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WASTE MANAGEMENT PLAN

134-142 Parramatta Road, Granville NSW 2780

PROPOSED MIXED-USE DEVELOPMENT

Prepared for:	Starryland
Date Prepared	November 2019
Revision:	1.3
City of Parramatta Council Application #:	TBA

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Introduction

AusWide Consulting was commissioned by Starryland to prepare a Waste Management Plan (WMP) for approval of a proposed Mixed-Use development at 134-142 Parramatta Road, Granville NSW.

The proposed development consists of;
373 Residential Apartments, Retail Shops Under 100m^2 (62m^2), (55m^2), (80m^2) & (69m^2), Retail Shops Over 100m^2 (128m^2), (296m^2) & (345m^2)

In the course of preparing this WMP, the subject site and its environs have been inspected, plans of the development examined, and all relevant council requirements and documentation collected and analysed.

This WMP has been prepared based on the following information:

- Architectural Plans provided by PDS Group.
- As per the NSW Policy for Waste Minimisation in New Developments.

Background and Existing Conditions

The subject site is located at 134-142 Parramatta Road, Granville NSW, on the Southwest side of Parramatta Road, and the nearby land uses are commercial. The development also occupies 26-38 Good Street and 59-61 Cowper Street.

Figure 1 provides an overview of the area and its surrounding land uses whilst **Figure 2** provides an aerial view of the immediate area surround the subject site.

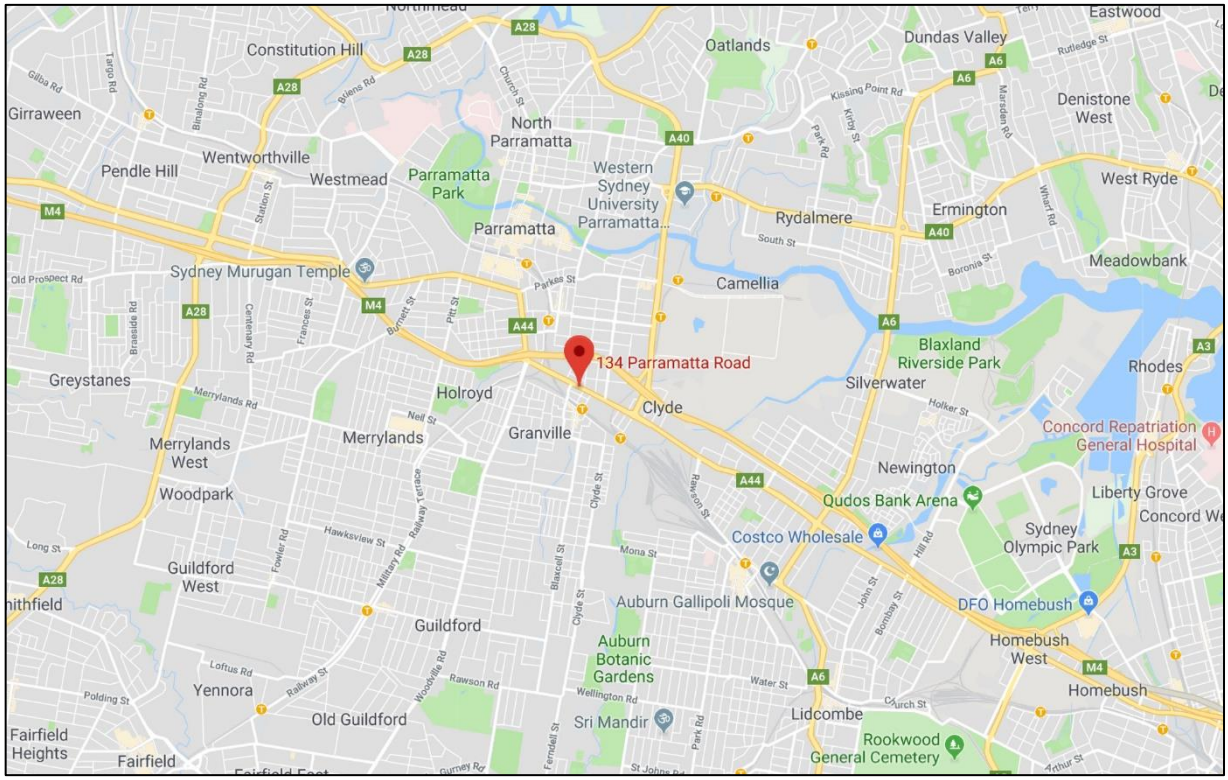


Figure 1: Location of the Subject Site

Figure 2: Aerial View of the Subject Site

Proposed Development

The proposed development consists of 373 Residential Apartments and 7 Retail Shops. Access to the proposed entrance of the development will be provided via a paved walkway on Good Street, Cowper Street and Parramatta Road whilst driveway access is provided via Cowper Street. The Mobile Garbage bins (MGBs) will be stored in the waste storage areas within the basement and ground level ***(Refer Appendix A).***

Waste Management Principles

When dealing with waste, the following hierarchy has been adopted, prioritising from left to right;

Avoid/Reduce

Particularly during the construction phase, avoidance of waste will be achieved through:

- Selecting design options with the most efficient use of materials;
- Selecting materials with minimal wastage, such as pre-fabricated materials.

Reuse

Some of the materials encountered in the demolition stage can be recovered and reused both on-site and off-site. This will be practiced wherever possible. Reusable materials shall be appropriately stored to avoid damage from weather or machinery.

Recycle

Similarly, many materials form the demolition stage will be recyclable. These materials will be identified prior to demolition, and a system incorporated to efficiently separate reusable materials, recyclable materials and disposable materials. Recyclable materials shall be appropriately stored to avoid damage from weather or machinery. Details and receipts verifying the recycling of these materials shall be kept present on site at all times.

Disposal

The waste disposal contractor chosen for the job will comply with Council's DCP. Details and receipts verifying the disposal of these materials shall be kept present on site at all times.

Handling

When handling waste on-site, the system (including bin placement, volumes, and access) shall be designed with the following factors in mind:

- Safety (highest priority);
- Ease of use; and
- Aesthetics.

Stockpiling

Waste sorting areas and vehicular access on-site during demolition and construction shall be adequately maintained. The material (demolition material, excavation material, construction material and waste) stockpiling area shall always remain within the site boundary and relocate during different demolition and construction stages as necessary. The waste area shall be largely located at the front of the site. This is to maintain easy access and removal of waste. The stockpiling area shall not infringe on access to the site however. Hoardings shall bind the site perimeter; therefore, the waste shall not be visible from the street.

Demolition & Construction Stage

The proposal involves the demolition of the existing buildings and the construction of the proposed mixed-use development consisting of; 373 Residential Apartments, Retail Shops Under 100m^2 (62m^2), (55m^2), (80m^2) & (69m^2), Retail Shops Over 100m^2 (128m^2), (296m^2) & (345m^2)

Demolition Works

It should be noted that the demolition stage has the greatest potential for waste minimisation, particularly in Sydney where there are high levels of development, relatively high tipping charges and where alternative quarry materials are located on the outskirts.

The contractor should consider whether it is possible to re-use existing buildings, or parts thereof, for the proposed use. With careful onsite sorting and storage and by staging work programs it is possible to re-use many materials, either on-site or off-site.

Councils are typically seeking to move from the attitude of straight demolition to a process of selected deconstruction, i.e. total reuse and recycling both off-site and on-site. This could require a number of colour-coded or clearly labelled bins onsite (rather than one size fits all).

Site contractors should demonstrate project management which seeks to:

- Re-use of excavated material on-site and disposal of any excess to an approved site;
- Green waste mulched and re-used in landscaping either on-site or off-site;
- Bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site;
- Plasterboard re-used in landscaping on-site, or returned to supplier for recycling;
- Framing timber re-used on-site or recycled elsewhere;
- Windows, doors and joinery recycled off-site;
- Plumbing, fittings and metal elements recycled off-site;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with Workcover Authority and EPA requirements;
- Locations of on-site storage facilities for material to be reused on-site, or separated for recycling off-site; and
- Destination and transportation routes of all materials to be either recycled or disposed of off-site.

Construction Works

The following measures shall be considered during the construction stage in order to save resources and minimise waste:

- Purchasing Policy – i.e. ordering the right quantities of materials and prefabrication of materials where possible;
- Reusing formwork;
- Minimising site disturbance, limiting unnecessary excavation;
- Careful source separation of off-cuts to facilitate re-use, resale or efficient recycling; and
- Co-ordination/sequencing of various trades.

Estimating Waste Quantities

There are many simple techniques to estimate volumes of construction and demolition waste. The sequence of steps provided below can be used as a guide;

1. Quantify materials for the project
2. Use margin normally allowed in ordering
3. Copy these amounts of waste into your waste management plan

When estimating waste generation, the following percentages can be used as a "rule of thumb" practice;

Table 1: Estimating Waste Levels

Material	Waste as a Percent of the Total Material Ordered
Timber	5-7%
Plasterboard	5-20%
Concrete	3-5%
Bricks	5-10%
Tiles	2-5%

Subsequently, the following table illustrates how to convert volumes of material to their respective weights. This information is particularly important during material storage and transportation stages.

Table 2: Converting Volume into Weight

Timber = 0.5 tonnes per m3
Concrete = 2.4 tonne per m3
Bricks = 1.0 tonne per m3
Tiles = 0.75 tonne per m3
Steel = 2.4 tonne per m3

Wastage Types and Handling

Waste volumes produced by excavation, demolition and construction stages shall be estimated by the contractor at the construction certificate stage. Where possible, materials shall be reused or recycled, with disposal being the last resort. The destination of all recycled and disposed material shall be announced upon the selecting the waste collectors and recyclers.

The arrangements for all reused, recycled and disposed waste shall be tracked and recorded, and all receipts shall be held on-site.

Table 3: Waste Types and Handling

Demolition Phase

Materials On Site	Waste Estimate - Volume (m3) or Weight (T)	On-site Reuse	Off-site Recycling	Off-site Disposal (In accordance with DECCW)
Bricks	TBA			
Ceramic Tiles	TBA			
Timber	TBA			
Concrete	TBA			
Metals	TBA			
Other	TBA			

The Demolition reuse/recycling/disposal information will be advised at CC Stage.

Construction Phase

Materials On Site	Waste Estimate - Volume (m3) or Weight (T)	On-site Reuse	Off-site Recycling	Off-site Disposal (In accordance with DECCW)
Bricks	TBA			
Ceramic Tiles	TBA			
Timber	TBA			
Concrete	TBA			
Metals	TBA			
Other	TBA			

The Construction reuse/recycling/disposal information will be advised at CC Stage.

Anticipated Waste Generation, Storage and Collection

Collection will be provided by a private contractor.

Waste Generation

As per the NSW Policy for Waste Minimisation in New Developments:

The waste entitlement for; (a) Multi-Units is 80L per/week of general waste and 40L per/week of recycling waste. (b) Retail Shops (Under 100m^2) are 50L/100m^2 of floor area per day garbage, 25L/100m^2 of floor area per day recycling. (c) Retail Shops (Over 100m^2) are 50L/100m^2 of floor area per day garbage, 25L/100m^2 of floor area per day recycling.

The following table illustrates the typical garbage and recycling generation rates.

Table 4: Typical Garbage and Recycling Generation Rates for Residential & Retail.

Type of Premises	*Land Waste Collection*	*Comingled Recycling Generation*
Multi-Units	80L per/week	40L per/week
Retail Shops (Under 100m^2)	50L/100m^2 floor area/day	25L/100m^2 floor area/day
Retail Shops (Over 100m^2)	50L/100m^2 floor area/day	50L/100m^2 floor area/day

Waste within Overall Development

Using the garbage and recycling generation rates above, the following can be calculated;

Residential Apartments.

- 373 x Apartments x 80L of general waste per week = 29,840L (uncompacted)
- 373 x Apartments x 40L of recycling waste per week = 14,920L (uncompacted)

Retail Shops Under 100m^2 (62m^2), (55m^2), (80m^2) & (69m^2)

- 50L/100m^2 of floor area per day garbage = 931L per week (uncompacted)
- 25L/100m^2 of floor area per day recycling = 465.5L per week (uncompacted)

Retail Shops Over 100m^2 (128m^2), (296m^2) & (345m^2)

- 50L/100m^2 of floor area per day garbage = 2,691.5L per week (uncompacted)
- 50L/100m^2 of floor area per day recycling = 2,691.5L per week (uncompacted)

Basement Level Residential Waste Room 1:

- 7 x 1,100L General Waste MGBs – collected twice a week.
- 7 x 1,100L Recycling Waste MGBs – collected once a week.
- 1 x 1,100L General Waste MGB – spare to stay under the waste chute.

Basement Level Residential Waste Room 2:

- 7 x 1,100L General Waste MGBs – collected twice a week.
- 7 x 1,100L Recycling Waste MGBs – collected once a week.
- 1 x 1,100L General Waste MGB – spare to stay under the waste chute.

Upper Level Residential Recycling Waste Rooms

- 4 x 240L Recycling Waste MGBs – On each upper floor collected once to twice a week.

Ground Level Waste Room:

- 4 x 1,100L General Waste MGBs – collected once a week.
- 3 x 1,100L Recycling Waste MGBs – collected once a week.

The following table illustrates the typical dimensions of 240L & 1,100L MGBs mentioned above.

Table 5: Typical Mobile Garbage Bin Measurements for New Developments in NSW.

Size	*Height (mm)*	*Width (mm)*	*Depth (mm)*
240L	*1,080*	*580*	*735*
1,100L	*1,470*	*1,370*	*1,245*

NOTE: There are 2 waste chute areas on each floor. 2 x 240L Recycling Waste MGBs will be placed in a holding room near each chute area on each upper floor. Once to twice a week, the caretaker will collect the upper level recycling MGBs. ***The caretaker will use the 240L MGB Lift to empty the recycling waste into the 1,100L Recycling MGBs*** in the basement waste rooms. Once all the MGBs have been emptied, cleaned and returned. The caretaker will use the bin tug to move the 1,100L Recycling MGBs to the ground level waste collection area located within the loading bay/dock area at an arranged time with the private waste contractor to be emptied. Once Emptied the Recycling MGBs will be immediately returned to the basement waste rooms. The 1,100L Garbage MGBs will need to be emptied twice a week, following the same procedure for 1,100L MGBs. The caretaker will also be responsible for cleaning the 1,100L MGBs and waste rooms.

The following figure illustrates a scaled diagrams of the MGB's within the waste storage areas

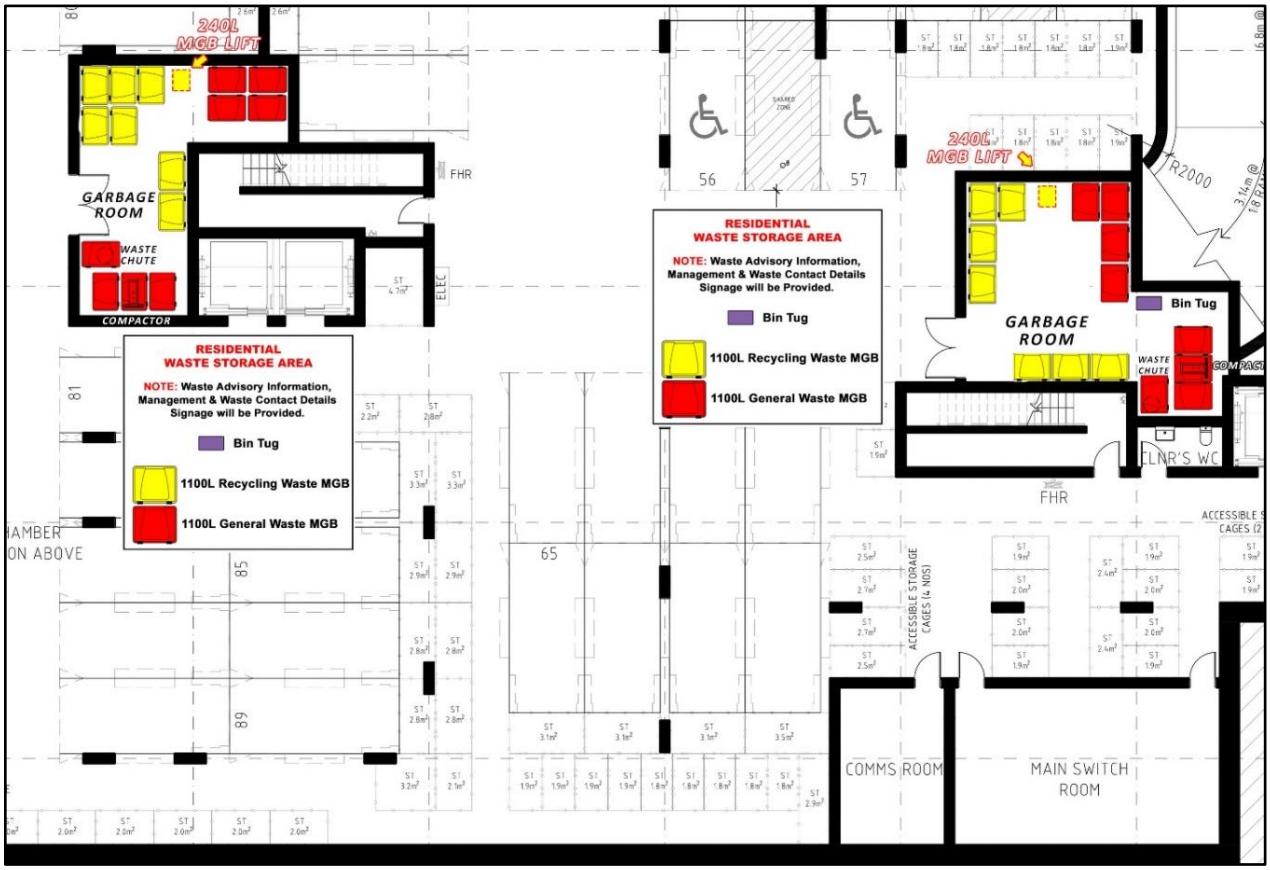


Figure 3: Scaled Diagram of the Basement Waste Storage Areas

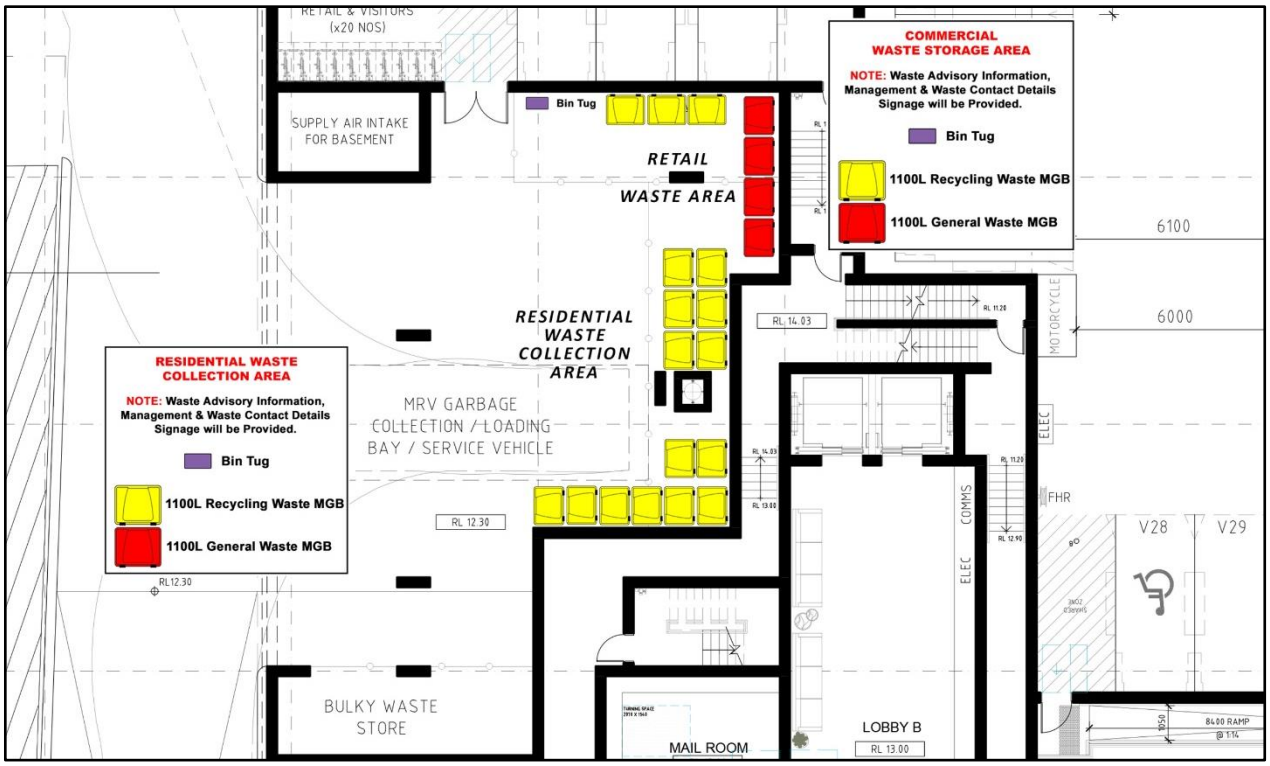


Figure 4: Scaled Diagram of the Ground Level Waste Storage Area & Collection Area

Figure 5: Typical 240L MGB Lift to Empty the MGBs into the 1,100L MGBs

Figure 6: Typical Bin Tug for the 1,100L MGBs

Waste Collection

The waste collection service for the proposed development will be provided by a private contractor using an MRV waste collection vehicle.

The waste collection vehicle will enter the mixed-use development via Cowper Street, and reverse into the loading bay area, wheeling the MGB's to/from the waste vehicle. Once all the MGB's are emptied and returned to the collection area, the waste vehicle will leave in a forward motion.

NOTE: An MRV waste collection vehicle can turn within the basement car park. Refer **Appendix C**.

Amenity

Noise

The only noise generated from the waste management at the property will be that of the MGB's being wheeled to / from the waste truck. Any other noise related to the waste management will be kept to a minimum.

Ventilation

The waste bin areas will need to be ventilated.

Cleaning Facilities

The caretaker will be responsible for keeping the MGB's and waste areas clean.

NOTE: Indoor waste enclosures/rooms should consist of: (1) Impervious coated/treated walls and ground surface, ensuring the ground is graded to the sewer (100 mm diameter) floor drain outlet within the enclosure/room. (2) With a tap and hose (hose cock must be protected from the waste containers) for use of cleaning the MGBs and waste area. (3) The enclosure/room entry must also be wet sealed to the ground surface (with a grated drain spanining the width of the entry if needed) preventing any water leakage beyond the waste enclosure/room. (4) In areas with minimal natural ventilation (ducted system to an external wall or ceiling should be installed). (5) Self closing locable double doors or electric roller door allowing easy removal of the MGBs.

Prevention of Vermin

Occupants will be advised to not overfill the bins so that the lids are closed at all times.

Security

All MGB's will be secured within the building waste storage areas.

Miscellaneous

Communal Composting Facility

No consideration has been considered for composting.

Green Waste

Green waste will be handled by a private gardening contractor.

Bulky Hard Waste

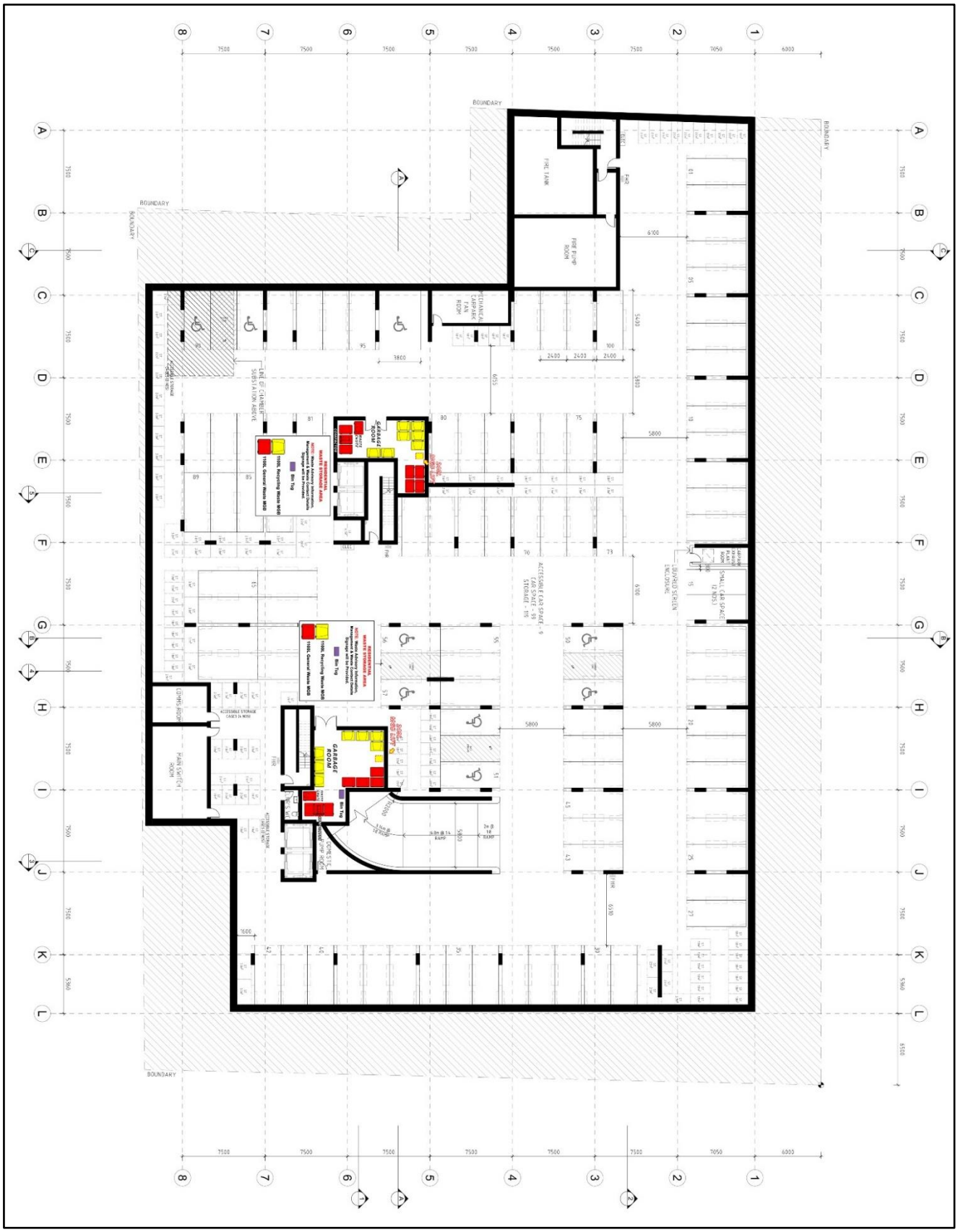
Bulky hard Waste will be handled privately.

Bulky Hard Waste room or caged area must be allocated for the storage of discarded bulky items and recyclable electronic goods and sign marked appropriately.

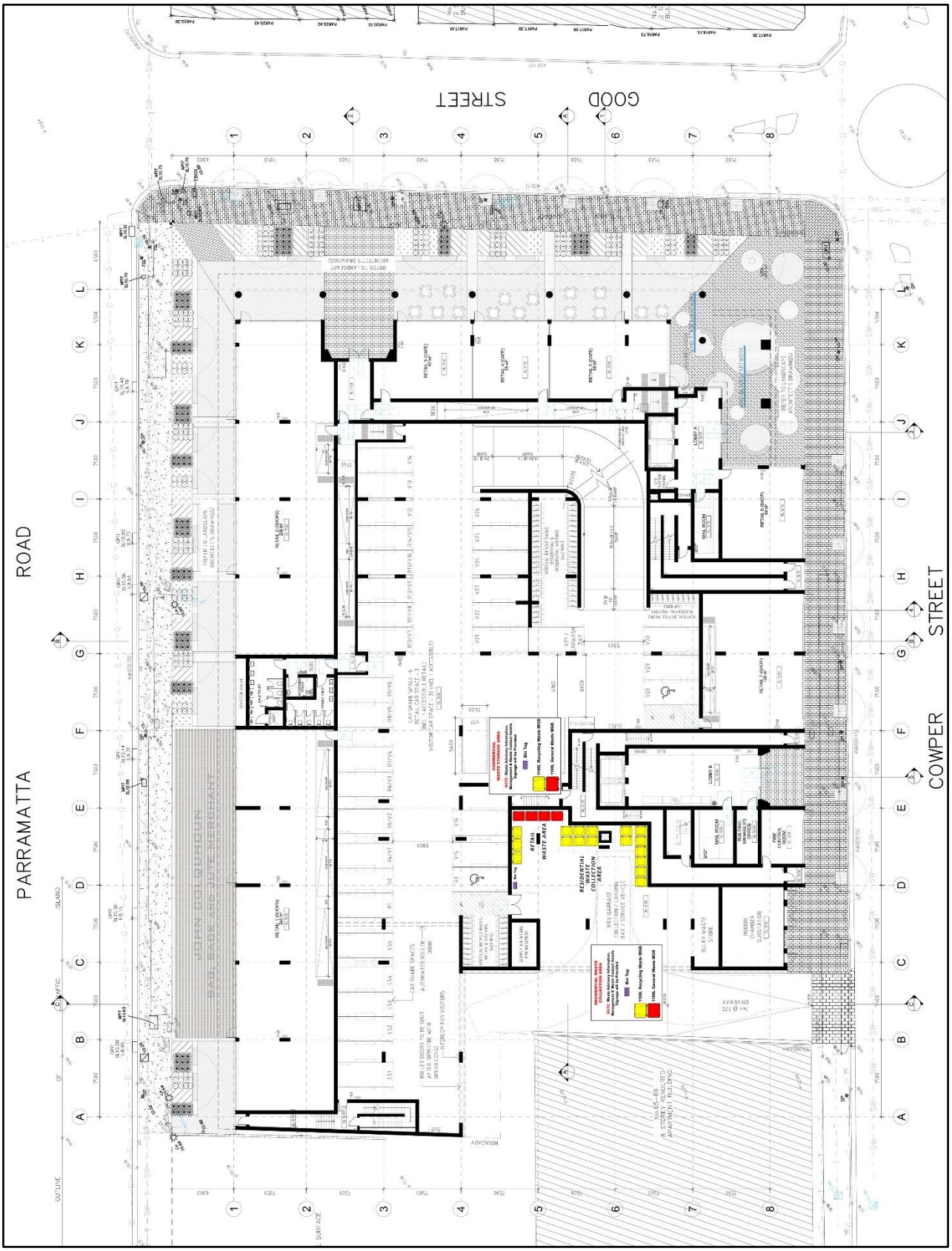
E-Waste

Recyclable electronic goods include batteries, equipment containing printed circuit boards, computers, televisions, fluorescent tubes and smoke detectors. E-Waste will be placed in impermeable surface containers and collected by a registered E-Waste Re-Processor as required.

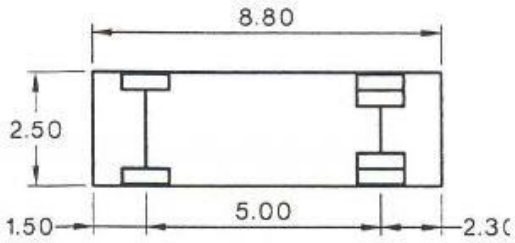
Appendix A – Basement Site Plan



Appendix B – Ground Level Site Plan



Appendix C – Swept Path Diagrams – MRV



(b) Medium rigid vehicle
Clearance height 4.50
Design turning radius 10.0