22-26A & 28-32 Park Ave Waitara NSW

Residential Development

OPERATIONAL WASTE MANAGEMENT PLAN

26/10/2021
Report No. 17109
Revision J

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
A	10/05/2018	H Wilkes	A Armstrong	Draft
B	22/10/2018	H Wilkes	A Armstrong	Amendment
C	22/11/2018	H Wilkes	A Armstrong	Amendment
D	19/12/2018	H Wilkes	A Armstrong	Final
E	24/07/2019	H Wilkes	A Armstrong	Amendment Draft
F	27/11/2019	H Wilkes	A Armstrong	Amendment
G	27/11/2019	H Wilkes	A Armstrong	Amendment Final
H	5/12/2019	H Wilkes	A Armstrong	Updated Plans
I	14/10/2021	H Wilkes	A Armstrong	Updated plans
J	26/10/2021	H Wilkes	A Armstrong	Updated Plans

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GLOSSARY OF TERMS

TERM	DESCRIPTION
Baler	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
Chute	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
Chute Discharge	The point at which refuse exits from the refuse chute
Chute Discharge Room	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
Collection Area/Point	The identified position or area where garbage or recyclables are actually loaded onto the collection vehicle
Compactor	A machine for compressing waste into disposable or reusable containers
Composter	A container/machine used for composting specific food scraps
Crate	A plastic box used for the collection of recyclable materials
Garbage	All domestic waste (Except recyclables and green waste)
Green Waste	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
Hopper	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
L	Litre(s)
Liquid Waste	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)
LRV	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
Mobile Garbage Bin(s) (MGB)	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
MRV	Medium rigid vehicle
Putrescible Waste	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.
Recycling	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines
SRV	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33

INTRODUCTION

EFRS has been engaged to prepare the following waste management plan for Statewide Planning Pty Ltd for the operational management of waste generated by the residential development located at 22-26 & 28-32 Park Ave Waitara 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.

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 Hornsby Shire Council, and consists of:

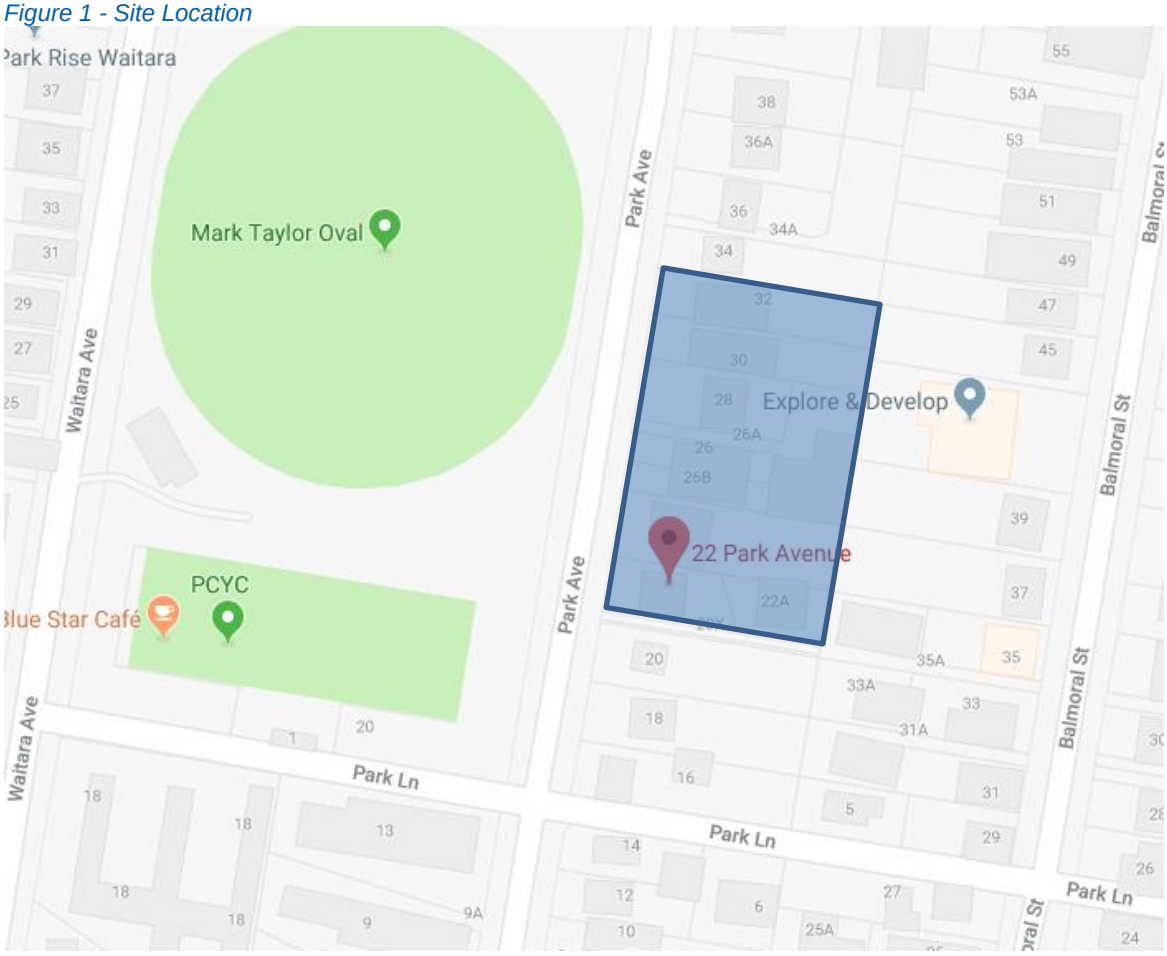
- Four buildings with 6 Levels and two basement levels
  - 165 residential units in total, consisting of;
    - 20 units in Building A – Core 1
    - 19 units in Building A – Core 2
    - 21 units in Building B – Core 1
    - 22 units in Building B – Core 2
    - 24 units in Building C
    - 35 units in Building D
    - 24 units in Building E

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

SITE LOCATION

The site located is at 22-26a & 28-32 Park Ave Waitara, as shown in Figure 1. The site has frontages to Park Ave, with vehicle access via Park Ave.

Figure 1 - Site Location



HORNSBY SHIRE COUNCIL

The garbage and recycling will be guided by the services and acceptance criteria of the Hornsby Shire Council. All waste facilities and equipment are to be designed and constructed to be in compliance with the Hornsby Shire Council's *Hornsby Development Control Plan 2013,* Australian Standards and statutory requirements.

COUNCIL DESIRED OUTCOMES

- Development that maximises re-use and recycling of building materials
- Waste storage and collection facilities that are designed to encourage recycling, located and designed to be compatible with the streetscape, accessible, clean and safe for users and collectors.

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 Hornsby Shire Council.

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	• 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/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) • General maintenance and cleaning of chute doors on each level; • 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 waste chutes and/or MGBs provided; • Ensure adequate separation of garbage and recycling; and • Compliance with the provisions of Council and the WMP.
Council/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

Educational material encouraging correct separation of garbage and recycling items must be provided to each resident by building management to ensure correct use of the waste chute. This should include the correct disposal process for bulky goods (old furniture, large discarded items, etc.), and other appropriate materials (electronic, chemical waste, etc.). It is recommended that the building caretaker provides information in multiple languages to support correct practises and minimise the possibility of chute blockages as well as contamination in the collective waste bins.

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

- Directions on using the chute doors;
- Recycling and garbage descriptions (council provides comprehensive information);
- How to dispose of bulky goods and any other items that are not garbage or recycling;
- Residents' obligations to health and safety and building management; and
- How to prevent damage or blockages to the chute (example below).

To prevent damage or blockage to rubbish chute DO NOT dispose of any newspapers, umbrellas, bedding, cigarettes, cartons, coat hangers, brooms, mops, large plastic wrappings from furniture, white goods, any sharp objects, hot liquid or ashes, oil, unwrapped vacuum dust, syringes, paint and solvents, car parts, bike parts, chemicals, corrosive and flammable items, soil, timber, bricks or other building materials, furniture, etc. down the chute.

RESIDENTIAL WASTE MANAGEMENT

The *Hornsby Development Control Plan 2013* 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 residential development.

Table 2: Calculated Waste Generation – Residential

Core	# Units	Garbage Generation Rate (L/unit/week)	Generated Garbage (L/week)	Co-mingled Recycling Generation Rate (L/unit/week)	Generated Co-mingled Recycling (L/week)	Cardboard Recycling Generation Rate (L/unit/week)	Generated Cardboard Recycling (L/week)
Building A - Core 1	20	120	2400	50	1000	12.5	250
Building A - Core 2	19	120	2280	50	950	12.5	237.5
Building B - Core 1	21	120	2520	50	1050	12.5	262.5
Building B - Core 2	22	120	2640	50	1100	12.5	275
Building C	24	120	2880	50	1200	12.5	300
Building D	35	120	4200	50	1750	12.5	437.5
Building E	24	120	2880	50	1200	12.5	300
TOTAL	**165**		**19800**		**8250**		**2062.5**
Collections		Garbage Bin Size (L)	1100	Recycling Bin Size (L)	660	Size (L)	660
		Garbage Bins per Week	25	Recycling Bins per Week	17	Recycling Bins per Week	3.13
		Garbage Collections per Week	1	Recycling Collections per Week	1	Recycling Collections per Week	1
		Total Garbage Bins Required	25	Total Recycling Bins Required	17	Total Recycling Bins Required	4
Equipment		Number of Waste Bins Per Day – *Building A - Core 1*	0.31	Number of Recycling Bins Per Day – *Building A - Core 1*	0.22		
		Building A - Core 2	0.30	*Building A - Core 2*	0.21		
		Building B - Core 1	0.33	*Building B - Core 1*	0.23		
		Building B - Core 2	0.34	*Building B - Core 2*	0.24		
		Building C	0.37	*Building C*	0.26		
		Building D	0.55	*Building D*	0.38		
		Building E	0.37	*Building E*	0.26		
		Chute Equipment	*7x Dual Chute Systems (one waste chute & one recycling chute)*				
		Other Equipment	*7x 2-linear tracks for 1100L (garabge)*				

**Note: An additional 1100 & 660L MGB should be provided for each chute discharge for use during collection periods. These bins are not included in the above figures.*

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

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

HOUSEHOLD WASTE

Each core of building will be supplied with a waste chute and a recycling chute for the disposal of waste and co-mingled recycling. Access to the chutes will be provided on each residential level. The residents will be responsible for walking their waste and co-mingled recycling to the access point on their residential level.

The chutes discharge into the chute discharge rooms for each building core. The garbage discharges into 1100L MGBs placed on linear tracks and the recycling discharges into 660L MGBs. Each waste discharge room has been designed so that they can manage 3 days' worth of waste and recycling generation without manual management.

Full bins and spare bins awaiting use will be kept in the discharge rooms through out the week. On collection days the full bins will be transferred to the collection areas on ground level for servicing by Council.

COMMON AREAS

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

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.

SOURCE SEPARATION

Waste avoidance, recovery and reuse of discarded materials and responsible management of hazardous waste are all crucial elements of sustainable development. Effective waste management practices in 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 CO-MINGLED

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

Cardboard furniture boxes or large cardboard containers should not be included in the garbage chute – cardboard and paper should be placed in the paper and cardboard bins situated in the bulky good rooms.

RECYCLING PAPER

Paper and recycling bins will be provided in the bulky goods rooms. The residents will be responsible for walking their paper and card board recycling to their designated bin.

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

Hornsby Shire Council Development Control Plan requires that bulky goods is provided at a rate of $8m^2$ for every 50 dwellings.

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.

ELECTRONIC WASTE

Electrical waste (e.g. fluorescent tubing, batteries, laptops etc.) can potentially contaminate soil and surrounding water bodies if not disposed correctly. These items must not be placed in standard garbage and recycling bins. Disposal or recycling of electronic waste will be organised with the assistance of the building caretaker. These items must not be placed in garbage or recycling bins due to safety and environmental factors. Residents and/or the building manager may choose to contact Council to find out about new/existing strategies for the disposal/collection of electronic waste.

CHEMICAL WASTE

Chemical wastes (e.g. cleaning chemicals, paints, oils solvents) pose detrimental effects to human health and the environment and should be disposed of to a suitable licensed disposal facility. No liquid wastes or wash down waters should be disposed of via the storm water drainage system. Household Chemical CleanOut events are held at various locations throughout NSW on specified dates throughout the year. Locations and dates are subject to change; hence 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 D.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 D.2 and APPENDIX D.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 as required or prior to scheduled collection times, and returning them once emptied to resume operational use.

Transfer of waste and all bin movements should minimise 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.

COLLECTION OF WASTE

RESIDENTIAL

Council will be engaged to collect the residential waste and recycling.

On collection days, the building manager will be responsible for bringing the bins from the waste rooms to the collection holding areas on ground level via the ramps using a bin moving device.

The collection vehicle will park on Park Ave adjacent to each waste room. The collections will be conducted via a wheel in wheel out arrangement from the ground level bin holding rooms adjacent to Park Ave.

The building manager will be responsible for returning the bins to their allocated waste discharge room after servicing has been completed.

COLLECTION AREA

It is Elephant Foot's understanding that the collection areas have been reviewed by a traffic consultant to confirm the swept paths, load requirements and clearances for waste collections. It must be ensured that that the collection vehicle (and other trucks if required) can enter and exit the building in a forward direction. The final number of truck collection will depend on management of waste contract.

EQUIPMENT SUMMARY

Table 3: Equipment Summary

Component	Part	Qty	Notes
Chutes	Please refer to supplier's information	14	(See APPENDIX C for Typical Chute Section)
Equipment A	Garbage 2-bin 1100L MGB Linear Track System	7	(See APPENDIX C.2 for Typical Linear System)
Equipment B	Suitable Bin Moving Equipment	1	(See 0 for Typical Bin Mover)

WASTE ROOM AREAS

In the chute discharge rooms, Chute discharge requires a minimum of 3000mm distance from floor to ceiling and needs to be free of service pipes and other overhead obstacles within the immediate space around the chute discharge. Access to waste discharge rooms should be provided to the building manager/waste caretaker **only**. Under no circumstances should access be provided to any residents, or waste collection staff.

Please note: The feasibility of the chute offsets within the chute discharge rooms has not yet been confirmed. The chute offsets must be review by an engineer prior to the issue of the construction certificate to confirm that the proposed chute offsets are operationally feasible.

The areas allocated for residential waste rooms, bulky goods and collection areas 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	Recommended Area (m^2)
B1	Waste Discharge Building A – Core 1	1x 2-bin 1100L Linear Track (garbage) 1x 1100L MGBs (garbage) 2x 660L MGBs (co-mingled recycling) 1x 1100L MGB (service bin) 1x 660L MGB (service bin)	21
B1	Waste Discharge Building A – Core 2	1x 2-bin 1100L Linear Track (garbage) 1x 1100L MGBs (garbage) 2x 660L MGBs (co-mingled recycling) 1x 1100L MGB (service bin) 1x 660L MGB (service bin)	21
B1	Waste Discharge Building B– Core 1	1x 2-bin 1100L Linear Track (garbage) 1x 1100L MGBs (garbage) 2x 660L MGBs (co-mingled recycling) 1x 1100L MGB (service bin) 1x 660L MGB (service bin)	21
B1	Waste Discharge Building B – Core 2	1x 2-bin 1100L Linear Track (garbage) 1x 1100L MGBs (garbage) 2x 660L MGBs (co-mingled recycling) 1x 1100L MGB (service bin) 1x 660L MGB (service bin)	21
B1	Waste Discharge Building C	1x 2-bin 1100L Linear Track (garbage) 2x 1100L MGBs (garbage) 3x 660L MGBs (co-mingled recycling) 1x 1100L MGB (service bin) 1x 660L MGB (service bin)	28
B1	Waste Discharge Building D	1x 2-bin 1100L Linear Track (garbage) 1x 2-bin 660L Linear Track (recycling) 3x 1100L MGBs (garbage) 3x 660L MGBs (co-mingled recycling) 1x 1100L MGB (service bin) 1x 660L MGB (service bin)	30
B1	Waste Discharge Building E	1x 2-bin 1100L Linear Track (garbage) 2x 1100L MGBs (garbage) 3x 660L MGBs (co-mingled recycling) 1x 1100L MGB (service bin) 1x 660L MGB (service bin)	28
B1	Bulky Goods Room	4x 660L MGBs (paper recycling)	*Minimum* 16
1	Building A, C & E Collection Area	14x 1100L MGBS (waste) 10x 660L MGBs (co-mingled recycling) 2x 660L MGBs (paper recycling)	65
1	Building B & D Collection Area	11x 1100L MGBS (waste) 7x 660L MGBs (co-mingled recycling) 2x 660L MGBs (paper recycling)	50

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;
- 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

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.

Hornsby Shire Council Customer Service
Phone: (02) 9847 6666 Email: hsc@hornsby.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

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

PURIFYING SOLUTIONS (Odour Control)
Phone: 1300 636 877 Email: sales@purifyingsolutions.com.au

MOVEXX (Bin Movers)
Phone: 1300 763 444

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

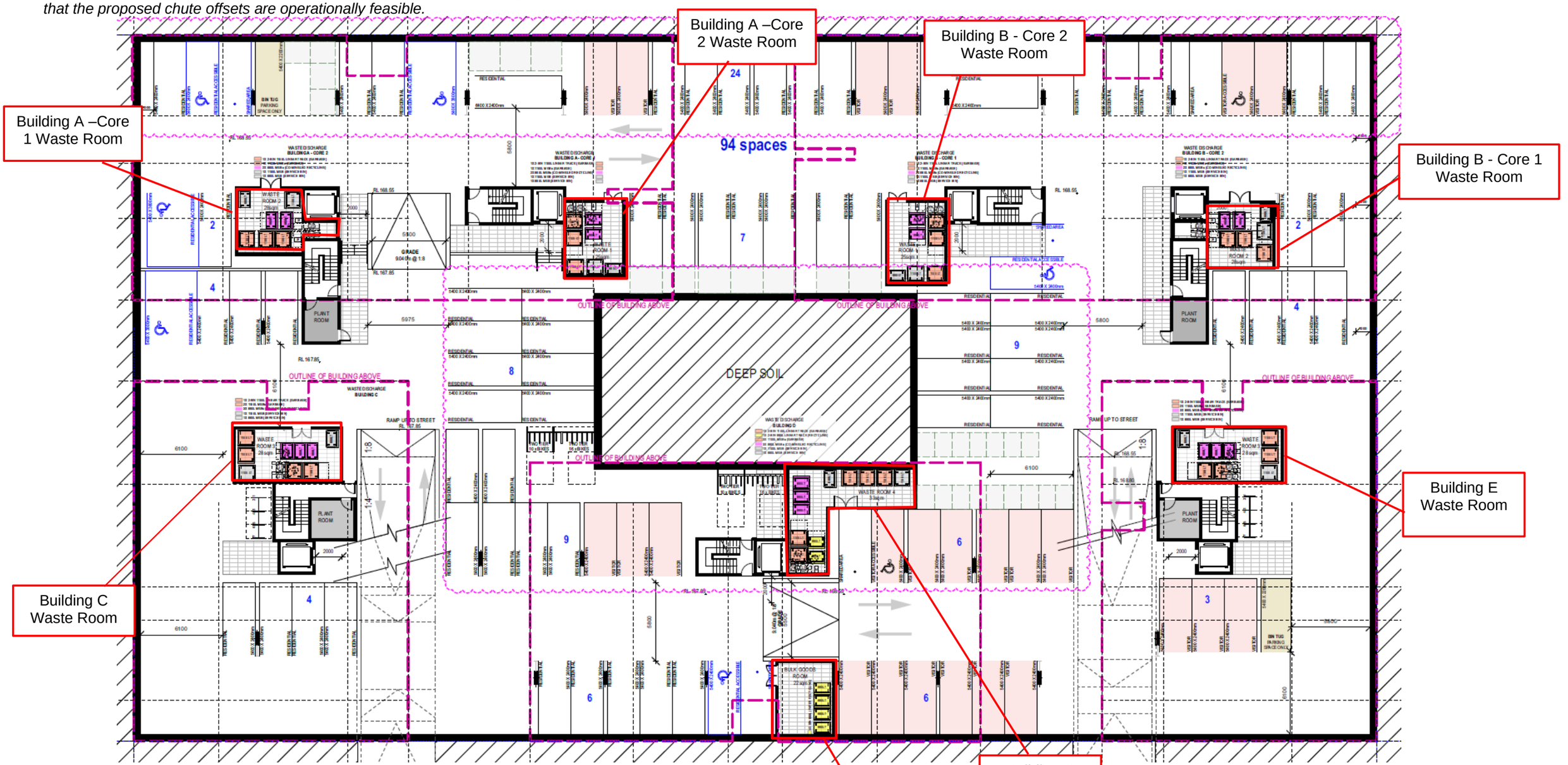
Elephants Foot Recycling Solutions (Chutes, Compactors and eDiverter Systems)
44 – 46 Gibson Avenue
Padstow NSW 2211
Free call: 1800 025 073 Email: info@elephantsfoot.com.au

APPENDICES

APPENDIX A ARCHITECTURAL DRAWING EXCERPTS

APPENDIX A.1 BASEMENT LEVEL 1 WASTE ROOMS

Please note: The feasibility of the chute offsets within the chute discharge rooms has not yet been confirmed. The chute offsets must be review by an engineer prior to the issue of the construction certificate to confirm that the proposed chute offsets are operationally feasible.



Source: Aleksandar Design Group, 22-26A & 28-32 Park Ave Waitara, Basement 01, DA04 D Oct2021

APPENDIX A.2 GROUND LEVEL COLLECTION AREA

Source: Aleksandar Design Group, 22-26A & 28-32 Park Ave Waitara, Level 1 Plan, DA05 D Oct2021

APPENDIX B PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX B.1 HORNSBY BIN SPECIFICATIONS

WASTE STORAGE CONTAINER SIZES & SHAPES

Including recycling allocation per unit

Container style	Height overall in mm	Depth overall in mm	Width overall in mm	Approximate weight in KGS	Approximate volume in litres	Manufactured from/Materials
55 ltr				5.0 kgs	55 ltr	Plastic/Steel
MGB 120	925 mm	553 mm	490 mm	11.3 kgs	120 ltr	Plastic
MGB 140	929 mm	608 mm	560 mm	11.4 kgs	140 ltr	Plastic
MGB 240	1080 mm	715 mm	580 mm	16.0 kgs	240 ltr	Plastic
MGB 660	1320 mm	550 mm	1360 mm	50.0 kgs	660 ltr	Plastic
MGB 1100	1465 mm	1220 mm	1360 mm	65.0 kgs	1200 ltr	Plastic
MGB 1500	1400 mm	1250 mm	2000 mm	250.0 kgs	1500 ltr	Steel
MGB 3000	1400 mm	2200 mm	2000 mm	350.0 kgs	3000 ltr	Steel
Recycling	Area/Unit					
MGB 240	1080 mm	715 mm	580 mm	16.0 kgs	240 ltr	Plastic

Containers are to be uniform on each residential property (Multiple collection/container styles are not allowed) Except with the written permission of Council's Waste Management Team.

Source: Hornsby's Waste Minimisation & Management Guide

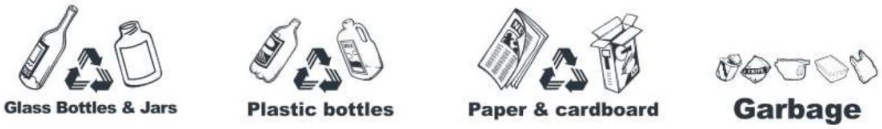
APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

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 HORNSBY COLLECTION VEHICLE INFORMATION

GARBAGE VEHICLE CHARACTERISTICS

GARBAGE TRUCK (DOMESTIC)

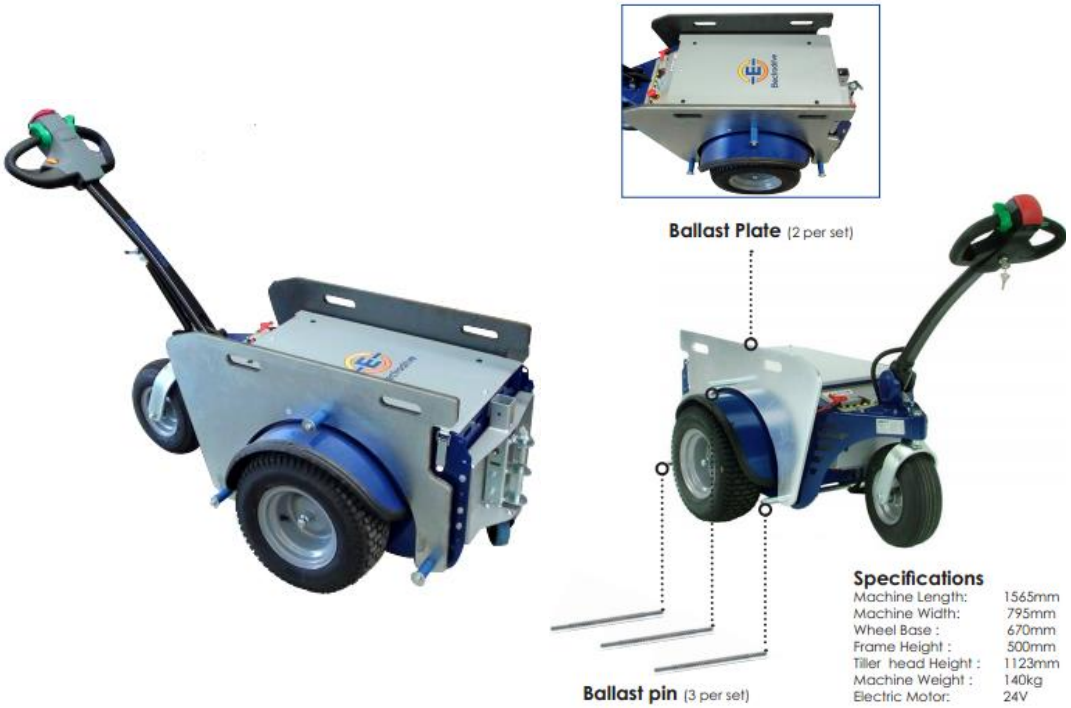
9.7 Metre Garbage Truck **Based on Vehicle for Residential Area Collections.**	26 cu/yds capacity 25 tonne aggregate 21.5. tonne tare weight
Dimensions	Height - 3.5 metres (Vertical Clearance 4.5m) Width - 2.4 metres (With Side Mirrors - 3m) Length - 9.7 metres Rear Load Overhang - 2.2 metres
Best Turn Possible	Turning Circle - 23 metres DIA Front Overhang - 22.5 metres DIA Front Outside Wheel -21.2 metres DIA Inside Rear Wheel - 14.35 metres DIA
Left Turn Better Than Right Turn	Front Overhang - 11.25 metres RAD Front Outside Wheel - 10.6 metres RAD Inside Rear Wheel - 7.17 metres RAD

GARBAGE TRUCK (COMMERCIAL)

10.5 Metre Garbage Truck **Based on Vehicle for Trade Waste**	26 cu/yds capacity 25 tonne aggregate 215 tonne tare weights
Dimensions	Height - 3.7 metres (Vertical Clearance 4.5m) Width - 2.5 metres (With Side Mirrors - 3m) Length - 10.5 metres Rear Load Overhand - 2.2 metres
Best Turn Possible	Turning Circle - 23 metres DIA Front Overhand - 23.8 metres DIA Front Outside Wheel - 22.25 metres DIA Inside Rear Wheel - 15.4 metres DIA
No Difference in Either Lock	Front Overhang - 11.9 metres RAD Front Outside Wheel - 11.9 metres RAD Inside Rear Wheel - 15.4 metres RAD

Source: Hornsby Waste Minimisation & Management Guide

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

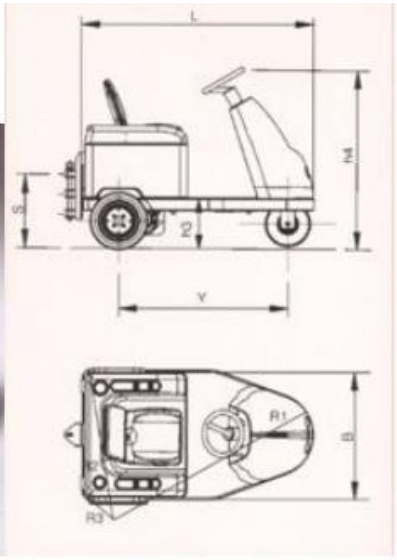
Features:

- 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)*

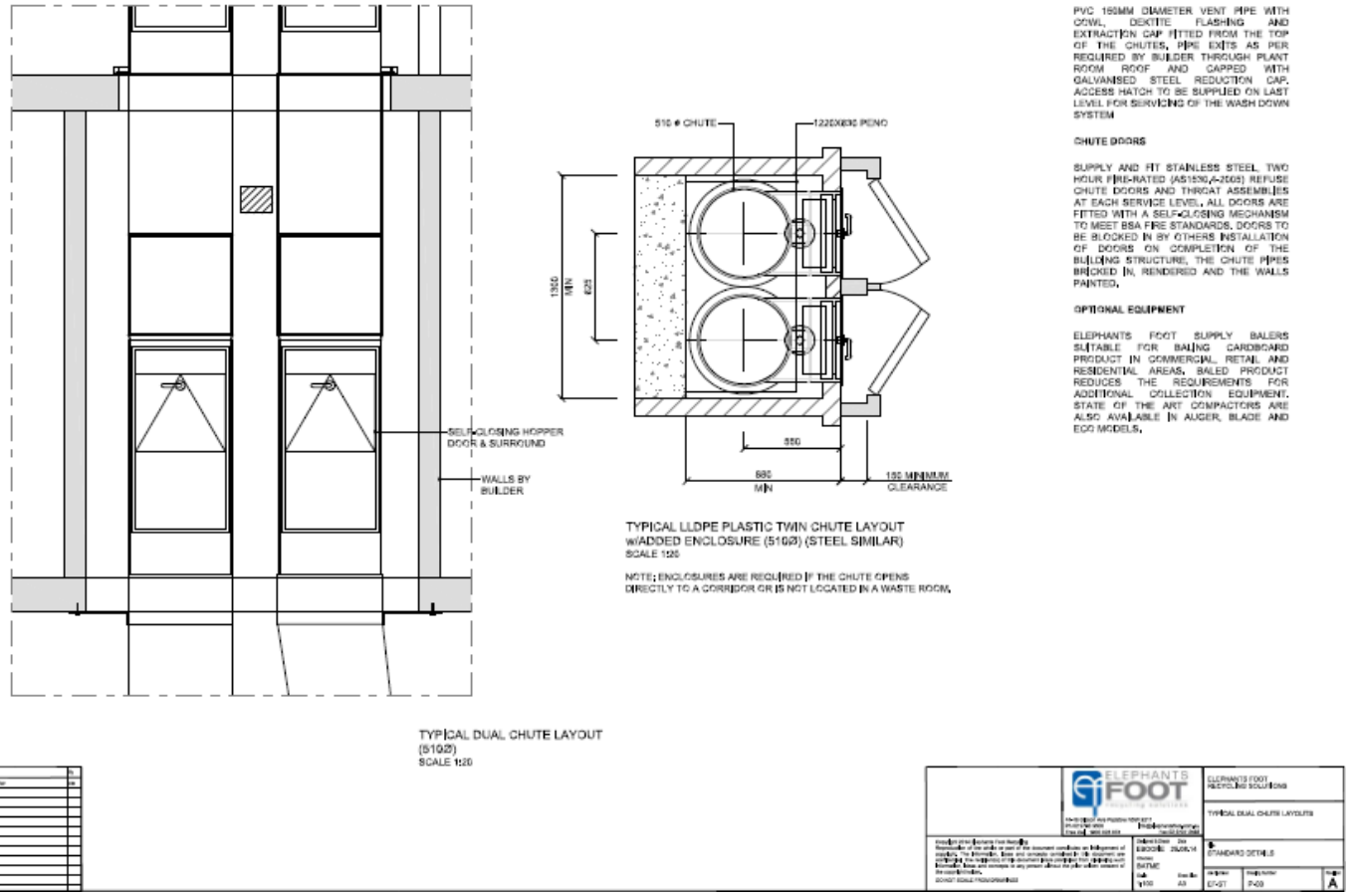
APPENDIX B.5 TYPICAL SEATED BIN MOVER



		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 - endotermic		electric	electric
Controltype	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	-----	-----
Overal dimensions	L = lenght B = width h1 = foot leve h3 = Seat height h4 = Steer height	mm mm mm mm mm	1500 900 1820 310 1250	1600 930 1960 340 1330
Turning radius	R1 = front min. external R2 = rear min. external R3 = front min. internal	mm mm mm	1400 1000 400	1500 1000 400
Aisle width	A = 180° turn	mm	2200	2300
Tow hook height	s = center from ground	mm	220-350-490	240-380-520

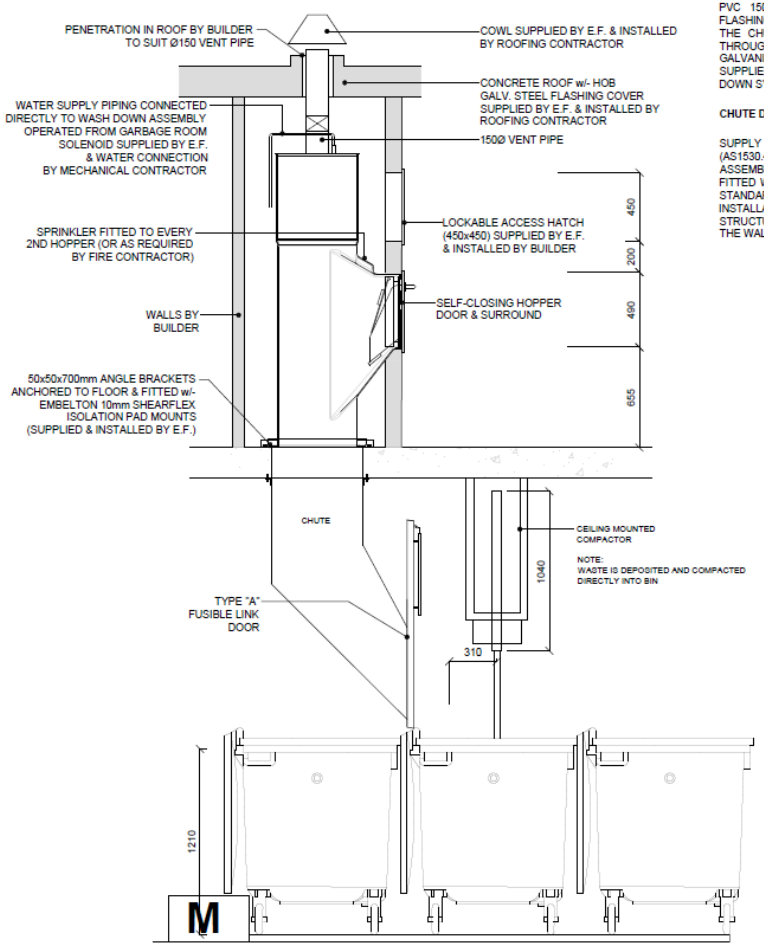
APPENDIX C INSTALLATION EQUIPMENT AND WASTE ROOM LAYOUTS

APPENDIX C.1 TYPICAL DUAL WASTE CHUTE SPECIFICATIONS



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

APPENDIX C.2 TYPICAL LINEAR TRACK SYSTEM FOR 1100L MGBS



VENT:

PVC 150MM DIAMETER VENT PIPE WITH COWL, DEKTITE FLASHING AND EXTRACTION CAP FITTED FROM THE TOP OF THE CHUTES. PIPE EXITS AS PER REQUIRED BY BUILDER THROUGH PLANT ROOM ROOF AND CAPPED WITH GALVANISED STEEL REDUCTION CAP. ACCESS HATCH TO BE SUPPLIED ON LAST LEVEL FOR SERVICING OF THE WASH DOWN SYSTEM

CHUTE DOORS

SUPPLY AND FIT STAINLESS STEEL, TWO HOUR FIRE-RATED (AS1530.4-2005) REFUSE CHUTE DOORS AND THROAT ASSEMBLIES AT EACH SERVICE LEVEL. ALL DOORS ARE FITTED WITH A SELF-CLOSING MECHANISM TO MEET BSA FIRE STANDARDS. DOORS TO BE BLOCKED IN BY OTHERS INSTALLATION OF DOORS ON COMPLETION OF THE BUILDING STRUCTURE, THE CHUTE PIPES BRICKED IN, RENDERED AND THE WALLS PAINTED.

FIRE

FIRE SYSTEM CONTRACTOR TO:

- SUPPLY FIRE SPRINKLERS AND CONNECTION FOR SPRINKLER SYSTEM
- SPRINKLERS FITTED ON EVERY 2ND LEVEL (OR AS PER FIRE CONTRACTOR INSTRUCTION)

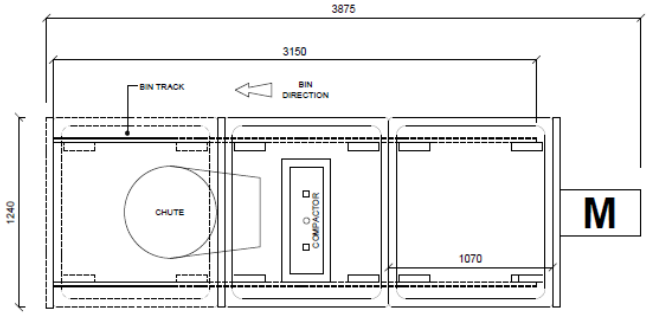
ELECTRICAL

YOUR ELECTRICIAN TO PROVIDE:

- ONE (1) STANDARD 240V GPO IN MAIN GARBAGE ROOM
- ONE (1) 415VOLTS, 5 PINS, 20AMPS FOR EACH REQUIRED COMPACTOR, CAROUSEL OR LINEAR
- COORDINATE WITH ELECTRICAL SUBCONTRACTOR

OPTIONAL EQUIPMENT

ELEPHANTS FOOT SUPPLY BALERS SUITABLE FOR BALING CARDBOARD PRODUCT IN COMMERCIAL, RETAIL AND RESIDENTIAL AREAS. BALED PRODUCT REDUCES THE REQUIREMENTS FOR ADDITIONAL COLLECTION EQUIPMENT. STATE OF THE ART COMPACTORS ARE ALSO AVAILABLE IN AUGER, BLADE AND ECO MODELS.



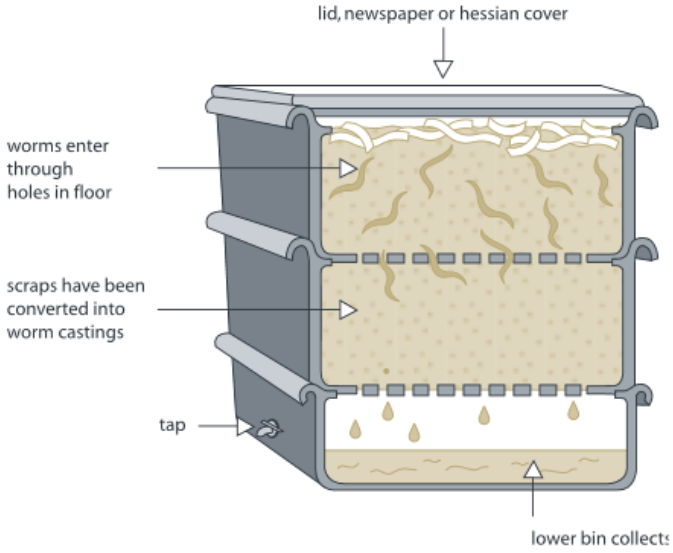
TYPICAL 2-BIN 1100L LINEAR WITH COMPACTOR
SCALE NTS

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

APPENDIX D SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX D.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 D.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 D.3 ELECTRIC ORGANIC COMPOST BIN

CLOSED LOOP
LOVE WHAT YOU DO
CLO'ey

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