ensure staff safety, all bins should be arranged so they can be accessed without moving another bin
Bulky Goods Room	• May be a dedicated room or screened area within another waste room • Must be in close proximity to the collection area • Area must also be allocated for the segregation of e-waste, gas bottles, cardboard, etc. • Doorway should be a minimum of 1500mm wide
Retail/Commercial Waste Room	• In order to ensure staff safety, all bins should be arranged so they can be accessed without moving another bin

15.0 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.

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. Based on recommendations from the NSW *Better practice guide for resource recovery in residential developments 2019*, 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.

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/body corporate will be responsible for maintaining, repairing and replacing waste management equipment.

12.0 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Randwick Comprehensive Development Control Plan 2013*, in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

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

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

12.1 ADDITIONAL CONSIDERATIONS

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

13.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Randwick Customer Service	Ph: (02) 9093 6000	E: council@randwick.nsw.gov.au
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PRIVATE WASTE COLLECTION PROVIDER

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

BIN MOVING DEVICE SUPPLIERS

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

ORGANIC DIGESTERS AND DEHYDRATORS

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

COOKING OIL CONTAINERS AND DISPOSAL

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

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

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

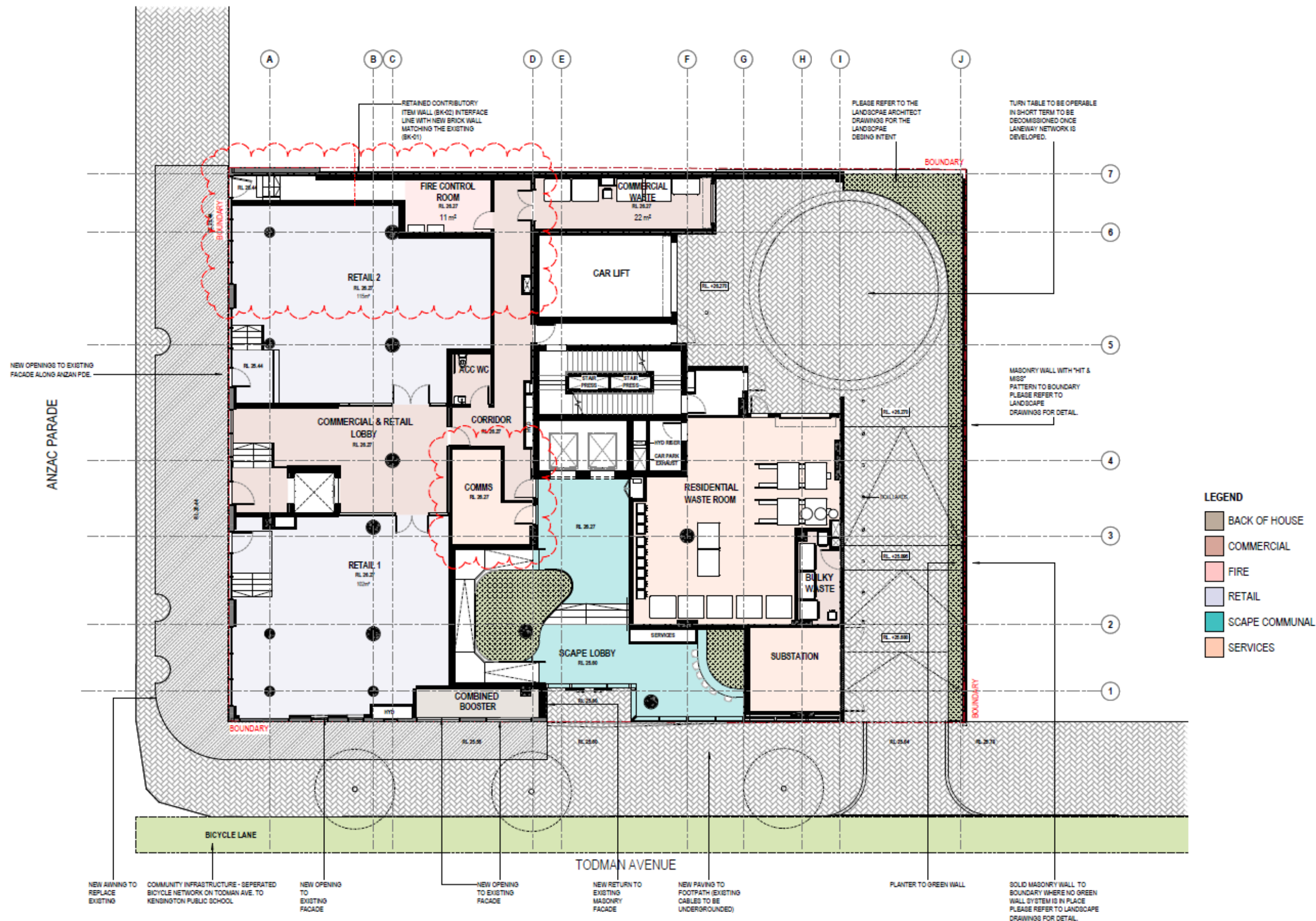
SULO	Ph: 1300 364 388	E: sales@sulo.com.au
OTTO Australia	Ph: 02 9153 6999	

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

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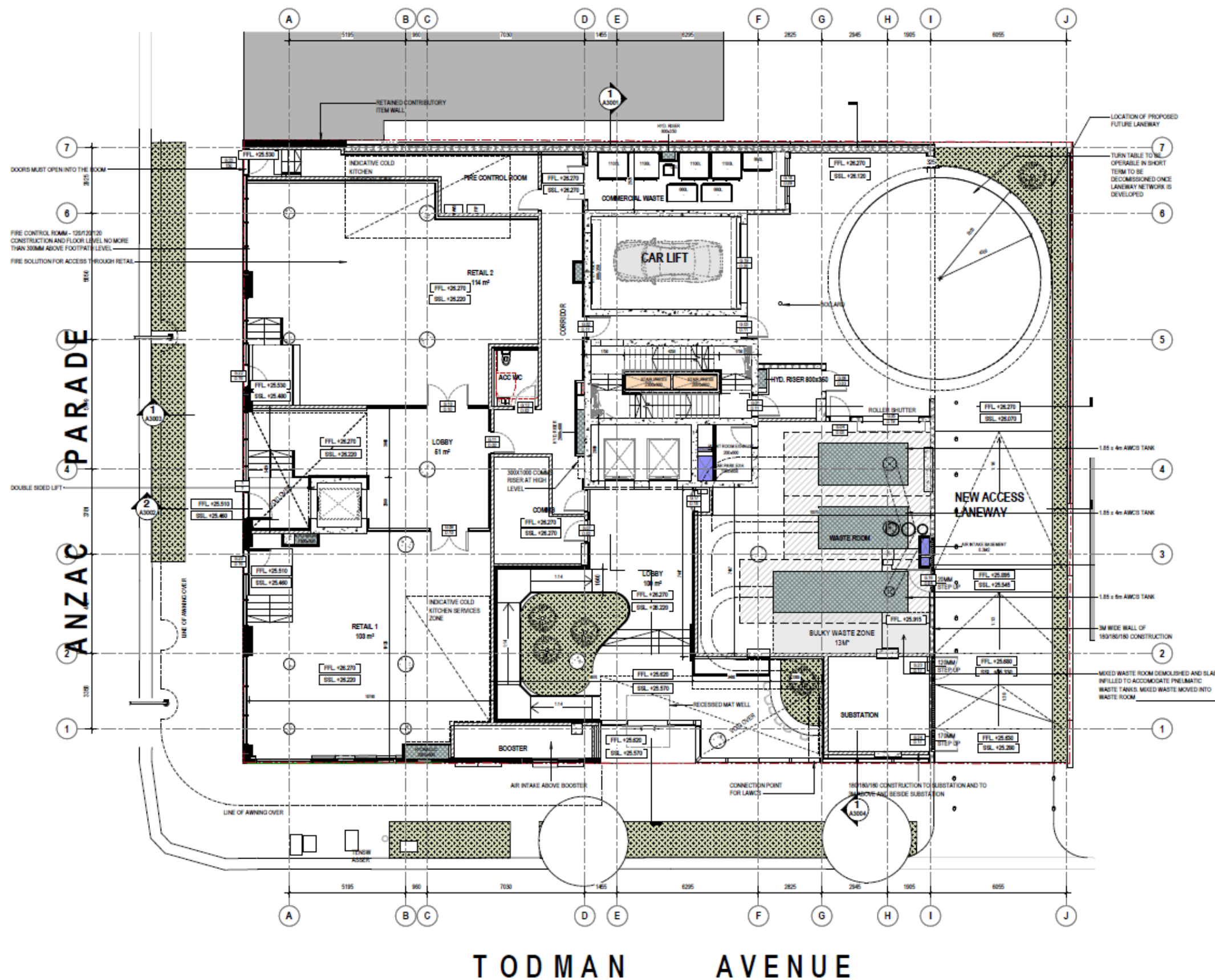
APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 GROUND FLOOR PLAN – INTERIM STRATEGY



Source: Bayley Ward, Drawing Number AR – B20-00-00[2], Ground Floor Plan, 13.03.2023

APPENDIX: A.2 GROUND FLOOR PLAN – LAWCS STRATEGY



Source: Bayley Ward, Drawing Number A1202.1[B], GA Plans – Ground FL (Alternative), 10.08.2022

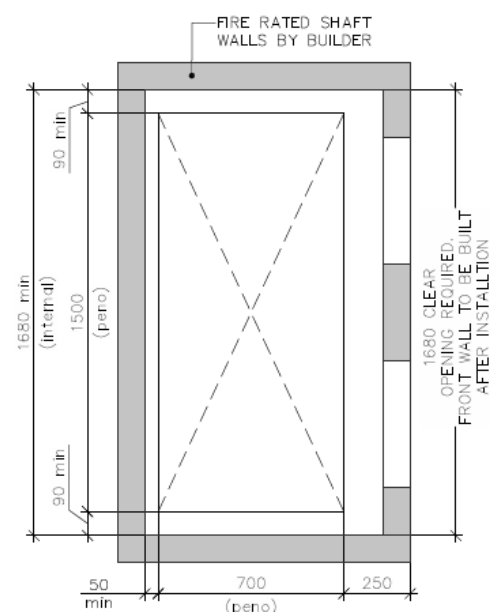
APPENDIX B: INSTALLATION EQUIPMENT

APPENDIX: B.1 TYPICAL DUAL CHUTE SHAFT & PENETRATION SET-OUT

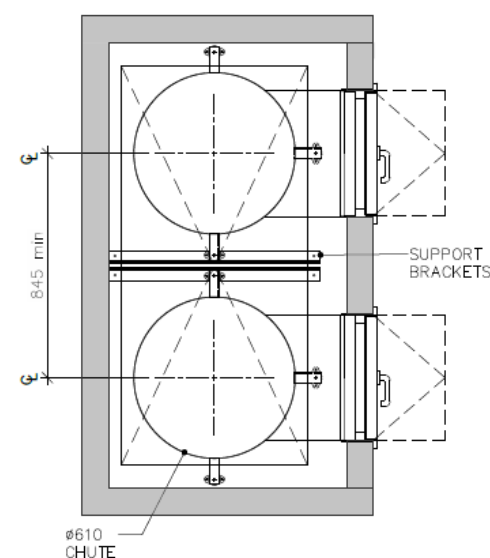


CHUTE SHAFT & PENETRATION SET-OUT

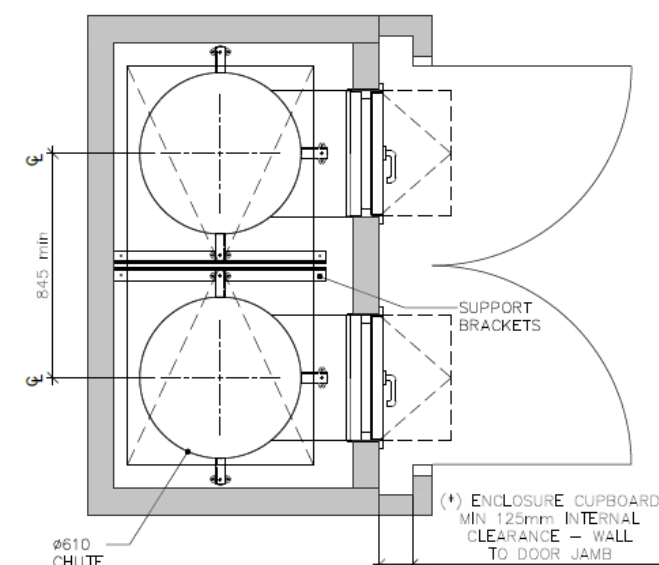
DUAL Ø610 STEEL



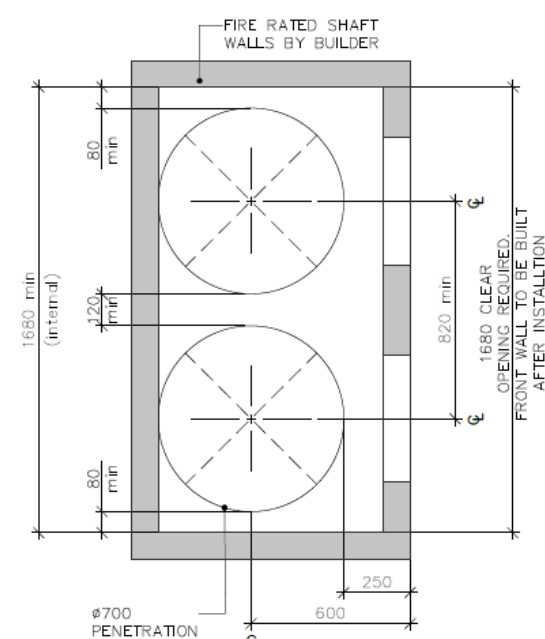
01 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT PENETRATION SET-OUT



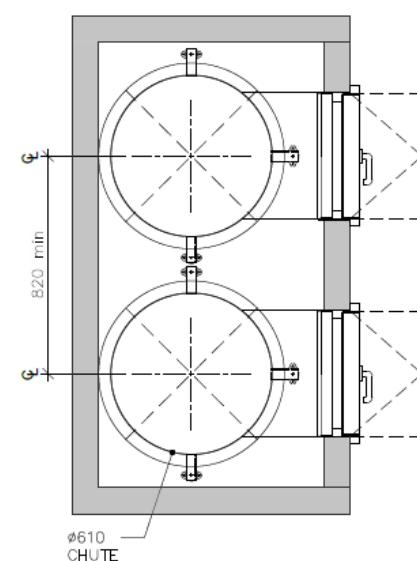
02 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT



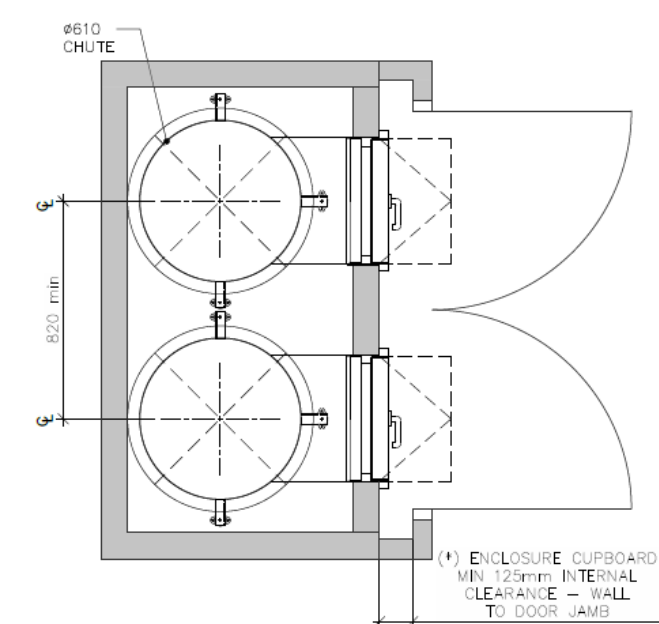
03 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT with ENCLOSURE CUPBOARD (*)



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



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



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

(*) NOTE: ENCLOSURES ARE RECOMMENDED IF THE CHUTE OPENS DIRECTLY TO A CORRIDOR OR IS NOT LOCATED IN A WASTE ROOM. IF CHUTE ACCESS IS WITHIN A WASTE ROOM THEN THE CUPBOARD ENCLOSURES ARE NOT REQUIRED.

SCALE 1:25 @ A3

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

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



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

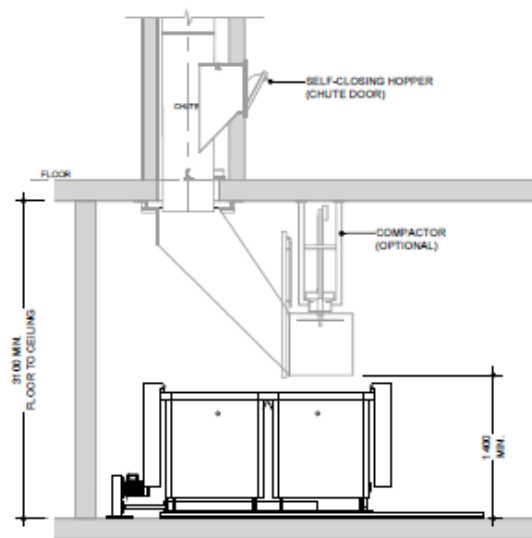
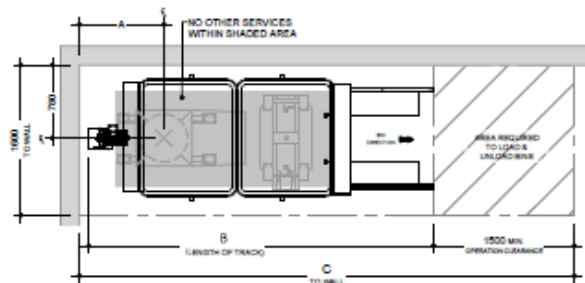


1,100 LITRE LINEAR TRACK SYSTEM



No. of Bins	Reference (mm)		
	A	B	C
2	900	3700	5300
3	2100	5940	7550

Available with or without compaction unit, our standard 1100 litre bin Linear Track System is available in the standard 2 bin option. Our 3 Bin option is available as a special order.



Notes:

Bins not provided by Elephants Foot

Drawings shown are for general information purposes only and provide minimum equipment spacial requirements for waste room design.

These drawings are not intended for site specific use or for construction. Each project is unique and will be designed to suit.

Additional equipment options, systems and configurations are available. For design assessment, information and advice, please contact an Elephants Foot design consultant on 1300 435 374

Please Note: This is an example only – please refer to supplier's information and specification

APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX: C.1 TYPICAL BIN SPECIFICATIONS

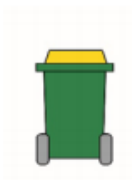
Mobile bins

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

Mobile bins with capacities of up to 1700L must comply with *AS4123.6-2006 Mobile waste containers* which specifies standard sizes and sets out the colour designations for the bodies and lids of mobile waste containers indicating the type of materials they are used to collect.

The most common bin sizes are provided below, although not all sizes are shown. The dimensions are a guide only and differ slightly between manufacturers. Some bins have flat or domed lids and are used with different lifting devices. Refer to *AS4123.6-2006* for further details.

Table G1.1: Average dimension ranges for two-wheel mobile bins



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

Wheelie bin

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

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



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

Dome or flat lid container

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

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

APPENDIX: C.2 SIGNAGE FOR WASTE AND RECYCLING BINS

Waste signs

Signs and educational materials perform several functions including:

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

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

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

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

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

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



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



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

Problem waste signs

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

Figure I2.1: Problem waste signs



Safety signs

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

Figure I3.1: Example safety signs



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

APPENDIX: C.3 TYPICAL COLLECTION VEHICLE INFORMATION

General

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

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

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

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

Large collection vehicles

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

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

Table B2.1: Collection vehicle dimensions

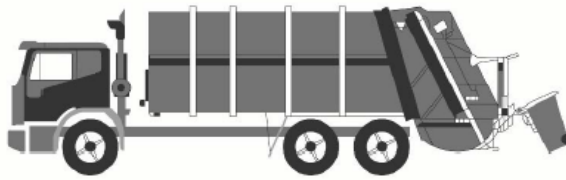
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0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

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

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

Rear-loading collection vehicles

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



Rear-loading waste collection vehicle

Side-loading collection vehicles

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



Side-loading waste collection vehicle

Front-lift-loading collection vehicles

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



Front-lift-loading waste collection vehicle

Small collection vehicles

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

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

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

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

APPENDIX D: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX: D.1 EXAMPLE APARTMENT STYLE COMPOST BIN



Apartment Style Compost bin – available from hardware stores

Suitable for:

- Vegetables
- Coffee grounds and filters
- Tea and tea bags
- Crushed eggshells (but not eggs)
- Nutshells
- Houseplants
- Leaves
- Cardboard rolls, cereal
- Boxes, brown paper bags
- Clean paper
- Shredded newspaper
- Fireplace ashes
- Wood chips, sawdust,
- Toothpicks, burnt matches
- Cotton and wool rags
- Dryer and vacuum cleaner lint
- Hair and fur
- Hay and straw

APPENDIX: D.2 TYPICAL SOURCE SEPARATION BINS



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