



72-84 Foveaux Street, Surry Hills  
Commercial Development

## OPERATIONAL WASTE MANAGEMENT PLAN

15/03/2019  
Report No. SO100066  
Revision D

Client

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## SCOPE

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

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report. It is EFRS's understanding that a construction and demolition WMP will be completed by a separate party appointed by the developer, and submitted separately to this report. Typically, the head contractor of the site will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements.

## REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description	Signed
A	30/01/2019	J Parker	A Armstrong	Draft	
B	11/02/2019	J Parker	A Armstrong	Amendment	
C	15/03/2019	J Parker	A Armstrong	Final	
D	8/05/2019	J Parker	A Armstrong	Amendment	

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# TABLE OF CONTENTS

GLOSSARY OF TERMS.....	i
LIST OF TABLES.....	ii
INTRODUCTION .....	1
DEVELOPMENT SUMMARY .....	1
SITE LOCATION.....	2
CITY OF SYDNEY COUNCIL .....	3
COUNCIL OBJECTIVES.....	3
STAKEHOLDER ROLES AND RESPONSIBILITIES.....	4
EDUCATION.....	5
LIMITATIONS .....	5
COMMERCIAL WASTE MANAGEMENT.....	6
ESTIMATED WASTE VOLUMES AND PROVISIONS .....	6
COMMERCIAL OFFICE WASTE MANAGEMENT .....	6
OTHER WASTE STREAMS.....	6
E-WASTE.....	7
PAPER AND CARDBOARD RECYCLING .....	7
CHEMICAL WASTE .....	7
COMMERCIAL FACILITIES WASTE MANAGEMENT .....	7
WASHROOMS .....	7
KITCHEN, OFFICE TEA ROOMS AND FOOD PREPARATION AREAS.....	7
PRINTING AND PHOTOCOPYING ROOMS.....	7
FOOD WASTE .....	8
RE-USEABLE COMMERCIAL ITEMS.....	8
BULKY GOODS .....	8
MOVEMENT AND TRANSPORTATION OF BINS .....	9
COLLECTION OF WASTE.....	9
COLLECTION AREA.....	9
INSTALLATION EQUIPMENT AND DESIGN .....	10
EQUIPMENT SUMMARY.....	10
WASTE ROOM AREAS .....	10
GARBAGE ROOMS .....	11
CONSTRUCTION REQUIREMENTS .....	11
SIGNAGE.....	11
VENTILATION.....	11
USEFUL CONTACTS .....	12
APPENDICES.....	13
APPENDIX A ARCHITECTURAL DRAWING EXCERPTS .....	13

**OPERATIONAL WASTE MANAGEMENT PLAN**

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APPENDIX A.1	SITE PLAN .....	13
APPENDIX A.2	WASTE ROOMS .....	14
APPENDIX A.3	COLLECTION AREA .....	15
APPENDIX B	PRIMARY WASTE MANAGEMENT PROVISIONS .....	16
APPENDIX B.1	CITY OF SYDNEY TYPICAL BIN SPECIFICATIONS .....	16
APPENDIX B.2	SIGNAGE FOR WASTE & RECYCLING BINS .....	17
APPENDIX B.3	CITY OF SYDNEY COLLECTION VEHICLE INFORMATION.....	18
APPENDIX B.4	TYPICAL MOTORISED BIN TUG .....	20
APPENDIX B.5	TYPICAL SEATED BIN MOVER.....	21
APPENDIX B.6	TYPICAL BIN HOIST .....	22

## GLOSSARY OF TERMS

TERM	DESCRIPTION
<i>Baler</i>	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
<i>Collection Area/Point</i>	The identified position or area where garbage or recyclables are actually loaded onto the collection vehicle
<i>Compactor</i>	A machine for compressing waste into disposable or reusable containers
<i>Composter</i>	A container/machine used for composting specific food scraps
<i>Crate</i>	A plastic box used for the collection of recyclable materials
<i>Garbage</i>	All domestic waste (Except recyclables and green waste)
<i>Green Waste</i>	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
<i>Hopper</i>	A fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit
<i>L</i>	Litre(s)
<i>Liquid Waste</i>	Non-hazardous liquid waste generated by commercial premises that is supposed to be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
<i>LRV</i>	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
<i>Mobile Garbage Bin(s) (MGB)</i>	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
<i>MRV</i>	Medium rigid vehicle
<i>Putrescible Waste</i>	Component of the waste stream liable to become putrid. Usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
<i>Recycling</i>	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines
<i>Refuse</i>	Material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items
<i>SRV</i>	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33

## LIST OF TABLES

Table 1: Stakeholder Roles and Responsibilities.....	4
Table 2: Calculated Waste Generation – Commercial/Retail .....	6
Table 3: Equipment Summary.....	10
Table 4: Waste Room Areas .....	10

## INTRODUCTION

EFRS has been tasked to prepare the following waste management plan for Stasia Holdings Pty Ltd for the operational management of waste generated by the commercial development located at 72-84 Foveaux Street, Surry Hills.

Waste management strategies and auditing are a requirement for new developments to provide support for the building design, and promote strong sustainability outcomes for the building. It is EFRS's belief that a successful waste management strategy contains three key objectives:

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

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

It is essential that this waste management plan is integral to the overall management of the building and clearly communicated to all relevant stakeholders.

## DEVELOPMENT SUMMARY

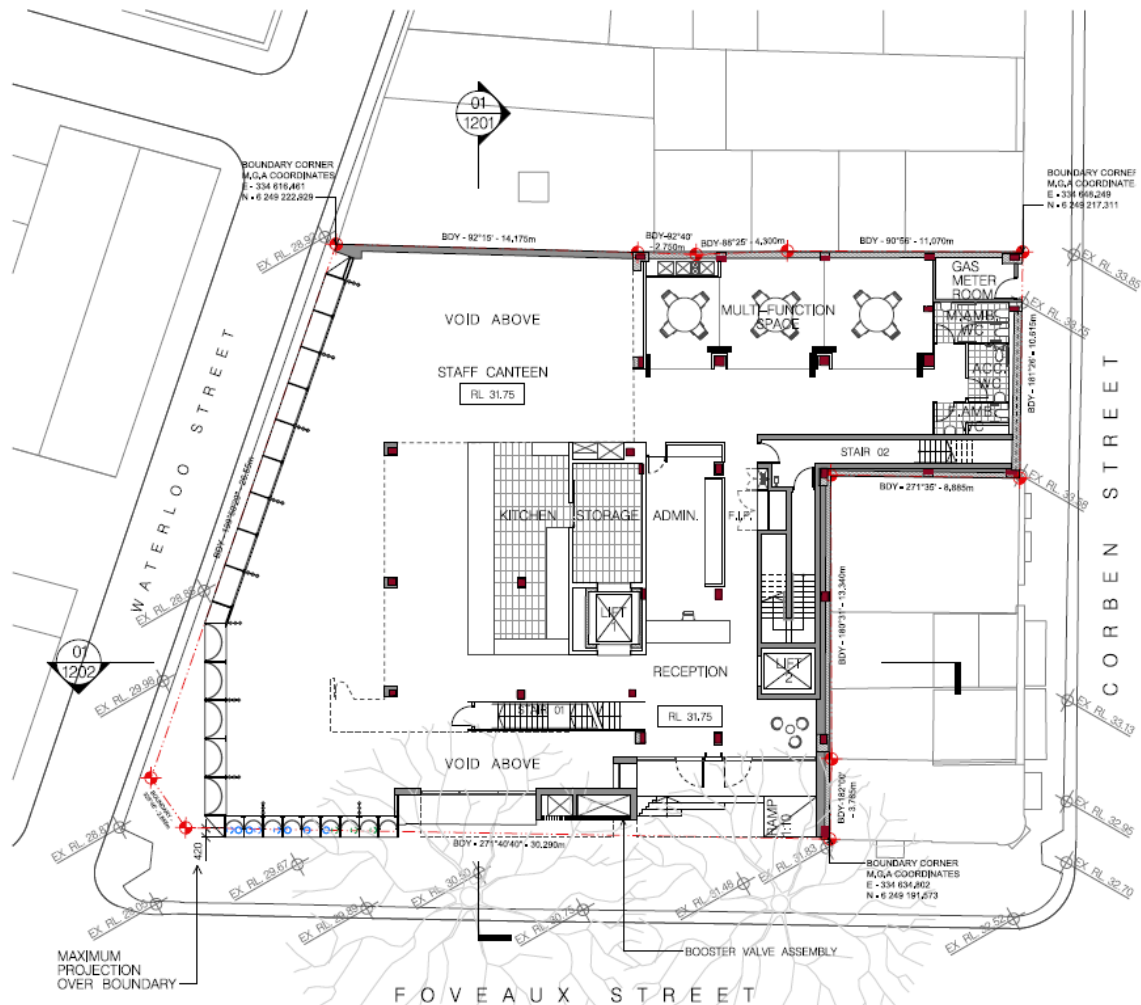
The proposed development falls under the LGA of City of Sydney Council, and consists of:

- 1 building of 6 levels
  - Training/event space on the lower ground level with a total GFA of 422m<sup>2</sup>
  - Commercial premises with a total GFA of 2,553m<sup>2</sup>

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

## SITE LOCATION

The site is located at 72-84 Foveaux Street, Surry Hills, as shown below. The site has frontages to Waterloo Street, Foveaux Street and Corben Street. The site does not have vehicular access.



Source: Candalepas Associates – Ground & Level 1 Floor Plan



## CITY OF SYDNEY COUNCIL

The garbage and recycling will be guided by the services and acceptance criteria of the City of Sydney Council. All waste facilities and equipment are to be designed and constructed to be in compliance with the *Sydney Development Control Plan (2012)*, City of Sydney Council's *Guidelines for Waste Management in New Developments (2018)*, Council Advices, Australian Standards and statutory requirements.

### COUNCIL OBJECTIVES

**Space** – to allocate sufficient areas within developments for the efficient access, storage and collection of waste and recycling.

**Access** – to ensure waste systems are easy to use and collection vehicles are able to access buildings to remove waste safely and efficiently;

**Safety** – to ensure safe practises for storage, handling and collection of waste and recycling;

**Services** – to provide guidance on the Council's expectations for delivering effective waste services including bin handling and collection points, and managing bulky, problem waste and stripout waste.

**Management** – to ensure clarify regarding the roles providing waste management systems for developments and to demarcate service provision.

## STAKEHOLDER ROLES AND RESPONSIBILITIES

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

*Table 1: Stakeholder Roles and Responsibilities*

Roles	Responsibilities
Strata/Management	<ul style="list-style-type: none"> <li>Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights;</li> <li>Organising internal waste audits/visual assessments on a regular basis; and</li> <li>Manage any non-compliances/complaints reported through waste audits.</li> </ul>
Building Manager or Waste Caretaker	<ul style="list-style-type: none"> <li>Ensuring effective signage, communication and education is provided to occupants, tenants and cleaners;</li> <li>Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities;</li> <li>Ensuring site safety for residents, children, visitors, staff and contractors;</li> <li>Abiding by all relevant OH&amp;S legislation, regulations, and guidelines;</li> <li>Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers;</li> <li>Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins)</li> <li>Cleaning and transporting of bins as required;</li> <li>Organising, maintaining and cleaning the general and recycled waste holding area;</li> <li>Organising both garbage and recycled waste pick-ups as required;</li> <li>Organising replacement or maintenance requirements for bins;</li> <li>Organising bulky goods collection when required; and</li> <li>Investigating and ensuring prompt clean-up of illegally dumped waste materials.</li> </ul>
Tenants and Staff	<ul style="list-style-type: none"> <li>Dispose of all garbage and recycling in the allocated MGBs provided;</li> <li>Ensure adequate separation of garbage and recycling; and</li> <li>Compliance with the provisions of Council and the WMP.</li> </ul>
Private Waste Contractor	<ul style="list-style-type: none"> <li>Provide a reliable and appropriate waste collection service;</li> <li>Provide feedback to building managers/staff regarding contamination of recyclables; and</li> <li>Work with building managers to customise waste systems where possible.</li> </ul>
Gardening/Landscaping Contractor	<ul style="list-style-type: none"> <li>Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.</li> </ul>
Building Contractors	<ul style="list-style-type: none"> <li>Removing all construction related waste offsite in a manner that meets all authority requirements.</li> </ul>

## EDUCATION

Building management in co-ordination with office tenancies are responsible for creating and maintaining the waste management education process.

Educational material encouraging the correct separation of garbage and recycling items must be provided to each staff member and tenancy to ensure the correct disposal of waste, including bulky goods (old furniture, large discarded items, etc.) It is recommended that the building caretaker provides information in multiple languages to support correct practises and minimise the possibility of contamination between waste bins.

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

## LIMITATIONS

The purpose of this report is to document a Waste Management Plan (WMP) as part of a development application and is supplied by Elephants Foot Recycling Solutions (EFRS) with the following limitations:

- Drawings, estimates and information contained in this waste management plan have been prepared by analysing the information, plans and documents supplied by the client, and third parties including Council and government information. The assumptions based on the information contained in the WMP is outside the control of EFRS;
- the figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building managements approach to educating tenants regarding waste management operations and responsibilities;
- the building manager will make adjustments as required based on actual waste volumes (if waste is greater than estimated) and increase the number of bins and collections accordingly;
- the report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures;
- the report has been prepared with all due care however no assurance or representation is made that the WMP reflects the actual outcome and EFRS will not be liable to you for plans or outcomes that are not suitable for your purpose, whether as a result of incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the WMP unless specifically stated;
- any manual handling equipment recommended should be provided at the recommendation of the appropriate equipment provider who will assess the correct equipment for supply;
- Design of waste management equipment and systems must be approved by the supplier.

## COMMERCIAL WASTE MANAGEMENT

City of Sydney Council's *Guidelines for Waste Management in New Developments* (2018) and NSW EPA's *Better Practice Guide for Waste Management and Recycling in Commercial and Industrial Facilities* (2012) has been referenced to calculate the total number of bins required for the retail and commercial areas. Calculations are based on generic figures; waste generation rates may differ according to the tenants' waste management practice.

### ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of garbage and recycling generated by the commercial/retail component of the development. It has been assumed that all tenancies within the building will share waste bins and collection services. A seven day operating week has been assumed.

*Table 2: Calculated Waste Generation – Commercial/Retail*

Type	GFA (m <sup>2</sup> )	Garbage Generation Rate (L/100m <sup>2</sup> /day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m <sup>2</sup> /day)	Generated Recycling (L/week)	Food Waste Generation Rate (L/100m <sup>2</sup> /day)	Generated Food Waste (L/week)
Commercial Offices	2553	15	2680.65	25	4467.75	5	893.55
Training / Event Space	422	10	295.4	10	295.4	10	295.4
<b>TOTAL</b>	<b>2975</b>		<b>2976.05</b>		<b>4763.15</b>		<b>1188.95</b>
Collections & Equipment	Bin Size (L)		240	Bin Size (L)		240	240
	Garbage Bins Per Week		13	Recycling Bins Per Week		20	5
	Collections per Week		3	Collections per Week		3	3
	Total Waste Bins Required		5	Total Recycling Bins Required		7	2

### COMMERCIAL OFFICE WASTE MANAGEMENT

Typically, bins for paper or general waste are positioned next to each workers desk or work station. Bins stations for general waste and recyclables are also located centrally on each level and office working space, generally in the kitchen area and printer room.

The cleaners circulate around the workplace after normal office hours and perform cleaning tasks. At this time the cleaners will empty the waste and recycling bins into bags which they transport around the offices in a cart which is also used to store cleaning products, spare bags, PPE and consumables.

The cleaners will be responsible for transporting the waste and recycling to the waste room on basement level 1 and depositing into the appropriate bin.

### OTHER WASTE STREAMS

Tenants are required make arrangements for the disposal and recycling of specialised waste (toner cartridges, batteries, etc.). Disposal of hard, electronic, liquid waste and any chemical waste (paint/chemicals) can be organised with the assistance of the building management or cleaners.

## **E-WASTE**

E-waste (electronic waste) refers to any equipment containing printed circuit boards. E-Waste must not be placed in standard garbage or recycling bins as it can contaminate soil and surrounding water bodies if not disposed of correctly. The best disposal method is to engage an e-waste recycling service.

E-waste is a waste stream that is generated infrequently. A bin or cupboard should be allocated in the office for the storage of e-waste. Once a sufficient amount of e-waste is acquired the office or building manager will be responsible for engaging an e-waste recycling service.

The property manager may also choose to contact Council to find out about new or existing strategies for the disposal or collection of electronic waste available through the Council.

## **PAPER AND CARDBOARD RECYCLING**

Paper and cardboard are highly recyclable waste streams that are frequently generated by office environments. During operation, the building manager or tenancy may choose to implement paper and cardboard bins and paper collection service with an appropriate recycler.

Paper and cardboard should not be stored for more than two weeks in order to reduce the likelihood of vermin in the sorted material.

## **CHEMICAL WASTE**

Chemical waste (e.g. cleaning chemicals, paints, oils solvents) pose detrimental effects to human health and the environment if not disposed of correctly. Chemical waste should be disposed of at a suitable licensed disposal facility. No liquid waste or wash down waters should be disposed of via the storm water drainage system.

Tenants and staff will need to liaise with the building manager when disposing of their chemical waste. The building manager will be responsible for arranging the correct disposal of chemical waste.

## **COMMERCIAL FACILITIES WASTE MANAGEMENT**

### **WASHROOMS**

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.

### **KITCHEN, OFFICE TEA ROOMS AND FOOD PREPARATION AREAS**

Any food preparation area, including kitchens and office tea rooms will be provided with dedicated source separation bins including a general garbage bin, recycling bin and a food waste bin. The cleaners will be responsible for monitoring the capacity of these bins and emptying them as required.

### **PRINTING AND PHOTOCOPYING ROOMS**

It is recommended that rooms or areas dedicated to printing and photocopying have a bin for the collection of waste paper and a receptacle for the collection of toner and printer cartridges for recycling.

The cleaners and building managers are responsible for monitoring the capacity of these bins and ensuring that these items are collected and recycled by an appropriate contractor.

## FOOD WASTE

During daily operations, each tenancy will be responsible for the correct disposal of all food waste. At the end of the day, nominated staff or cleaners will bring the food waste bins to the central food waste area for collection.

The building management will be responsible for providing either on-site food waste processing system or a food waste bins and collections through a private contractor.

## RE-USEABLE COMMERCIAL ITEMS

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

## BULKY GOODS

A room or caged area will be made available for the storage of discarded retail and commercial bulky items (e.g. whitegoods, furniture, etc.) and problem 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.

City of Sydney Council requires developments with over 2000m<sup>2</sup> of commercial premises to provide 4m<sup>2</sup> of bulky good space per 2000m<sup>2</sup>. Based on this rate, this development will provide a commercial bulky goods room of 4m<sup>2</sup>.

## MOVEMENT AND TRANSPORTATION OF BINS

The building manager/waste caretaker is responsible for the transportation of bins from the waste room to the collection area prior to scheduled collection times, and returning them once emptied to resume operational use.

Transfer of waste and all bin movements require minimal manual handling; the operator must assess manual handling risks and provide any relevant documentation to building management.

If required the developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations. Examples of motorised bin moving equipment can be found in APPENDIX B.4 and APPENDIX B.5.

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.

## COLLECTION OF WASTE

All waste generated by this development will be collected by private contractor to an agreed schedule (this report assumes collections will occur three times per week for both garbage and recycling).

Prior to collection times, the building manager/caretaker will be responsible for transferring full bins from the waste room on basement level 1 to the kerbside of Waterloo Street via the bin hoist. This will be carried out outside of normal business hours. Bins should be neatly arranged and evenly spaced at the kerbside for ease of servicing.

The contractor's waste vehicle will pull-up on Waterloo Street and service all of the bins. Once servicing is complete, the building manager/caretaker will be responsible for returning bins to the basement waste room to resume operational use.

## COLLECTION AREA

It is Elephant Foot's understanding that the collection areas have been reviewed by a traffic consultant to confirm the swept paths for waste collections, access and egress.

## INSTALLATION EQUIPMENT AND DESIGN

### EQUIPMENT SUMMARY

Table 3: Equipment Summary

Component	Part	Qty	Notes
Equipment A	Bin Hoist	1	(See APPENDIX B.6 for Typical Bin Hoist)
Equipment B	Suitable Bin Moving Equipment	N/A	Optional (See APPENDIX B.4 for Typical Bin Mover)

## WASTE ROOM AREAS

The areas allocated for waste storage, bulky goods and collections are detailed in Table 4 below. The areas provided are estimates only. Final areas will depend upon room and bin layouts.

Table 4: Waste Room Areas

Level	Waste Room Type	Equipment	Allocated Area (m <sup>2</sup> )
B1	Commercial Waste Room	5 x 240L MGBs (Garbage) 7 x 240L MGBs (Recycling) 2 x 240L MGBs (Food Waste) 1 x 240L MGBs (eWaste)	20
	Commercial Bulky Goods Storage	N/A	4

Note: Any requirement for increasing storage capacity can be met by increasing the frequency of collections for all waste.



## GARBAGE ROOMS

### CONSTRUCTION REQUIREMENTS

The garbage room will be required to contain the following facilities to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- waste room floor to be sealed with a two pack epoxy;
- waste room walls and floor surface is flat and even;
- all corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- a cold water facility with hose cock must be provided for washing the bins;
- any waste water discharge from bin washing must be drained to sewer in accordance with the relevant water board. (Sydney Water);
- tap 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 floor levels;
- the room must be mechanically ventilated;
- light switch installed at height of 1.6m;
- waste rooms must be well lit (sensor lighting recommended);
- optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;
- if 660L or 1100L bins are utilised, 2 x 820mm (minimum) door leafs must be used;
- all personnel doors are hinged, lockable and self-closing;
- waste collection area must hold all bins – bin movements should be with ease of access;
- conform to the Building Code of Australia, Australian Standards and local laws; and
- childproofing and public/operator safety shall be assessed and ensured

### SIGNAGE

The building manager/caretaker is responsible for waste room signage including safety signage (see *APPENDIX B.2*). Appropriate signage must be prominently displayed on walls and above all bins, clearly stating what type of waste or recyclables is to be placed in the bin underneath.

### VENTILATION

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

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

Mechanical exhaust systems shall comply with AS1668 and not cause any inconvenience, noise or odour problem.

## USEFUL CONTACTS

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

### **SYDNEY COUNCIL CUSTOMER SERVICE**

Phone: 02 9265 9333

Email: [council@cityofsydney.nsw.gov.au](mailto:council@cityofsydney.nsw.gov.au)

### **SULO MGB** (MGB, Public Place Bins, Tugs and Bin Hitches)

Phone: 1300 364 388

### **CLOSED LOOP** (Organic Dehydrator)

Phone: 02 9339 9801

### **ELECTRODRIVE** (Bin Mover)

Phone: 1800 333 002

Email: [sales@electrodrive.com.au](mailto:sales@electrodrive.com.au)

### **RUD** (Public Place Bins, Recycling Bins)

Phone: 07 3712 8000

Email: [Info@rud.com.au](mailto:Info@rud.com.au)

### **CAPITAL CITY WASTE SERVICES** (Private Waste Services Provider)

Phone: 02 9359 9999

### **REMONDIS** (Private Waste Services Provider)

Phone: 13 73 73

### **SITA ENVIRONMENTAL** (Private Waste Services Provider)

Phone: 13 13 35

### **NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC.** (NACRO)

Phone: 03 9429 9884

Email: [information@nacro.org.au](mailto:information@nacro.org.au)

### **PURIFYING SOLUTIONS** (Odour Control)

Phone: 1300 636 877

Email: [sales@purifyingsolutions.com.au](mailto:sales@purifyingsolutions.com.au)

### **MOVEXX** (Bin Movers)

Phone: 1300 763 444

### **AUSCOL** (Recycling Oils & Animal Fats)

Phone: 1800 629 476

### **KOMPACT EQUIPMENT** (Equipment & Servicing Provider)

Phone: 1300 566 722

Email: [info@kompactequipment.com.au](mailto:info@kompactequipment.com.au)

### **ELEPHANTS FOOT RECYCLING SOLUTIONS** (Chutes, Compactors & eDiverter Systems)

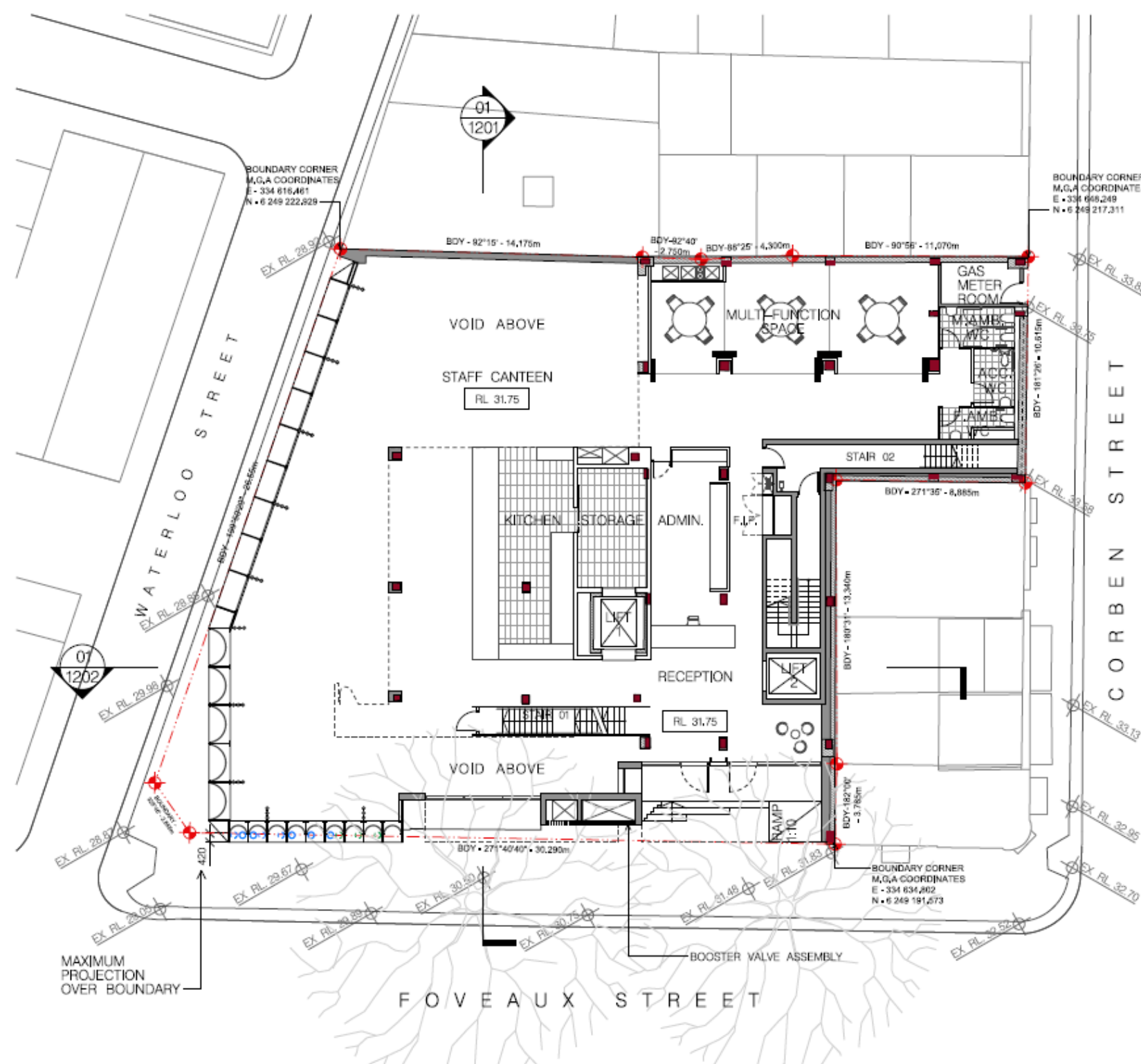
44 – 46 Gibson Avenue

Padstow NSW 2211

Phone: 1300 434 374

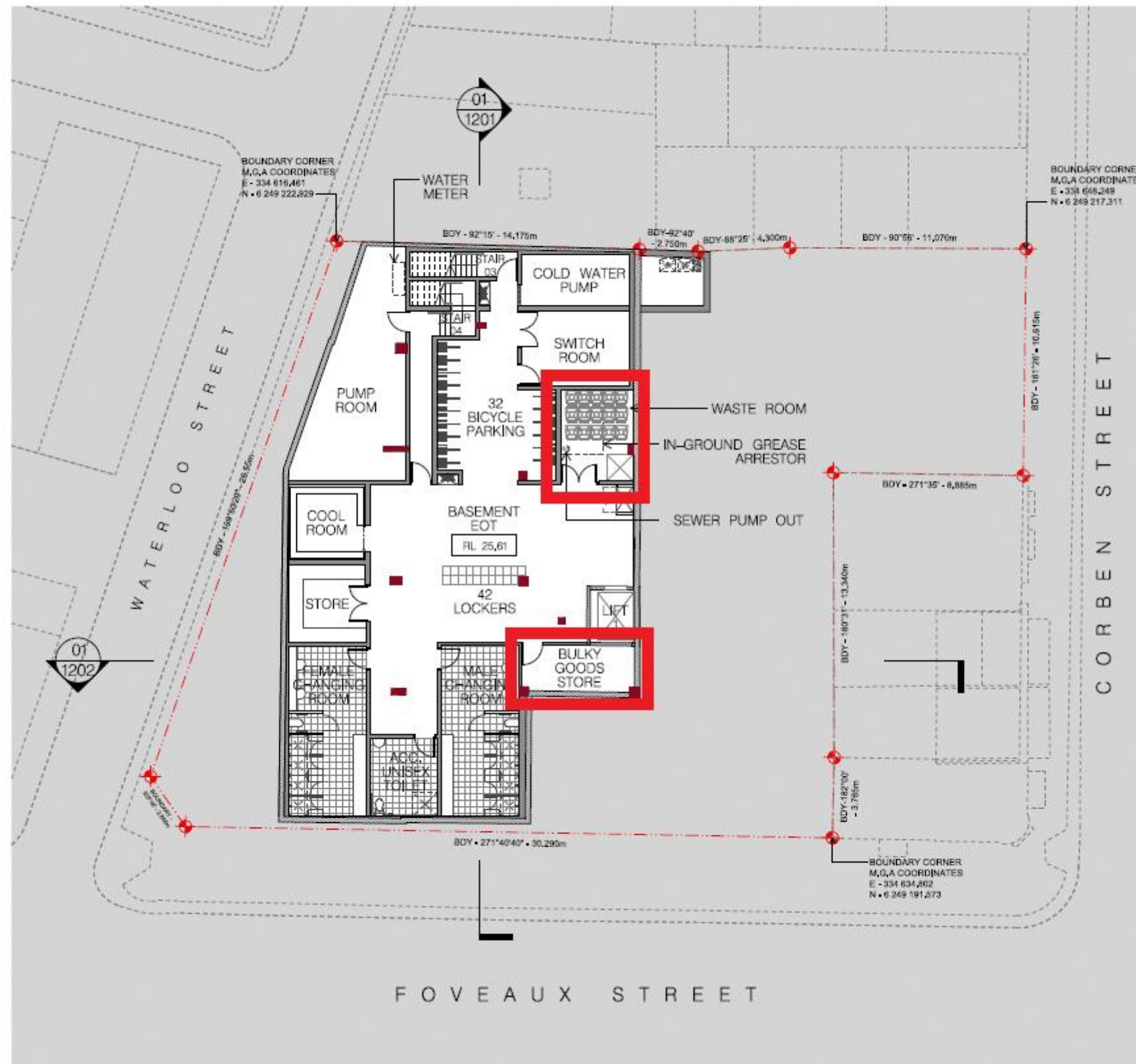
Email: [wmp@elephantsfoot.com.au](mailto:wmp@elephantsfoot.com.au)

## APPENDIX A.1 SITE PLAN



Source: Candalepas Associates – Drawing No. DA-1102, Iss.A, 14/03/19 - Ground & Level 1 Floor Plan

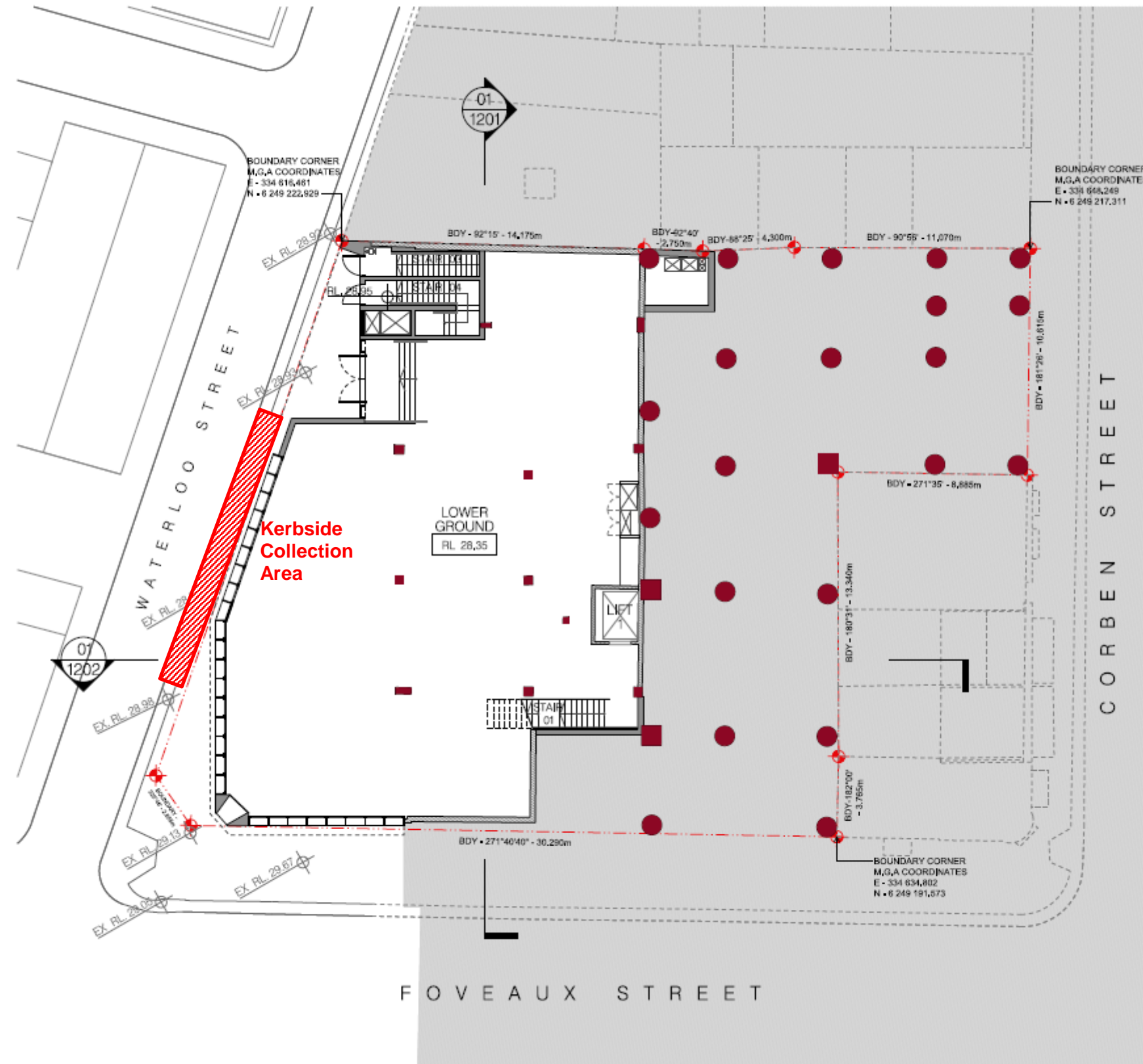
APPENDIX A.2 WASTE ROOMS



Source: Candalepas Associates – Drawing No. DA-1101, Iss.A, 14/03/19 – Basement and Lower Ground Floor Plan



APPENDIX A.3 COLLECTION AREA



Source: Candalepas Associates – Drawing No. DA-1101, Iss.A, 14/03/19 - Basement & Lower Ground Floor Plan

## APPENDIX B PRIMARY WASTE MANAGEMENT PROVISIONS

### APPENDIX B.1 CITY OF SYDNEY TYPICAL BIN SPECIFICATIONS

#### Australian standard sizes for mobile garbage bins (MGBs)

##### Standard measurements

Bin type	120L MGB	240L MGB	660L MGB	1100L MGB
Height	940 mm	1080 mm	1250 mm	1470 mm
Length	560 mm	735 mm	850 mm	1245 mm
Width	485 mm	580 mm	1370 mm	1370 mm



SOURCE: City of Sydney Waste Management Guidelines for New Developments 2018

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

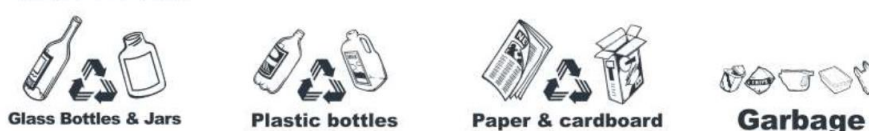
### WASTE SIGNS

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

Example wall posters



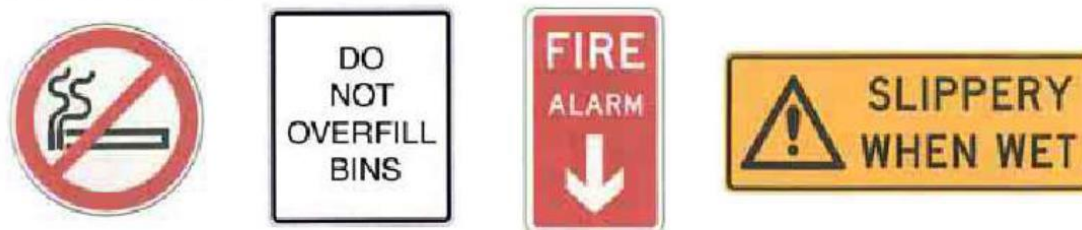
Example bin lid stickers



### SAFETY SIGNS

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

Examples of Australian Standards:



Australian Standards are available from the SAI Global Limited website ([www.saiglobal.com](http://www.saiglobal.com)).

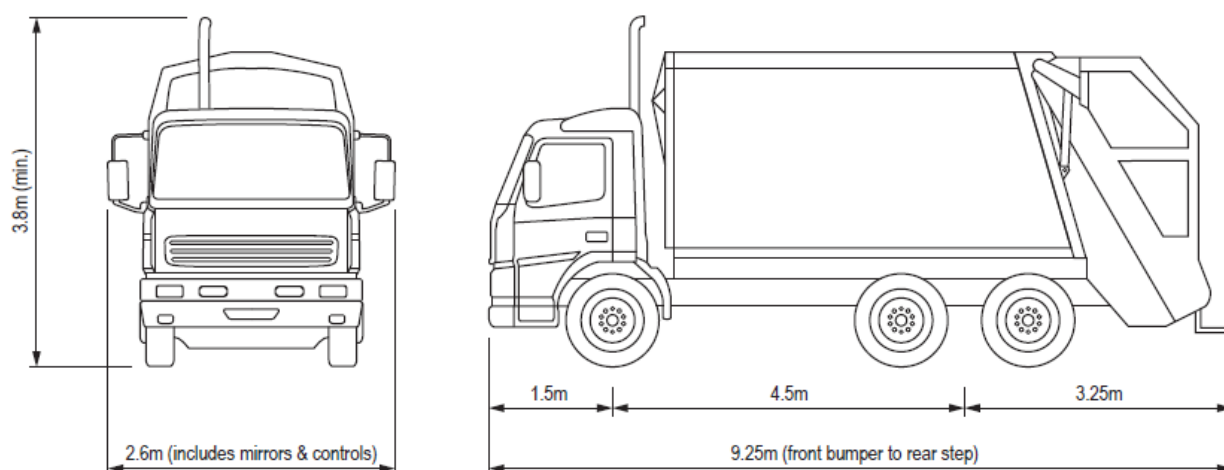
SOURCE: Department of Environment and Climate Change NSW 2008, *Better Practice Guide for Waste Management in Multi-Unit Dwellings*

## APPENDIX B.3 CITY OF SYDNEY COLLECTION VEHICLE INFORMATION

Waste collection vehicles may be side loading, rear loading or front-end loading. The size of vehicle varies according to the collection service. Council and its waste contractors use rear-loading, compacting collection vehicles of various capacities to 20 m<sup>3</sup> for collecting waste and recycling.

Council and its waste contractors use rear-loading, compacting collection vehicles of various capacities to 20 m<sup>3</sup> for collecting waste and recycling.

The following characteristics represent the typical rear-end loading collection vehicle for guidance only.



Dimensions of typical collection vehicle (rear loader)

### Vehicle dimensions and design parameters for swept path analysis

The following dimensions are of a typical rear loading collection vehicle and should be used as the design parameters for a swept path analysis.

Rear loading vehicle	dimensions
Length overall (m)	9.25
Width overall (m)	2.6
Travel height (m)	3.8
Minimum vertical clearance required (m)	4.0
Maximum weight (t)	26
Turning circle radius – wall to wall (m)	10.5
Lock to lock time (sec)	6
Minimum clearance on both sides of the wheel path (mm)	600
Vehicle turning speed (km/hr)	5-10



## Vehicle access and turning requirements

A turning path analysis should be used to check that the paths of vehicles travelling in the forward direction when negotiating access driveways and circulation roadways, can be accommodated within the proposed location. Turning path analysis should also be used to check the movement out of a loading dock to establish that sufficient width is provided for the vehicle swept path, including maneuvering clearances. In providing turning path analysis, the following should be provided:

- Details of road geometry (details dimension of the driveway, width of the road (carriage way), footpath, kerb and gutter, median and on-street parking where applicable.)
- Dimension details of the design vehicle
- Turning radius and operable speed
- Lock to lock time. It is recommended that a value between three and six seconds is reasonable for most conventional vehicles. It should come through a vehicle data sheet, however, if not a six seconds should be chosen.
- Three clear swept paths line namely wheel path, vehicle body path and 0.6m clearance path

The parameter of the design vehicle for swept path analysis should be obtained from the manufacturer specification (with reference) or the parameters in the vehicle dimension table can be used.

Best design practice for access and egress from a development calls for a separate entrance and exit to allow the collection vehicle to travel in a forward direction at all times. Where there is a requirement for collection vehicles to turn at a cul-de-sac head within a development, the design is to incorporate either a bowl or 'T' or 'Y'-shaped arrangement.

The design aspects to be taken into account include:

- Placement of waste and recycling bins outside each home, or in a common collection area
- The presence of parked cars on access roads
- Trucks are to only be expected to make a three-point turn to complete a U-turn
- Allowing for collection vehicle overhang and possible interference with bins and road furniture.

## Road geometry

The design parameters are to comply with the following road geometry:

- A maximum desirable gradient of 10 per cent for turning heads
- Vehicle access for collection and loading will provide for a maximum grade of 1:20 for the first 6 metres from the street, then a maximum of 1:8 with a transition of 1:12 for 4 metres at the lower end
- A maximum longitudinal road gradient of 15 per cent
- A minimum kerb radius of 8.5 metres at the outside of the turn where there is to be on-site collection
- A minimum kerb radius of 10 metres at the outside of the turn where there is to be kerbside collection
- A minimum pavement width of 6.5 metres if 25 or more parking spaces for cars are required (use of passing bays is acceptable)
- An industrial-type strength pavement designed for a maximum wheel loading of 7 tonnes per axle in order to accommodate waste and recycling collection trucks (the standard road pavement design specifications for an individual driveway entry on public land is 150 mm thick concrete, 20 MPa concrete with F82 mesh).

## Collection from enclosures

Collection vehicles may enter building basements for the collection of waste and/or recyclables provided the following requirements are met:

- The gradient of the ramp access to basement is not to exceed 1:8
- The height of the structural members and upper floor ceiling are to allow for a typical collection vehicle travel height/operational height consistent with the type of vehicle employed
- The provision of space is to be adequate to allow the typical three-point turn of collection vehicles
- The basement floor is to be of industrial-type strength pavement and designed for a maximum wheel loading of 7 tonnes per axle in order to accommodate waste and recycling collection trucks (the standard road pavement design specifications for an industrial driveway entry on public land is 150 mm thick concrete, 20 MPa concrete with F82 mesh).

## APPENDIX B.4 TYPICAL MOTORISED BIN TUG



### Typical applications:

- Move trolleys, waste bin trailers and 660/1100L bins up and down a ramp incline.
- Quiet, smooth operation with zero emissions and simple to use, no driver's licence required
- Suitable for:
  - High rise building & apartment basements
  - Large factories & warehouse with sloped ground
  - Caravan parks & other large outdoor areas

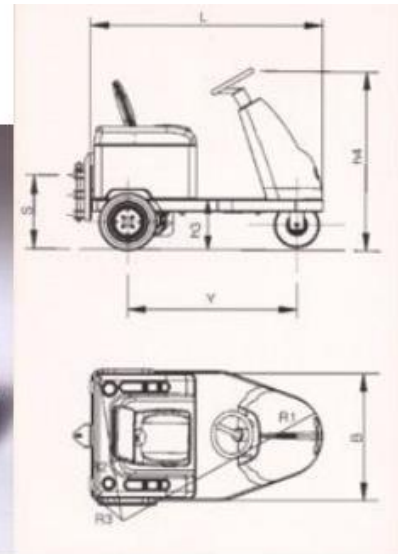
### Features:

- 1 tonne tow capacity of inclines up to 8 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 4.5 km/h max speed
- 2 x 80amp batteries – includes charger
- Powerful transaxle
- Hitch to suit 660L bins

### Safety Features:

- Intuitive paddle lever control
- Stops and repels the unit if activated when reversing.
- Site assessment recommended to assess ramp incline steepness (*See Useful Contacts*)

**APPENDIX B.5 TYPICAL SEATED BIN MOVER**



		UNIT M.	BULL 2	BULL 4
Manufacturer	DEC			
Model	BULL			
Platform loading cap.	Nominal capacity	kg	-----	-----
Pull capacity	Pull nominal capacity	kg	2000	4000
Power type	Electric - endothermic		electric	electric
Control type	Standing / seated thiller / steer		seated / steer	seated / steer
Tyres	Pn=pneum. Se=superelastic		Pn	Pn
Wheels	N. front/rear - x drive	n.	1/2X	1/2X
Platform dimensions	L x B (lengh x width)	mm	-----	-----
Platform hight	h6 = unload clearence	mm	-----	-----
Overall dimensions	L = lenght	mm	1500	1600
	B = width	mm	900	930
	h1 = foot leve	mm	1820	1960
	h3 = Seat height	mm	310	340
	h4 = Steer height	mm	1250	1330
Turning radius	R1 = front min. external	mm	1400	1500
	R2 = rear min. external	mm	1000	1000
	R3 = front min. internal	mm	400	400
Aisle width	A = 180° turn	mm	2200	2300
Tow hook height	s = center from ground	mm	220-350-490	240-380-520

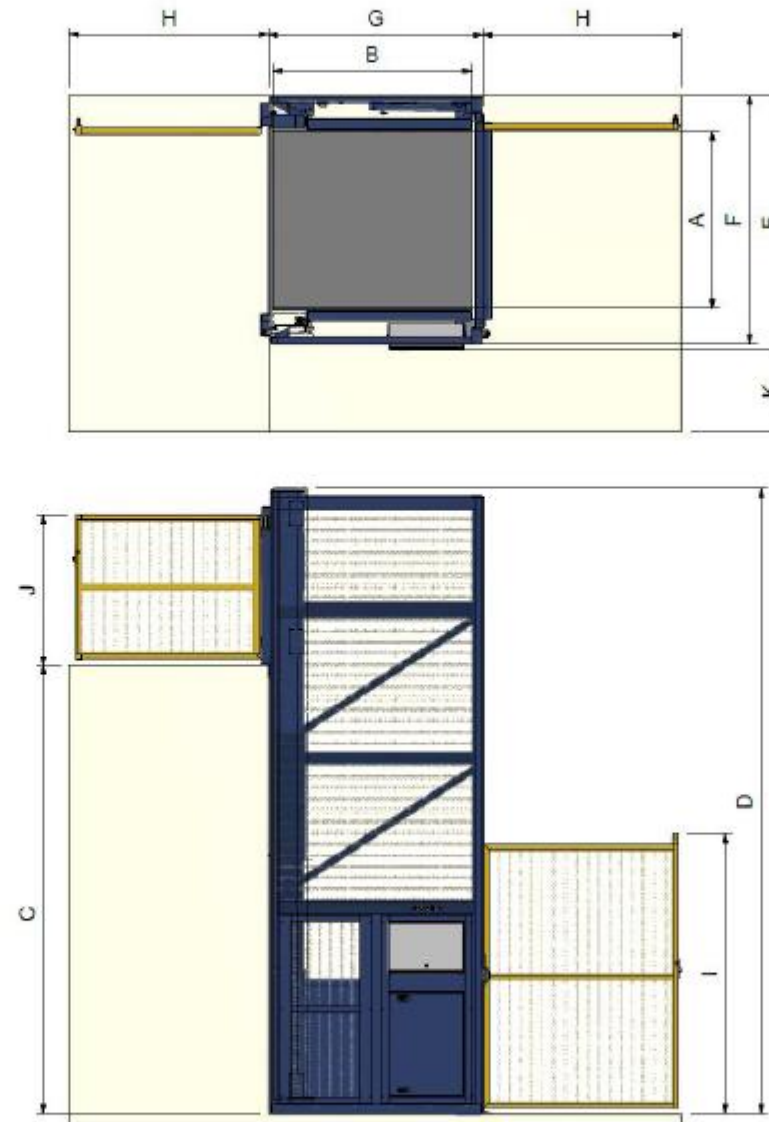


## APPENDIX B.6 TYPICAL BIN HOIST

# MATERIALS

## Handling

PTY LTD *Working with ease*

**SPECIFICATIONS**

- 1 Goods only hoist - 4000
- 2 1500kg capacity
- 3 Self-supporting Structure, no attachment to dock required, swing gates attached to structure
- 4 Up to 4000mm Travel
- 5 Power unit can be mounted LH, RH (viewed from lower level) or remote
- 6 Swing doors, LH and RH available (LH shown)
- 7 Install as single piece or multiple
- 8 No pit required
- 9 2.0m/min (30mm/s) travel speed
- 10 Infill panels optional for mezzanine applications

Contact Materials Handling for additional information.

**TECHNICAL DATA**

Description	Dimension	Standard (mm)
Platform Width	A	1420
Platform Length	B	1600
Floor to Floor	C	4000
Overall Height	D	5400
Overall Width, On-board PU	E	2050
Overall Width, Remote PU	F	1985
Overall Frame Length	G	1722
Swing Gate Open Length	H	1600
Swing Gate Height (Lower level)	I	2250
Swing Gate Height (Upper level)	J	1200
On Board PU clearance required	K	650

Compact Goods Hoist – 4000

[www.materialshandling.com.au](http://www.materialshandling.com.au)