762-764 Forest Rd, Peakhurst

Operational Waste Management Plan

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1 Introduction

This Waste Management Plan (WMP) has been prepared on behalf of Innovate Architects to accompany a Development Application for the 762-764 Forest Rd, Peakhurst development.

The Plan has been developed with consideration of Georges River Council and other Authority's requirements. It is intended to inform the design of the waste services by identifying the estimated waste profile for the development and providing the total area required by the recommended equipment/systems.

In doing so this Plan, which includes waste estimates and related management requirements, has been developed in accordance with Georges River Council's *Hurstville Development Control Plan 1*.

The project involves construction of three-storey hotel with one basement level. In relation to this waste management plan, the key components of the development are:

- 70 hotel rooms;
- Waste storage room on basement level; and
- Bin holding area on ground level

See Appendix A for floor plans.

Waste audit and management strategies are recommended for new developments to provide support for the building design and promote strong sustainability outcomes for the building. All recommended waste management plans will comply with council codes and any statutory requirements.

To assist building management in achieving effective waste and recycling management, this waste management plan has three key objectives:

i. **to minimise the environmental impacts of the operations of the development** – this will be achieved by ensuring maximum diversion of waste from landfill; correct containerisation and transport of materials; correct segregation of materials into appropriate management streams; awareness among staff of waste avoidance practices.

ii. **to minimise the impact of the management of waste within the development on local residents** – this will be achieved by ensuring waste is managed so as to avoid odour and litter and collected during suitable times.

iii. **to ensure waste is managed so as to reduce the amount landfilled and to minimise the overall quantity generated** – this will be achieved by implementing systems that assist staff to segregate appropriate materials that can be recycled; displaying signage in all waste areas to remind and encourage avoidance and recycling to staff.

2 Waste Generation

2.1 Waste Streams

Based on the development profile, the following waste streams would be expected:

- General waste;
- Commingled recycling;

2.2 Waste Generation Estimates

Based on averages for quantity of waste generated and composition as determined by industry data (i.e. data/information provided by WACS' waste audits conducted in a broad range of sectors) as well as consideration of the waste generation rates as detailed by the Georges River Council's *Hurstville Development Control Plan 1*, it is estimated that the entire development will generate a total of **2,940** litres of waste and recyclables per week.

The following table summarises the expected quantities of waste and recyclables generated for the development in terms of weight and volume per week.

Table 1 – Waste/recycling generation

	L/week
General Waste	2,450
Commingled Recycling	490
Total	**2,940**

Note: The weights and volumes are based on correct segregation of waste and recyclables.

3 Waste Management Systems and Spatial Requirements

3.1 Waste Systems and Bin Requirements

The following tables show the recommended systems required to manage the estimated waste profile as detailed in the above table for the development. The systems refer to the basement level waste storage system rather than the internal bins that may be used within the development.

Table 2 – Waste Systems

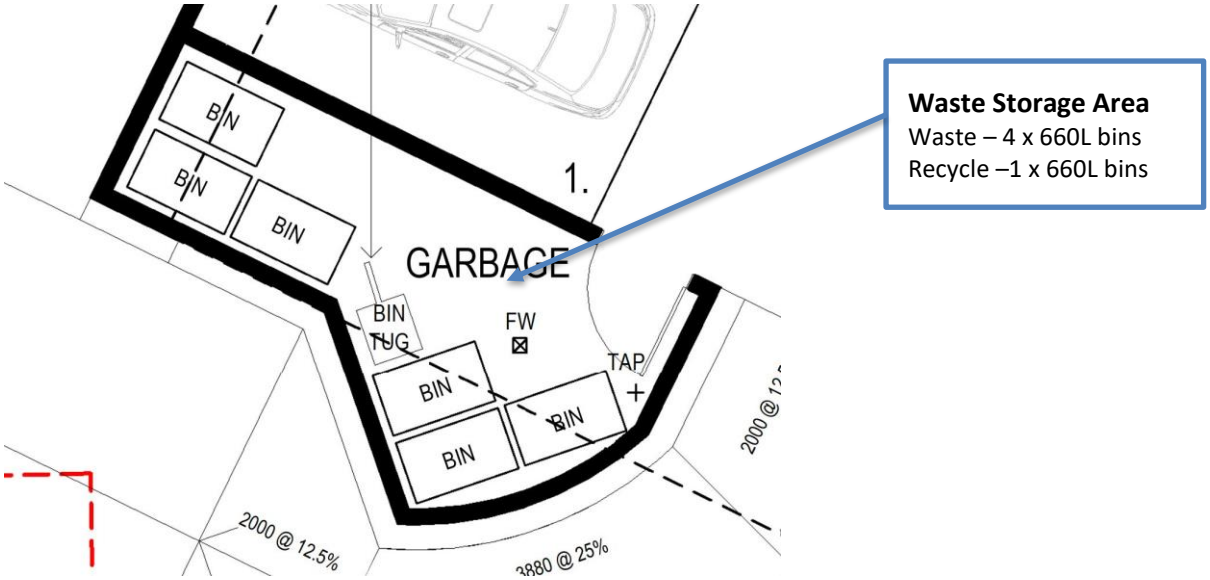
Waste Stream	Bin Size	No. of bins	Clearance (frequency/week)	Capacity (Weekly)	Estimated Volume/Week
General waste	660 L	4	1	2,640	2,450
Recycling	660 L	1	1	660	490
TOTAL		**5**		**3,300**	**2,940**

Based on the estimates of waste generation and the number of bins required (with the collection schedule as noted), as well as allowing space for bin movement, the minimum size of the waste storage area should be approximately **15 m²**. See Appendix B for Bin dimensions.

3.2 Waste Storage area design

The following diagram illustrates the layout the waste storage area on basement level.

Diagram 1 – Waste Storage Area (Basement Level)



The waste storage area will be accessed by the appointed waste caretaker, staff and site cleaners via the lift.

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by cleaners and staff.

Photographs 1 & 2 - Examples of waste room colour coding

The waste storage area will contain the following to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- Floor to be sealed with a two pack epoxy;
- Floor surface to be flat and even;
- all corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- a 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;
- 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;
- light switch installed at height of 1.6m;
- waste collection area must hold all bins – bin movements should be with ease of access;
- waste areas must be well lit (sensor lighting recommended); and
- conform to the Building Code of Australia, Australian Standards and local laws.

Occupational Health and Safety issues such as slippery floors in waste rooms and the weight of the waste and recycling receptacles will need to be monitored. Cleaners will monitor the bin storage area and will attend to all spills immediately, as they occur.

4 Waste Management Systems

The following summarises the recommended waste and recycling systems that will be implemented. These recommendations are based on Georges River Council requirements and systems implemented for similar developments.

4.1 Systems

All site staff, building management/site caretaker & cleaners will be briefed on the proper use of waste management systems. Recycling streams will be monitored and reported by site caretakers/building management, as it is imperative that they remain free of contamination to ensure compliance with the commercial waste contractor collection protocols. Staff will be encouraged to maximise the separation of general waste and mixed recyclables to aid the proper disposal of all materials.

Hotel rooms will be designed so as to allow for effective segregation of waste and recyclables. The rooms will be provided with smaller bins to allow for effective segregation of waste and recyclables. Site cleaner(s) will be responsible for removing waste from the rooms and transporting it to waste storage room on basement level. Waste collection services will be provided by a commercial waste contractor from bin holding area on ground level. Prior to collection, it will be responsibility of waste caretaker to move bins from waste storage room to bin holding area on ground level. Following servicing, it will be responsibility of waste caretaker to move bins from bin holding area to waste room on basement level. To facilitate bin movements, it is recommended to use portable bin tug device. See Appendix C for example of portable bin tug device. Utilising a commercial waste contractor affords the tenants greater flexibility regarding collection schedules and the appropriate collection frequencies will be determined in consultation with the waste contractor once appointed – however once operational, collection schedules may need to be adjusted accordingly depending on actual waste generation.

Signage will be a crucial element of waste management system. Appendix D contains examples of signage. These are the types of signs that should be used throughout the commercial tenancies and waste storage area(s).

In addition, other recycling systems such as e-waste; batteries; mobile phones etc. may be required on an ad-hoc basis. Systems for these streams will be available upon request from site management.

Any green waste produced onsite will be removed from the site and correctly disposed of by contractors.

5 Waste Stream Acceptance Criteria

5.1 Acceptance Criteria

General Waste:

General waste bins will be 660L MGBs. The lids and signage should be colour-coded red. The general waste stream does not include hazardous material (such as batteries, fluorescent light tubes, light bulbs and/or toner cartridges), recyclable material or electronic equipment such as computers, TVs and mobile phones.

Comingled (Mixed Recycling):

The commingled recycling system will be 660L MGBs and should accept all recyclable plastic containers, aluminium containers, glass bottles and steel cans, paper and cardboard. Comingled recycling bin lids and signage should be colour-coded yellow.

5.2 Bin Requirements

Containers located within the development for waste and recycling should be consistent. The following table outlines the colour coding that has been developed by Standards Australia.

Table 3: Standards Australia waste/recycling container colour coding

Waste Stream	Bin Body Colour	Lid Colour
Paper Recycling	Blue	Blue
Cardboard Recycling	Green	Blue
Food Organics	Burgundy	Burgundy
Commingled Recycling	Green	Yellow
Used Cooking Oil Recycling	NA	NA
General Waste	Green	Red
Green Waste	Green	Green

6 Staff Education

All relevant staff will receive information regarding the waste collection systems including how to use the system, which items are appropriate for each stream and collection times. Appropriate signage and updated information will also be provided, as well as receiving feedback on issues such as contamination of the recycling stream or leakage of the recyclables into the general waste. The building management will have the responsibility for these tasks.

All waste receptacles will be appropriately signed and additional room signage is usually provided from most waste contractors during implementation of the waste contract. Examples of signage are included in Appendix D.

It is recommended that all signs should:

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.

On a monthly basis waste and recycling performance reports will be reported back to staff so that they are aware of their performance and areas for improvement. An active waste monitoring program will be employed. The waste and cleaning contracts will ensure that contractors actively participate in the waste reduction program for the site and meet monthly to identify performance and new opportunities for diversion and avoidance.

7 Ongoing Management

Having suitable systems in place is only one element of an effective waste management system. Compliance by all stakeholders is essential.

Cleaners are a key element in the effectiveness of the systems in place. Prior to acceptance of the cleaning contract, the contractor will be required to demonstrate how the management of waste and recycling will be carried out so as to ensure that segregated materials are placed in the correct systems. This process will be agreed and a training program implemented by the cleaning contractor to ensure full understanding by all cleaners. The cleaning supervisor and site management throughout the term of the contract will carry out monitoring of the system.

In addition, cleaners will be required to feed back to site management any non-compliance issues they observe during their cleaning activities. This may include contamination of recycling, non-participation in the recycling system, or missing or damaged bins. In this way issues can be promptly dealt with by management.

Waste and recycling contractors will be required to report actual volumes collected by stream so that site management can monitor performance and feed this back to stakeholders.

It is highly recommended that a basic reporting program be set up at the site which would include bin tally sheets that detail the number of bins collected and how full they are at the time of collection, in addition to communication procedures to allow waste contractors to provide feedback regarding contamination and leakage.

All staff should be educated and made aware of any changes to the existing waste systems.

Appendix A – Floor Plans

Diagram 1 – Basement Floor plan

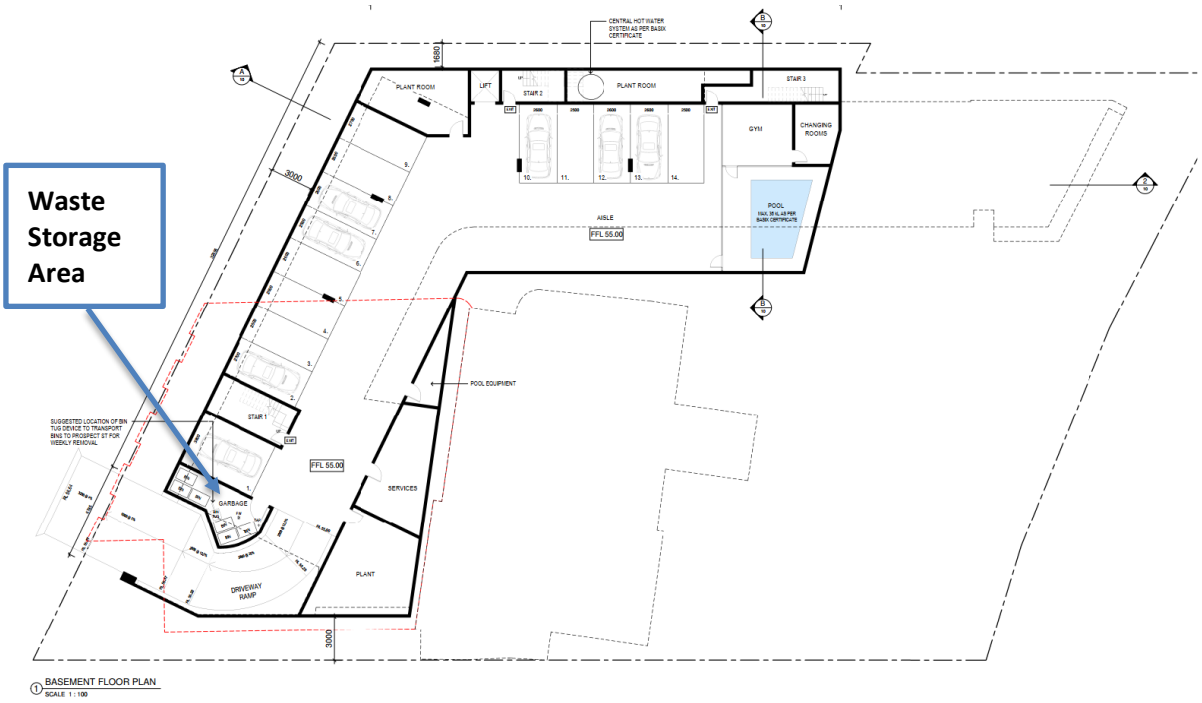
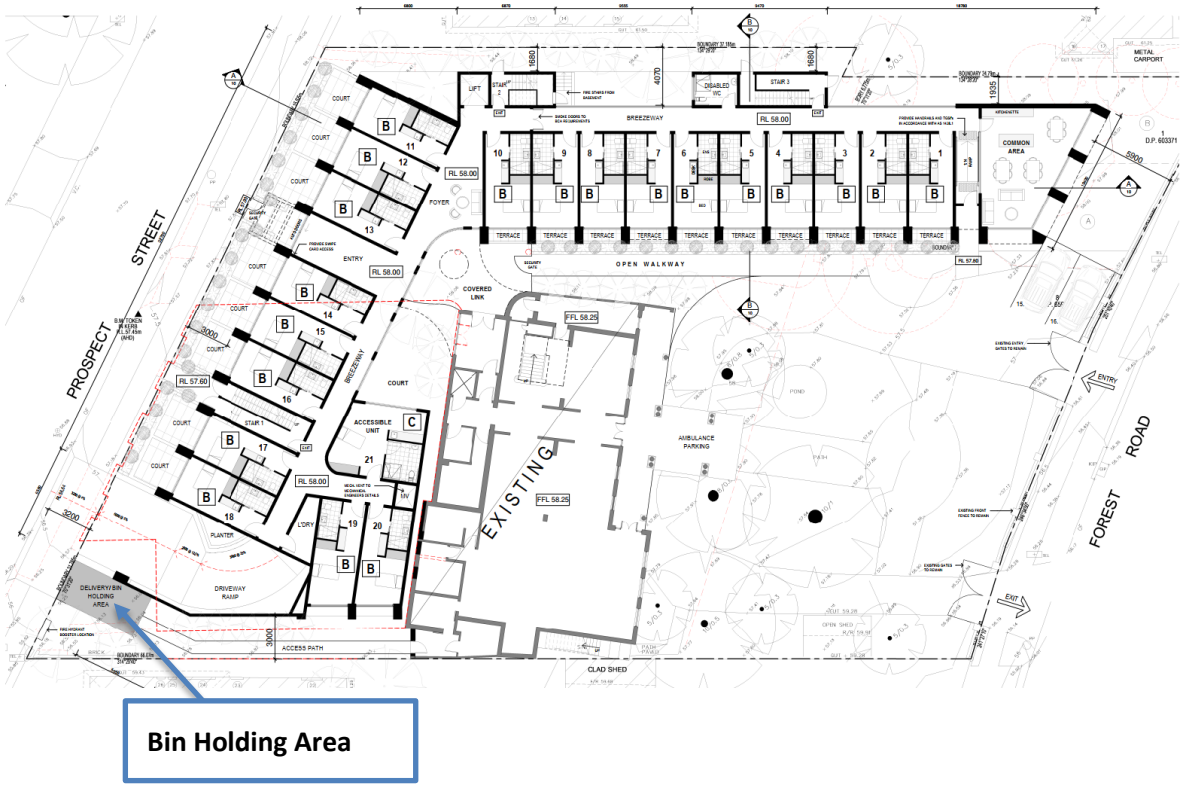


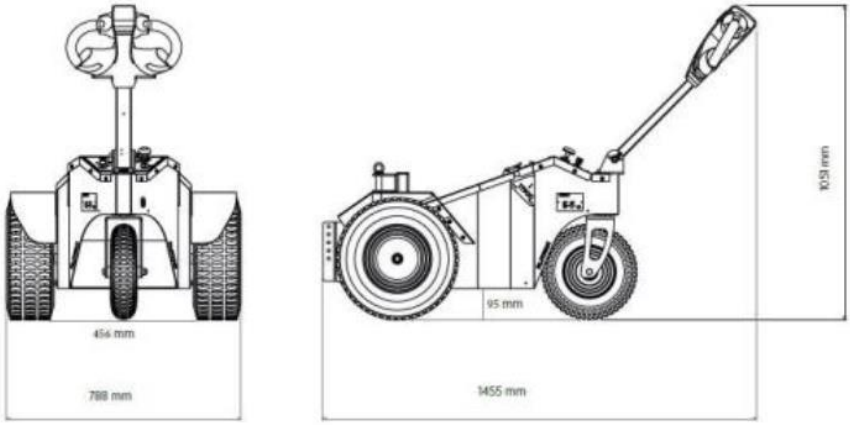
Diagram 2 – Ground Floor Plan



Appendix B – Bin Dimensions

Bin Size	Dimensions (Width x depth)	Bin footprint
120 litre	480 x 545 mm	0.26 sqm
140 litre	535 x 615 mm	0.33 sqm
240 litre	585 x 730 mm	0.43 sqm
660 litre	1260 x 780 mm	0.98 sqm
1100 litre	1240 x 1070 mm	1.32 sqm
3 m3 bin	2020 x 1450 mm	2.93 sqm

Appendix C – Portable Bin Tug Device



Vehicle Classification	Dimensions
Length (m)	1.45
Width (m)	0.79
Height (m)	1.05
Wheelbase (m)	0.46
Powertrain	24-Volt
Seating Capacity (kg)	1 Person
Unit Weight (kg)	300
Aisle Clearance (m)	1.80
Towing Capacity (kg)	3,000
Speed (km/h)	5.0

Appendix D – Example Signage