



Homes NSW @ 17-27 Hardwicke Street, Riverwood, NSW 2110.

Proposed

Construction Waste Management Plan.



Date

25th September 2024

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Conflict of Interest

The reader of this report should note that Universal Foodservice Design Pty Ltd, is a fully independent Foodservice, Laundry, and Waste Management Consulting Organization. UFD receives no remuneration in any form from management companies, equipment suppliers, dealers, or equipment manufacturers. Universal Foodservice Designs Pty Ltd. receives no compensation other than the monies received from its clients. Universal Foodservice Designs Pty Ltd always works in conjunction with the FCSI code of ethics relating to financial payments. Please refer to www.fcsi.org for details.

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The Definitions

Acronyms	Description
SSD	State Significant Development
CLIENT	Homes NSW
EPA	NSW Environmental Protection Authority
C&D waste facility	A construction and demolition waste facility within the meaning of clause 90B of the Waste Regulation.
LAP	Local Approvals Policy
Local Council	Georges River Council.
Unpermitted waste	Waste not permitted by the C&D waste facility's environment protection licence to be received at the C&D waste facility.
WH+S	Work Health and Safety
Sorting	Means to separate waste into individual listed waste types, waste which meets the requirements of a resource recovery order, or waste which meets the requirements of the recovered fines specifications.
Builder	Managing Head Contractor.
Waste and recycling storage area	A dedicated area with clearly labelled or signposted stockpile areas (free-standing stockpile areas or enclosed bays).
Vehicle(s)	Includes a motor vehicle, trailer, and any combination thereof.
VENM	Virgin excavated natural material.

1. Introduction.

Homes NSW (The Client) is creating a new senior's living residential development located at 17-27 Hardwicke Street, Riverwood, 2110. This development shall consist of the following apartments:

Ground floor:

Nine (9) apartments being a made up of five (5) one (1) bedroom apartments and four (4) two (2) bedroom apartments.

First floor:

Eleven (11) apartments being a made up of seven (7) one (1) bedroom apartments and four (4) two (2) bedroom apartments.

Second Floor:

Ten (10) apartments being a made up of seven (7) one (1) bedroom apartments and three (3) two (2) bedroom apartments.

The vision for the proposal is to create a quality seniors living development.

The Reader will note that Waste and Resource consumption is a major environmental issue and priority for all levels of government within Australia. This is particularly the case as landfill sites become scarce and the environmental and economic costs of waste generation and disposal rise. Government and society alike are exposed to the issue of managing the increasingly large volumes of waste generated by our society.

Sustainable resource management and waste minimization have emerged as a priority action area and a key in the quest for Ecologically Sustainable Development. Critical actions in this regard include the following, which have been ordered in terms of desirability:

- Recovering generated waste for recycling or resourcing.
- Recovering waste resources on site for re-use.
- Avoiding excessive waste resource consumption.

The purpose of this Construction Waste Management plan is to outline specific measures to attain the following outcomes:

- Comply with all relevant Local (Georges River Council.) Council Authority and NSW State codes, legislative requirements and policies that will apply to the Demolition and Construction being undertaken on this site.
- To outline compliant disposal and treatment of generated construction waste (including Asbestos) as detailed by Georges River Council Authorities Development Control Plan.
- Options and processes to minimise the quantities of construction waste generated ending up as land fill.
- Waste material handling processes required for the safe and compliant movement of construction waste from this development.

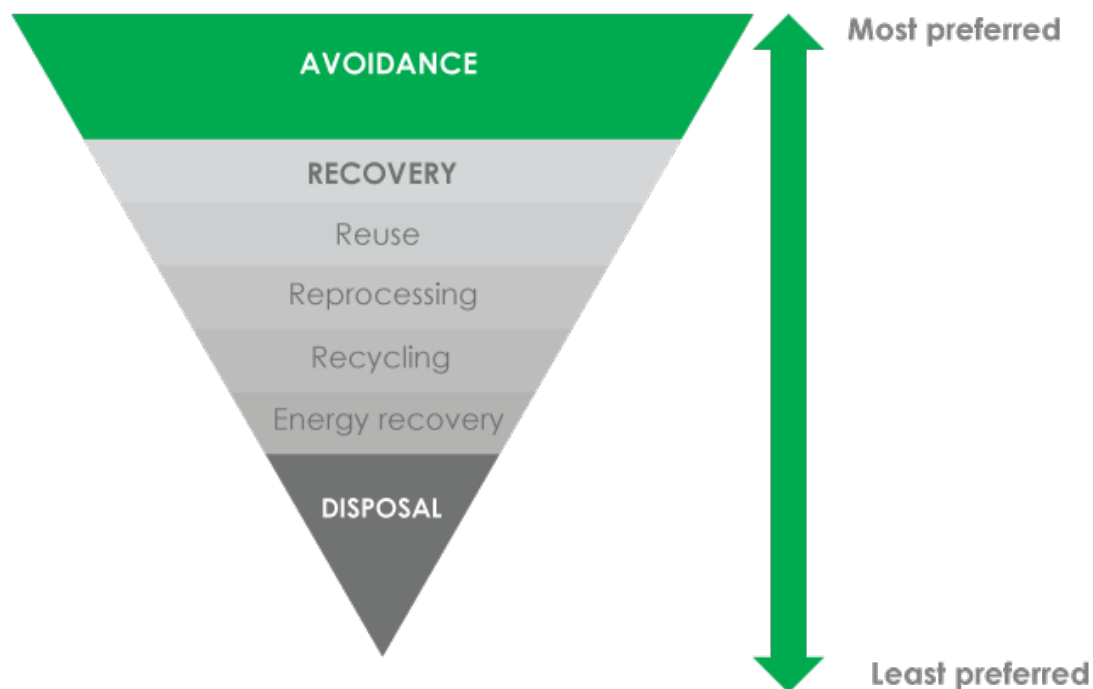
Construction Waste Plan for Hardwicke Street, Riverwood.

- Support the principles of Ecologically Sustainable Development.
- Adhere to the Georges River Council commitment to reducing land fill.
- Align with the NSW EPA Waste Classification Guidelines - standards for managing construction waste in NSW.
- The creation and application of a compliant Asbestos Management Plan (if required).
- Compliance with AS2890.2 Parking facilities: off-street commercial vehicle facilities.

All waste calculations and figures provided by UFD are based on the drawings provided by Custance Architecture Pty Ltd, Stakeholder requirements and NSW EPA recommended waste generation rates.

A. Background for the creation of this report.

The development of this Construction Waste Management Plan is provided to ensure that the future demolition and construction techniques minimise waste volumes and provides an efficient recycle procedure for all generated waste material.



B. Objectives of this report.

The objective of this report is to recognize the importance of efficient techniques outlining processes for:

- Minimizing construction generated waste on site.
- Identifying, quantifying, and classifying the waste streams to be generated during construction and operation.
- Providing measures to be implemented to manage, reuse, recycle and safely dispose of this waste.
- Communicating housekeeping & litter reduction rules with subcontractors during contract letting and site inductions.
- Implementing the waste hierarchy – avoid, reuse, recycle and lastly disposal to landfill. This report will outline operational controls that will need to be put in place during demolition and development of this project.

This report will outline operational controls that will need to be put in place during demolition and development of this project (to create and manage a waste hierarchy – avoid, reuse, recycle and lastly disposal to landfill).

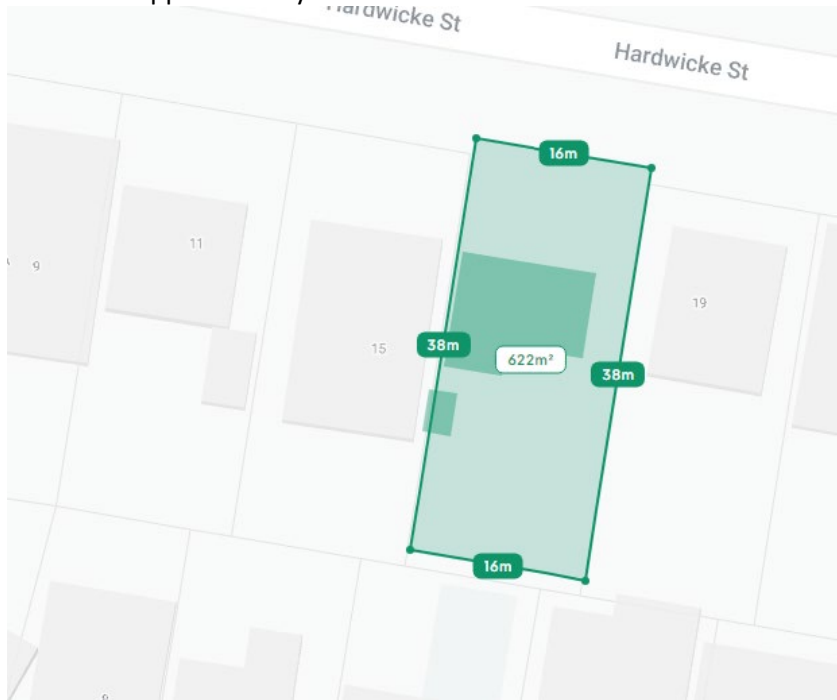
The report will also outline construction techniques which minimize waste and provide an efficient recycling procedure for all waste material.

2. Site Description.

This development will be created across six (6) residential sites being:

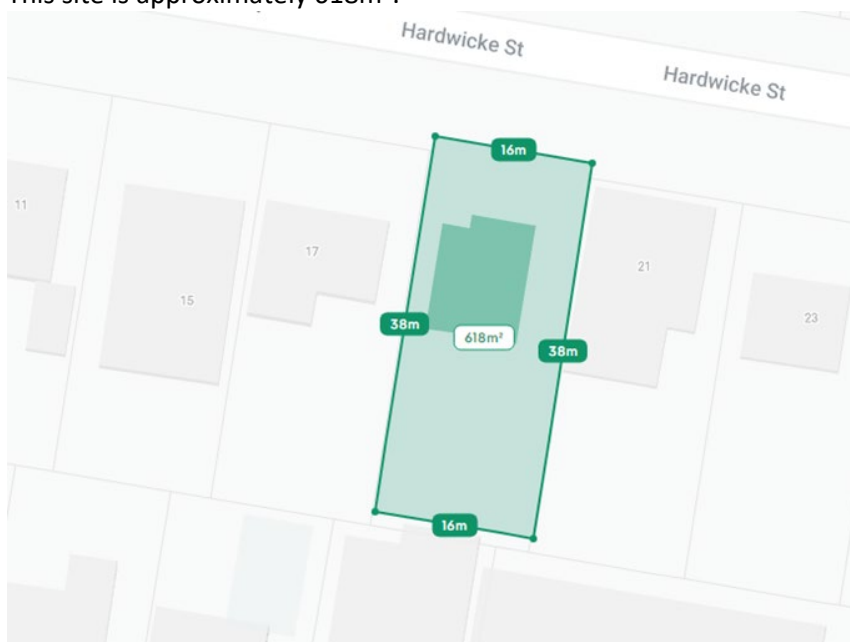
17 Hardwicke Street Riverwood (lot 11 DP36368):

This site is approximately 622m².



19 Hardwicke Street Riverwood (lot 12 DP36368):

This site is approximately 618m².



21 Hardwicke Street Riverwood (lot 13 DP36368):

This site is approximately 607m².



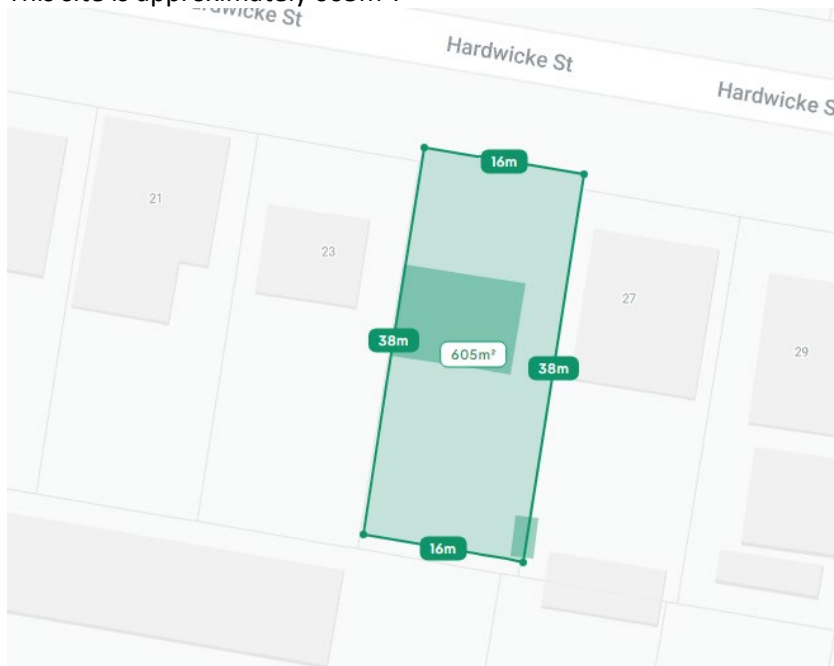
23 Hardwicke Street Riverwood (lot 14 DP36368):

This site is approximately 608m².



25 Hardwicke Street Riverwood (lot 15 DP36368):

This site is approximately 605m².



27 Hardwicke Street Riverwood (lot 16 DP36368):

This site is approximately 606m².



Note: All these sites are within the Georges River local government area and the combined land area of all six (6) sites = 3,666m².

All these properties are zoned for medium density residential land use.

Construction Waste Plan for Hardwicke Street, Riverwood.

3. Waste Minimisation and Management Plan Checklist.

APPLICANT DETAILS	
Name	Homes NSW
Address	Homes NSW Head Office PO Box 4009 Ashfield BC NSW 1800
PROJECT DETAILS	
Address of Development	17-27 Hardwicke Street, Riverwood, NSW 2110.
Existing Blocks and other structures currently on the site	Residential developments on each land block.
Description of Proposed development	A new Seniors living development complete with thirty (30) apartments including vehicle parking spaces.
This development achieves the waste objectives set out in the DCP. The details on this form are the provisions and intentions for minimising waste relating to this construction of this project. All records demonstrating lawful disposal of waste will be retained and need to be kept readily accessible for inspection by regulatory authorities such as Georges River Council, DECC and Work Cover NSW.	
Name	Brian James Lennox.
Signature	
Date	28th February 2024.

Construction & Demolition (C&D) material is comprised of mixed heavy loads which usually contain a combination of timber, concrete, bricks, tile, rubble, metal, plastics, plasterboard, cardboard, and paper. This material stream is typically generated through all stages of construction and site clean-ups.

The following estimates for Demolition and Construction Waste are to be applied to this report.

DEMOLITION WASTE				
	Reuse	Recycling after being taken from site.	Disposal	
Type of waste generated	Estimate Volume (m3) or Weight (t)	Estimate Volume (m3) or Weight (t)	Estimate Volume (m3) or Weight (t)	Specify method of onsite reuse, Contractor, and notional recycling outlet and/or notional waste depot to be used.
Concrete – existing car park and stairs.	20m ³	20m ³		Part to be used as land fill. Balance to be removed from site and reused.
Brick and blockwork retaining walls.		54m ³		Part to be used as land fill. Balance to be removed from site and reused.
Asbestos				If identified, remove from site by a certified asbestos collection agency.
Scrap metal			1m ³	Remove from site.
Excavated soil.	100m ³	266m ³ (VEMN).		Part to be used as land fill on site. Balance to be removed from site cleaned and reused (VEMN). An element of topsoil assumed to be contaminated will be removed for disposal.
Other (doors, glazing etc).		3m ³		Remove from site.

The removal of all demolition waste will be removed in a Work Safe Compliant manner.

Note: Selected commercial (demolition) waste, such as concrete, brick work and scrap metal will be collected by approved private waste contractors and taken to a recycled Building Materials Supplier for recycling and reuse.

CONSTRUCTION WASTE				
	Reuse	Recycling	Disposal	
Type of waste generated	Estimate Volume (m3) or Weight (t)	Estimate Volume (m3) or Weight (t)	Estimate Volume (m3) or Weight (t)	Method of onsite reuse, Contractor, and notional recycling outlet and/or notional waste depot to be used.
Timber.		3m ³		Remove from site for reuse.
Concrete.		10m ³		Remove from site for reuse.
Plaster / Plasterboard.		10m ³		Remove from site for reuse.
Hebel.			2m ³	Remove from site
Packaging (used plastics and pallet wrap.			3m ³	Remove from site.
Containers (cans, plastic, glass, and drums).		3m ³	2m ³	Remove from site and sort to determine what can be recycled.
Plastic / PVC.			2m ³	Remove from site.
Paper / Cardboard.		5m ³		Remove from site
Other.			5m ³	Remove from site

4. Waste Management and Reporting.

All demolition and construction waste will go to the Managing Contractor's contracted Waste Management area except for salvaged re-usable timber, any metals which will be recycled at a local metal recycling company such as Sims Metals.

Friable asbestos which is required by law to be disposed of at a waste management facility licensed for this class of hazardous waste.

A representative of the Managing Contractor's project team will be responsible for collecting monthly waste reports and issuing them to the Client's Project Manager/Representative. These reports will measure the weight of waste generated of material by classification, total weight of waste, percentage by weight recycled and percentage by weight to landfill.

5. Site Management - & General comments for application.

The following points will be applied during the demolition of existing and construction of new:

Neighbours / Stakeholders Strategy:

The Managing Contractor will manage the neighbours of the Hardwicke Street development and communicate key construction milestones in particular relation to potential disruption during demolition, excavation, and construction.

The Managing Contractor will communicate with neighbours Homes and stakeholders to ensure they are aware of the construction program prior to any significant works being undertaken.

Maintaining good relationships with surrounding neighbours and stakeholders will be treated as a significant measure of the successful management of this project.

Asbestos Removal:

If asbestos is discovered on site, it is recommended that the Managing Contractor use a **licensed asbestos removalist** to do the job of removing any asbestos safely. The asbestos removal agency shall follow strict safety precautions and use protective gear (PPE) through all removal, disposal, and decontamination processes.

After asbestos removal, the work area shall be decontaminated to remove all asbestos fibres and protect everyone's health. It will be important to minimise dust and stop that dust from spreading in the air.

Removed asbestos shall be taken to a waste facility that accepts asbestos.

Soft strip of internal fixtures and fittings:

Prior to soft stripping works commencing the Managing Contractors demolition team are to establish loading points and drop/loading zones.

The designated drop/loading zones are to be established and fully cordoned off using fencing displaying warning notices at vantage points. The location of the drop/loading zones are to be nominated in the Managing Contractors Construction Methodology.

Note: Materials are to be kept in their separate categories where possible for recycling purposes.

Skirting boards & door frames:

All selected skirting boards and door frames are to be removed by the Managing Contractors demolition team using pinch bars and suitable hammers. The items are to be prised from their place of fixing. Any obtrusions and nails are to be removed with all resultant materials then being transported utilizing the wheelbarrows and carrying by hand to the designated drop/loading zones.

Suspended ceilings:

The suspended ceilings are to be removed by the Managing Contractors demolition team working from mobile access platforms suitably positioned. As the ceilings are removed, they are to be lowered to ground in a controlled fashion. At ground level they are to be stacked for removal from

site. As the works progress the suspension system is to be removed by the Managing Contractors demolition team working from mobile access platforms.

Working from platforms, the fixings are to be cut as flush to the ceiling as possible. The removed items are to be lowered to ground in a controlled fashion where they are to be transported drop/loading zones. Any material affected by friable ACM will be addressed within the Asbestos Management Plan.

Floor coverings:

Any carpet coverings are to be removed by the Managing Contractors demolition team using the mattock picks and shovels. Where the carpets are of a roll able nature these are to be cut into strips, whilst still laid, and then rolled up for disposal. Carpet tiles are simply to be lifted. Both the carpet tiles and rolls are to be bundled and taped.

All resultant materials are to be transported as much as possible using mechanical means otherwise, utilizing the wheelbarrows and carrying by hand to the designated drop/loading zones in a WH+S compliant manner.

Non load bearing stud partition walls:

Any traditional timber stud partitioning that is to be removed by the Managing Contractors demolition team, using suitable handheld tools, namely pinch bars, picks, and hammers. The wall structure is to be de-erected by removing the coverings using the hammers and bars.

Once exposed the remaining timber stud work is to be prized free. The resultant materials are to be removed to the designated drop/loading zones. The boards are to be lifted from their fixing rail/brackets and removed in the manner previously stated. Once exposed the remaining timber stud work is to be prized free and transported to the drop/loading zones.

All resultant materials are to be transported as much as possible using mechanical means otherwise, utilizing the wheelbarrows and carrying by hand to the designated drop/loading zones in a WH+S compliant manner.

Soft strip material removal:

The materials will then effectively be loaded directly into the awaiting container skips or trucks (directly where possible). An excavator or bobcat may help at ground level in ensuring full and secure loads.

As the skips or trucks are filled contact is to be maintained between the demolition operative and the Managing Contractors Demolition Supervisor. Works will cease whilst skips or trucks are swapped and/or rearranged to enable continuous filling. Works will commence again once the necessary movements have been completed.

Movements on and off site are to be always supervised by the Managing Contractors Demolition Supervisor. Site pedestrians are to be segregated from loading activities. Damping down measures may be adopted should the need arise. All runoff water from the suppression operations is to be channelled to the nearest low point of the building footprint. The constant monitoring of dust will be conducted, and all necessary suppression will be implemented as determined by the site supervisor. All materials are to be removed to licensed disposal points via covered trucks with full documentation being available during the works.

Building Demolition:

Following the soft stripping of the interior rooms, amenities and storage areas, the initial demolition of the remaining structures will take place. This will entail the manual stripping of the roof cladding (metal cladding or terracotta tiles) and any wall cladding by demolition operatives working on and below the roof area from a combination of scaffolds and/or Elevated Work Platforms ('EWPs') and be utilizing a fall arrest system from on the actual roof structure. The roof and wall cladding will be passed to other demolition operatives at ground level where possible or a person working from an EWP inside the building and loaded into skip containers located below the roof stripping area.

External non-load bearing brickwork will then be pushed to the centre of the building and removed by excavator working in an exclusion zone with dust control measures in place. As the structure of the building may vary, processes will need to be tailored to each structure and method of construction.

The remaining structures are to be demolished by the excavator fitted with suitable demolition attachments. Assistance is to be offered by the attending excavators and bobcat fitted with suitable attachments. All demolition, processing and concrete/masonry cutting works may be damped down to function as a dust suppressant during the works should dust be an issue.

Working from one end of the site in a systematic manner, the excavator will effectively 'munch' the roof sections into smaller sections. The resultant 'munched' material will be allowed to fall onto the floor cordoned off working area. As the works progress the resultant associated walls and are to be removed, once the relevant section of the roof has been removed, and they have had their structural support properties removed.

The walls are to be pushed inwards onto the floor by the excavator. The process is to be repeated in this manner systematically working from one end to the other. The sequence is to be roof, internal walls, front wall, side walls and finally rear wall. These are to be simply pulled inwards onto the floor as the works progress.

At ground level the resultant elements are to be processed by the excavator into the separate waste categories for removal (general waste/timber/brick/concrete) and processing. Materials are to be loaded directly into awaiting skips or trucks and are to be removed at periodic intervals to promote a clean, tidy, and safe working environment. Separation of all crushable materials will be an ongoing process with stockpiles created at suitable points awaiting the removal from site to an approved facility.

Masonry walls elements (if any) to be removed as part of the re-development will be demolished in a controlled manner. Masonry waste material will be transported to the load out site and transported off site by truck.

Waste Disposal and Reporting:

All demolition and construction waste will go to the Managing Contractors contracted Waste Management Facility except for salvaged re-usable timber, any metals which will be recycled at a local metal recycling Company such as Sims Metals.

Friable asbestos which is required by law to be disposed of at a waste management facility licensed for this class of hazardous waste.

A representative of the Managing Contractors project team will be responsible for collecting monthly waste reports and issuing them to the Clients Project Manager/Representative. These reports will measure the weight of waste generated of material by classification, total weight of waste, percentage by weight recycled and percentage by weight to landfill.

Demolition and Construction waste bin area:

A dedicated waste bin area will be provided during the Demolition and construction processes for this project. The bin location will be complete with the following features:

1. Positioned in a manner that will allow all waste collection vehicles to not hinder movement on the street or site of other vehicles during the collection process.
2. Will allow the waste collection vehicles to enter and exit in a forward manner.
3. Will have the appropriate work safe signage in its vicinity.
4. Will be always kept clean.

Transport requirements:

Construction waste must not be transported from the site unless it has been inspected, sorted, and stored in accordance with these Standards and the load of waste transported from the site facility consists solely of an individual listed waste type or waste that meets the requirements of a resource recovery order or the recovered fines specifications.

6. Construction Waste Skip bins.

Skip bins shall be used during the demolition of the existing development and construction of the new. Skip bin sizes are as noted below. It will be responsibility of the Managing Contractor to coordinate bin movements, Waste collection time, and location of bin collection/holding area all in accordance with Australian Standards.

2m



Hire Terms: 5 Days

4m



Hire Terms: 5 Days

6m



Hire Terms: 5 Days

8m



Hire Terms: 7 Days

10m



Hire Terms: 7 Days

7. Conclusion.

This Construction Waste Management Plan for @ 17-27 Hardwicke Street, Riverwood is based on the following:

- Current NCC requirements.
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- AS2890.2 Parking facilities: off-street commercial vehicle facilities.
- Georges River Council – Waste requirements.
- EPA requirements for Safe Asbestos removal.
- EPA Waste Classification Guidelines - standards for managing construction waste in NSW.
- Australian Standard 1319:1994 Safety signs for the occupational environment.

Additionally, all material provided by UFD has always been done so based on being independent and representing the Stakeholders best interests. Thought and consideration has been provided on how to reduce operational costs, consolidate labour costs, and increase safe work practices across the construction site of this development.

By Homes NSW moving ahead with the recommendations as noted in this report, UFD note that the Stakeholders of this seniors living development are rising to the challenge of creating an efficient construction waste management operation as part this development.



Homes NSW @ 17-27 Hardwicke Street, Riverwood.

Proposed

Waste Management Plan Operational Brief.



Date
25th September 2024

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It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and Council rates have been utilised as they include nominal allowances for normal daily problems encountered in senior living developments.

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The Definitions.

Acronyms	Description
BCA	Building Code of Australia.
DA	Development Application.
DCP	Development Control Plan.
EPA	NSW Environmental Protection Authority - Better practice guide for resource recovery in residential developments.
LAP	Local Approvals Policy.
LOCAL COUNCIL	Georges River Council
WMP	A document that details the type and quantity of garbage and recyclable material that is likely to be generated during the construction, demolition, and ongoing operation of a development. It also details where and how the garbage and recycling should be stored, how it will be reprocessed or disposed of and handling procedures.
MGB	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1,100.
WH+S	Work Health and Safety.
Clean-up service	A booked, weekly collection service for large and bulky items such as furniture, whitegoods, or garden waste offered by the Council to residents.
Electronic waste or e-waste	Unwanted or broken electronic goods that can be recycled, including TVs, computers, and peripherals, electric appliances, mobile phones, VCRs, stereos, photocopiers, and fax machines.
Waste and recycling storage area.	A dedicated space (including a bin room or bin bay) for the storage of waste, recycling, food and/or garden organics bins, and bulky waste, problem waste and textile waste that is convenient for residents and occupiers to access and use.
The site.	17-27 Hardwicke Street, Riverwood.
Client	Homes NSW.

1. Introduction.

Homes NSW is looking to develop a new seniors living residential development located at 17-27 Hardwicke Street, Riverwood, NSW (the site). This development shall consist of the following apartments:

Ground floor:

Nine (9) apartments being a made up of five (5) one (1) bedroom apartments and four (4) two (2) bedroom apartments.

First floor:

Eleven (11) apartments being a made up of seven (7) one (1) bedroom apartments and four (4) two (2) bedroom apartments.

Second Floor:

Ten (10) apartments being a made up of seven (7) one (1) bedroom apartments and three (3) two (2) bedroom apartments.

Note: The development is a total of thirty (30) apartments spread across three (3) floors.

This waste management plan is an **operational plan** that will address the operational requirements of this development and includes spatial comments for the waste area(s).

The purpose of this plan is to outline specific measures to attain the following outcomes:

- Comply with all relevant Local (Georges River Council) Council Authority and NSW State codes, legislative requirements and policies that will apply to this development.
- Compliant disposal and treatment of generated waste as detailed by Local (Georges River Council) Council Authority.
- Options and processes to minimise the quantities of wastes generated ending up as land fill.
- Waste material handling processes required for the safe and compliant movement of recyclable and general waste to and from the waste management area.
- Support the principles of Ecologically Sustainable Development.
- Adhere to the Georges River Council authority commitment to reducing land fill.
- The waste management operation for this seniors living development will always operate in accordance with current Workplace and Safety standards in mind.
- Comply with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

All waste calculations and figures provided by UFD are based on the DA drawings prepared by Custance Architecture, proposed apartment numbers as provided by the Homes NSW and NSW EPA waste generation rates.

Waste management facilities for this site are to be designed and constructed in accordance with current EPA requirements for residential developments, Australian Standards, NSW State and City of Georges River Council Statutory requirements.

Note: This Waste Management Plan **does not** provide comments or facilitate key requirements for a Construction waste management plan. A Construction waste management plan will need to be developed and employed by the Construction team.

Return Briefing

A. Background.

A comprehensive waste management operation is crucial to the successful day to day operation of the Proposed development at 17-27 Hardwicke Street, Riverwood, NSW.

This waste operational plan shall provide specific details and requirements that the developments waste management area will need to operate too.

B. Objectives.

The objective of this report is to provide a way forward through a series of recommendations regarding the proposed future methods of transportation, handling, storage, compaction, and periodic waste removal of the waste stream at 17-27 Hardwicke Street, Riverwood, NSW.

Recommendations are provided regarding the capacity and performance requirements of new waste management equipment and systems as well as the periodic removal, general, organic, and recyclable waste.

Improving resource recovery

Residents at this site will always be encouraged to apply resource recovery processes including:

- Provide adequate storage space **inside each residence** for sorting waste materials ready for disposal into the correct bin type.
- Adhere to the displayed information signs in communal areas clearly identifying waste, recycling and organics bins and storage areas.
- Adhere to building management, when educating residents in the proper waste removal processes for this site.

C. Methodologies.

The review of the current waste management operations as well as the outlined recommendations detailed in this report has been based on the following:

- Current Custance Architect drawings for 17-27 Hardwicke Street, Riverwood, NSW.

Additionally, the following Standards, Codes and Guidelines have been adhered to in the production of this report.

- AS1668.2-2012 – Mechanical ventilation.
- Current NCC requirements.
- Homes NSW (Stakeholder) requirements.
- Georges River Council requirements.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

2. Waste management key requirements.

Key features.

The new waste holding/managements area are located on the ground floor of this development – being located within easy and compliant access of the waste collection area.

A Georges River waste collection vehicle shall remove collected general organic and recyclable waste; waste periodically as detailed in this report.

The waste management area will be managed by an NSW State Government Maintenance Caretaker/Manager/Staff who will attend site periodically.

Residents will be required to maintain and manage all bin holding/collection areas on this site. Home maintenance Team members will also be required to maintain all bin movements,

As part of the waste management operations the following points need to be applied:

2.1 Waste management area – Building fabric & waste services.

Two (2) dedicated waste holding areas will be located on the Ground floor level of the 17-27 Hardwicke Street, Riverwood, NSW., development for the storage of all waste generated.

The waste areas shall be located within the building footprint and as such will not impact on the visual aesthetics of the development.

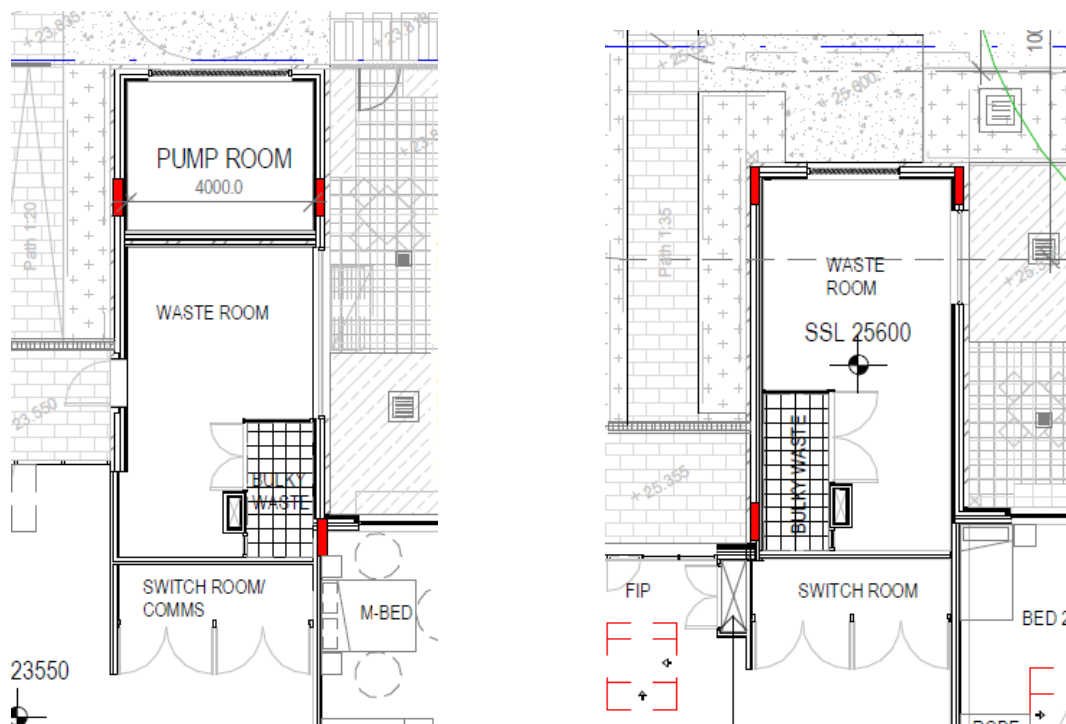


Figure 1 Highlighted internal waste area are concealed from the main road.

The sites waste holding areas will both be constructed and installed to comply with the National Construction Code (NCC) and all relevant Australian, NSW State and Local Standards.

Additionally, all the following items are to be incorporated into the Ground floor waste management area.

- The doorway opening to each waste room shall be of adequate size to allow easy access to bins and bulky waste and permit the installation and maintenance of waste handling and compaction equipment (if required) that may be used in the garbage rooms/area.
- UFD recommends that the floor to each waste area be a **minimum of 75mm thick** and covered at the walls and graded to a centrally located floor drain. Flooring will be slip rated in accordance with current Australian Standards (AS4586).
- A centrally located approved drain point with accessible and Watermark approved removable bucket trap will be installed into the floor. This drain point will be connected to the sewer.
- The walls of each waste room must be constructed of approved solid impervious material. Each waste room shall be constructed to minimise the entry of vermin (rats, mice etc.).
- Walls in the waste areas must be finished in a light colour and finished with a non-absorbent material.
- The waste management areas will be complete with hot and cold-water hose cocks which will have fitted to them a proprietary hose reel assembly. Hot and cold-water points will be complete with a Temperature Mixing Valve in the waste collection point.
- UFD recommend that the waste management areas will be under surveillance to minimise vandalism.
- All lighting shall be provided in accordance with Australian Standards for LUX requirements in waste management areas.
- The waste management operation for this site will always operate in accordance with current Statutory Workplace and Safety standards in mind.
- Waste collection removal times shall be nominated by Georges River Council.
- Residents will be responsible for taking the waste bins from the central waste holding area to the documented street front bin pads.
- Maintenance staff shall ensure that bin movements provided by the residents from the waste management area to the waste bin pad area/collection area shall be done in accordance with current WH+S requirements and EPA regulations.
- The Ground floor waste management areas will always be accessible to the site's residents, and their guests.

Note: Due to the adjacent residential living areas having noise restrictions, bin empties will occur only during business hours. This is in alignment with Noise Policy for Industry 2017.

Note: Homes NSW through the combined efforts of its tenant and asset management teams ensures that tenants understand their responsibilities in appropriately sorting and disposing of their waste in the provided bins.

2.2 Vehicle access for waste bin collection.

This site has an extensive street frontage which allows easy access for waste collection from the kerbside.

The collection point is the point from which waste or recycling is collected and transferred from the storage container to a collection vehicle.

Note: Georges River Council requests that waste bins are to be presented no earlier than 12 hours prior to collection and removed from the kerbside no later than 12 hours post collection. Waste bins must be positioned 300mm apart and in a single row.

Note: Waste bins must not be positioned near trees, overhanging wires, parked cars, or any other obstacles.

2.3 Ventilation requirements.

Ensuring BCA compliance, including ventilation. Where required, a ventilation system to comply with AS1668.4-2012 (The use of ventilation and air-conditioning in buildings) shall be allowed for.

Odours can be minimised by having well-ventilated waste storage areas. Air must be allowed to flow through enclosed waste storage.

2.4 Access.

Note: Vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). Which details the following.

- Where low-rise developments are spread across a large area (as per this site) and incorporate more than one communal bin storage area, it will be appropriate to have more than one (1) waste collection points.
- The street collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre to and from this point.
- The grades of entry must not exceed the capabilities of the waste collection vehicle.

2.5 Waste bins standards.

All waste bins used at this development are to be aligned with current Australian Standards regarding waste management.

An Australian Standard has recently been developed for mobile bin colours (AS4123.7-2006 mobile waste containers - Part 7: colours, markings, and designation requirements). The colour designations for common waste categories are listed in the table below.

Type of service	240L bin	660L bin	1100L bin
Rubbish (red)	Put out on the kerbside or collected onsite	Put out on the kerbside or collected onsite	Collected onsite
Recycling (yellow)	Put out on the kerbside or collected onsite	Put out on the kerbside or collected onsite	Collected onsite
Garden waste (green)	Put out on the Kerbside for collection		

AS4123 consists of several sections covering critical areas of MGBs design and functionality.

- Two (2) wheel containers with a capacity up to 400L for lifting devices' Dimensions and design.
- Performance requirements and test methods.
- Health, safety, and environment.
- Colors, markings, and designation requirements.

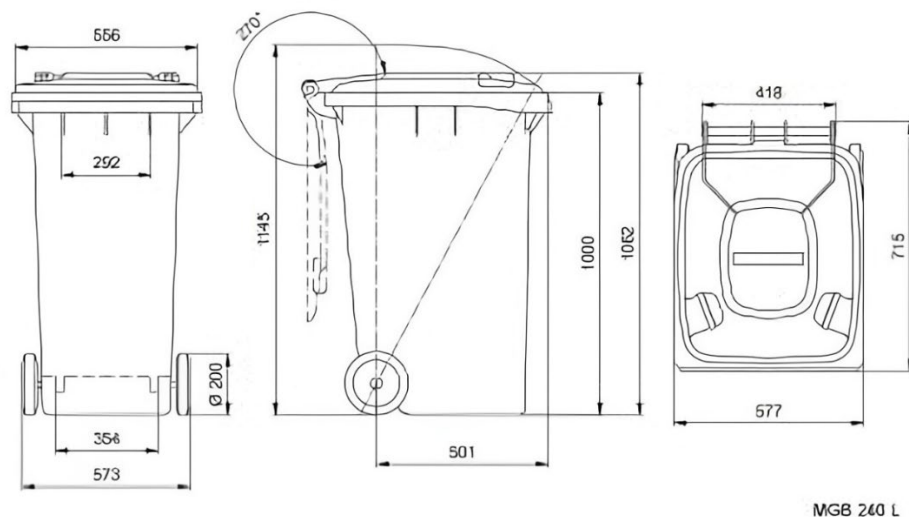


Figure 2 240 litre waste bins shall be used on this project.

2.5 Waste Chutes.

Waste chutes are vertical tubes that run through each floor of a building to the basement where it empties into mobile bins or bulk bins. Chutes for waste collection are suitable in buildings of four (4) or more stories.

As this development is a three (3) story project, waste chutes **will not be required**.

2.6	Waste bins carting route(s).
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The proposed bin carting route for the two (2) waste areas are as detailed in Figure 3 below.

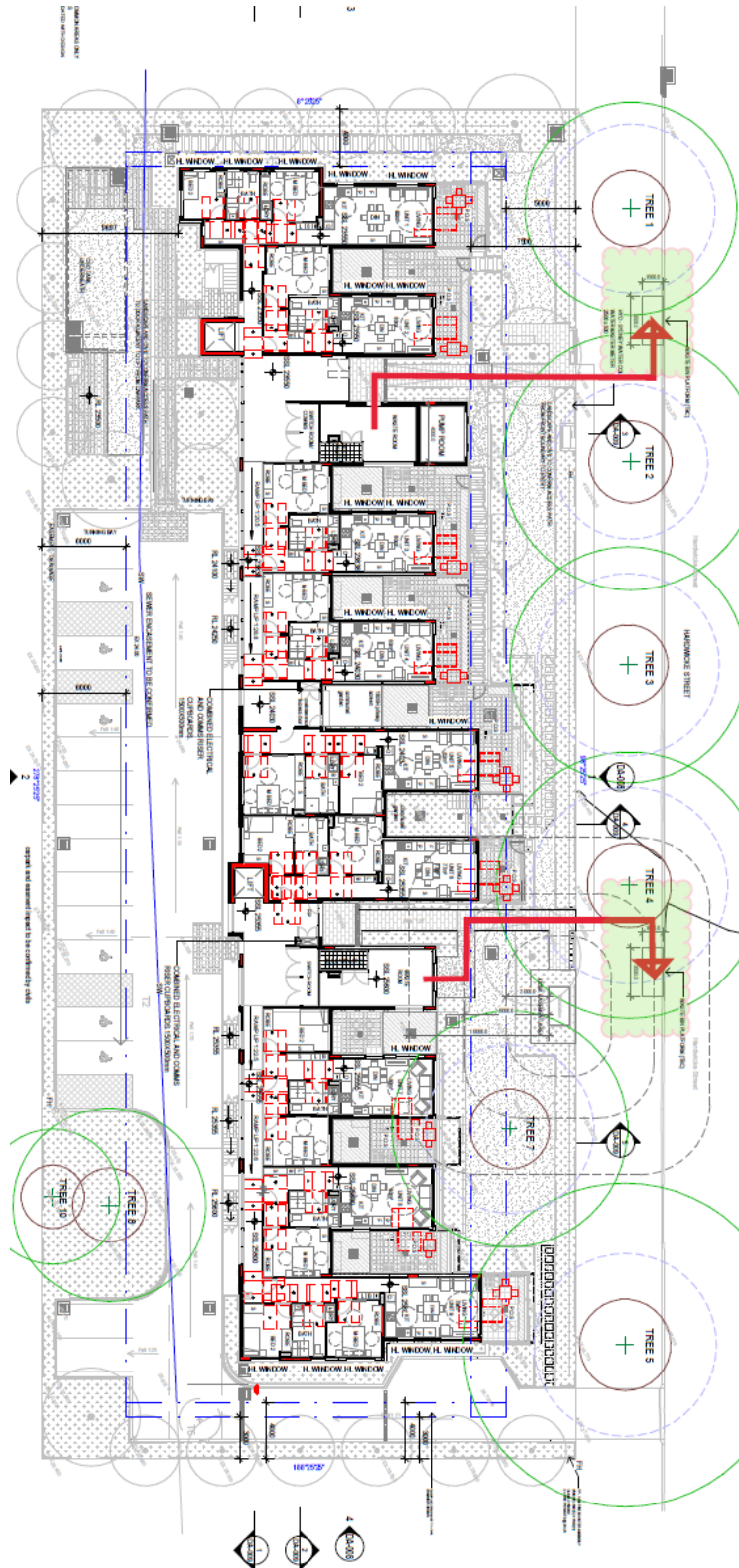


Figure 3 Proposed Bin carting routes.

Regarding the two (2) bin carting routes, UFD notes the following:

- Both waste area travel routes from the waste management area to the bin collection on the kerb is less than the maximum thirty (30) meters as outlined in the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).
- No steps or kerbs will be in the path for wheeling bins from the waste management area to the kerb side collection point.
- The maximum gradient from the waste management area to the kerb side collection point will not exceed a 1:14 gradient.

3. Waste and recycling requirements.

Universal Foodservice Designs, UFD has carried out an analysis of the waste and recycling requirements the site and note the following calculations.

Estimated domestic waste and recycling generation rates.

The average total generation of waste per unit per week is approximately 8.5 kilograms (kg) per dwelling per week. Of this, about 6.4kg is general waste and 2.1kg is recyclables. The EPA has provided volume-to-weight conversion figures of 0.131 tonnes per cubic metre for uncompacted domestic waste and 0.262 tonnes per cubic metre for compacted domestic waste.

Allowing for variances and increases in waste generation, as a general guide, the allowance for waste and recycling storage RFBs can be calculated using the following figures:

Estimated domestic waste and recycling rates per week applied to this report.

Apartment size	Waste	Recycling	Organics.
1 Bedroom	80 litres	80 litres	25 litres
2 Bedroom apartment	100 litres	100 litres	25 litres

3.1 Waste bin numbers.

The following bin numbers will be required for this project.

Bin type	Bin size/capacity	Bin numbers	Pickups – per week
General waste	240 litres	11	1 time
Recycled waste	240 litres	11	1 time
Organic waste	120 litres	4	1 time

The waste calculations to determine the noted bin numbers are as detailed below.

3.2 General waste.

Based on this amount of general waste generated UFD recommends the following estimates be applied:

Apartment	General Waste Generation Rates	Total per week.
Eleven (11) x 2-bedroom apartments	100 per week per apartment	1,100 litres per week.
Nineteen (19) x 1-bedroom apartments	80 litres week per apartment	1,520 litres per week.
		2,620 litres per week.

3.3 Recycling generation.

Based on this amount of Co-mingled waste generated UFD recommends the following estimates be applied:

Apartment	General Waste Generation Rates	Total per week.
Eleven (11) x 2-bedroom apartments	100 per week per apartment	1,100 litres per week.
Nineteen (19) x 1-bedroom apartments	80 litres week per apartment	1,520 litres per week.
		2,620 litres per week.

3.4 Organic generation.

Apartment	Recycled Waste Generation Rates	Total per week.
Thirty (30) apartments	25 litres per week per apartments	750 litres per week
		750 litres per week.

3.5 Bin washing area.

UFD recommends that adequate bin washing spaces are made available in each waste areas for the washing of 240 litre bins inside each waste management area. As such, cold and warm water hose cocks will be required in each area along with a waterproof general power outlet and proprietary hose reel assembly.

Note: Each Waste Management area will be complete with a proprietary floor grate assembly complete with a removable bucket trap assembly which will also be connected to the grease arrestor to meet NSW Trade Waste requirements.



Figure 4 Typical trade waste sump to be used in the waste management area.

3.6 On site waste – responsibilities.

It will be important to establish and delegate responsibility for the tasks required for ongoing monitoring and maintenance of waste management services and equipment. Addressing incorrect waste behaviours and/or infrastructure issues quickly will help prevent or minimise issues.

UFD recommends that **Homes NSW** be engaged in the ongoing management of the waste collection area on this site carrying out the following:

- Regular monitoring of the waste and resource recovery room.

- Wash bins and maintaining storage areas.
- Arrange for the prompt removal of dumped rubbish (bulky waste).
- Carry out maintenance or replacement of broken or damaged bins, arranging for repairs to waste equipment.
- Display and maintaining consistent signs on all bins and in all communal storage areas.
- Managing a communal composting area(s), if applicable.
- Informing residents such as through education materials and demonstrations
- Promptly address overflowing bins to avoid raids by birds and vermin which can result in waste spilling onto the ground and becoming litter.
- Maintaining hygiene by promptly addressing infestations of flies, cockroaches, and other vermin in bin storage areas.
- Move bins to and from the collection point, if required, on collection day.

Note: All residents shall be required to transfer waste from their place of residence to the front waste bin collection/hold area.

3.7 Georges River Council landfill reduction processes.

Much of what we consider 'waste' can be avoided, reused, or recycled. Landfill capacity in the Georges River Council is like all Council landfill areas across Australia, is running out and waste sent to landfill represents resources lost forever. With an increasing population and an increase in consumerism, it is important to conserve resources whenever possible. Georges River Council has made steps to reduce landfill waste including (but not limited too).

The Management of E-waste

Electronic waste or e-waste is unwanted electronic or electrical equipment. E-waste should be kept out of landfill for several reasons:

- E-waste is one of the fastest growing components of the waste stream in the world, growing three (3) times faster than any other type of waste.
- Australia currently sends 90% of e-waste to landfill e-waste contains valuable metals such as copper, aluminium, gold, silver, and tin, all of which are recyclable e-waste also contains materials which are hazardous both to humans and the environment if disposed of incorrectly using recycled materials for new products produces up to 80% less carbon emissions than processing virgin materials.

Electronic waste collection point

Georges River Council is committed to the reduction of electronic waste in the local area. Electronic waste items (Computers, printers, TVs, and mobile phones) can be disposed of by being arranging electrical waste pick up days.

Georges River Council. accepts e-waste at its Carlton Depot, 78 Planthurst Road, Carlton.

The Shakespeare Street, Campsie waste collection events allow residents to safely dispose of problem wastes that cannot go into household garbage bins or kerbside collection. This is a free service for council households.

Sustainability

UFD notes that the Georges River Council is committed to environmental, economic, and social sustainability. With this being the case, the site will be required to work in conjunction with the Council's waste reduction initiatives.

3.8 Bulky waste areas and collection.

It is considered best practice to provide a space for the residents to temporarily store unwanted bulky waste items awaiting disposal through a programmed clean-up service, such as old furniture, mattresses, appliances, packaging, and other larger items that will not usually fit in a 240-litre bin.

These areas are important safeguards against all residents illegally dumping bulky waste on the footpath or within common areas of the Hardwicke Street development. Regular illegal dumping can attract other dumped waste and generate litter, detracting significantly from the quality and appearance of the development and reduce amenity.

It is important that bulky waste storage areas:

- Are readily accessible to all residents.
- Are screened from the street or in a basement.
- Be secure and caged to allow the contents to be visible from the outside.

Some councils will specify the storage requirements for bulky waste within their DCPs. Where this information is not available, the bulky waste storage should be provided at the rate of 10m² of space for up to FORTY (40) units and then 2m² for every TEN (10) units after that.

3.9 Recommended signage for waste areas.

UFD recommends that signs for garbage, recycling should be used. These signs will need to comply with the standard signs promoted by the Environmental Protection Agency.

WH+S Standard wall posters and bin lid stickers etc. must be provided in accordance with Australian Standard 1319:1994 Safety signs for the occupational environment.



Figure 5 Typical waste signage to be used where applicable in accordance with Australian Standards.

4. Waste removal vehicle requirements.

Georges River Council will collect waste generated on site. The waste collection vehicle used for the collection of general and recyclable waste will be rear/end/side loading. With UFD recommending a series of 120 and 240 litre bins be utilised the Veolia diagram below indicates the type and size of vehicle that may be required.

Note: The noted rear waste collection vehicle can remove waste from 120, 240, 660 and 1,100 litre waste bins. This vehicle will be used for kerbside collection and will not enter the site.



Figure 6 Georges River Council waste removal vehicle details.

Note: This vehicle will require two (2) meters clearance at the rear for loading and unloading waste bins.

Waste pick up/collection zone.

To assist the Georges River Council waste collection agency and ensure that the vehicles used in the collection of waste do not clash with other residential building elements, **UFD notes that a dedicated waste collection zone will be allowed for.** Key features of the waste collection processes are as follows:

- The **Georges River Council waste vehicle** must collect all general and recyclable generated on a regular basis (one time per week). The collection of waste and pick-up time will be coordinated with the Homes NSW Maintenance team to ensure that all bins ready for collection are correctly located prior to the pickup time.

Note: To assist in the management of waste removal from the home the Georges River Council waste vehicles used shall be equipped with a GPS tracking system that will show the waste vehicle driver what job he goes to next, the directions, instructions whilst on site, site contacts and estimated arrival and departure times.

If any of the noted protocols are not adhered too, the tracking system alerts the waste collection agency service office and steps are put into place to ensure corrective actions are achieved.

Note: The collection of general waste (the largest waste volume) will be removed with a maximum ten (10) minute time frame.

- The kerbside waste collection area will have enough height to allow for the waste collection vehicle to gain movement into this area.

Note: Vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). Which details the following.

- The bin pad waste / collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre.
- The travel route shall suit the dimensions of the waste collection vehicle. Travel routes shall be adequately surfaced in accordance with EPA requirements.
- The grades of parking space for collection must not exceed the capabilities of the waste collection vehicle.

5. Spatial allowance – Waste area.

Based on the above information of waste bins being picked up one time per week, The following bin areas will be created.

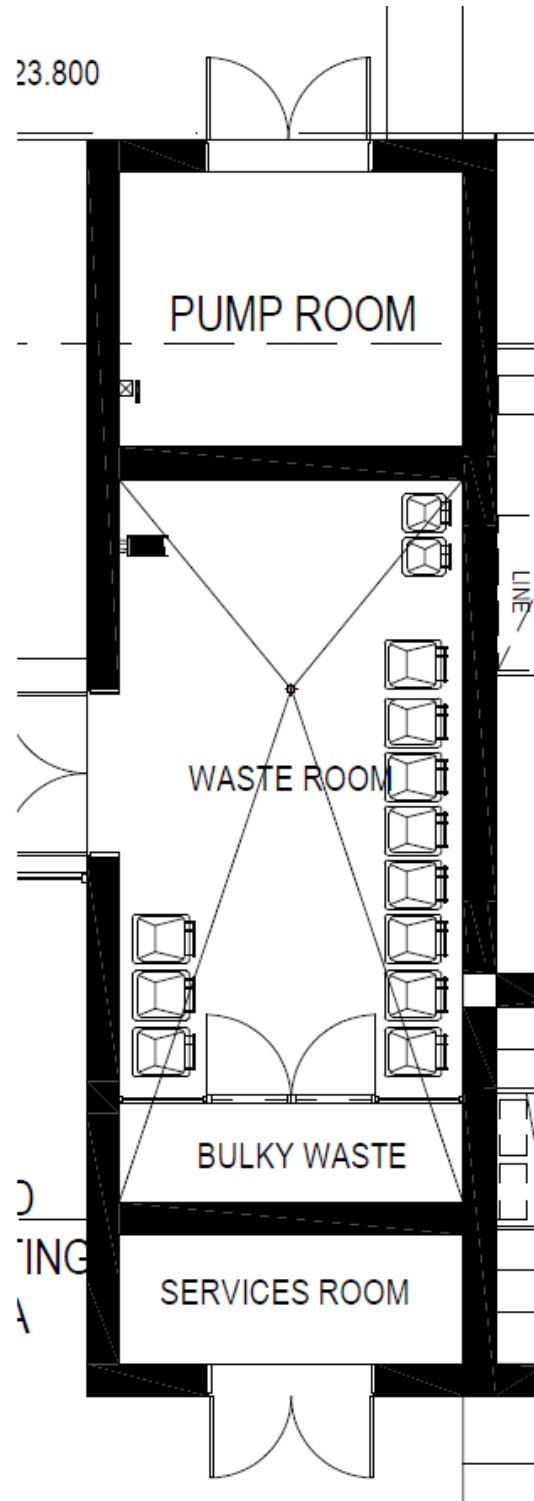


Figure 7 Proposed Waste Management Area No 1.

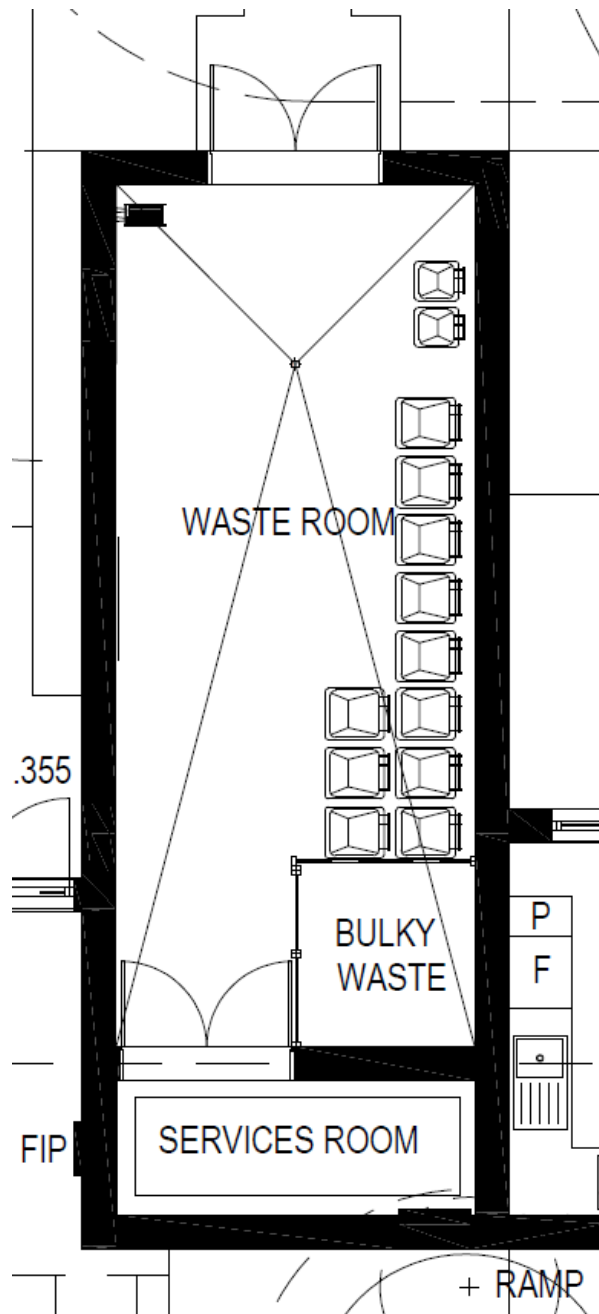


Figure 8 Proposed Waste Management Area No 2.

6. Conclusion.

The Waste Management report that you have just read is a set of comments based on the following:

- AS1668.2-2012 – Mechanical ventilation.
- Current NCC requirements.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- Georges River Council – Waste Management requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

Additionally, all material provided by UFD has always been done so based on being independent and representing the Stakeholders best interest. Thought and consideration has been provided on how to reduce operational costs, consolidate labour costs, and increase Safe work practices across the Home.

By Homes NSW moving ahead with the recommendations as noted in this report, UFD note that they are rising to the challenge of creating an efficient and sustainable Waste management operation as part this new seniors living development that will cater to the waste management needs of the site in the years to come.