



29-35 Reddall Street & 95 Bower Street, Manly
Residential Development

OPERATIONAL WASTE MANAGEMENT PLAN

20/06/2019
Report No.
Revision B

Client

M Projects Pty Ltd

Architect

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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
A	29/04/2019	A Armstrong	E Saidi	Draft
B	20/06/2019	A Armstrong	E Saidi	Amendment

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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>Chute</i>	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
<i>Chute Discharge</i>	The point at which refuse exits from the refuse chute
<i>Chute Discharge Room</i>	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
<i>Collection Area/Point</i>	The identified position or area where 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>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

INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for Squillace on behalf of M Projects Pty Ltd for the operational management of waste generated by the residential development located at 31-35 Reddall Street & 95 Bower Street, Manly NSW.

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 integrated into the overall management of the building and clearly communicated to all relevant stakeholders.

REPORT CONDITIONS

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

- Drawings, estimates and information contained in this waste management plan have been prepared by analysing the information, plans and documents supplied by the client, and third parties including Council and government information. The assumptions based on the information contained in the 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 residents and tenants regarding waste management operations and responsibilities;
- The building manager will make adjustments as required based on actual waste volumes (if waste is greater than estimated) and increase the number of bins and collections accordingly;
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures;
- The report has been prepared with all due care however no assurance or representation is made that the 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 chute equipment and systems must be approved by the supplier.
- EFRS cannot be held accountable for late changes to the design after the WMP has been submitted to Council.
- EFRS will provide specifications and recommendations on bin access and travel paths within the WMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions.
- EFRS are not required to provide information on collection vehicle head heights, internal manoeuvring and loading requirements. These variables are considered to be within the applicable Traffic Consultants domain.
- Council are subject to changing waste and recycling policies and requirements at their own discretion. Information in this operational waste management plan is correct as of April 2019.

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

DEVELOPMENT SUMMARY

The proposed development falls under the LGA of Northern Beaches, and consists of 3 buildings (Building A, B & C).

- Building A consists of 4 terraces;
- Building B consists of 9 apartments spanned across 3 levels; &
- Building C consists of 10 apartments spanned across 3 levels.

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 31-35 Reddall Street & 95 Bower Street, Manly, as shown in Figure.1. The site has frontages to Reddall Street, Bower Street & College Street, with vehicle access via College Street and Bower Street.

Figure 1 - Site Location



NORTHERN BEACHES COUNCIL

The development is within Northern Beaches Council's jurisdiction. Northern Beaches Council is the amalgamation of Manly Council, Pittwater Council and Warringah Council. At time of writing this waste management plan, the waste services and associated policies operate under the original council divisions.

The residential garbage and recycling will be guided by the services and acceptance criteria of the Pittwater Council. All waste facilities and equipment are to be designed and constructed to be in compliance with the Northern Beaches Council's *Waste management Guidelines 2016*, and Pittwater Council's *Pittwater Development Control Plan 2014*, Australian Standards and statutory requirements.

COUNCIL REQUIREMENTS

Access – Ensure waste systems are easy to use and collection vehicles are able to access buildings to safely remove waste and recycling;

Safety – Ensure safe practises for storage, handling and collection of waste and recycling;

Pollution Prevention – Prevent stormwater pollution that may occur as a result of poor waste storage and management practises;

Noise Minimisation – Provide acoustic insulation to the waste service facilities or residential units adjacent to or above chutes, waste storage facilities, chute discharge, waste compaction equipment and waste collection vehicle access points;

Ecologically Sustainable Development (ESD) – Promote the principles of ESD through resource recovery and recycling leading to a reduction in the consumption of finite natural resources;

Hygiene – Ensure health and amenity for residents, visitors and workers in the Northern Beaches LGA.

STAKEHOLDER ROLES AND RESPONSIBILITIES

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

Table 1 - Stakeholder Roles & Responsibilities

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

EDUCATION

Building management is responsible for creating and managing the waste management education process.

Educational material encouraging the correct separation of garbage and recycling items must be provided to each resident 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 in the collective waste bins.

It is also recommended that the owners' corporation website contain information for residents to refer to. Information should include:

- Recycling and garbage descriptions (Council provides comprehensive information);
- How to dispose of bulky goods and any other items that are not garbage or recycling; and
- Residents' obligations to WHS and building management.

RESIDENTIAL WASTE MANAGEMENT

The *Northern Beaches Council Waste Management Guidelines 2016* has been referenced to calculate the total number of bins required for the residential units. Calculations are based on generic figures; waste generation rates may differ according to the residents' waste management practice.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of garbage and recycling generated by the development.

Table 2 - Estimated Waste Generation

Building	# Units	Garbage Generation Rate (L/unit/week)	Generated Garbage (L/w week)	Cardboard - Recycling Generation Rate (L/unit/w week)	Generated Recycling (L/w week)	Co-Mingled Recycling Generation Rate (L/unit/w week)	Generated Recycling (L/w week)
A	4	80	320	70	280	70	280
B	9	80	720	70	630	70	630
C	10	80	800	70	700	70	700
TOTAL	23		1840		1610		1610
Collections & Equipment	Garbage Bin Size (L)		240	Recycling Bin Size (L)		240	240
	Garbage Collections per Week		1	Recycling Collections per Fortnight		1	1
	Total Garbage Bins Required		9	Total Recycling Bins Required		9	9

HOUSEHOLD WASTE

Each building will have a waste room situated on the basement level for the disposal of waste, cardboard recycling and comingle recycling.

Residents will be required to dispose of their waste and recycling directly into the appropriate MGBs.

On collection days, the building caretaker will transfer all MGBs from Building A to the kerbside of Bower Street and all MGBs from Building B and C will be transferred to the kerbside of College Street for Council servicing. Council will service cardboard recycling MGBs on alternating weeks to comingle recycling MGBs.

COMMON AREAS

The lobbies and circulation areas will be supplied with suitably branded waste and recycling bins where considered appropriate. These areas generate minimal waste, however garbage and recycling receptacles should be provided and located in convenient locations.

SOURCE SEPERATION

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

GENERAL WASTE (GARBAGE)

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

RECYCLING

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

GREEN WASTE

Green waste is not typically generated from multi-unit dwellings other than from surrounding building landscaped areas and is removed by the designated maintenance contractor. In the event that green waste is produced i.e trimming of indoor or balcony plants then this may be disposed of via coordination with the building caretaker or cleaner. Very small quantities may be disposed of via the general waste stream.

BULKY GOODS

A bulky goods room or caged area (adjacent to the waste room) will be made available on the basement level for each building. This is to be used for the storage of discarded residential bulky items (e.g. whitegoods, furniture, etc.).

Each bulky goods storage room or caged area should be **4m³**.

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

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

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

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, E-Waste can potentially contaminate soil

OPERATIONAL WASTE MANAGEMENT PLAN

and surrounding water bodies if not disposed of correctly. The best disposal method for e-waste is recycling through a E-waste service or council.

Disposal or recycling of electronic waste will be organised with the assistance of the building caretaker. Residents and/or the building manager may choose to contact Council to find out about new or existing strategies for the disposal and collection of electronic waste.

CHEMICAL WASTE

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

Residents will need to liaise with the building manager when disposing of their chemical wastes. The building manager will be responsible for arranging the correct disposal of chemical waste. Household Chemical CleanOut events are held at various locations throughout NSW on specified dates throughout the year. Locations and dates are subject to change. It is recommended that the building caretaker confirm these details with their local Council.

ORGANIC WASTE AND COMPOSTING

Recycling organic waste, such as food scraps and garden materials, dramatically reduces the quantity of waste being diverted to land fill and thus reduces residents' ecological footprint. Compost material can also be returned to the soil as a rich fertilizer and improve plant growth and the overall health of surrounding vegetation. It is recommended that a space for composting and worm farming is made available for all residents in a communal facility or in small private courtyards (see *APPENDIX C.1*). Composting facilities are to be sited on an unpaved area with soil depth of at least 300mm. Residents may also choose to purchase and install apartment style compost bin where practical and self-manage these systems (see *APPENDIX C.2 and APPENDIX C.3*).

CLOTHING WASTE

Clothing is becoming an increasingly large waste stream for domestic dwellings. Unwanted clothing that is clean and undamaged can be donated to charities. Building management may choose to provide clothing donation bins for residents to donate their unwanted clothing. Building management can directly contact a charity to supply a donation bin or choose to provide their own nondenominational donation bin. Once a sufficient amount of clothing has been collected, the building management will be responsible for arranging the collection of donated items with the relevant charity.

MOVEMENT AND TRANSPORTATION OF BINS

The building manager/waste caretaker is responsible for the transportation of bins from their designated operational locations to their respective collection areas 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 consultant to provide equipment recommendations.

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

Council will service all waste MGBs on a weekly basis and recycling MGBs will be collected fortnightly (alternating weeks).

On collection days, the building caretaker will transfer all MGBs from Building A to the kerbside of Bower Street and all MGBs from Building B and C will be transferred to the kerbside of College Street.

Once serviced, all MGBs must be returned to their designated storage locations.

WASTE ROOM AREAS

Communal waste rooms must be arranged so that all MGBs are accessible at all times.

The recommended areas allocated for the waste rooms are presented below. The areas provided are estimates only and final areas will depend on the room configuration and MGB layouts.

Table 3 - Waste Room Areas

Location	Waste Room Type	MGBs	Allocated Area (m ²)
Building A – B2	Communal Waste Room	2 x 240L Waste MGBs; 2 x 240L Cardboard Recycling MGBs; 2 x 240L Comingle Recycling MGBs.	6m ²
Building A – B2	Bulky Goods Storage Room		4m ³
Building B – B1	Communal Waste Room	3 x 240L Waste MGBs; 3 x 240L Cardboard Recycling MGBs; 3 x 240L Comingle Recycling MGBs.	8m ²
Building B – B1	Bulky Goods Storage Room		4m ³
Building C - LG	Communal Waste Room	4 x 240L Waste MGBs; 3 x 240L Cardboard Recycling MGBs; 3 x 240L Comingle Recycling MGBs.	9m ²
Building C - LG	Bulky Goods Storage Room		4m ³

WASTE ROOMS

CONSTRUCTION REQUIREMENTS

The waste 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;
- For residential: a hot and cold water facility with mixing facility and hose cock must be provided for washing the bins;
- For retail/commercial: 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 doors, 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/m² 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.

NORTHERN BEACHES COUNCIL CUSTOMER SERVICE

Phone: 1300 434 434

Email:

council@northernbeaches.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

NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC. (NACRO)

Phone: 03 9429 9884

Email: information@nacro.org.au

PURIFYING SOLUTIONS (Odour Control)

Phone: 1300 636 877

Email: sales@purifyingsolutions.com.au

MOVEXX (Bin Movers)

Phone: 1300 763 444

Elephants Foot Recycling Solutions (Chutes, Compactors and eDiverter Systems)

44 – 46 Gibson Avenue

Padstow NSW 2211

Free call: 1800 025 073

Email: info@elephantsfoot.com.au

Kompact Equipment (Waste Handling Equipment Sales, Servicing and Maintenance)

1/81 Governor Macquarie Drive

Chipping Norton NSW 2170

Free call: 1800 566 722

Email: info@kompactequipment.com.au

APPENDICES

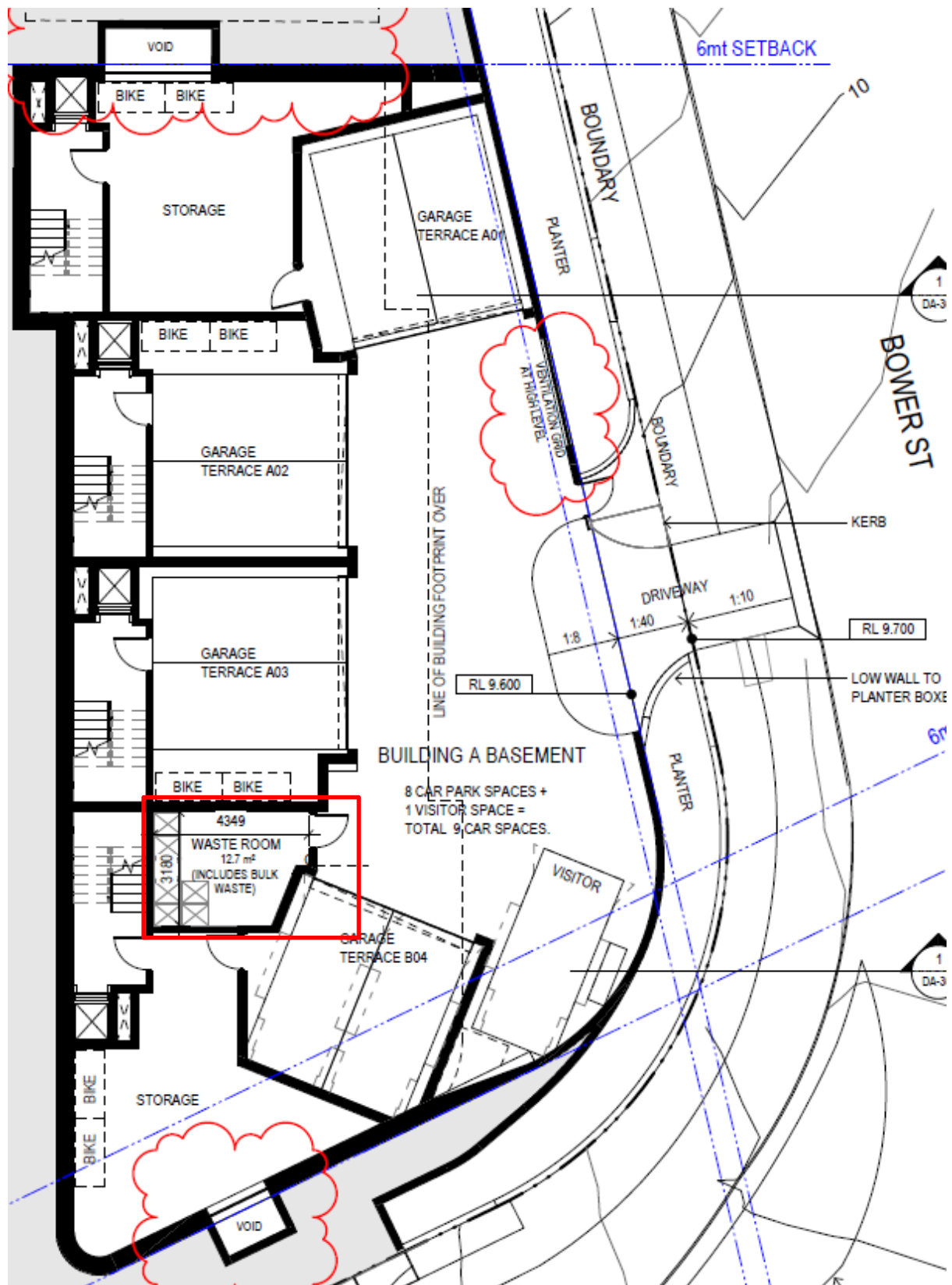
APPENDIX A ARCHITECTURAL DRAWING EXCERPTS

APPENDIX A.1 SITE PLAN



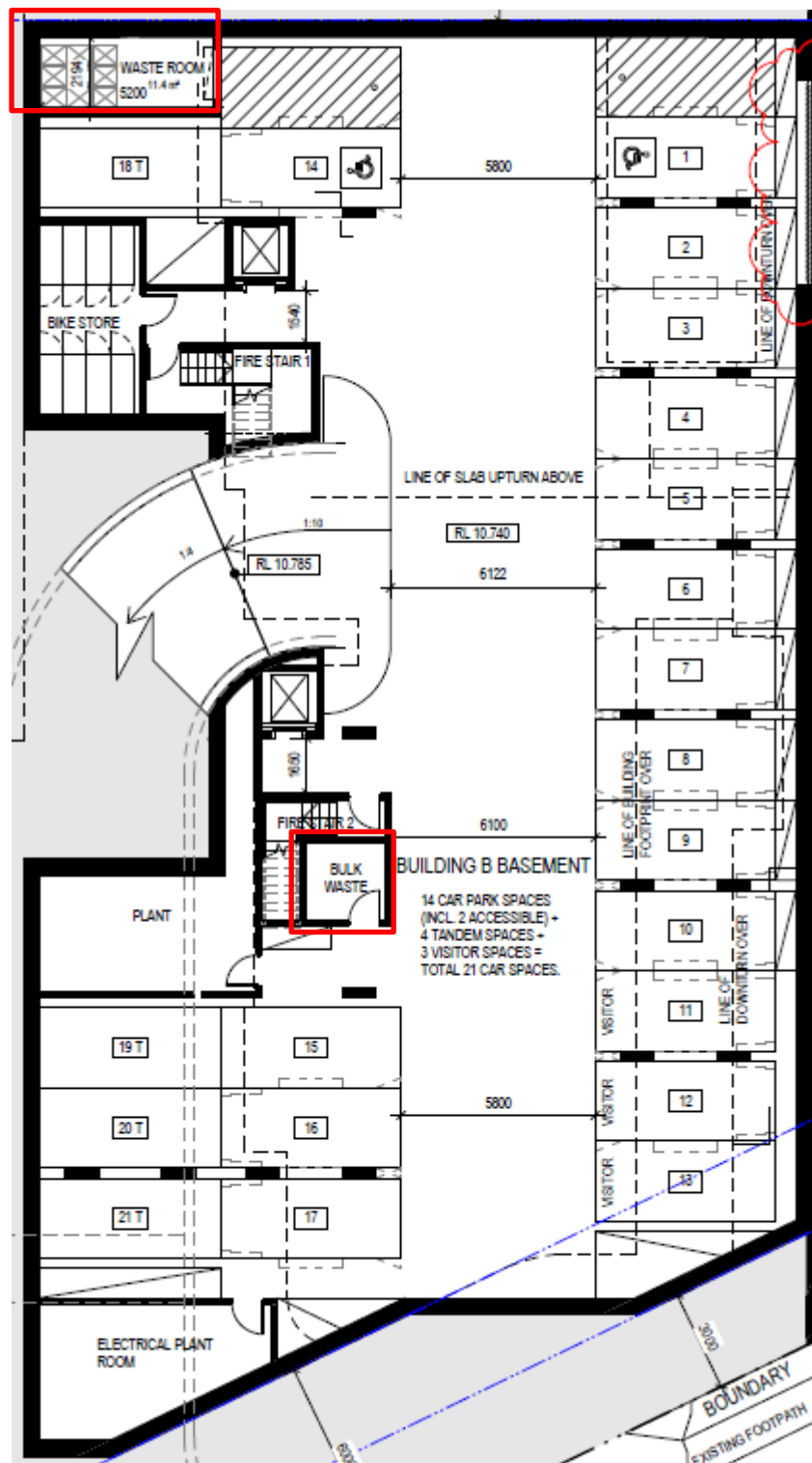
Excerpt – Squillace, DA-011 Rev A 14/06/2019 – Site Plan

APPENDIX A.2 BUILDING A WASTE ROOM – BASEMENT 2



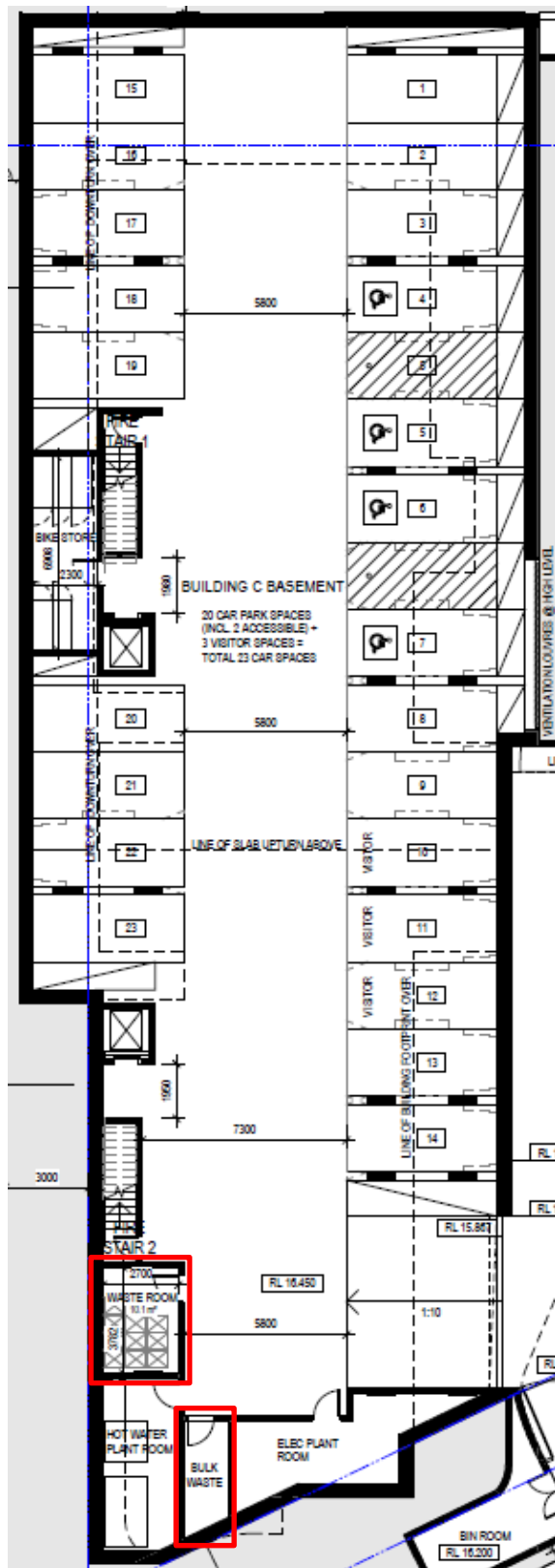
Excerpt – Squillace, DA-097 P4, dated 23/05/19 – Basement 2

APPENDIX A.3 BUILDING B WASTE ROOM – BASEMENT 1



Excerpt – Squillace, DA-098 P4, dated 23/05/19 – Basement 1

APPENDIX A.4 BUILDING C WASTE ROOM – LOWER GROUND LEVEL



Excerpt – Squillace, DA-099 P4, dated 25/05/19 – Lower Ground

APPENDIX B PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX B.1 TYPICAL BIN SPECIFICATIONS



Design of a 120L or 240L bin. Shape and colour may vary



Design of a 660L bin. Shape and colour may vary

Bin Type	120L	240L	660L
Height	940mm	1080mm	1250mm
Depth	560mm	735mm	850mm
Width	485mm	580mm	1370mm

APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

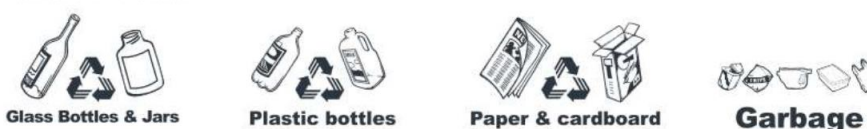
WASTE SIGNS

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

Example wall posters



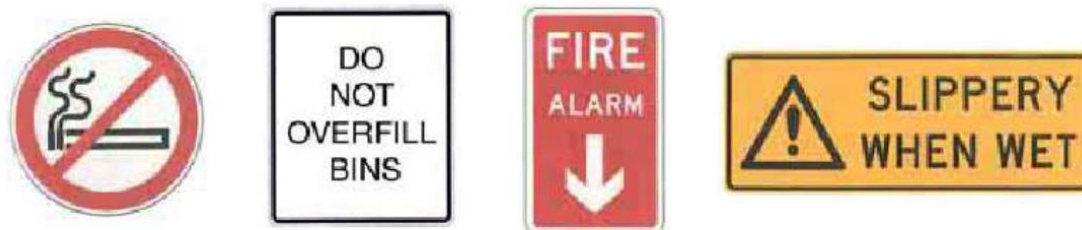
Example bin lid stickers



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).

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

APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION

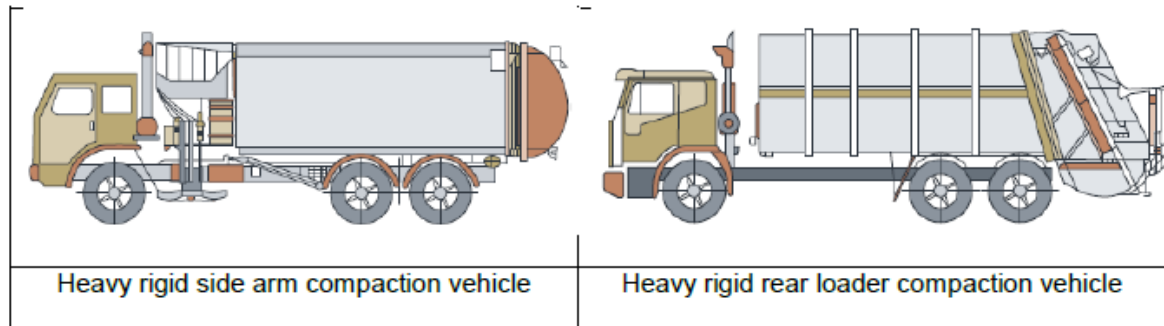


Photo sourced: from: Better Practice Guide for Waste Management in Multi-unit Dwellings, Department of Environment and Climate Change NSW 2008.

Vehicle	Length	Width	Service height	Travel height	Weight	Turning Circle
Council's waste vehicle	9.7m	2.5m	4.5m	3.9m	22.5t	19m

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

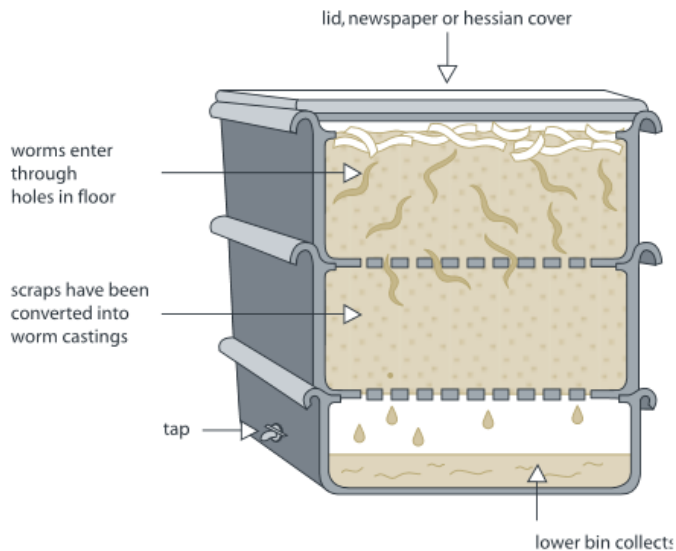
Safety Features:

- 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 C SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX C.1 TYPICAL WORM FARM SPECIFICATIONS

Worm farms



Space requirements for a typical worm farm for an average household:

Height – 300mm per level

Width – 600mm

Length – 900mm

There are many worm farm arrangements.
The above dimensions are indicative only.

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

APPENDIX C.2 TYPICAL APARTMENT STYLE COMPOST BINS



Apartment Style Compost bin – available from hardware stores

Suitable for:

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

APPENDIX C.3 ELECTRIC ORGANIC COMPOST BIN



Product Specifications

Decomposition Method	Fermentation by microorganisms
Decomposition Capacity	2 metric tonnes per year* (4 kg per day*)
Rating	220-240 V 50/60 Hz – 1.1 A
Decomposition Time	24 hrs
Operating Temperature	0C and 40C.**
Deodorisation Method	Nano-Filter system
Maximum Power	210 W
Power Usage	Average 1 kwh per day
Weight	21 kgs
External Dimensions	w 400 mm d 400 mm h 780 mm

* Food Waste Handling Capacity – based on an optimal operating environment.

** Ambient temperature range of area where unit may be installed.

SOURCE: Closed Loop Domestic Composter – See Useful Contacts

<http://www.closedloop.com.au/domestic-composter>