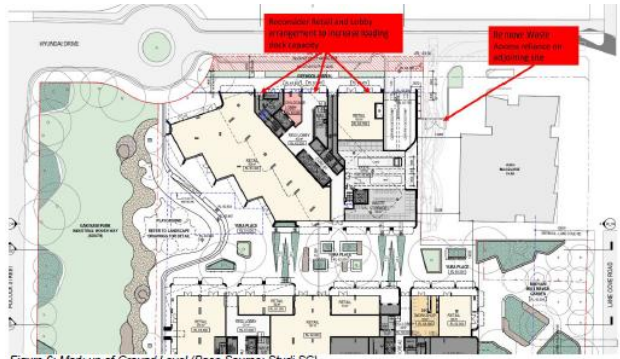


Response to Council RFI

8. Waste Management and Collection

Council Comments	EFC Comments
The proposed development has significant issues that would inhibit effective, safe and reliable City of Ryde Council Submission SSD-79017211 20 collection of waste from the property. As such, Council cannot support the proposed works. Further details and request for further information are provided below. <u>Access Concern</u> • Access to the loading dock is proposed to occur via a private laneway located on the adjacent private parcel of land. This configuration is not fit for purpose as there are no instruments available to guarantee access, or the safe and reliable collection of waste. • Council requires that all properties with onsite collection agree to a positive covenant, which cannot be implemented with the proposed configuration. • To ensure unobstructed and efficient access for waste collection vehicles, Council's DCP provides the following direction: • In all development, waste and recycling storage areas and facilities should be provided and be located in positions that: i. provide easy, direct and convenient access for the users of the facility; ii. permit easy transfer of bins to the collection point if relocation of bins is required; iii. permit easy, direct and convenient access for collection service providers; iv. do not intrude on car parking, landscaping, access and turning areas required for the type and scale of development; v. do not reduce amenity (minimises the potential for noise, odour and other amenity and environmental impacts on residents and other occupants); vi. maximize protection of trees and significant vegetation. • Direct access must be provided from the road to the proposed dwelling to ensure the continuity of essential waste services. • The swept paths provided for collection vehicles exiting Lane Cove Road must demonstrate the manoeuvre can be undertaken without mounting kerbs. Council cannot support using an adjoining site to access the subject site to enable waste collection. The application is unable to "stand on its own legs" and relies on adjoining properties to enable it be serviced by Council. As Council cannot guarantee that safe and efficient access be granted by an adjoining site nor can a positive covenant be imposed that enables suitable access that burdens an adjoining property. Council cannot enter another's property without risk and liability being reduced. As the adjoining site has been developed under LDA2015/0484 & as amended under LDA2022/0133 there have been no conditions imposed that would require 88B instruments registered on the sites title for the purpose of waste collection. <u>Recommendations to address access concern</u> Should DPHI agree with the Applicants Waste Arrangement, Council would seek that DPHI use its powers afforded under Section 4.17 of the EPA Act and associated section 67 of the Environmental Planning and Assessment Regulations 2021 to impose a condition that modifies both LDA2015/0484 & LDA2022/0133, that requires them to register an 88B Instrument	The client will proceed on the basis of using the private parcel of land based on the advice of the relevant consultants (i.e., traffic – which will be the relevant consultant for this concern).

on the sites title, that is consistent with Council's recommendations. Council would provide a recommended condition to address this point if DPHI deems its suitable. Alternatively, as raised elsewhere in this submission, Council has fundamental concerns with the loading arrangement, number of loading docks and associated access, as such it is recommended a fundamental review of the loading dock occur that can holistically address these concerns. Although imposing a condition to register an 88b Instrument on both lots is possible, it does not resolve the wider issues as such it's recommended that: • The Applicant explore an alternative loading dock and waste arrangement. • Consideration should be given to removing the front facing retail and associated residential/ Childcare Lobby Council notes that the Veru consents require that the area for which key site 6 will access, that the land be used for Landscaping and deep soil for the site. The proposed access will be reducing that sites required landscaping, reducing amenity and reducing tree canopy coverage that was required under Council's assessment of that application. It is recommended to reconsider loading dock access as shown in the below Figure 7. The applicant can explore: • Revising their loading and access arrangement to occur directly from Hyundai Drive. • The Applicant can relocate their retail/ commercial areas to other locations on the building (to still achieve compliance with LEP minimum commercial requirement), such as placing it in podiums (rather than solely on ground level). • The applicant can reconsider residential/ childcare lobby as to not conflict with any future loading dock access points creating safety concerns (for residents and children). By making the above design moves the applicant can positively increase loading bays, improve waste servicing and collection and ensure that the existing Veru approval is unchanged  Figure 6: Mark up of Ground Level (Base Source: Studi.SCI)	We defer to traffic for vehicle related concerns.
<u>Insufficient provision of waste management services (domestic)</u> The applicant has not sufficiently responded to Council's Previous EIS advice and has proposed a significantly deficient waste servicing allocation per household. The applicant must update their waste collection to address this. The proposed location of the FOGO bin room servicing Core A1 has a structural column blocking the entrance, rendering it completely unusable.	It is recommended that the FOGO bin room is reconfigured to ensure the column does not cause an issue to the movement of bins and tenants disposal.

<u>Insufficient provision of waste management services (commercial)</u> The proposal incorporates a childcare centre and multiple retail tenancies. The internal layout must better distinguish between different users, including segregation of residential, retail and childcare waste services. Childcare bin and bulky waste storage must be segregated from the other commercial tenants (all retail) to ensure safe management of waste and to provide adequate space to prevent illegal dumping in the public domain.	The latest revision of the Operational Waste Management Plan (OWMP) provided, Rev B, dated 24.02.2026) has been revised, alongside the updated drawings to meet this requirement
<u>Insufficient waste management infrastructure</u> • The issues detailed above require a significant restructuring of the waste storage and handling services on site. To support this, the applicant will need to provide additional waste storage facilities. • A larger goods lift will be required to facilitate the movement of the large number of bins and bulky waste to the loading dock. • A bin tug with adequate storage must also be provided as bin movements to the goods lift exceed the maximum recommended distances for safe manual handling. • Sufficient storage for residential bulky waste must be provided at the loading dock. Council will not service bulky waste rooms on other floors of the building.	The latest revision of the Operational Waste Management Plan (OWMP) provided, Rev B, dated 24.02.2026) has been revised, alongside the updated drawings to meet this requirement The goods lift is sized to efficiently accommodate a minimum of 2 x 1100L bins at a time for rotations and collections. Bin tug has been provided for both residential and non-residential tenancies. It is noted that the additional space of the MRV will be utilised for bulky waste, although it is recommended a dedicated room for this is provided to store between the quarterly collection cycles.

Request for further information related to waste management

- Provide swept paths for a heavy rigid vehicle in accordance with AS 2890.02 to ensure waste collection vehicles can safely access the site for servicing from Lane Cove Road without mounting any kerbs, and ensure the waste collection vehicle can enter and exit the site in a forward direction. Council doesn't support waste collection vehicles reversing across footpaths and high traffic areas.
- Provide an access point to the loading dock which does not require transit through private property that is not part of the development.
 - Amend waste generation rates as your site will require:
 - 29 x 1100 litre waste bins collected 3 times a week
 - 68 x 660 litre recycling bins collected 2 times a week
 - 38 metres squared minimum of unobstructed bulky waste storage space (please indicate the exact area provided)
 - You must also demonstrate suitable storage for 79 x 240 litre food organics bins in anticipation of a Food Organics Garden Organics (FOGO) service. This will ensure organic waste is considered in the provision of bin allocation and space for bin storage.
 - Amend the waste storage room to ensure it can accommodate the required number of bins. Additional space must be provided for bin rotation.
 - Ensure that structural elements do not obstruct access to bin storage rooms, transfer paths or impact rotation of bins within rooms. Paths must maintain a 1-metre-wide clearance at all times.
 - Provide a bin movement aid (e.g. tug and trailer) and suitable storage beside the waste collection area. The proposed bin movement paths are excessive for the manual movement of bins for servicing.
 - Provide a larger good lift to more efficiently manoeuvre bins and bulky waste.
 - Reposition the main bulky waste storage area to ensure the doorway opens directly onto the loading bay to support efficient servicing.
 - Provide separate storage for the required number of commercial waste bins with childcare bins separated from the retail bins and residential bins. Access must not be through the residential waste room.
 - Provide suitable space in the loading area for the servicing of the required number of commercial bins.
 - Provide sufficient storage space for the required number of commercial bins based on the intended use as per the EPA's Better practice guide for resource recovery in residential developments 2019. If unknown, generation rates for Food Retail: With Sit Down Area must be applied.
- Provide a minimum 5 square metres for the storage of bulky items from the retail tenants, including furniture and pallets to reduce potential illegal dumping.
- Provide a minimum 5 square metres for the storage of bulky items from the childcare tenants, including furniture and pallets to reduce potential illegal dumping.
- Provide an updated waste management plan which reflects the required changes.

Please defer to traffic for vehicle related concerns.

The Ryde Development Control plan 2014 was referenced with the acknowledgement that the bin quantities would be impacted, depending on the service frequency. Based on that guideline, it suggests that collection frequencies impact the bin quantities and allocations as reflected in the standard common practices of other Councils for high rise developments.

As this stance has now changed of how the Council interpret this, the client would like to continue with the arrangement proposed in the latest revision of the OWMP. With the limit of space, a private contractor may be explored as an alternate arrangement of bin collection and bulky waste, with acknowledgement of the double waste levy imposed on tenants to prevent a mass redesign.

A bin tug, goods lift and bulky waste area has been provided for each residential and non-residential consideration (i.e., childcare and commercial/retail bin rooms).



2-4 Giffnock Avenue, Macquarie Park NSW
Mixed-Use Development

OPERATIONAL WASTE MANAGEMENT PLAN

24/04/2026
Report No. 6641
Revision B

Client

388 LCR Developments

Architect

Studio SC

<https://studiosc.com.au/>

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	15/08/2025	S. Semaan	T. McPherson	Draft
B	24/04/2026	T. McPherson	J. Parker	Amendment

T. McPherson, Senior Waste Management Consultant (B. of Marine Biology).

T. McPherson

The information contained in this document produced by Elephants Foot Consulting (EFC) is solely for the use of the client identified on the cover sheet for the purpose for which it has been prepared for. EFC undertakes no duty, nor accepts any responsibility for any third party who may rely upon this document. Reproduction, publication or distribution of this document without written permission from EFC is strictly prohibited.

TABLE OF CONTENTS

1.0	ACKNOWLEDGEMENT OF COUNTRY	3
2.0	INTRODUCTION	3
2.1	SCOPE OF REPORT	3
2.2	REPORT CONDITIONS	4
3.0	LEGISLATION & GUIDANCE	5
4.0	EXCECTIVE SUMMARY	6
4.1.1	EDUCATION	6
4.1.2	SIGNAGE	6
4.1.3	POLLUTION PREVENTION	7
4.1.4	BIN WASHING	7
5.0	INTRODUCTION	8
5.1	SUBJECT SITE	8
6.0	SURROUNDING CONTEXT	9
7.0	RESIDENTIAL WASTE MANAGEMENT	11
7.1	RESIDENTIAL WASTE GENERATION ESTIMATES	11
7.2	RESIDENTIAL BIN SUMMARY	12
7.3	RESIDENTIAL WASTE DISPOSAL PROCEDURES	12
7.3.1	RESIDENTIAL GENERAL WASTE AND RECYCLING DISPOSAL PROCEDURES	13
7.3.2	RESIDENTIAL FOGO DISPOSAL PROCEDURES	13
7.4	RESIDENTIAL BIN COLLECTION PROCEDURES	14
7.5	OTHER RESIDENTIAL WASTE MANAGEMENT CONSIDERATIONS	15
7.5.1	RESIDENTIAL COMMON AREAS	15
7.5.2	LANDSCAPED AREAS AND GARDEN ORGANICS	15
7.5.3	RESIDENTIAL BULKY WASTE PROCEDURES	15
8.0	COMMERCIAL AND RETAIL WASTE MANAGEMENT	16
8.1	COMMERCIAL AND RETAIL WASTE GENERATION ESTIMATES	16
8.2	COMMERCIAL AND RETAIL BIN SUMMARY	17
8.2.1	COMMERCIAL/RETAIL BIN SUMMARY	17
8.2.2	CHILDCARE BIN SUMMARY	17
8.3	COMMERCIAL AND RETAIL WASTE DISPOSAL PROCEDURES	17
8.4	COMMERCIAL AND RETAIL WASTE COLLECTION PROCEDURES	17
8.5	OTHER COMMERCIAL AND RETAIL WASTE MANAGEMENT CONSIDERATIONS ..	18
8.5.1	WASHROOM FACILITIES	18
8.5.2	PRINTING & PHOTOCOPYING ROOMS	18
8.5.3	BULKY & SPECIAL WASTE	18
8.5.4	LIQUID WASTE	18
8.5.5	PROBLEM WASTE	18

9.0	STAKEHOLDER ROLES & RESPONSIBILITIES	19
10.0	SOURCE SEPERATION	20
11.0	BIN MOVING PATHS (BINS MOVED FOR COLLECTION)	21
12.0	EQUIPMENT SUMMARY	22
13.0	WASTE ROOMS	23
14.0	CONSTRUCTION REQUIRMENTS.....	27
14.1	ADDITIONAL CONSIDERATIONS.....	27
15.0	USEFUL CONTACTS.....	28
APPENDIX A:	ARCHITECTURAL PLANS.....	29
APPENDIX: A.1	BASEMENT 1 FLOOR PLAN	30
APPENDIX: A.2	GROUND FLOOR PLAN	31
APPENDIX B:	INSTALLATION EQUIPMENT	32
APPENDIX: B.1	TYPICAL DUAL CHUTE SHAFT & PENETRATION LAYOUT	33
APPENDIX: B.2	TYPICAL LINEAR TRACK SYSTEM FOR 660L BINS	34
APPENDIX: B.3	TYPICAL LINEAR TRACK SYSTEM FOR 1100L BINS	36
APPENDIX: B.4	TYPICAL CAROUSEL SYSTEM FOR 660L BINS	38
APPENDIX: B.5	EXAMPLE CAROUSEL SYSTEM FOR 1100L BINS	40
APPENDIX C:	PRIMARY WASTE MANAGEMENT PROVISIONS.....	42
APPENDIX: C.1	TYPICAL BIN SPECIFICATIONS	43
APPENDIX: C.2	SIGNAGE FOR WASTE AND RECYCLING BINS.....	44
APPENDIX: C.3	EXAMPLE COLLECTION VEHICLE INFORMATION.....	46
APPENDIX D:	SECONDARY WASTE MANAGEMENT PROVISIONS.....	48
APPENDIX: D.1	EXAMPLE HANDHELD BIN MOVERS	49
APPENDIX: D.2	EXAMPLE BIN TOWING ATTACHMENTS	50
APPENDIX: D.3	EXAMPLE BIN LIFTER FOR 240L BINS.....	51
APPENDIX: D.4	EXAMPLE SOURCE SEPARATION RECEPTACLES	52

LIST OF TABLES

Table 1: Estimated Waste and Recycling Volumes – Residential.....	11
Table 2: Estimated Waste and Recycling Volumes – Commercial and Retail	16
Table 3: Estimated Waste and Recycling Volumes – Childcare	16
Table 3: Stakeholder Roles and Responsibilities	19
Table 4: Operational Waste Streams.....	20
Table 5: Equipment Summary.....	22
Table 6: Waste Room Areas.....	24
Table 7: Waste Room Requirements.....	26

GLOSSARY OF ABBREVIATIONS AND TERMS

TERM	DESCRIPTION
<i>Bin-Carting Route</i>	Travel path for transporting bins from their allocated storage location to the nominated collection point
<i>Bin Lifter</i>	A device used to mechanically lift bins for the purpose of emptying them into larger bins and/or compactors.
<i>Bin Mover</i>	Either a handheld device (commonly referred to as a bin tug) or a ride-on device (typically a tractor or Class C vehicle with an attached bin trailer) used to facilitate the movement of bins across long distances or up ramps
<i>Bulk Bins</i>	Containers with a capacity greater than 1100L designed to be collected by a front-loading vehicle
<i>Bulky Waste</i>	Recycling items that are too large to be deposited into bins, including furniture, whitegoods, electronics and mattresses
<i>Chute</i>	A vertical pipe passing from floor to floor of a building with openings at each level for the disposal of general waste, recycling or FOGO.
<i>Chute Discharge</i>	The termination point of a chute whereby the chute offsets deposited general waste, recycling or FOGO into bins
<i>Chute Discharge Room</i>	A room enclosing the termination point of the chute/s, including bins and volume handling equipment that is accessible only to the building caretaker
<i>Collection Area/Point</i>	Designated area or point where bins are loaded onto the collection vehicle for servicing
<i>Communal Bin Room</i>	A central, shared bin room accessible to all residents or staff to dispose of their waste stream
<i>DA</i>	Development Application
<i>DCP</i>	Development Control Plan
<i>EPA</i>	Environment Protect Authority
<i>FOGO</i>	Food Organics and Garden Organics
<i>General Waste</i>	All non-recyclable and non-hazardous waste that is sent to landfill
<i>HRV</i>	Heavy Rigid Vehicle
<i>L</i>	Litre
<i>LEP</i>	Local Environmental Plan
<i>Mixed Use Development</i>	A development comprising a combination of both residential and commercial units or two or more different land uses within the one development.
<i>Mobile Bins</i>	Containers with a capacity up to and including 1100L designed to be collected by a rear-loading vehicle

<i>Multi-unit Residential Development</i>	Also known as MUD's, residential flat buildings, or apartment blocks, this is a residential development with multiple units that typically share facilities and services such as bins and collections.
<i>MRV</i>	Medium Rigid Vehicle
<i>Onsite Collection</i>	A collection arrangement whereby all bins are serviced by a collection vehicle within the property boundary, either in the building's basement or at grade and off-street.
<i>Owners Corporation</i>	An organisation or group of persons that is identified by a particular name and that acts, or may act, as an entity
<i>Recycling</i>	Waste stream that combines all recycling, including comingled recycling, paper/cardboard and metals.
<i>Service Bins</i>	Supplementary bins which are provided to residents or staff for use during collection periods either in communal bin rooms or under chutes
<i>Source Separation Receptacles</i>	Communal containers used throughout the development for the day-to-day disposal of different waste streams
<i>Volume Handling Equipment</i>	Equipment which comes in the form of either carousel or linear tracks positioned at the base of the chute/s to mechanically replace full bins with empty bins
<i>Waste Stream</i>	A classification used to describe waste of a particular type (eg. food waste stream)
<i>WHS</i>	Workplace Health and Safety

1.0 ACKNOWLEDGEMENT OF COUNTRY

Elephants Foot Consulting (EFC) acknowledges that every project we work on takes place on First Peoples land. We recognise Aboriginal and Torres Strait Islander People as Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present.

2.0 INTRODUCTION

Elephants Foot Consulting (EFC) has been engaged to prepare the following Operational Waste Management Plan (OWMP) to satisfy the conditions of the Development Application Ryde City Council requires for the mixed-use development located at 2-4 Giffnock Avenue, Macquarie Park NSW.

To achieve optimal waste management practices, this OWMP identifies and details the following components:

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

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

2.1 SCOPE OF REPORT

This OWMP only applies to the **operational** phase of the proposed development; therefore, the requirements outlined in this OWMP must be implemented during the operational phase of the site and may be subject to review upon further expansion of, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report. A construction and demolition WMP will need to be provided separately.

2.2 REPORT CONDITIONS

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

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

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

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:

- Ryde Development Control Plan 2014: Chapter 7.2 – Waste Minimisation and Management
- NSW Better Practice Guide for Resource Recovery in Residential Developments 2019
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste and Sustainable Materials Strategy 2041
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

4.0 EXCECTIVE SUMMARY

This Operational Waste Management Plan (OWMP) has been prepared by Elephants Foot Consulting (EFC) to accompany a State Significant Development Application (SSDA) for a mixed-use development at 2-4 Giffnock Avenue, Macquarie Park within the Ryde Local Government Area (LGA).

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-79017211) on 8 January 2025.

This report concludes that the proposed mixed-use development is suitable and warrants approval subject to the implementation of the following mitigation measures.

4.1.1 EDUCATION

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

Education and communication must be provided consistently on a regular basis to encourage behaviour change and account for transient building personnel such as new residents, tenants, or cleaning staff. 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 general waste, recycling and FOGO streams (refer to Council guidance);
- How to dispose of bulky waste and any other items that are not general waste, recycling or FOGO (refer to Council guidance);
- Residents' obligations to health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

4.1.2 SIGNAGE

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

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

The building manager is responsible for waste room signage including safety signage. Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating what type of waste or recyclables is to be placed in each bin. All 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.

4.1.3 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

4.1.4 BIN WASHING

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

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

- Promotion of responsible source separation** to reduce the amount of waste that goes to landfill by implementing convenient and efficient waste management systems.
- Adequate waste and recycling provisions and procedures** are established that will cater for potential changes during the operational phase of the development.
- Compliance** with all relevant council codes, policies, and guidelines.

Following the implementation of the above mitigation measures, the remaining impacts are considered appropriate.

5.0 INTRODUCTION

The SSDA seeks development consent for a mixed-use development at 2-4 Giffnock Avenue, Macquarie Park, comprising two tower elements above podiums, with retail premises, a childcare centre and residential uses within the building envelopes and recreation and road infrastructure uses on the remainder of the site.

Specifically, the SSDA seeks development consent for:

- demolition of the existing building
- site preparation and excavation works
 - construction of two tower elements, comprising a mix of uses including: ground floor retail, childcare and residential amenities
 - childcare on level 1 of the northeastern tower o residential uses on the remaining levels comprising 741 units including 10% affordable housing
- dedication of land for infrastructure purposes including open space (equating to 4025m²) and bridge infrastructure in accordance with Clause 7.13 of the *Ryde Local Environmental Plan 2014* (RLEP) and the Macquarie Park Design Guide
- Drake Avenue road widening by 2.5m, totalling 273m²
- Hyundai Drive road widening by 4m, totalling 258m²
- embellishment of dedicated open space area
- associated landscaping.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 8 January 2025 and issued for the SSDA (SSD-79017211). Specifically, this report has been prepared to respond to the SEARs requirement issued below.

SEAR 17	Elephant Foots Response
Identify, quality and classify the likely waste systems to be generated during construction and operation.	Sections 7.2, 7.5, and 8.2.
Provide the measures to be implemented to manage, reuse, recycle and safely dispose of waste.	Sections 7.3, 7.5 and 8.3.
Identify appropriate servicing arrangements for the site.	Sections 7.4 and 8.4.
If buildings are proposed to be demolished or altered, provide a hazardous materials survey.	Not Applicable.

5.1 SUBJECT SITE

The site is located at 2-4 Giffnock Avenue, Macquarie Park in the Ryde LGA. It is legally described as Lot 1 in DP1310550. As shown within the figure below, the proposal applies to part of Lot 1 in DP1310550 (the red outlined area) which is referred to as 'the site' throughout this report. The site excludes the recently developed 19-storey serviced apartment development in the eastern corner of the lot.

The site has an area of 12,720m² and is irregular in shape. It is bound by Kittys Street to the northwest, Giffnock Avenue and Hyundai Drive to the northeast, Lane Cove Road (which is a classified road) to the east and Drake Avenue to the south. The site is zoned MU1 Mixed

Use and E2 Commercial Centre pursuant to the *Ryde Local Environmental Plan 2014* and is currently occupied by three commercial buildings, at-grade parking and vegetation.

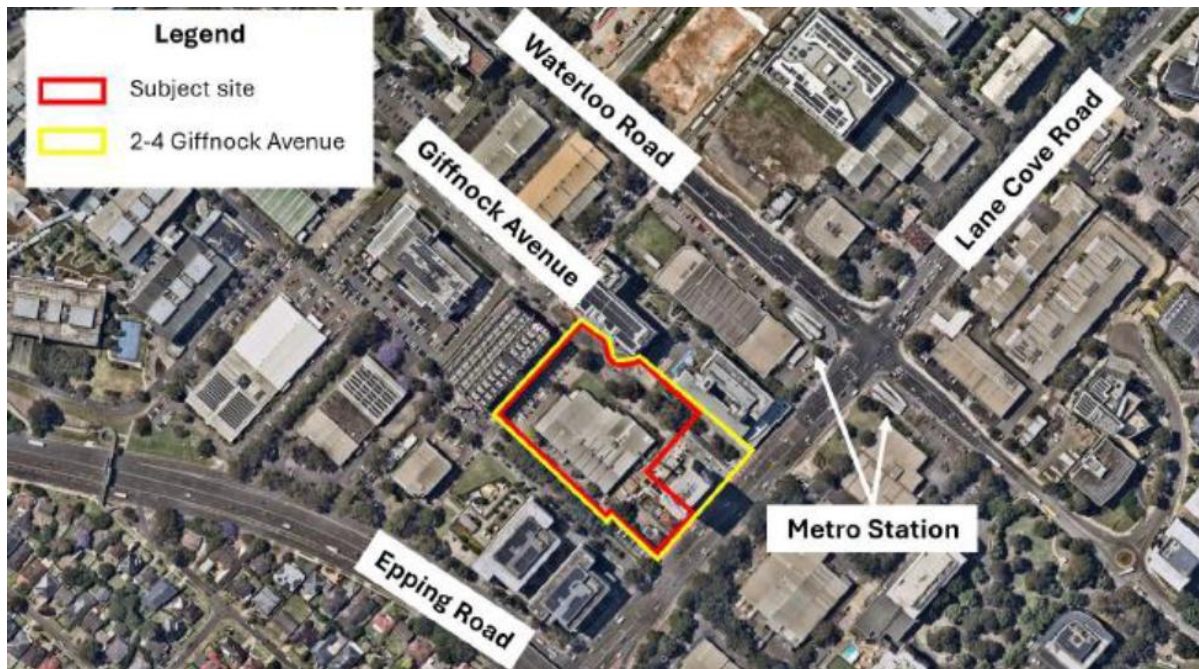


Figure 1: The site (Source: Nearmaps)

The site is strategically located within the Macquarie Park Transport Orientated Development Accelerated Precinct and is approximately 175m walking distance from the Metro Station. It is also well serviced by buses which have stops on either side of Lane Cove Road.

6.0 SURROUNDING CONTEXT

The site directly interfaces commercial uses along all boundaries, with the exception of the northeastern corner of the site which interfaces with a 19-storey serviced apartment building. As shown within the figure below, the broader locality comprises various uses including established and newly developed commercial and residential buildings, Macquarie University, Macquarie University Hospital, shopping centres and recreational areas.

The site is also located approximately 16 kilometres from the Sydney CBD.

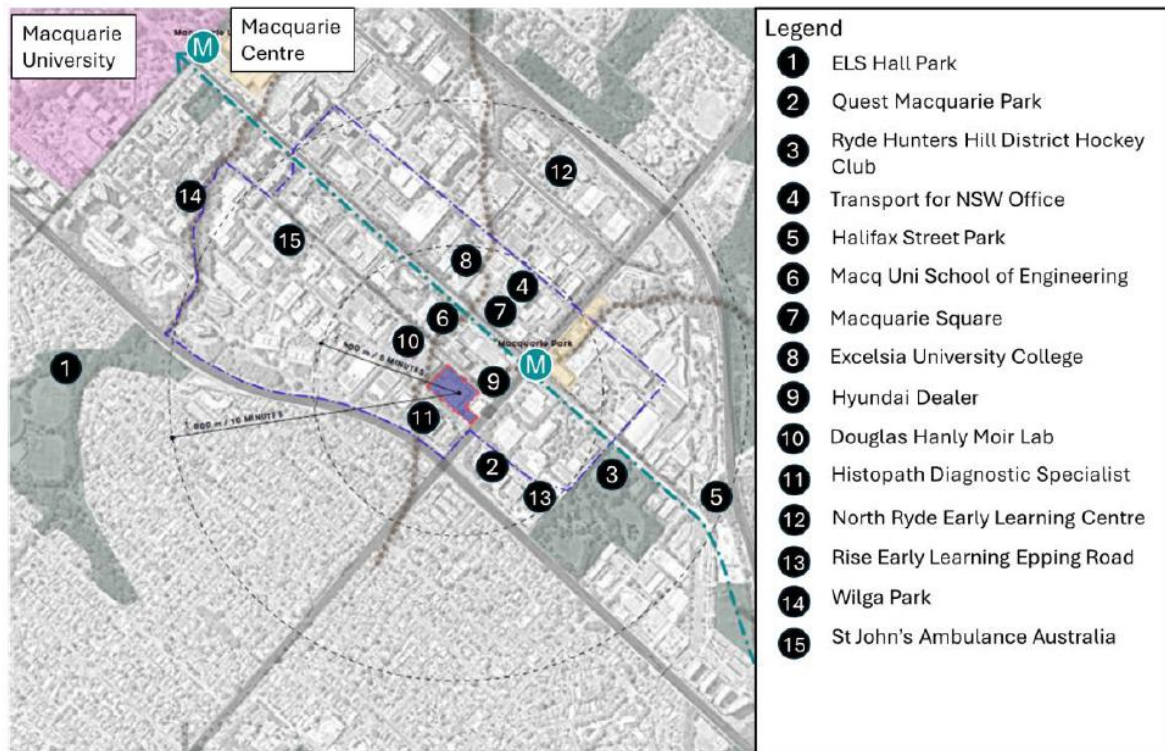


Figure 2: Surrounding context (Source: Studio SC)

7.0 RESIDENTIAL WASTE MANAGEMENT

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

7.1 RESIDENTIAL WASTE GENERATION ESTIMATES

The 'Ryde Development Control Plan 2014' has been referenced to calculate the total number of bins required for the residential units. Calculations are based on generic general waste, recycling and Food Organics and Garden Organics (FOGO) rates. Actual volumes of general waste, recycling and FOGO generated in operation may differ according to the residents' actual waste management practices. The following table shows the estimated volume (L) of general waste, recycling and FOGO generated by the residential component of the development.

Table 1: Estimated Waste and Recycling Volumes – Residential

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)	FOGO Waste Generation Rate (L/unit/week)	Generated FOGO Waste (L/week)
CORE A1	341	44	15004	44	15004	25	8525
CORE A2	89	44	3916	44	3916	25	2225
CORE B1	315	44	13860	44	13860	25	7875
TOTAL	745		32780		32780		18625
Bins & Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	660	FOGO Waste Bin Size (L)	240
		General Waste Collections per Week	3	Recycling Collections per Week	2	FOGO Waste Collections per Week	1
		Total General Waste Bins Required	12	Total Recycling Bins Required	26	Total FOGO Waste Bins Required	79
Bins per Building/ Core		Building/ Core	# Bins	Building/ Core	# Bins	Building/ Core	# Bins
		CORE A1	5	CORE A1	12	CORE A1	36
		CORE A2	2	CORE A2	3	CORE A2	10
		CORE B1	5	CORE B1	11	CORE B1	33

Notes:

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

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

***At the time of writing, Council do not have an active FOGO collection service. Provision for FOGO bins at this development have been included to account for a future FOGO collection service.

7.2 RESIDENTIAL BIN SUMMARY

The above calculations were based on the 'Ryde Development Control Plan 2014' (Residential Flat Buildings) below, with the acknowledgement that the bin quantities would be impacted "depending on the proposed service frequency". The client has elected to proceed on the basis permitted by the guideline, which explicitly states that bin allocations are influenced by the proposed service frequency. This approach reflects the flexibility embedded in the standard and aligns with common industry practice for high-rise developments.

DEVELOPMENT TYPE	CITY OF RYDE STANDARD WASTE AND RECYCLING BINS
<u>Single dwellings, dual-occupancies, secondary dwellings</u> (Low rise low scale residential of 1-2 dwellings only)	1 x 140 litre bin for garbage. 1 x 240 litre bin for recyclables. 1 x 240 litre bin for green waste.
<u>Multi-dwelling housing</u> (Small scale villa/townhouse developments) with individual bin storage	1 x 140 litre bin for garbage. 1 x 240 litre bin for recyclables. 1 x 240 litre bin for green waste.
Multi-dwelling housing and Residential Flat Buildings up to 3 storeys (low rise residential) with communal bin storage facilities	1 x 240 litre bin for garbage per two units (dwellings). 1 x 240 litre bin for recyclables per two units (dwellings). 1 x 240 litre bin for green waste (or as required). However, for large developments Council may provide bulk bins (i.e. 660/1100 litre skip bins) for garbage, based on the volumes per unit identified above.
<u>Residential flat buildings</u> of 4 or more storeys (high-rise residential)	Depending on proposed service frequency: 1 x 660 litre skip bin for garbage per 15 units OR 1 x 1100 litre skip bin for garbage per 25 units OR 1 x 240 litre bin for garbage per two units 1 x 240 litre bin for recyclables per two units 1 x 240 litre bin for green waste (or as required)

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

<u>General Waste:</u>	12 x 1100L bins collected 3 x weekly.
<u>Recycling:</u>	26 x 660L bins collected 2 x weekly.
<u>FOGO:</u>	79 x 240L bins collected 1 x weekly.

During operation, it is the responsibility of the building manager to monitor the number of bins required for the residential component of the development. General waste, recycling and FOGO volumes may change according to residents' attitudes to waste disposal, building occupancy levels or the development's management.

Any requirements for adjusting the capacity of the waste facilities may be achieved by changing the number of bins, the bin sizes or collection frequencies. Building management will be required to negotiate any changes to bins or collections with the collection service provider.

7.3 RESIDENTIAL WASTE DISPOSAL PROCEDURES

Each residential unit will be provided with a storage area capable of holding separate receptacles for general waste, recycling and FOGO. This is typically located within kitchen areas beneath the workbench. This space should be sized to accommodate 40L receptacles (minimum) to account for 2 days' worth of general waste, recycling and 20L for FOGO storage.

7.3.1 RESIDENTIAL GENERAL WASTE AND RECYCLING DISPOSAL PROCEDURES

Dual chute systems comprising of a single general waste chute and single recycling chute will be installed in each building. Access will be provided to all residents on each residential level. The residents will be responsible for walking their general waste and recycling to their allocated disposal point and placing their general waste into the general waste chute and recycling into the recycling chute.

Residents will wrap or bag their general waste before placing in the general waste chute. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm. Residents will be responsible for loosely placing their recycling into the recycling chute. Recycling should be clean and must not be bagged as soft plastics contaminate recycling.

Cardboard boxes or large containers should not be disposed of in the recycling chute. These items should be disposed of directly into the collection bins in coordination with the building manager.

Volume management equipment has been proposed to assist with the automatic rotation of bins when full. The general waste and recycling chutes will terminate into linear track systems for Buildings A1 and A2, and carousel systems for Building B (refer to Equipment Summary of this report for further details).

The building manager will monitor bin capacities under the dual chute systems and exchange full bins with empty bins on each system when required. Full and spare bins will be kept in the main residential bin storage area, and rotated when required.

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

7.3.2 RESIDENTIAL FOGO DISPOSAL PROCEDURES

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

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

The building will be provided with a communal FOGO bin room which contains 240L bins for FOGO. The residents will be responsible for walking their own FOGO down to the communal FOGO bin room and placing it into the bins. This option has been proposed to mitigate odour, spillages and labour on each residential level.

Building management is responsible for ensuring that the communal FOGO bin room and FOGO bins are washed down frequently to ensure that hygiene and odour is managed.

7.4 RESIDENTIAL BIN COLLECTION PROCEDURES

As Council has clarified that bin allocation ratios must remain fixed regardless of service frequency, the increased bin quantities create spatial limitations within the designated storage area. To achieve the necessary collection frequencies within these constraints, engagement of a private waste contractor may be necessary.

A designated collection contractor will be engaged to collect the residential general waste, recycling and FOGO in accordance with a collection schedule. This report assumes that general waste will be collected thrice weekly, recycling collected twice weekly, and FOGO collected once weekly.

Prior to collections, the building manager will be responsible for transporting the bins from each residential chute discharge room to the main residential bin storage area located on the ground level via the dedicated waste goods lift. The building manager is also responsible for ensuring that the bins are adequately arranged for an efficient collection. It is recommended that additional service bins be placed under each chute 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. On the day of collection, a designated collection contractor collection vehicle will enter the site from either Hyundai Dr or Lane Cove Road and park in the loading bay. The building manager will be responsible for ensuring that the collection staff have access to the main residential bin storage room. The collection staff will exit the vehicle and collect the bins via an 'onsite collection' arrangement, and return the empty bins once serviced.

Upon completion of servicing, the collection vehicle will exit the site onto either Hyundai Dr or Lane Cove Road in a forward direction. The Building Manager/Caretaker is responsible for returning the bins to their operational location to resume use. All access and clearances to the waste collection point must be able to accommodate a HRV per AS2890.2-2002/.

Additional capacity for excess bins can be temporarily accommodated within the MRV loading bay prior to scheduled collection. The Traffic Consultant has confirmed that bins can be arranged within this area in a controlled manner that enables efficient collection operations and avoids any requirement for over-stacking. Upon completion of the collection cycle, all bins will be returned to their designated storage locations to resume standard operational use.

7.5 OTHER RESIDENTIAL WASTE MANAGEMENT CONSIDERATIONS

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

7.5.1 RESIDENTIAL COMMON AREAS

Residential common areas will be supplied with suitably branded source separation receptacles where considered appropriate. Receptacles should be placed in convenient locations which are accessible to all residents. The building manager will monitor the capacity of these receptacles and empty the contents into the central collection bins as required.

7.5.2 LANDSCAPED AREAS AND GARDEN ORGANICS

Garden organics generated from landscaped areas and indoor foliage typically consists of lawn clippings, cuttings, leaves and branches. Garden organics generated from landscaped areas will be managed and removed from the site by the designated landscaping contractors as they carry out scheduled landscaping maintenance works.

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

7.5.3 RESIDENTIAL BULKY WASTE PROCEDURES

An area will be made available for the storage of discarded residential bulky waste items (e.g. whitegoods, furniture, etc.). This room should be located within close proximity of the collection point and must have a minimum doorway width of 1.5m to facilitate the movement of large 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 residential bulky waste room. It is the caretaker's responsibility to arrange collection dates with the designated contractor and coordinate these times with the residents. The bulky waste room has been calculated with accordance to the designated contractors sliding scale formula revealed by previous correspondence.

Prior to bulky waste collections, the building manager will transport the bulky waste items from the residential bulky waste room on the basement 1 level to the collection point on the ground level via the aid of the dedicated waste goods lift.

On the day of bulky waste collection, a designated contractor will enter the site from either Hyundai Dr or Lane Cove Road and park in the loading bay. Collection staff will collect the bulky waste items from the residential bulky waste room. Once bulky items have been loaded onto the vehicle, the collection vehicle will exit the site onto either Hyundai Dr or Lane Cove Road in a forward direction.

8.0 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.

8.1 COMMERCIAL AND RETAIL WASTE GENERATION ESTIMATES

The 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 commercial/retail tenancies.

The GFA has been measured with accordance with this guideline, as it is acknowledged that this document provides an accurate audited calculation using GFA instead of 'per children'. Childcare estimates have been based on a 5-day operating week, whereas the remaining components are based on a 7-day operating week.

The following table shows the estimated volume (L) of general waste and recycling that will be generated by the commercial and retail tenants. The 'food retail: with sit-down area' has been applied as requested in the Council RFI due to unknown tenancy types at this stage (Ref: COR2025/265/1).

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

Tenancy Type	Floor Area (m ²)	General Waste Generation Rate (L/100m ² /day)	Generated General Waste (L/week)	Recycling Generation Rate (L/100m ² /day)	Generated Recycling (L/week)
Retail: Sit down area	1904	500	66640	240	31987
TOTAL	1904		66640		31987
Bins & Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		General Waste Bins per Day	8.7	Recycling Bins per Day	4.2
		General Waste Collections per Week	6	Recycling Collections per Week	6
		Total General Waste Bins Required	11	Total Recycling Bins Required	5

Table 3: Estimated Waste and Recycling Volumes – Childcare

Tenancy Type	# Children	General Waste Generation Rate (L/Child/day)	Generated General Waste (L/week)	Recycling Generation Rate (L/Child/day)	Generated Recycling (L/week)
Childcare	120	5	3000	5	3000
TOTAL	120		3000		3000
Bins & Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		General Waste Bins per Day	0.4	Recycling Bins per Day	0.4
		General Waste Collections per Week	3	Recycling Collections per Week	3
		Total General Waste Bins Required	1	Total Recycling Bins Required	1

8.2 COMMERCIAL AND RETAIL BIN SUMMARY

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

8.2.1 COMMERCIAL/RETAIL BIN SUMMARY

<u>General Waste:</u>	11 x 1100L bins collected 6 x weekly (or ad-hoc as required).
<u>Recycling:</u>	5 x 1100L bins collected 6 x weekly (or ad-hoc as required).

8.2.2 CHILDCARE BIN SUMMARY

<u>General Waste:</u>	1 x 1100L bin collected 3 x weekly (or ad-hoc as required).
<u>Recycling:</u>	1 x 1100L bin collected 3 x weekly (or ad-hoc as required).

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

8.3 COMMERCIAL AND RETAIL WASTE DISPOSAL PROCEDURES

All tenancies will be responsible for their own general waste and recycling disposal procedures within their own vicinity. On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recycling to the retail or childcare bin room and place into the appropriate collection bins.

8.4 COMMERCIAL AND RETAIL WASTE COLLECTION PROCEDURES

A private waste contractor will be engaged to service the retail general waste and recycling bins as per an agreed collection schedule. This report assumes that each resource stream is collected based on the frequencies listed in Section 8.2.

On the day of service, a private waste collection vehicle will enter the site from either Hyundai Dr or Lane Cove Road and park in the loading bay. The building caretaker will transport these bins to the designated temporary collection area at the loading dock via the aid of a goods lift and bin tug. Once the bins are serviced, the collection vehicle will exit the site onto either Hyundai Dr or Lane Cove Road in a forward direction. Bins would be returned via building management to resume their operational use.

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

8.5 OTHER COMMERCIAL AND RETAIL WASTE MANAGEMENT CONSIDERATIONS

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

8.5.1 WASHROOM FACILITIES

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

8.5.2 PRINTING & PHOTOCOPYING ROOMS

It is recommended that rooms designed for printing or photocopying be provided with an area for the interim storage of paper receptacles, as well as separate receptacles for used toner and/or printer cartridges for recycling. The cleaners or nominated staff are responsible for monitoring these receptacles and ensuring that items are collected and recycled by an appropriate contractor.

8.5.3 BULKY & SPECIAL WASTE

A room or caged area will be made available for the storage of discarded bulky items and special waste for recycling, such as e-waste and chemical waste. This room should have a minimum doorway width of 1.5m to allow for easy movement of large waste items in and out of the room. Based on the Ryde City Council requirements, it is recommended that the bulky waste room is at least 8m² for this development.

8.5.4 LIQUID WASTE

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

8.5.5 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 the general waste stream as they can have adverse impacts to human health and the environment if disposed of in landfill. Retail and commercial tenants must liaise with the building manager when disposing of problem waste streams.

Problem waste streams include:

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

9.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 4: Stakeholder Roles and Responsibilities

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

10.0 SOURCE SEPERATION

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

Table 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.
Recycling	A mixture of items that are commonly recycled usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons). Also included cardboard and paper products.	Resource Recovery Centre	Recycling must not be bagged, and instead should be placed loosely in the designated recycling chute. Bulky cardboard must not be placed in any chute. Cardboard should be flattened before placing in the designated cardboard recycling bin.
FOGO	FOGO consists of unwanted or uneaten kitchen scraps that are easily compostable/biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds) and garden organics including lawn clippings, leaves, pruning's and branches.	Composting Facility	FOGO should be bagged in compostable liners when deposited into the chute/s or bins and will be collected by Council.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Building manager arranges collection for e-waste recycling as needed by residents. Commercial tenants arrange for recycling of their own e-waste.
Bulky Waste Items	Items that are too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc.	Resource Recovery Centre or Landfill	Residents liaise with building manager to store in Bulky Waste Room. Building manager arranges with Council for removal. Commercial tenants are responsible for removal of their bulky items.
Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager arranges collection by appropriate recycling services when required.

11.0 BIN MOVING PATHS (BINS MOVED FOR COLLECTION)

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

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

The routes along the bin moving path should;

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

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

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

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

12.0 EQUIPMENT SUMMARY

Table 6: Equipment Summary

	Part	Qty	Notes
Chutes	Please refer to supplier's information	6	(See APPENDIX: B.1 for Typical Dual Chute Layout)
Chute Equipment	Waste 3-bin 1100L MGB Linear Track System 4-bin 1100L MGB Carousel System	2 1	(See APPENDIX: B.2 and B.3 for Typical Linear System) (See APPENDIX: B.4 and B.5 for Typical Carousel)
	Recycling 3-bin 1100L MGB Linear Track System 4-bin 1100L MGB Carousel System	2 1	(See APPENDIX: B.2 and B.3 for Typical Linear System) (See APPENDIX: B.4 and B.5 for Typical Carousel)
Other Equipment	Suitable Bin Moving Equipment - 1 x Bin Lifter - 1 x Bin Mover	1 1	(See APPENDIX: D.1 for Typical Bin Mover and D.3 for Typical Bin Lifter).

13.0 WASTE ROOMS

The areas allocated for waste storage and collection areas are detailed in the table below and are estimates only. Note that these buildings may require the building manager to rotate when required on a daily basis.

Additional bins or volume handling equipment can be included in these rooms to increase days of capacity or manual labour required in operation.

Table 7: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area Required (m ²)	Actual Area Provided (m ²)
B1	A1 Chute Discharge Room	General waste: 1 x 3-bin 1100L linear track Recycling: 1 x 3-bin 660L linear track Service bins: 1 x 1100L bin 1 x 660L bin	26	63
B1	A1 FOGO Bin Room	FOGO: 10 x 240L bins	9	14
B1	A2 Chute Discharge Room	General waste: 1 x 3-bin 1100L linear track Recycling: 1 x 3-bin 660L linear track Service bins: 1 x 1100L bin 1 x 660L bin	26	55
B1	A2 FOGO Bin Room	FOGO: 10 x 240L bins	10	21
B1	B Chute Discharge Room	General waste: 1 x 4-bin 1100L carousel Recycling: 1 x 4-bin 660L carousel Service bins: 2 x 1100L bins 3 x 660L bins	43	106
B1	B FOGO Bin Room	FOGO: 10 x 240L bins	10	15
B1	Residential Bulky Waste Room	Included in loading dock area*	>44	
B1	Commercial / Retail Bin Room	General waste: 9 x 1100L bins Recycling: 7 x 1100L bins 1 x Bin Tug 5sqm bulky waste area	50+ 5 Total 55	57
B1	Childcare Bin Room	General waste: 1 x 1100L bin Recycling: 1 x 1100L bin 5sqm bulky waste area	6 + 5 Total: 11	23
GF	Shared Bin Collection Area	General waste: 12 x 1100L bins Recycling: 26 x 660L bins FOGO: 79 x 240L bins 1 x Bin Tug 1 x Bin Lifter	168	179

Note: Bin lifter has been proposed on the ground floor due to the floor to ceiling height being limited in the basement.

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

The waste room areas have been calculated based on equipment requirements and/or bin dimensions with an additional 90% of bin GFA factored in for manoeuvrability. In addition, all doorways and passageways facilitating the movement of bins and/or bulky waste items must be at least 1500mm wide.

The following table provides further waste room requirements.

Table 8: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Room	• Ceiling clearance height must be a minimum of 3000mm (subject to penetration location – guidance only) • The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles • All chute 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/or up to 1500mm)
Residential Bin Holding Room and/or Bin Collection Area	• Bins must not be stacked in rows that are more than two bins deep.
Communal FOGO Rooms	• Bins should be arranged so that all bins are accessible. Bins are not to be placed in front of one another or in such a way as to restrict access to the other bins for use. • Rooms must be well ventilated either naturally or mechanically in accordance with AS1668.4.2012 • Cleaning facilities such as hose cock and drainage for odour and hygiene control must be provided. • It is recommended a dustpan and broom is provided in this room for residents to clean up unexpected spillages when using bins.
Bulky Waste 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 Bin Room	• In order to ensure staff safety, all bins should be arranged so they can be accessed without moving another bin • Bins must be coordinated with the hinge of the lid facing the back. This is to allow for ideal access to the bin.

14.0 CONSTRUCTION REQUIREMENTS

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

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

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

14.1 ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two-pack epoxy;
- All corners coved and sealed 1,200mm up, this is to eliminate build-up of dirt;
- Hot and cold water 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.

15.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Ryde Customer Service	Ph: (02) 9552 8222	E: cityofryde@ryde.nsw.gov.au
-----------------------	--------------------	---

PRIVATE WASTE COLLECTION PROVIDER

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

BIN MOVING DEVICE SUPPLIERS

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

BALER SUPPLIERS

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

ORGANIC DIGESTERS AND DEHYDRATORS

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

COOKING OIL CONTAINERS AND DISPOSAL

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

ODOUR CONTROL

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

SOURCE SPERATION BINS

Method Recycling	Ph: 0499 890 455
------------------	------------------

BINS AND BIN EQUIPMENT

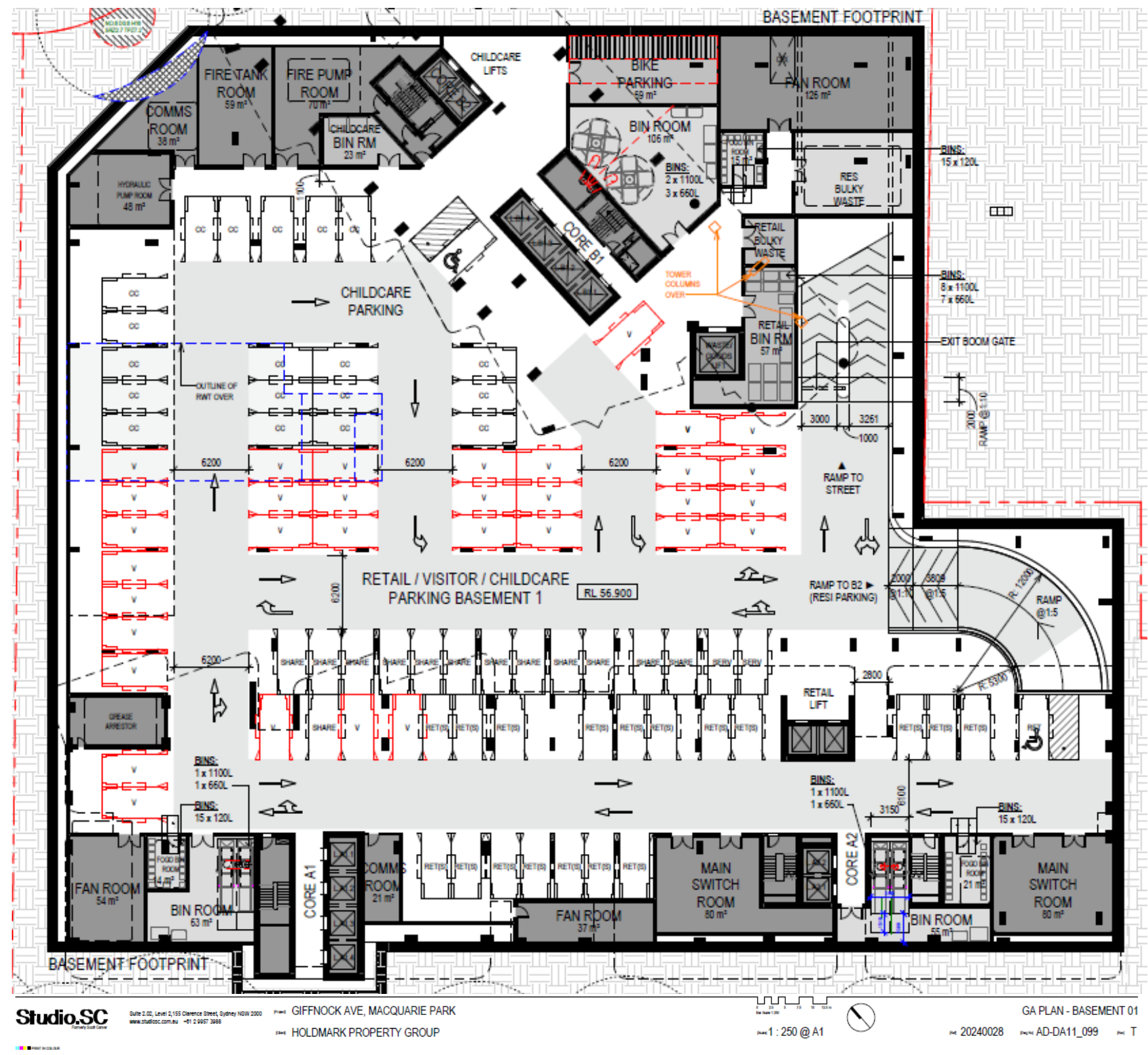
Elephants Foot Equipment	Ph: 1300 435 374	E: equipment@elephantsfoot.com.au
SULO	Ph: 1300 364 388	E: sulosales@pactgroup.com

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

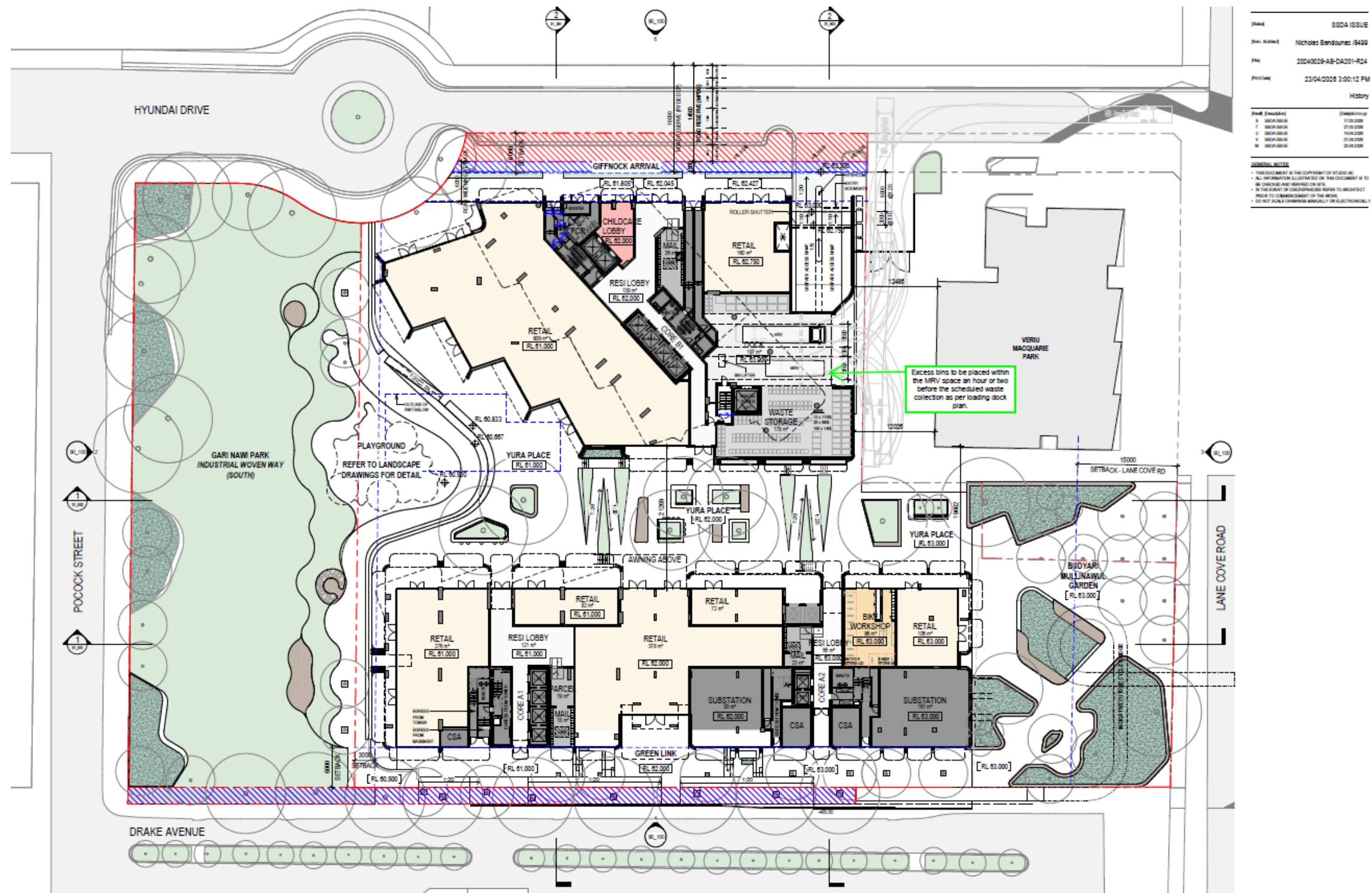
Elephants Foot Chute Solutions	Ph: 1300 435 374	E: chutes@elephantsfoot.com.au
--------------------------------	------------------	---

APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 BASEMENT 1 FLOOR PLAN



APPENDIX: A.2 GROUND FLOOR PLAN

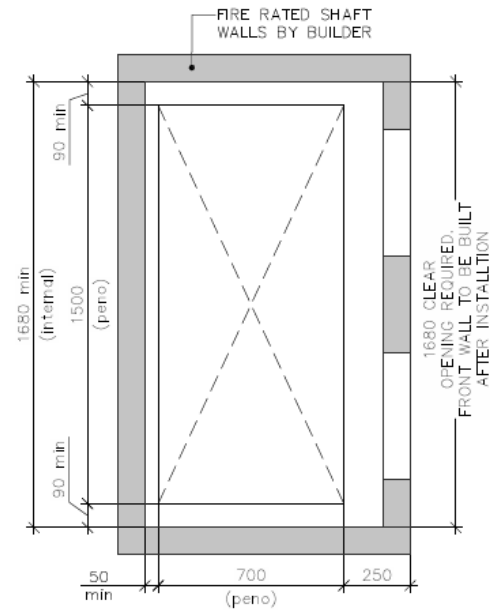


APPENDIX B: INSTALLATION EQUIPMENT

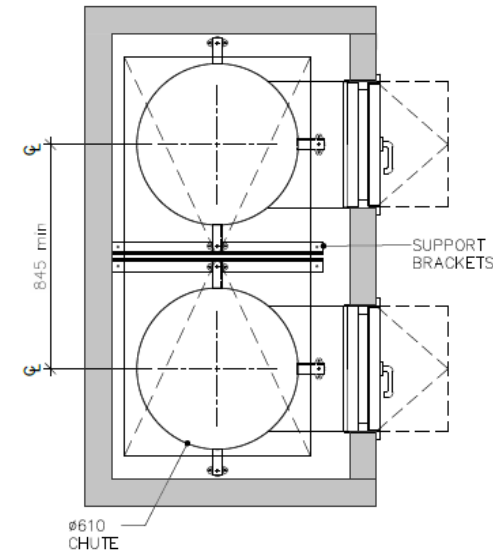


CHUTE SHAFT & PENETRATION SET-OUT

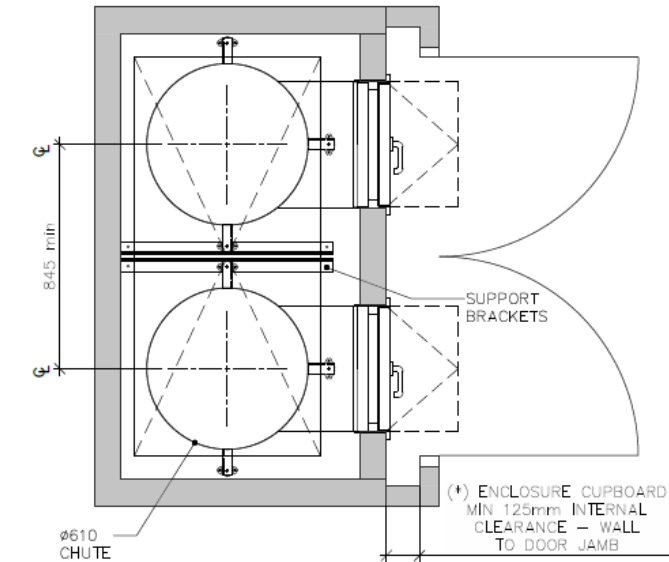
DUAL Ø610 STEEL



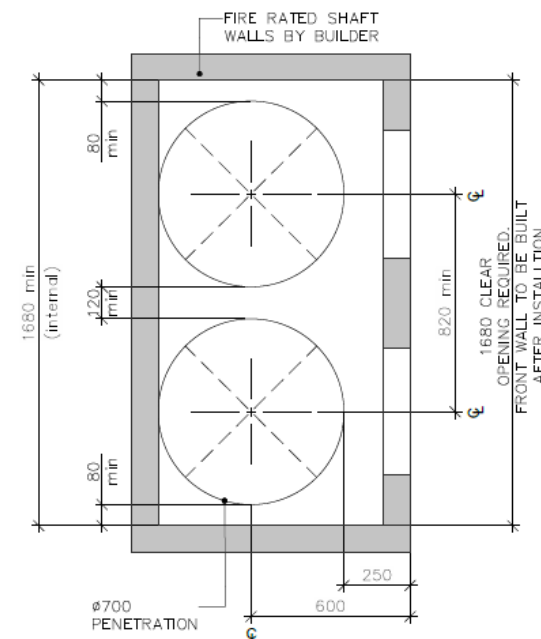
01 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT PENETRATION SET-OUT



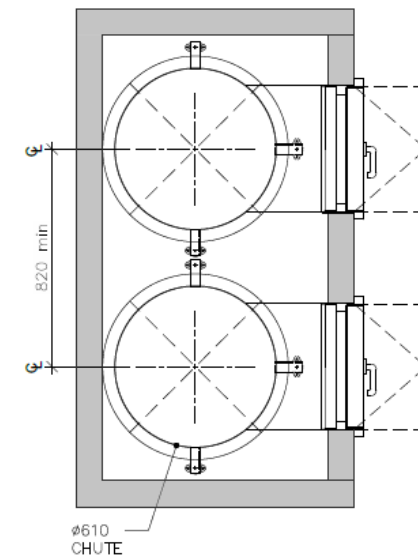
02 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT



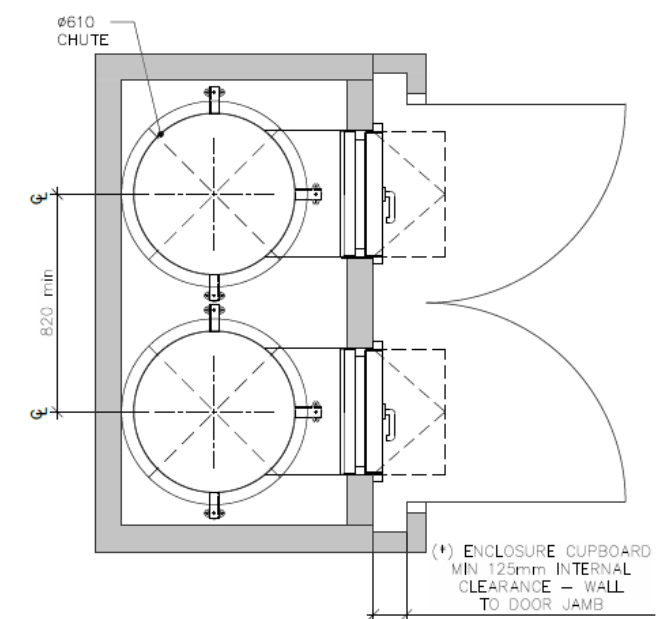
03 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT with ENCLOSURE CUPBOARD (*)



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



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



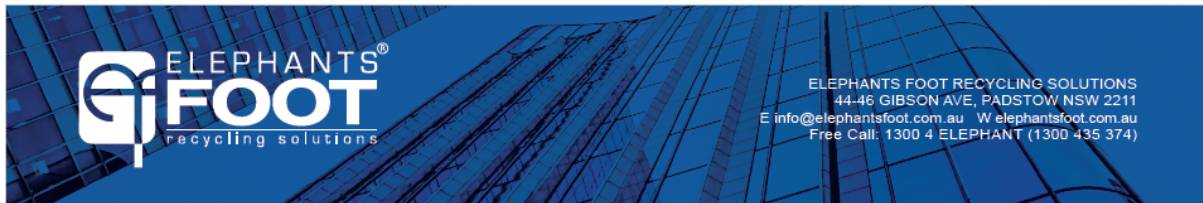
06 DUAL (610Ø) GALV. STEEL CHUTE LAYOUT with ENCLOSURE CUPBOARD (*)

(*) 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 specifications.

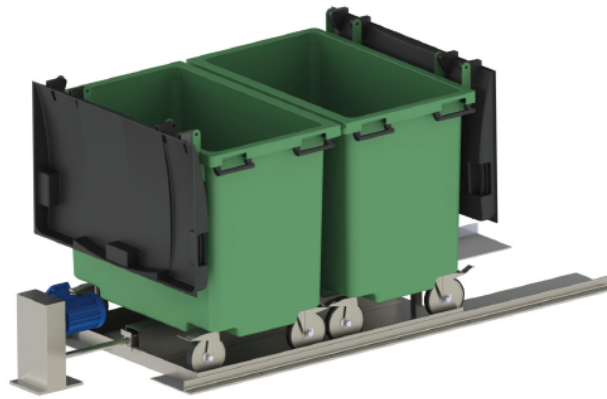
APPENDIX: B.2 TYPICAL LINEAR TRACK SYSTEM FOR 660L BINS



660 LITRE LINEAR TRACK SYSTEM

PRODUCT INFORMATION

Elephants Foot 660 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 standard 2 or 3. Our 4 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	0.55
Maximum bin load	265 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, or 4

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

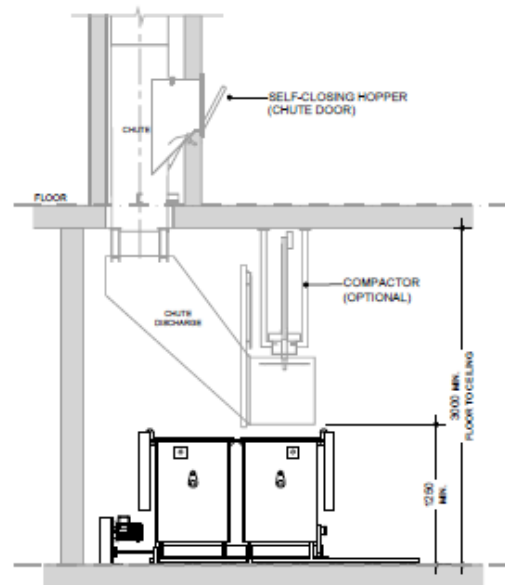
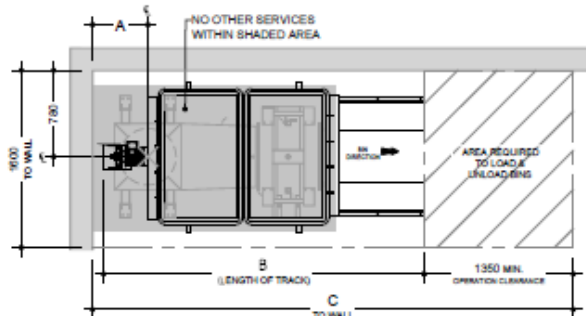
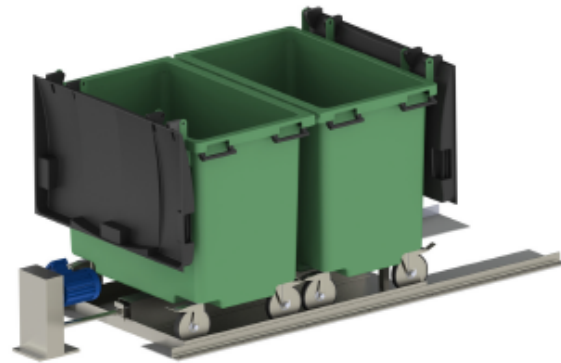
- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet 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



660 LITRE LINEAR TRACK SYSTEM

No. of Bins	Reference (mm)		
	A	B	C
2	500	2950	4350
3	1450	4850	6050
4	2300	6300	7750

Available with or without compaction unit, our standard 240 litre bin Linear Track System can support 2, 3 or 4 bin quantities.



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: B.3 TYPICAL LINEAR TRACK SYSTEM FOR 1100L BINS



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

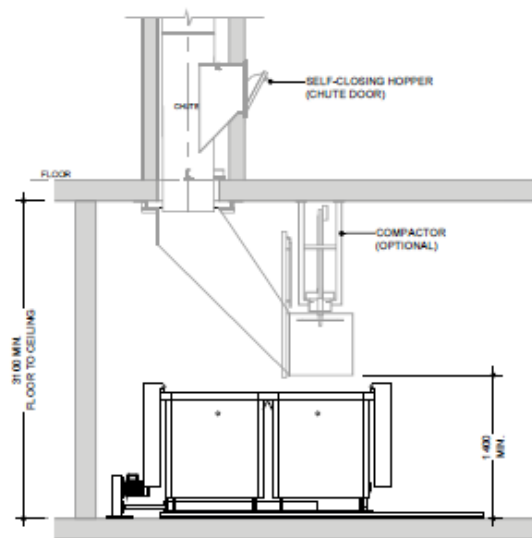
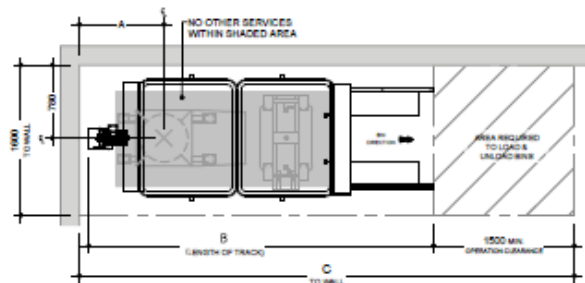


1,100 LITRE LINEAR TRACK SYSTEM



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: B.4 TYPICAL CAROUSEL SYSTEM FOR 660L BINS



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)

660 LITRE CAROUSEL SYSTEM

PRODUCT INFORMATION

Elephants Foot 660 Litre bin Carousel System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Carousel 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 positioned on the unit. Electromechanically driven with automated operation, the Carousel System automatically replaces full bins by a revolving circular platform. Once all the bins on the system 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 660litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	0.37
Maximum bin load	265 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, 4 or 5

OPTIONAL EXTRAS

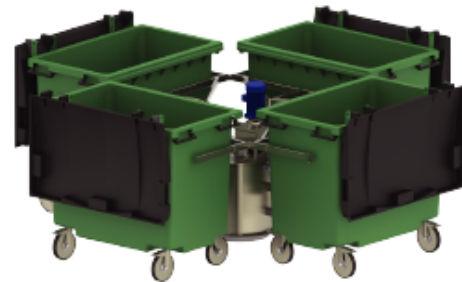
- Compaction unit – Please refer to the bin compactor product information sheet for details and specifications
- Enhanced safety add on's – Interlocking barriers, occupancy sensors or safety light curtains (presence sensing light barriers)
- Full bin SMS and email notification
- CMMS and BMS integration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

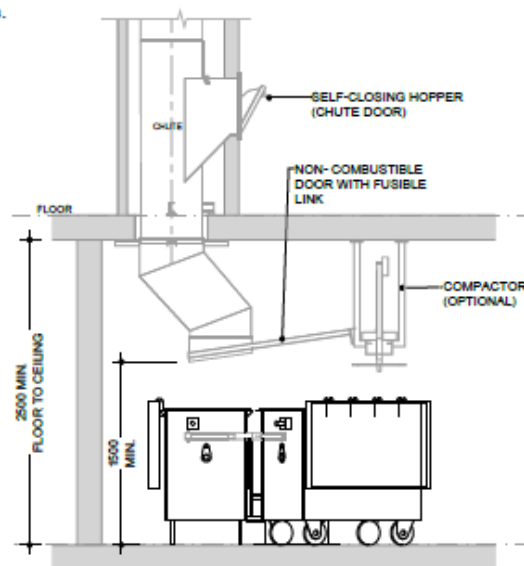
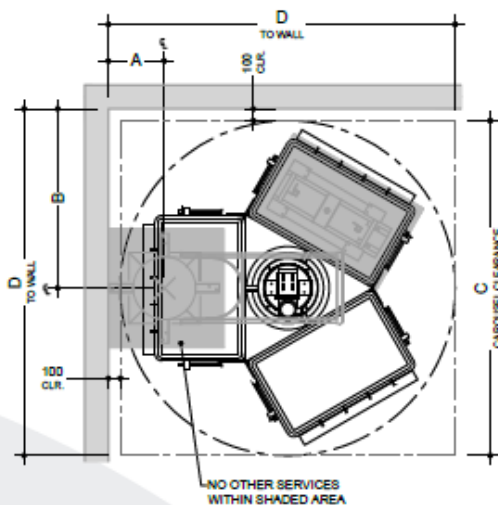


660 LITRE CAROUSEL SYSTEM



No. of Bins	Reference (mm)			
	A	B	C	D
2	500	1450	2700	2850
3	500	1550	2850	2950
4	500	1750	3300	3450
5	500	2050	3760	3900

Available with or without compaction unit, our standard 660litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 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 spatial 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: B.5 EXAMPLE CAROUSEL SYSTEM FOR 1100L BINS



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 CAROUSEL SYSTEM

PRODUCT INFORMATION

Elephants Foot 1100 Litre bin Carousel System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Carousel 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 positioned on the unit. Electromechanically driven with automated operation, the Carousel System automatically replaces full bins by a revolving circular platform. Once all the bins on the system 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 660litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	0.37
Maximum bin load	440 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, 4 or 5

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

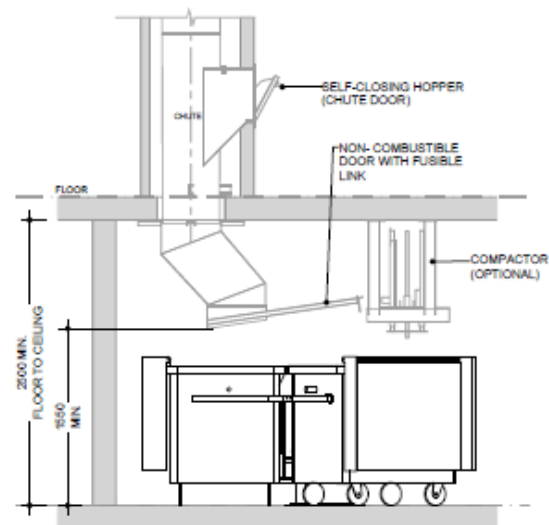
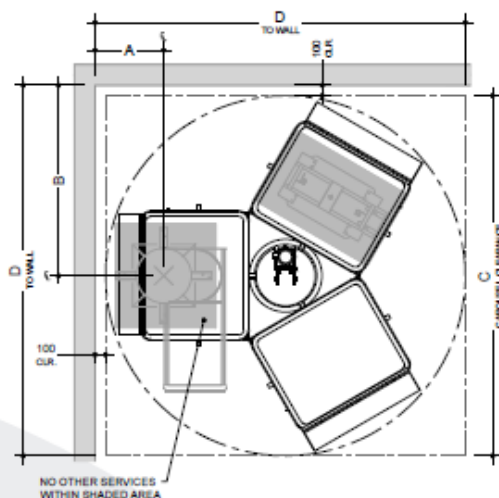
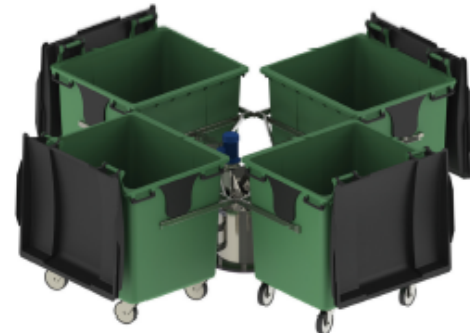
- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development.
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet 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 CAROUSEL SYSTEM

No. of Bins	Reference (mm)			
	A	B	C	D
2	650	1700	3200	3350
3	650	1850	3480	3600
4	650	2050	3940	4050

Available with or without compaction unit, our standard 1100 litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 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 EXAMPLE COLLECTION VEHICLE INFORMATION

General

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

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

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

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

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

Large collection vehicles

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

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

Table B2.1: Collection vehicle dimensions

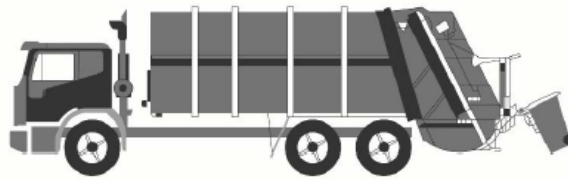
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0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

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

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

Rear-loading collection vehicles

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



Rear-loading waste collection vehicle

Side-loading collection vehicles

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



Side-loading waste collection vehicle

Front-lift-loading collection vehicles

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



Front-lift-loading waste collection vehicle

Small collection vehicles

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

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

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

APPENDIX D: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX: D.1 EXAMPLE HANDHELD BIN MOVERS

movexx
smart electric tugs

MOVEXX T2500 BIN MOVER BATTERY ELECTRIC

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

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

Features

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



SPECIFICATION				
MODEL	DIMENSIONS (MM)	OPTIONS	PULL - PUSH CAPACITY (KG)	BATTERY
T2500-D	511 (w) x 757 (l)	* Centre mount 2x 240 lt. wheelie bin attachment	2500	AGM batteries 2x 85AH up to 8 hrs continuous operation
TOWING CAPACITY - ON FLAT GROUND (all models)			TOWING CAPACITY - SLOPE (all models)	
Towing up to 4x 660 lt. Wheelie Bin			Towing up to 2x 660 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)	
Towing up to 4x 1100 lt. Wheelie Bin			Towing up to 1x 1100 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)	
**Electromagnetic brake for use on ramps and slopes				



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

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: D.2 EXAMPLE BIN TOWING ATTACHMENTS



UNIVERSAL BIN TOWING ATTACHMENTS

SUITE 660LT / 1100LT WHEELIE BINS

PARTS & FEATURES

Front Only - Part Number: 78811672

- Suit Sulo & Otto 600lt / 1100lt MGBs
- Spring loaded draw bar folds up
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used

Rear Only - Part Number: 78811673

- Suit Sulo & Otto 600lt / 1100lt MGBs
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used

For Steel Bin Front Only - Part Number: 78811781

- Suit Sulo & Otto 600lt / 1100lt MGBs
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used

Direction Lock : 53191001

- Suit Sulo & Otto 600lt / 1100lt MGBs
- No drilling of holes in the bin required
- Solidly fixed to the base of the bin using the castor mounting bolts
- Passivated zinc finish for long life
- Correct Rear Fixed or Directional Lock castors should be used



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

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: D.3 EXAMPLE BIN LIFTER FOR 240L BINS

versatip

Versatip Bin Tipper – 1500mm Tip



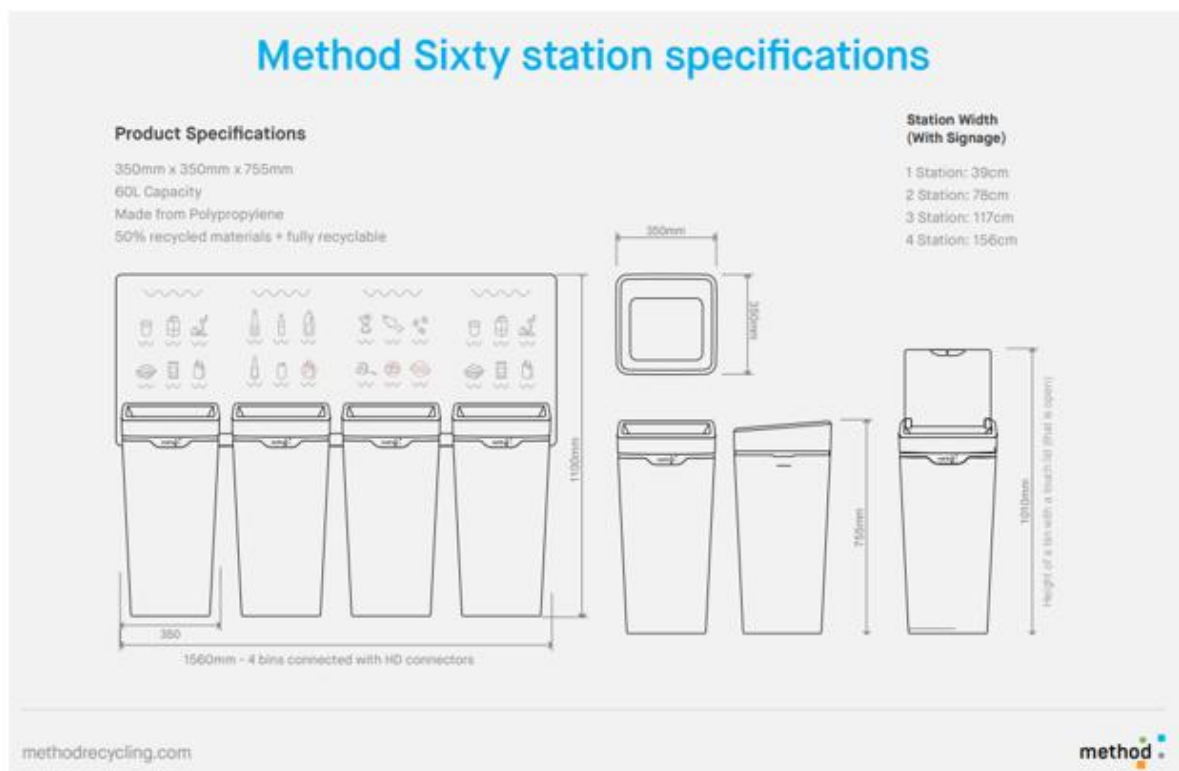
Specifications

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

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

Source: Elephants Foot Equipment - www.elephantsfoot.com.au/equipment/

APPENDIX: D.4 EXAMPLE SOURCE SEPARATION RECEPTACLES



Source: Method Recycling - www.methodrecycling.com