IVANHOE ESTATE

Midtown C3
Waste Management Plan

Prepared for:

Frasers Property
Level 2
1C Homebush Bay Drive
Rhodes NSW 2138

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Frasers Property (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.30337.00100-R01-v5.0	30 July 2021	Andrew Quinn	Celine El-Khouri	Andrew Quinn
610.30337.00100-R01-v4.0	28 June 2021	Andrew Quinn	Celine El-Khouri	Andrew Quinn
610.30337.00100-R01-v3.0	22 June 2021	Andrew Quinn	Celine El-Khouri	Andrew Quinn
610.30337.00100-R01-v2.0	15 June 2021	Andrew Quinn	Celine El-Khouri	Andrew Quinn
610.30337.00100-R01-v1.0	17 May 2021	Andrew Quinn	Celine El-Khouri	Andrew Quinn

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DOCUMENT REFERENCES

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1 Introduction

1.1 Site Location and Details

Frasers Property proposes a 17 storey mixed residential and retail development at Macquarie Park. This building, referred to as Midtown C3, is one of the buildings planned for the Ivanhoe Estate. Midtown C3 is expected to have 168 residential apartments and 865 m^2 of retail space.

The development is located at the corner of Herring Road and Epping Road, see Figure 1 below. The approval authority is the City of Ryde (Council).

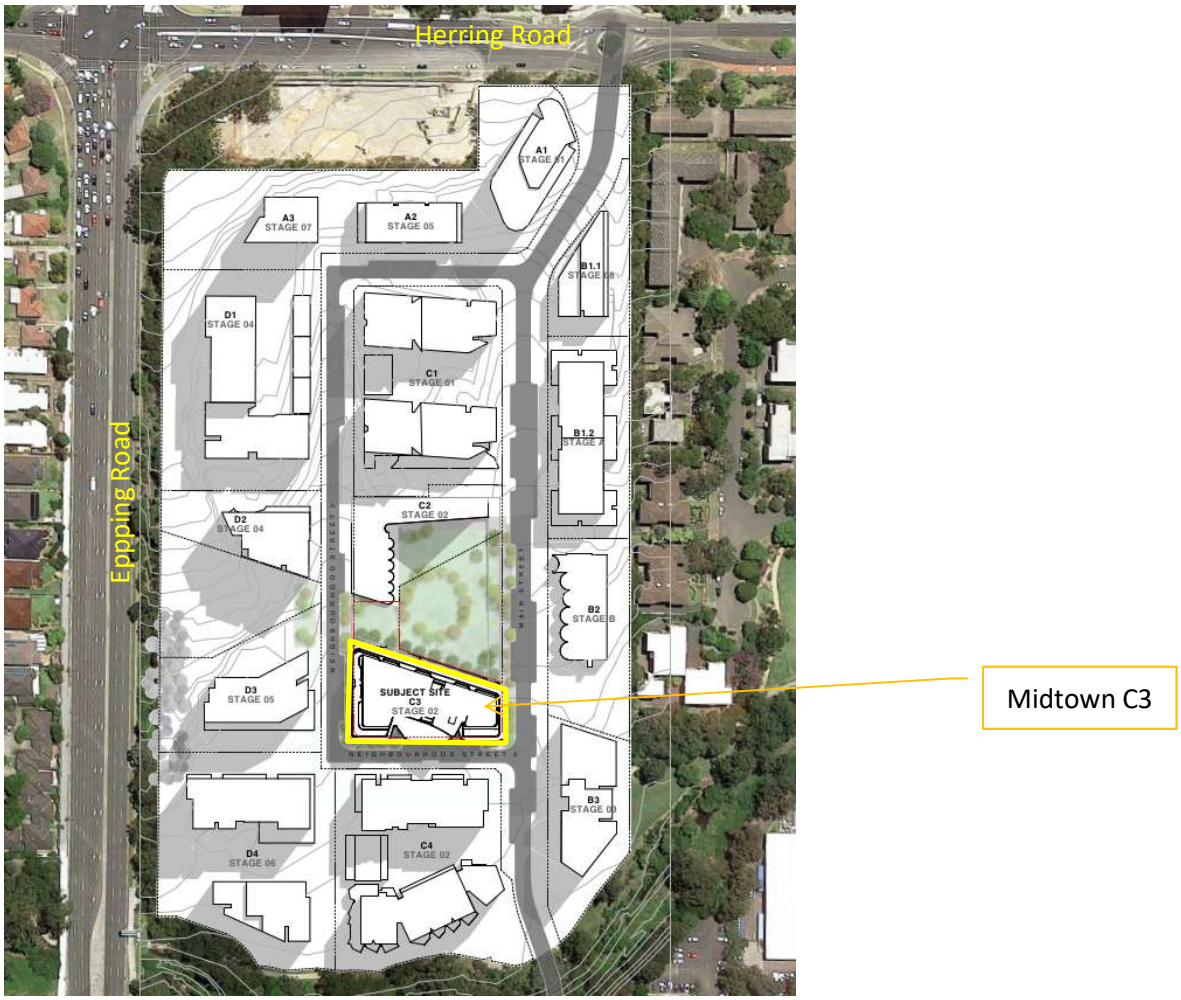

Figure 1 - Ivanhoe Estate Development

1.2 Objective

The objective of this Waste Management Plan (WMP) is to identify all potential wastes likely to be generated at the development site during the operational phases of the development, including a description of how waste would be stored, handled and collected in accordance with Council requirements.

2 City of Ryde Requirements

2.1 Ryde DCP

Part 7.2 of The City of Ryde Development Control Plan 2014 (DCP) sets out a number of specifications for waste management in new developments.

Part 4.5 of the DCP also deals with the Macquarie Park Corridor. Section 6.3.3 of the previous 2010 DCP referred to waste management and the current DCP also references Section 6.3[1] as dealing with waste management however, there is no Section 6.3 in the 2014 document.

However, the Ivanhoe Masterplan design guidelines supersede the Ryde DCP and some waste specifications in the DCP do not apply.

The specifications relevant to this development are summarised below.

2.2 All developments

Developments must provide space on-site for the sorting and storage of waste in containers suitable for collection.

The size of storage areas and number of storage containers required must be sufficient to handle and store the waste likely to be generated and stored on the premises between collections. The space is to be calculated using information in Schedule 1 Indicative Bins.

Additional space must be provided for the storage of bulky wastes where appropriate.

Allowance must be made for the storage of green waste where relevant.

All applications must be accompanied by a site waste minimisation and management plan and the location and design details of waste storage facilities on the site. These must be clearly illustrated on the plans and should include floor plan, elevations and cross section drawings of the room, and details on materials and finishes.

Drawings must clearly indicate the location of and provision for storage and collection of waste and recyclables during demolition, construction and ongoing operation.

Waste and recycling storage areas must be located in positions that:

- provide easy, direct and convenient access for the users

[1] Section 8.3 paragraph (b) under Controls Commercial says 'Rubbish and recycling areas must be provided in accordance with Section 6.3 Waste Management'

- permit easy transfer of bins to the collection point if relocation of bins is required
- permit easy, direct and convenient access for collection service providers
- do not intrude on car parking, landscaping, access and turning areas
- do not reduce amenity, that is, minimises the potential for noise, odour and other amenity and environmental impacts on residents and other occupants
- maximise protection of trees and significant vegetation.

A collection point for waste and recyclables is to be identified on the plans. The collection point must be conveniently located for users and services purposes and sited so that waste collection vehicles do not impede the access to the site or car parking facilities when servicing the bins.

The path for wheeling bins between the waste and recycling storage area and the vehicle collection point must be free of steps and kerbs and be of a gradient of less than 14:1. The waste storage area must be as close as practicable to the collection point.

Access driveways and service areas for waste collection vehicles must be designed in accordance with AS 2890.2-2002 Parking Facilities – Part 2: Off-street commercial vehicle facilities.

2.3 Residential flat buildings of four storeys or more

In addition to the controls applying to all developments, outlined in Section 2.2 above, the following apply:

- Space must be provided inside each dwelling for two days' worth of garbage and recyclables
- A waste and recycling storage room, or rooms, must be provided for the storage of garbage, recyclable and green waste, with capacity to store the number of bins required by Council. The space is to be calculated using the Schedule 1 Indicative Bins Sizes and Schedule 2 Standard Waste and Recycling Bins for Residential Developments
- All waste and recycling storage rooms must be designed and constructed in accordance with Schedule 4: S4.2 Waste and Recycling Storage Rooms.
- Consideration must be given to the transport of waste and recycling from floors to the central waste and recycling storage area, using for example, lifts, or chutes
- Where garbage chutes are proposed, service rooms or compartments for accessing the chute must be provided on each residential floor.
- All chutes and service rooms or compartments must be designed and constructed in accordance with Appendix C Waste Management Equipment Specifications of the Ivanhoe Masterplan
- For developments of 30 or more dwellings, a separate room or undercover caged area of a minimum 5 m^2 must be provided for bulky waste. This should be located next to waste storage areas.
- Waste storage areas are to be designed to accommodate bins which can be managed by all types of domestic waste collection vehicles
- Adequate access must be provided for the users, waste collection staff and collection vehicles
- Where collection vehicles are required to drive into a property, access must allow vehicles to enter and exit the property in a forward direction with minimal need for reversing and to be operated with adequate clearances

- The driveway and basement manoeuvring space pavement strength, spatial design, access width and clearances must be suitable for the collection vehicle
- Appendix C Collection Vehicles and Appendix D Vehicle access/Turning Circles under the Better Practice Guide for Waste Management in Multi-Unit Dwellings, DECC 2008 are to be used as a guide.

2.4 Commercial and Retail

This section states that sufficient space must be allocated to store bulky items such as used pallets and crates to prevent illegal dumping in the public domain.

2.5 Mixed use developments

Mixed use developments are those that have both residential and commercial uses. In the case of this building there are about 865 m^2 of retail areas on the Ground level as well as residential units.

In addition to the controls applying to all development (Section 2.2 above) the following also apply to mixed developments:

- Residential waste and recycling storage, handling and collection systems must be separate from the commercial waste and recycling storage, handling and collection systems
- Residential and retail waste management systems must be in locations which are easily accessible to users and waste collection staff
- Commercial tenants must be actively discouraged from using the residential waste facilities. This can be done by use of signage and separate keys and locking systems
- Details of the separate storage areas, handling areas and collection points for commercial and residential waste streams must be clearly identified in the site waste minimisation and management plan, and in the plans submitted with the development application.

3 Residential Waste and Recycling

3.1 Bins

The Ivanhoe Masterplan specifies that this development will have 1100 L bins for garbage and 660 L bins for recyclables. The capacity allowance is as follows:

- Garbage - 1 x 1100 L bin per 25 units (44 L per unit)
- Recyclables - 1 x 660 L bin per 15 units (44 L per unit).

Council will supply all these bins. No compaction of either stream is allowed.

Green waste bins are not proposed for this development. Additional space must also be provided for the storage of bulky waste. The size of this space is not specified other than it must be more than 5 m^2 for developments of 30 or more units. An area of at least 28 m^2 has been allowed for on Basement 1.

3.2 Waste quantities, bin numbers and waste storage space

The building consists of a ground level and 16 upper levels. Taking into account the assumptions in Section 3.2.1 above and the capacity for garbage and recyclables required by Council, the number of bins of different capacities that would be required and the amount of waste storage space required are shown in Table 1 below.

Table 1 Bin numbers and space requirements

Building	Number of Units	Garbage				Recyclables				Bulky Waste Space Allowance	Total Space Required including Space for Manoeuvring and Bulky Waste
		Bin Capacity	Number of Bins	Collection Frequency per Week	Space Required	Bin Capacity	Number of Bins	Collection Frequency per Week	Space Required		
C3	168	1100 L	3	3	5.1 m^2	660 L	6	2	6.3 m^2	28.0 m^2	50.7 m^2

3.2.1 Assumptions

The area required for waste storage takes into account Council's waste generation rates for high rise residential dwellings, bin sizes and numbers, collection frequency, and additional space for the easy and safe movement of bins.

Neither garbage not recyclables can be compacted.

3.3 Waste storage area sizes and locations

Two residential waste storage areas are located on Basement 1 under two pairs of chutes that run through each wing of the building. Table 2 below shows the amount of space required for each room and the amount of space allowed for.

Table 2 Bin numbers and space requirements

Building	Number of Units	Number of 1100 L Garbage Bins	Space Required	Number of 660 L Recycling Bins	Space Required	Total Space Required including Space for Manoeuvring	Space allowed in Bin Room
C3 A	104	2	3.4 m^2	4	4.2 m^2	13.6 m^2	21.9 m^2
C3 B	64	1	1.7 m^2	2	2.1 m^2	7.6 m^2	49.7 m^2

The space allowed in both the A and B bin rooms is adequate.

Table 1 shows that 28.0 m^2 should be allowed for bulky waste. More than 40 m^2 of space for residential bulky waste has been allowed for in the B Building waste room, which is more than adequate for this purpose.

The Basement 1 waste storage areas are shown in Figure 2.

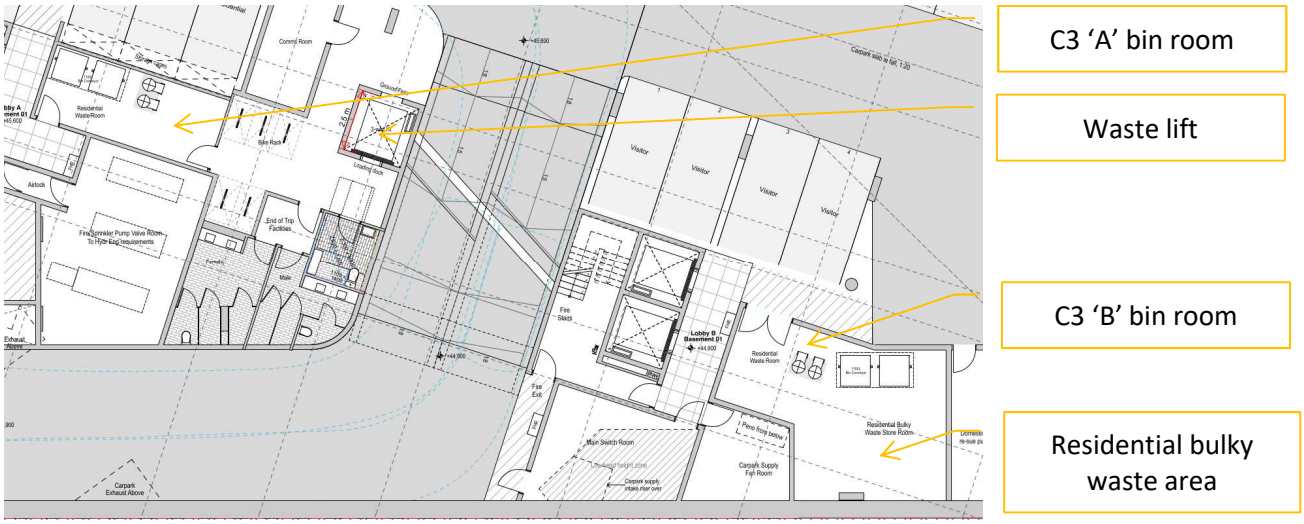

Figure 2 - Waste storage areas on Basement 1

3.4 Design requirements

3.4.1 Waste storage areas

- All passageways must be at least 1 metre wide.
- The floor of the bin storage area must be concrete and finished to a smooth even surface and coved at the intersections with the walls.
- The floor must be graded to a floor waste connected to the sewerage system. The floor waste must be fitted with an in-floor dry basket arrestor approved by Sydney Water Corporation.
- A tap with a hose connection must be provided in or adjacent to the waste and recycling storage area.
- The walls of the waste and recycling storage room must be constructed of brickwork, concrete block work or similar solid material with the internal wall surfaces cement rendered to a smooth even surface.
- The ceiling of the waste and recycling storage room must be constructed of a rigid smooth faced non-absorbent material. The ceiling must be of a minimum height that enables access for cleaning and enables the lids of bins to be fully opened.
- The internal walls and ceiling of the waste and recycling storage room must be painted with a light coloured washable paint.
- The waste and recycling storage room must be provided with a close fitting self-closing door that is openable from inside the room without the use of a key.
- The doors of the waste and recycling storage room must be finished with a smooth faced impervious material that is capable of being easily cleaned.
- The waste and recycling storage room must be provided with permanent natural ventilation direct to the outside air or a system of mechanical exhaust ventilation.
- The waste and recycling storage room must be provided with artificial lighting controllable by switches outside and inside the room. Sensor lights may be used.

- Clear signage must be displayed in the waste and recycling storage room describing how to use the waste facilities correctly.

3.4.2 Garbage chutes

The Ivanhoe Masterplan allows dual chutes for garbage and recyclables. Each residential level will feature service rooms with two chute access doors installed, one for garbage and one for recyclables. The chutes will discharge into the bins detailed in Section 3.1 above. Two spare bins will also be positioned in the chute rooms to be used when full bins are removed from under the chutes.

The service rooms and the chutes will comply with the requirements stated in the DCP.

3.5 Management and Collection

Residents will deposit their garbage and recycling in the chutes accessed through the service rooms on each floor. These will empty into bins in the waste storage rooms on Basement 1. Cleaners or building management staff will exchange the bins at the base of the chutes as required when they are full.

Each collection day, using the adjacent dedicated lift, cleaners or building management staff will transfer the bins from the bin storage rooms on Basement 1 to the loading dock on Ground level. The bins will be positioned at the designated collection point in the loading dock. This is shown in Figure 3.

Waste streams will be collected by Council. Council's collection vehicle will enter the site in a forward direction, onto the loading dock turntable. Once in the correct position the bins will be emptied into the vehicle. The vehicle will exit the site in a forward direction. The empty bins will then be returned to the waste storage rooms on Basement 1.

The same process will be followed for residential bulky waste by cleaners or building management staff. Items small enough to be placed into bins will be taken to the ground level in bins while other items will be loaded into the lift on Basement 1 and out of the lift on Ground level. Bulky waste will be collected by Council from the loading dock. Building management will contact Council when bulky waste is ready for collection. Building management may arrange a regular collection schedule with Council.

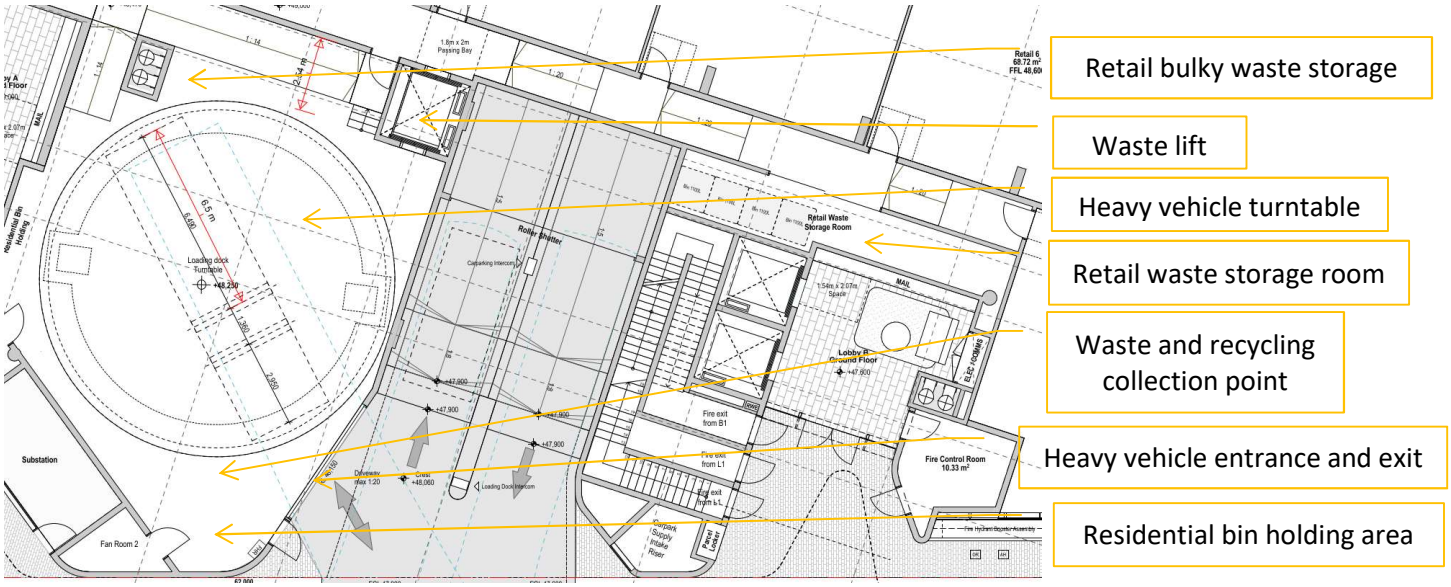

Figure 3 - Loading dock

4 Retail Waste and Recycling

4.1 Bins

SLR has assumed that 1100 L bins will be used for garbage and recyclables. Using the Commercial Waste / Recycling Generation Rates shown in Schedule 3 of the DCP, supplemented with our own waste generation rates, we have estimated the amounts of waste that may be generated from the retail areas. These are shown in Table 3 below. We have also assumed a typical retail mix and that shops will be open seven days per week.

Table 3 Retail waste quantities

Type	GFA (m²)	Litres per 100 m² per day		Total per Week (L)	
		Garbage	Recycling	Garbage	Recycling
Supermarket	432	240	240	7,262	7,262
Liquor store	36	115	118	293	301
Hairdresser	52	60	15	218	54
Takeaway	67	80	790	374	3,696
Takeaway	69	80	790	384	3,796
Café	69	667	133	3,207	641
General Retail	140	50	50	491	491
	865			**12,229**	**16,241**

The table shows that up to 12.2 m^3 of garbage and 16.2 m^3 of recyclables could be generated each week.

Subject to the assumed collection frequency, the number of 1100 L bins that may be used to collect garbage and recyclables, and the amount of space that will be required, are shown in Table 4 below.

Table 4 Retail bin numbers and space

Type	GFA	Collection Frequency per Week		Total Number of 1100 L Bins		Bin Space Required (m^2)		Total Bin Space Required including Manoeuvring (m^2)	Space allowed for Retail waste (m^2)
		Garbage	Recycling	Garbage	Recycling	Garbage	Recycling		
Retail	879	6	4	2	4	3.5	7.0	21.0	21.0

The table shows that 21.0 m^2 of retail waste storage space is required and that 21.0 m^2 has been allowed for. The retail waste storage room is on Ground level off the back of house corridor behind the retailers.

4.2 Management and Collection

Using wheeled bins, trolleys, bags or other means, all retail waste will be brought by retailers directly to the waste storage area back of house on the Ground level. Each collection day, cleaners or building management staff will take the retail bins to be emptied to the loading dock.

The collection vehicle will enter in a forward direction onto the loading dock turntable. Once in the correct position, the bins will be emptied into the vehicle. The vehicle will exit the site in a forward direction. The empty bins will then be returned to the retail waste storage room.

Retail bulky waste will be stored in the loading dock from where it will be collected as required. The loading dock is shown in Figure 3.

5 Cleaning, Maintenance and Security

Regular cleaning of waste and recycling storage areas will be undertaken by cleaners or building management staff. Building management staff will erect and maintain suitable signage in the waste storage areas. All waste storage areas will be secured and access only available to authorised staff and contractors.

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