

Cabramatta Town Centre East Precinct Development – Waste Management Plan

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Prepared by

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Disclaimer

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In the spirit of reconciliation MRA Consulting Group acknowledges the Traditional Custodians of country throughout Australia and their connection to land, sea and community. We pay our respects to Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging.

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Glossary

Terminology	Definition
AS	Australian Standard
C&D	Construction and Demolition
DA	Development Application
DCP	Development Control Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
LEP	Local Environmental Plan
LGA	Local Government Area
MGB	Mobile Garbage Bin
MSW	Municipal Solid Waste
DCP	Development Control Plan
VENM	Virgin Excavated Natural Material
WMP	Waste Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

1 Introduction

MRA Consulting Group (MRA) was engaged by Moon Investments to prepare a Waste Management Plan (WMP) related to the proposed development of the Cabramatta Town Centre East Precinct. The Proposal comprises an 8,138m² mixed use development located on both privately held land and a small section of council laneway, with frontage to Broomfield Street and Cabramatta Road East. The development is located on the east side of Cabramatta and opposite Cabramatta rail station in the Fairfield Local Government Area (LGA) (see Figure 1).

Set to be built across four stages, this WMP accompanies the Development Application (DA) related to the first two stages of the development which will feature three buildings and will include a total of 358 apartments over 5,129m² of retail/commercial podium, a public market square and 434 basement parking spaces. Stage 1 comprises 2 x 16 storey mix-use buildings, Stage 2 comprises a single 19 story buildings.

This WMP addresses the requirements of the Consent Authority (Council) and conforms to the following environmental planning instruments and reference documents:

- Fairfield Local Environmental Plan (FLEP) 2013.
- Fairfield City Wide Development Control Plan (FCWDGP) 2013.
- Cabramatta Town Centre Development Control Plan No. 5/2000
- NSW EPA's (2019) *Better Practice Guidelines for Resource Recovery in Residential Developments*.

This WMP has been prepared to inform the development design and assist in the delivery of better practice waste management, promoting sustainable outcomes at the demolition, construction and operational phases for the development.

The following key objective for waste management is outlined in the FCWDGP 2013 for new developments:

- To encourage waste minimisation, source separation, reuse and recycling.

In lieu of waste guidelines provided by the FCWDGP 2013, the NSW EPA's (2019) *Better Practice Guidelines for Resource Recovery in Residential Developments* has been relied on. It's waste and resource recovery design principals that underpin the planning and design of waste and resource recovery systems in new residential developments are as follows:

Design Objective 1: Environmental sustainability and best practice

Developments meet requirements for long-term sustainability and best practice when:

- Systems are designed to maximise waste separation and resource recovery.
- Innovative and best practice waste management collection systems and technologies are supported where appropriate.
- Flexibility in design allows for future changes in waste generation rates, materials collected and methods of collection.

Design Objective 2: Effective waste and resource management

Developments achieve effective waste and resource management when:

- Waste services can occur in a safe, seamless and timely manner.
- Access to waste disposal and resource recovery services are safe and convenient for all residents.
- Functional and adequate storage spaces are provided for all waste and recycling streams, including temporary storage areas for bulky materials like cardboard boxes and oversized household waste.

Design Objective 3: Clean, safe and healthy living environments

Developments protect and enhance the quality of life for the community when:

- Negative impacts on amenity for residents, neighbours and the public, such as visually unpleasant waste storage areas, bad odours and noise from waste collection are minimised.

- Illegal dumping and litter from bins are minimised through good planning and installation of adequate storage and waste recovery infrastructure.
- Safe and easy access to waste and resource recovery storage areas is provided for residents, building managers and collection contractors.

Design Objective 4: Affordability

Developments allow residents to engage in cost-effective waste services when:

- Careful design and construction to prevent costly retrofits.
- Flexibility in design allows for the collection of all waste and recycling streams to be cost-effective for residents.

2 Background

2.1 Description of the Proposed Development

The proposed development includes:

- Demolition of the existing buildings on the site, excavation and preparation of the site for construction.

Stage 1:

- Construction of 2 x 16-storey mixed use towers, comprising:
 - Ground floor and Mezzanine Retail and Commercial space
 - 15-levels of residential space totalling 230 units.
 - Associated amenities and infrastructure.

Stage 2:

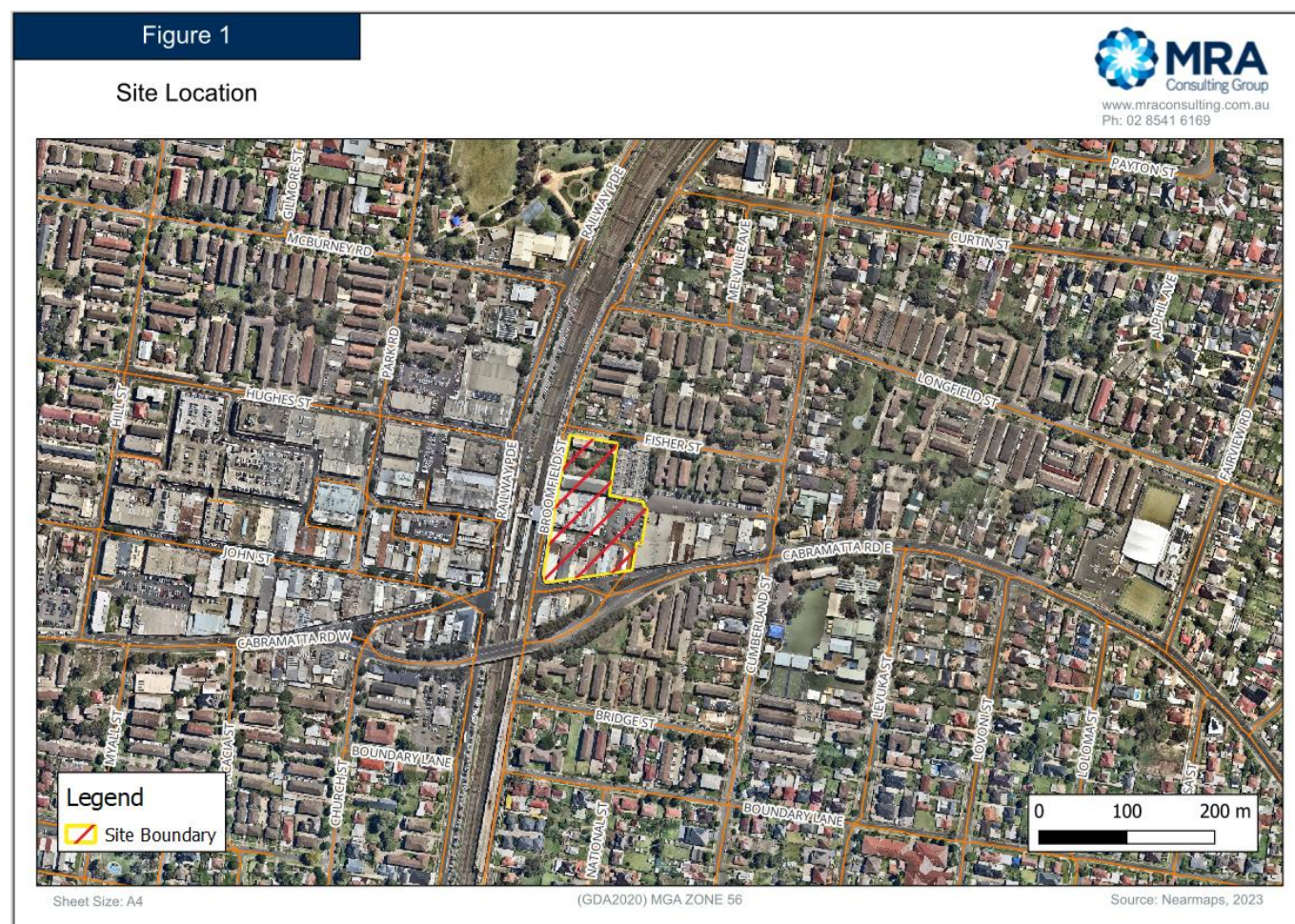
- Construction of a 19-storey mixed use tower, comprising:
 - Ground floor and Mezzanine Retail and Commercial space
 - 17-levels of residential space totalling 128 units
 - Associated amenities and infrastructure.
- Public Market Square and shared space
- Construction of 3 levels of Basement featuring 434 carparking spaces.

Relevant site plans for the proposed development are provided in Appendix A.

2.2 Location

The proposed development site is located along Broomfield Street and bounds the entire block between Cabramatta Road East (to the South) and Fisher Street (to the North). The development spans several lots in the Fairfield LEP 2013. Included in the lot is a one-way council lane that provides vehicular access and loading through the southern portion of the site between Broomfield St and Cabramatta Road East. To the west of the development site is Cabramatta Train Station, Cabramatta Shopping Plaza, and a large variety of commercial businesses. Figure 1 depicts the location of the site in relation to the surrounding land uses and roadways.

Figure 1: Site and surrounding area



Source: Nearmap, 2023

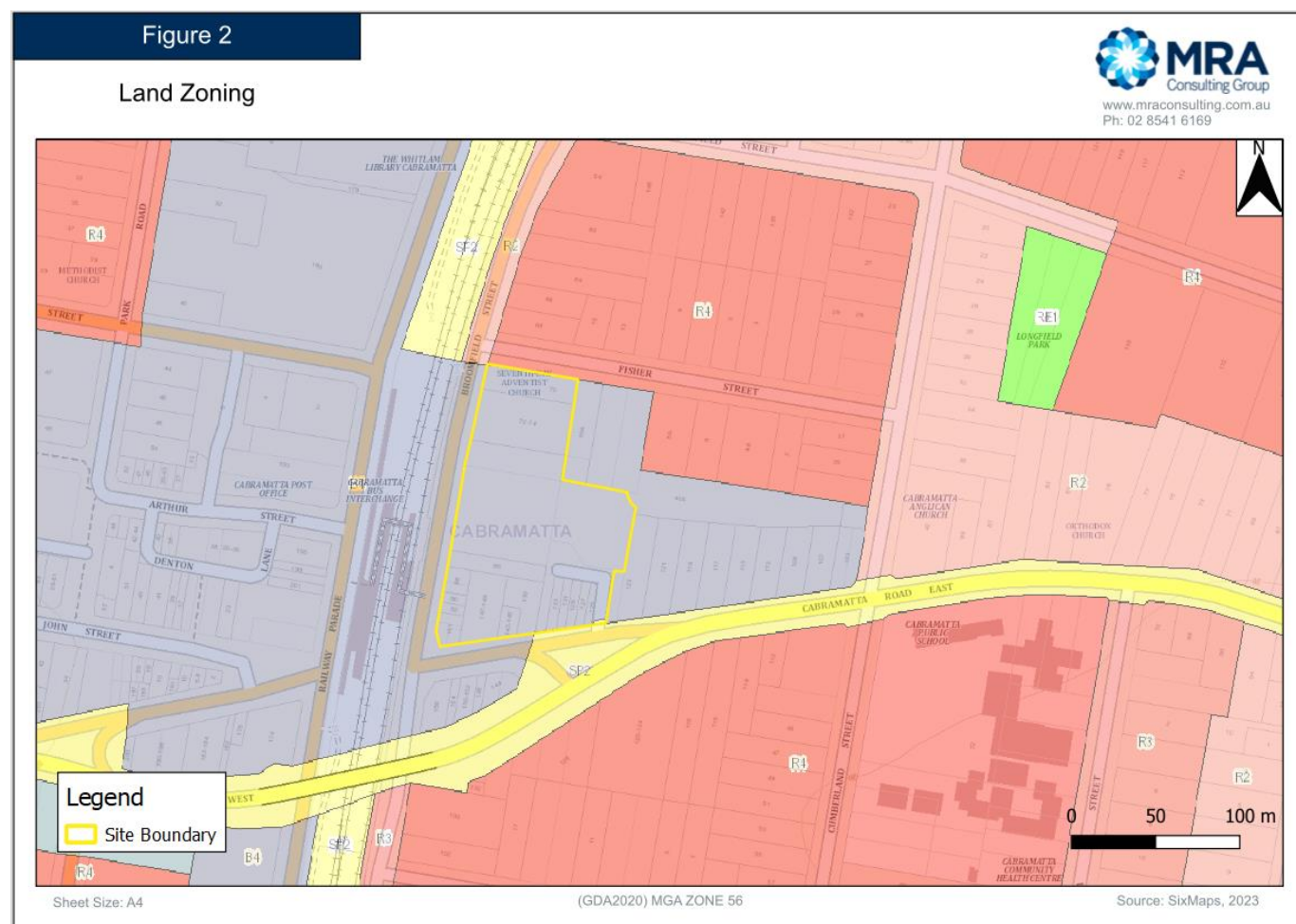
2.3 Zoning and Use

The site is zoned as B4 – Mixed Use in the Fairfield LEP 2013 (See Figure 2). Mixed use commercial and residential buildings are permitted with consent within the zone.

Objectives of this zone are as follows:

- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To support the development of Bonnyrigg, Prairiewood, Fairfield and Cabramatta as the principal locations for specialist cultural, retail, business, tourist and entertainment facilities and services.

Figure 2: Land use zone map



Source: Department of Planning, 2023

2.4 Strategies

Waste management for the site considers better practice, necessary equipment, and integration with other guidance documents including the NSW Waste and Sustainable Materials Strategy 2041 (NSW EPA, 2021), and National Waste Policy: Less Waste, More Resources (DAWE, 2018). The key policy aims that are considered are:

- Avoidance (to prevent the generation of waste);
- Reduce the amount of waste (including hazardous waste) for disposal;
- Manage waste as a resource; and
- Ensure that waste treatment, disposal, recovery and re-use are undertaken in a safe, scientific and environmentally sound manner.

Management of waste generated onsite according to directives of the NSW Strategy will assist in achieving the target of 80% diversion from landfill in the C&D sector.

2.5 Assumptions

This report is a WMP, forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the final reference/indicative design set for the development plan from the project architect, Plus Architecture (February 2024);
- The Fairfield City Wide Development Control Plan (FCWDGP) 2013, outlines the general waste management requirements and services available for new development;
- The NSW EPA's (2019) *Better Practice Guidelines for Resource Recovery in Residential Developments* provides waste generation rates that have been considered in the preparation of this report; and
- This WMP is a living document and therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology.

3 Construction and Demolition

Demolition and construction activities at the site will generate a range of construction and demolition (C&D) wastes. Throughout the development process, all materials will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or unsuitable for reuse or recycling processes.

Waste storage during construction operations will involve some stockpiling of reusable material, as well as placement of wheeled bins for the separation of construction materials for recycling. A bin for residual waste or contaminated material will also be made available at the site for disposal where necessary. Bins may require alternative placement across construction operations to facilitate the safe and efficient storage of materials and will be retained within property boundaries to avoid illegal dumping.

A waste storage area shall be designated by the demolition or construction contractor and shall be sufficient to store the various waste streams expected during operations. Waste storage areas will be kept clear to maintain access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons. The waste storage area will retain multiple bins to allow for source separation of waste to allow for ease of recovery and reuse of materials.

Waste management principles, management measures and facilities in use on the site shall be included as part of the site induction for all personnel working on the site.

3.1 Demolition Waste

The proposed development will require demolition of existing structures prior to commencement of excavation and construction operations. Demolition works will include the following:

- Demolition of 18 pre-existing buildings across the site;
- Demolition/removal of remanent vegetation or garden organics;
- Demolition of current parking areas on the site;
- Excavation and site preparation works for construction.

Table 1 outlines the expected demolition waste quantities to be generated at the site, in addition to the appropriate management methods for each material type. Other materials with limited reuse potential either on or offsite will be removed in bulk bins for recycling at an appropriately licenced and capable recycling facility.

Table 1: Demolition waste generation estimates

Type of Material	Estimated volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Concrete	35,000 – 50,000	✓	✓	✓	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Bricks/pavers	5,000 – 10,000	✓	✓	✓	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. The development will be able to reuse a number of existing building bricks as paving in landscaped areas. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Tiles (ceramic)	500 - 1000	✓	✓	✓	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Timber (clean)	2,500 – 5,000	-	✓	✓	0%	100%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D facility for recovery.
Timber (treated)	2,500 – 5,000	-	✓	✓	50%	50%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D facility for recovery where possible.

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Plasterboard	1,000 – 2,500	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D or plasterboard recovery facility for recovery where possible.
Glass	< 500	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Metals (ferrous & non-ferrous)	500 - 1,000	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D facility for recovery and recycling.
Floor covering	350 - 500	-	✓	✓	50%	50%	Should be removed in bulk and sent to carpet recycler or C&D facility for recovery where possible.
Garden Organics	250-500	-	✓	✓	0%	100%	Garden organics resulting from the removal of vegetation and trees.
Electronic Waste	50 - 100	-	✓	✓	<20%	80%	wires and electronics separated where possible for scrap.
Residual waste	500 – 1,000	-	-	-	100%	-	Resource recovery dependant on facility destination capability.

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Hazardous Waste	Unknown	-	-	-	100%	-	Existing buildings may contain potentially hazardous materials. Should contaminated or potentially hazardous materials be discovered they would be handled according to the demolition and/or materials management plan
Total % Diversion from Landfill Estimated						>80%	

3.2 Construction Waste

The proposed development will involve the construction of a 37 storey, mixed use development featuring the following works:

- 3 basement levels comprising vehicle, motorcycle, bicycle parking and EOTF;
- Two levels of retail space at ground and a mezzanine level;
- 358 residential units across three building forms,
- Commercial and residential lobbies and lounge areas; and
- Associated infrastructure and ancillary spaces incl. loading and waste storage area.

Table 2 outlines indicative volume to weight conversion factors for common construction materials.

Table 2: Building waste material by percentage and conversion factor for volume and weight

Building waste material	Tones per m ³	Waste as % of the total material ordered
Bricks	1	5-10%
Concrete	2.4	3-5%
Tiles	0.75	2-5%
Timber	0.5	5-7%
Plasterboard	-	5-20%
Ferrous metal	2.4	-

Source: Parramatta Waste Plan Application Template 2017.

Table 3 outlines the estimated waste generation rates for materials through construction of the proposed development, in addition to the appropriate management methods for each material type.

Table 3: Construction waste generation estimations

Type of Material	Estimated Volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Excavated material	75,000 – 100,000	✓	✓	✓	<5%	>95%	Onsite: Reuse for fill and levelling. Offsite: Removed from site for reuse as recycled fill material or soil. Disposal: Removal of any contaminated material for appropriate treatment or disposal.
Concrete	35,000 – 40,000	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Bricks/pavers	10,000 – 20,000	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Tiles	500 – 1,000	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.

Type of Material	Estimated Volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Timber (clean)	< 1,000	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Timber (treated)	< 1,000	-	✓	✓	50%	50%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Plasterboard	< 1,000	-	✓	✓	<10%	90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier or removed to a C&D/plasterboard recovery facility for recovery where possible.
Glass	500 – 2,000	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Metals (ferrous) Metals (non-ferrous)	1,000 – 2,500	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse or removed to C&D facility for recovery and recycling.

Type of Material	Estimated Volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Floor covering	1,000 – 2,500	-	✓	✓	<10%	>90%	Offcut carpet separated where possible and returned to supplier for reuse.
Electronic waste	< 100	-	✓	✓	<10%	>90%	Offcut wires and electronics separated where possible or returned to supplier for reuse.
Packaging materials (pallets, wrap, cardboard, etc)	250 - 500	-	✓	✓	<10%	>90%	Returned to supplier where possible or separated by material type for resource recovery.
Residual waste	250 - 500	-	✓	✓	100%	-	Resource recovery dependant on facility destination capability.
Total Diversion %						>90%	

3.3 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 4).

Table 4: Waste service contractors and facilities

Role	Details
Recommended Waste Collection Contractor	The following are local skip bin operators for consideration in the management of excavation and construction waste for the site: • Aline Movers Skip bins; • Purple Cow Industries; • Freddy's Skip Bin Hire; and • 7 Skips - Skip Bins Sydney. Or another supplier as elected by the building contractor.
Principal Off-Site Recycler	The following are local C&D processing facilities for consideration in the management of C&D waste generated at the site: • ECORR – Eco Resource Recovery • Cleanaway - Auburn Resource Recovery Centre Or another appropriate facility as elected by the waste management contractor.
Principal Licensed Landfill Site	Bingo Eastern Creek Recycling Ecology Park (& Landfill), or other appropriate facility as elected by the waste management contractor.

3.4 Site Documentation

This WMP will be retained on-site during the construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers).

Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder.

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date of collections;
- Description of waste and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name.

Waste management documentation, the logbook and associated dockets and receipts must be made available for inspection by an authorised Council Officer at any time during site works.

4 Operational Waste Management

Operational waste management requirements of the site arise from the daily activities of the residential component of the development, as well as the commercial component, comprising commercial, retail and food and beverage uses.

Waste management strategies related to site operations have been established pursuant to the Fairfield City Wide DCP 2013 objectives and controls, and the *NSW EPA's (2019) Better Practice Guidelines for Resource Recovery in Residential Developments*. Each component's waste generation and storage requirement are discussed separately below.

The following space calculations are based off the mobile garbage bin (MGB) dimensions sourced from the *NSW EPA's (2019) Better Practice Guidelines for Resource Recovery in Residential Developments* (Table 5).

Table 5: MGB capacity and footprint

Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m ²)
120	940	560	485	0.27
240	1,080	735	580	0.43
660	1,250	850	1,370	1.16
1100	1,470	1,245	1,370	1.74

4.1 Residential Waste Management

4.1.1 Waste Generation

Operational waste management addressed in the following section relates to waste generation associated with the residential use of the proposed development. Stage 1 (Tower A and Tower B) and Stage 2 (Tower C) of the development maintain a shared Waste and Recycling Storage Area (WRS) on basement level 1 for the management of general waste and recycling for residential component of the site (see Appendix A). It is noted that contingency needs to be built into this waste management system for the future addition of another residential tower during Stage 3 of the development.

Table 6 outlines waste generation expectations for the residential component of the proposed development, in accordance with the *NSW EPA's (2019) Better Practice Guidelines for Resource Recovery in Residential Developments*.

Table 6: Site Waste Generation

Use type	Unit Type	Units	Generation Rate (L/week)	Waste Stream	Total Weekly Generation (L)
Stage 1 - Tower A & Tower B	Studio / 1 Bedroom	81	80	General Waste	6,480
			80	Recycling	6,480
	2 Bedroom	127	100	General Waste	12,700
			100	Recycling	12,700
	3 Bedroom	22	120	General Waste	2,640

Use type	Unit Type	Units	Generation Rate (L/week)	Waste Stream	Total Weekly Generation (L)
			120	Recycling	2,640
	Stage 1 Total Waste Generation:			General Waste	21,820
				Recycling	21,820
Stage 2 - Tower C	Studio / 1 Bedroom	32	80	General Waste	2,720
			80	Recycling	2,720
	2 Bedroom	72	100	General Waste	7,100
			100	Recycling	7,100
	3 Bedroom	24	120	General Waste	2,760
			120	Recycling	2,760
	Stage 2 - Total Waste Generation:			General Waste	12,580
				Recycling	12,580
	Total	Stage 1 & 2 - Total Waste Generation:			General Waste
Recycling					34,400

4.1.2 Waste Storage Requirements

Waste storage space has been calculated considering estimations of bin type and collection frequency, as described in the table below (Table 7). Multiple options have been presented for consideration and comparison, the highlighted Option B is recommended in this instance.

Table 7: Residential waste storage and collection frequency

Location	Waste stream	Waste generation (L/week)	Option A (bins and collection frequency)	Option B (bins and collection frequency)	Bin Footprint Option A (m ²)	Bin Footprint Option B (m ²)
Stage 1 & Stage 2 (Towers A, B, C)	General waste	34,840	11 x 1,100L bins / Collected Three times per week	8 x 1,100L bins / Collected Four times per week	20	14
	Commingled Recycling	34,840	11 x 1,100L bins / Collected Three times per week	8 x 1,100L bins / Collected Four times per week	20	14
Total Requirements*:			22 x 1,100L bins / Collected Three times per week	16 x 1,100L bins / Collected Four times per week	40	28

**Note: storage space requirement considers additional space of approximately 1.5 x bin footprint for manoeuvring of bins.*

Based on the above waste generation and storage requirements, a bin storage capacity of approximately **40m² (Option A) or 28m² (Option B)** would be required to manage residential waste generated by Stage 1 (Towers A & B) and Stage 2 (Tower C) respectively, which can be accommodated by the proposed **60m²** residential WRSA.

The choice of either **Option A** or **Option B** allows some control of the measure of contingency built into the WSRA design. This measure is in anticipation of incorporating the future waste requirements of the development Stage 3 into the pre-existing waste infrastructure of the site.

1,100L MGBs are expected to be the most suitable option for the management of waste for the proposed development, to allow for efficient servicing. Both options allow for future waste contingency planning for the addition of the Stage 3 build, as adequate additional space is provided to capture future waste volumes once each stage is complete.

Building management can observe the bin fullness levels once the site is fully occupied and adjust the number of collections accordingly. The bin storage area for the site will be sufficiently sized to accommodate proposed bins and have space to facilitate potential changes to waste service in future.

4.1.3 Waste Chutes

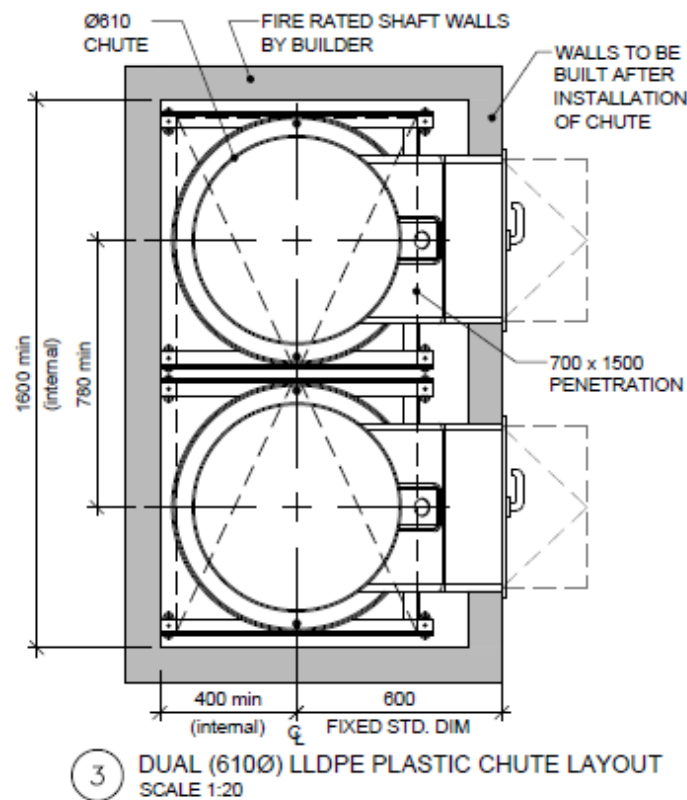
Each tower is to be provided with dual chutes (a general waste chute & a recycling chute) with access provided on each residential level. Residents are to be responsible for transporting their wastes to the chute access point on each level and placing their waste in the respective chute.

The chutes discharge into the chute discharge room for each tower block on basement level 1. The general waste chute discharges into an 1,100L MGB placed on the linear track system. The comingled recycling chute similarly discharges into an 1,100L MGB placed on the adjacent linear track system. Building management is to be responsible for the monitoring of bin fullness under the chute and rotating bins on the volume managing equipment as required.

Full bins are then to be transferred into the residential waste storage area for holding until collection. Empty bins will also be stored in the residential waste storage area and swapped out as necessary by the building's waste caretaker.

Waste chute specifications are as depicted in Figure 3 below.

Figure 3: Waste Chute Specifications



Source: Plus Architecture

4.1.4 Linear Track System

To sufficiently manage the daily waste generation of all residential towers of the development each residential waste chute discharge room (Blocks A, B and C) will each be required to be fitted with a linear track system with the capacity to hold minimum 2 x 1,100L MGBs per waste chute (respective individual track systems for both recycling and general waste chutes per room). Details of specifications and dimensions are included in Appendix A. A breakdown of the required infrastructure per chute discharge room is presented in Table 8.

Table 8: Summary of bin infrastructure per chute discharge room

Building	Waste Stream	Daily Waste Generation	Respective Bin Chute discharge room	Chute discharge room bin infrastructure requirements
Stage 1				
Tower A	General Waste	1585L	Block A - Residential Waste Room	1,100L Linear track system with 2 x 1,100L bins
	Recycling	1585L		1,100L Linear track system with 2 x 1,100L bins

Building	Waste Stream	Daily Waste Generation	Respective Bin Chute discharge room	Chute discharge room bin infrastructure requirements
Tower B	General Waste	1585L	Block B - Residential Waste Room	1,100L Linear track system with 2 x 1,100L bins
	Recycling	1585L		1,100L Linear track system with 2 x 1,100L bins
Stage 2				
Tower C	General Waste	1805L	Block C - Residential Waste Room	1,100L Linear track systems with 2 x 1,100L bins per system
	Recycling	1805L		1,100L Linear track system with 2 x 1,100L bins

Total Bin infrastructure required by the chute discharges rooms are as follows:

- **Tower A Residential Chute Discharge Room Requirements:**
 - 2 x 1,100L linear track systems
 - Each system requires 2 x 1100L bins (totalling 4 x 1,100L bins)
- **Tower B Residential Chute Discharge Room Requirements:**
 - 2 x 1,100L linear track systems
 - Each system requires 2 x 1,100L bins (totalling 4 x 1,100L bins)
- **Tower C Residential Chute Discharge Room Requirements:**
 - 2 x 1,100L linear track systems
 - Each system requires 2 x 1,100L bins (totalling 4 x 1,100L bins)

4.1.5 Bulky Waste Storage and Procedures

The site will maintain three bulky waste storage areas separate from bin rooms, shared between Towers A, B and C (see Appendix A). These bulky waste storage areas will be located adjacent to the loading dock for ease of access and simplicity of collection. Furthermore, the availability of separate storage areas allows for their use outside of bulky waste for the overflow of residential bins as required from time to time.

This bulky waste storage area will have sufficient space for the temporary storage of bulky waste items and contain a textiles bin according to Council DCP and Guidelines. Bulky waste items include those that cannot be disposed of to general waste and recycling, including but not limited to broken/damaged/old whitegoods, furniture, appliances, mattresses, etc. Some councils will specify the storage requirements for bulky waste within their DCPs. Where this information is not available, as according to the NSW EPA's (2019) *Better Practice Guidelines for Resource Recovery in Residential Developments*, the bulky waste storage should be provided at the rate of 10m² of space for up to 40 units and then 2m² for every 10 units after that.

As the development features a total of 362 units, a total of **74.4m²** of bulky waste storage is required for the residential component. The total area in bulky waste storage proposed at the site is **79m²** which sufficiently caters for the bulky waste storage requirement of the proposed development.

The bulky waste store is to be located in close proximity to the waste storage area with a minimum doorway width of 1.5m to accommodate large waste items. Residents are to organise the transport to the bulky waste storage area with building management. It will then be the responsibility of building management to arrange collection as required.

Building management will liaise with the council or an elected private contractor and arrange access to the bulky waste storage area for collection staff to provide and coordinate the offtake of items from the site.

4.2 Commercial/Retail Waste Management

4.2.1 Waste Generation

Operational waste management addressed in the following section relates to waste generation associated with the various commercial use types. The site proposes the use of the subject building for commercial uses, including offices, retail and food and beverage areas. In lieu of waste generation rates specified with the Council DCP the NSW EPA's (2019) *Better Practice Guidelines for Resource Recovery in Residential Developments* has been relied upon for waste generation rates for commercial/retail uses and prior MRA experience. Weekly generation rates are based either on a 7-day week as follows:

Table 9: Commercial/Retail Waste Generation

Use type	Area (m ²) / Unit	Waste Stream	Generation Rate (L/day)	Total Daily Generation (L)	Total Weekly Generation (L)
General Retail	339	General Waste	50	170	1,190
		Commingled Recycling	50	170	1,190
		Paper and Cardboard	50	170	1,190
Food & Beverage	1,294	General Waste	100	1,294	9,058
		Food Waste	100	1,294	9,058
		Commingled Recycling	250	3,235	22,645
		Paper and Cardboard	250	3,235	22,645
Pub	420	General Waste	25	210	735
		Food Waste	25	105	735
		Commingled Recycling	25	105	735
		Paper and Cardboard	25	105	735
Pub Restaurant	415	General Waste	200	830	5,810
		Food Waste	200	830	5,810

Use type	Area (m²) / Unit	Waste Stream	Generation Rate (L/day)	Total Daily Generation (L)	Total Weekly Generation (L)
		Commingled Recycling	140	581	4,067
		Paper and Cardboard	140	581	4,067
Restaurant	344	General Waste	200	688	4,816
		Food Waste	200	688	4,816
		Commingled Recycling	140	481.6	3,371
		Paper and Cardboard	140	481.6	3,371
Gym	516	General Waste	20	103.2	722.4
		Commingled Recycling	7.5	38.7	271
		Paper and Cardboard	7.5	38.7	271
Medical	560	General Waste	20	112	784
		Commingled Recycling	5	28	196
		Paper and Cardboard	5	28	196
		Clinical Waste	Dependent on specific tenancies		
Childcare	598	General Waste	2.5	100	700
		Food waste	2.5	100	700
		Commingled Recycling	2.5	100	700
		Paper and Cardboard	2.5	100	700
Total		General Waste		3,402	23,815
		Food Waste		3,017	21,119
		Commingled Recycling		4,739	33,175
		Paper and Cardboard		4,739	33,175

Note: Commercial and retail uses are expected to generate a large proportion of paper/cardboard waste of total recycling. Therefore, for the purpose of estimating waste generation, 50% of recycling is assumed to be paper and cardboard waste (also potentially include secure documents for offices).

4.2.2 Waste Storage Requirements

Waste storage space has been calculated considering estimations of bin type and collection frequency, as described in the table below (Table 10). Due to the large volumes of waste generated by the development, large bins with frequent collections have been selected for the development.

Table 10: Commercial waste storage and collection frequency

Waste stream	Waste generation (L/week)	Waste management option A (bins and collection frequency)	Waste management option B (bins and collection frequency)	Minimum Storage Area (m ²) option A	Minimum Storage Area (m ²) option B
General waste	23,815	6 x 1100L bins / Collected Four times per week	3 x 1100L bins / Collected Five times per week	10.5	5.5
Food waste*	21,119	5 x 1,100L bins / Collected Four times per week	2 x 1,100L bins / Collected Five times per week	9	3.5
Commingled Recycling	33,175	8 x 1,100L bins / Collected Four times per week	4 x 1,100L bins / Collected Five times per week	14	7
Paper and Cardboard	33,175	8 x 1,100L bins / Collected Four times per week	4 x 1,100L bins / Collected Five times per week	14	7
Total requirements:		27 x 11,100L bins / Collected Four times per week	13 x 1,100L bins / Collected Five times per week	47.5	23

Note: storage space requirement considers additional space of approximately 1.5x for manoeuvring of bins.

**food waste stored in bins recommended to be collected at least three times per week to reduce risk of odour impact.*

Based on the above waste generation and storage requirements, storage capacity of approximately **47.5m² (option A)** or **23m² (option B)** would be required to manage the commercial and retail waste generated by the proposed development.

The choice of either **Option A** or **Option B** allows some control of the measure of contingency built into the WSRA design. This measure is in anticipation of incorporating the future waste requirements of the development Stage 3 into the pre-existing waste infrastructure of the site.

1,100 MGBs are expected to be the most suitable option for the management of waste for the proposed development, to allow for easier manoeuvrability and reduce the frequency of servicing.

Building management can observe the bin fullness levels once the site is fully occupied and adjust the number of collections accordingly. The bin storage area for the site will be sufficiently sized to accommodate proposed bins and have space to facilitate potential changes to waste service in future.

The proposed waste storage area for the site is shown on site plans (see Appendix A).

4.2.3 Temporary Waste Storage

Office, Retail and Commercial Lobby Areas:

General waste and recycling bins will be provided in the commercial lobby, administration areas and common circulation areas. Interim containers will be available on each floor sufficient for one day's generation of waste and recycling. Cleaning staff will be responsible for the emptying of these bins daily and transporting waste to the site WSRA.

Food and Beverage:

The back-of-house areas of the cafe will hold bins for the temporary storage of waste. Bins for general waste, recycling, and food waste at minimum will be provided to allow easier source separation for staff. Bins will be transferred to the waste storage area at minimum once daily for emptying and cleaning and transferred back to the back-of-house.

4.2.4 Bulky Waste

Space for storage of bulky waste is available within the waste storage and recycling area located. A space for retail bulky waste of **37m²** has been allocated as part of this development located next to the retail WRSA on basement level 1 (Appendix A).

This area will have sufficient space for the temporary storage of bulky waste items prior to scheduled collection. Bulky waste items include those that cannot be disposed of to general waste and recycling, including but not limited to broken/damaged/old whitegoods, furniture, appliances and mattresses.

5 Waste Management Systems

5.1 Waste Management System Summary

The following specific management methods are proposed for the various collection waste streams expected to be generated at the site, including alternative waste streams outside of general waste, recycling and organics:

- **General Waste:** General waste shall be placed within a tied plastic bag prior to transferring into collection bins. For collection purposes, general waste shall be stored within a mobile garbage bin (MBG).
- **Commingled Recycling:** All recyclables will be stored in commingled bins (mixed plastic, paper, cardboard, glass, aluminium, steel). All recyclables should be decanted loose (not bagged) with containers un-capped, drained and rinsed prior to disposal into the recycling bin. Paper should be flattened and placed in paper and cardboard bin if applicable.
- **Food Waste:** Commercial food organics waste generation from the development can be collected and treated on-site at small scale should management decide to do so. Organics treatment can be used to produce conditioners, compost or vermiculture castings for application on or off-site. Equipment options include different size and capacity composters, dehydrators, worm farms and macerators. For organics treated to acceptable standards, discharge of effluent or any output to sewer as commercial trade wastewater may be permitted.

Alternatively, tenants can make arrangements for the separate collection of its organics by its waste management contractor. Food waste can be stored in 240L sealed bins or refrigerated waste storage prior to collection.

- **Food Donation:** Management of commercial and food and beverage uses may like to explore the potential for donation of excess consumable food to charities such as OzHarvest or FoodBank NSW.
- **Paper and Cardboard:** Should large quantities of paper and cardboard waste be generated from proposed site uses a separate service may be suitable for application at the site. The contracted waste service provider may be able to provide separate paper and cardboard bins for the source separation and collection of paper and cardboard waste.
- **Secure Documents:** Separate bins for secure document waste may be retained in office spaces, to be serviced by a specialist secure document destruction contractor.
- **Clinical Waste:** Clinical waste is any waste resulting from medical, nursing, dental, pharmaceutical, skin penetration or other related clinical activity that has the potential to cause injury, infection or offense. It includes waste containing: human tissue (other than hair, teeth and nails) body fluids or blood. Clinical waste would be serviced by a specialist med-waste contractor.
- **Other (Problem) Waste:** The disposal of hard, bulky, electronic, liquid or potentially hazardous wastes shall be organised between the operator and site users as necessary. Aldi on Oxford St have a battery collection point for local use.
- **Cooking Oil:** Two grease traps/arrestors are provided for food tenancies cooking oil on Basement Level 1. Collection will be coordinated between the operator, site users and the chosen contractor. Grease trap servicing will be scheduled as required.

5.2 Waste Management and Recycling Method

The flow of **residential waste and recycling** goes from generation to collection through several steps:

1. Waste is temporarily stored at its point of generation in an appropriately sized receptacle, clearly marked for type of waste;
2. Residents are to transfer waste to waste and recycling chutes located on each residential level which will deposit into a bin room on the lower ground floor. Maximum distance between residential dwellings and chutes/bin room on each residential level is approximately 15m.

3. Site management are responsible for maintenance of bins and the waste storage rooms, ensuring bins are clean and in working order. Site management are also responsible for switching out full bins and monitoring bin fullness;
4. Bins under the waste and recycling chutes will be on a 2 x 1,100L bin linear track system to ensure at least one day of residential waste can be contained before bin changeover;
5. Site management is to ensure contracts with Council or a private waste contractor, who also ensure appropriate collection scheduling and access is organised to minimise noise, odour, vermin, and visual amenity impacts to staff, visitors and the public.

The flow of **commercial waste and recycling** goes from generation to collection through several steps:

1. Waste is temporarily stored at its point of generation in an appropriately sized receptacle, clearly marked for type of waste;
2. Site cleaners and/or tenancy staff are to transfer waste to the respective waste storage room for appropriate disposal into the respective bin. Commercial tenants will not have access to residential waste storage areas and vice versa.
3. Cleaning staff and site management are responsible for maintenance of bins and the waste storage rooms, ensuring bins are clean and in working order. Cleaning staff and site management are also responsible for switching out full bins and monitoring bin fullness;
4. Site management is to ensure contracts with Council or a private waste contractor, who also ensure appropriate collection scheduling and access is organised to minimise noise, odour, vermin, and visual amenity impacts to staff, visitors and the public.

5.3 Management System and Responsibilities

The site management and caretaker staff will be responsible for the management of waste at the site. Should there be any issues that impact on the operational efficiency, safety and suitability of waste management, management will be responsible for making any necessary changes, responsibilities include:

- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information on sorting methods for recycled waste, awareness of waste management procedures for waste minimisation and resource recovery;
- Maintaining a valid and current contract with a licensed waste service provider for waste and recycling collection and disposal;
- Making information available to residents and visitors about waste management procedures.
- Organising, maintaining and cleaning bins as part of a regular maintenance schedule;
- Manoeuvring bins to specified onsite collection point prior to and following scheduled collection of waste bins;
- Organising bulky waste collections as required;
- Ensuring bin allocation and waste/recycling collection frequency is adequate. Requesting additional infrastructure or services where necessary; and
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry.

5.4 Collection Method and Loading Areas

Collection points for the waste service provider (WSP) and areas for handling and loading are as follows:

- Maximum 10m manual handling collection and loading from the waste storage area for 1,100L MGBs, not exceeding a grade of 1:24 to provide convenient access for the collection of waste;
- Waste collections will be scheduled to occur outside of peak visiting hours to avoid high associated traffic around the site;

- The development's allocated loading and collection point is contained within the building's Basement 1 Level, access from Broomfield Street at the site's south. A dedicated loading bay is provided and the waste collection vehicle will enter and exit safely in a forward direction (see Appendix A and Appendix B);
- Clear, safe, accessible and convenient space for handling of MGBs and equipment and loading of collection vehicles; and
- Identifiable areas where visitors and workers can recognise and avoid any risk associated with moving vehicles, and bin moving and handling.
- The site will be serviced by a MRV vehicle with dimensions and a turn circle as presented in Table 11.

Table 11: Australian Standards for turning circles for medium rigid class vehicles

Vehicle Class	Overall Length (m)	Design Width (m)	Design turning radius (m)	Swept Circle (m)	Clearance (travel) height (m)
Medium Rigid Vehicle	8.80	2.5	10.0	21.6	4.5

Source: NSW EPA's *Better Practice Guidelines for Resource Recovery in Residential Developments 2019*

Table 12: Collection points and loading areas requirements and specification

Component	Requirement	Specification
Collection point	Allow safe waste collection and loading operations	- Adequate clearance and manoeuvring space; - Sufficient clearance for the safe handling of materials and equipment; and - Sectioned loading bay does not impede upon traffic and pedestrian safety.
Vehicle manoeuvring and loading space	Truck space for adequate lift clearance, manoeuvring and operation for a contractor collection vehicle	- Collection from each site use loading area by a front lift MRV; - Adequate loading bay dimensions to not impede lift clearance; - Operational clearance for truck manoeuvring in a forward direction; and - The provision of space clear of vehicle parking spaces (level and free of obstructions).
Operating times	Appropriate collection times to limit noise and traffic disturbance	- Collection times will be arranged during off-peak times to ensure minimal disturbance to pedestrians and visitors. - Hours for bin collections should comply with the following requirements: ➢ 8am to 7pm Monday to Saturday; and ➢ 10am to 7pm Sunday and public holidays.

5.5 Waste and Recycling Storage Areas

The waste areas will provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. In accordance with NSW EPA's (2019) *Better Practice Guidelines for Resource Recovery in Residential Developments*, the bin storage areas will be designed with the following considerations:

Storage room capacity

To allow for access, manoeuvring, cleaning and maintaining all bins:

- an extra 30% of the footprint of each waste container will be provided to the overall size of the store room/area;
- 50cm between all bins allocated for the development will be provide to ensure bins can be placed side-by-side (no stacking); and
- to minimise potential obstructions by providing a minimum 1.5m aisle.

Design

Bin storage areas are to be integrated into the overall design of the development to improve visual amenity. This can be achieved through:

- providing designated rooms or separate bin enclosures; and
- using similar construction materials as the main development.

Bin storage areas should have clear information to encourage correct waste and resource recovery behaviours such as:

- signposted door, for example, 'bin storage and service room'; and
- Clear layout and signage regarding waste, recycling and organics provision, services and required actions.

Access

Bin storage areas must be convenient for all users through:

- restricting or deterring access by non-residents;
- providing door width of 1.5m in RFBs where bulk bins are used;
- allowing access and manoeuvrability of the largest bin and any required waste handling equipment;
- ensuring doors, gates or roller doors are durable, self-closing, lockable and able to be opened from both inside and outside the storage area; and
- providing separate bin storage areas for residents and commercial premises in mixed use developments that can only be access by their intended users.

Bin storage areas should be readily monitored and maintained through:

- ensuring access for cleaners and caretakers (if required) and restricting access to residents.

Construction

Better practice bin storage areas should achieve more than the minimum compliance requirements: Minimum standards for construction are as follows:

- Ensuring BCA compliance, including ventilation. Where required, ventilation system to comply with AS1668.4-2012 The use of ventilation and air-conditioning in buildings.
- Ensuring storage areas are well lit (sensor lighting preferred) and have lighting available 24 hours a day.
- Provision of bin washing facilities, including taps for hot and cold water provided through a centralised mixing valve. The taps must be protected from bins and be located where they can be easily accessed even when the area is at bin capacity.
- Floor constructed of concrete at least 75mm thick.
- Floor graded so that any water is directed to a sewer authority approved drainage connection to ensure washing bins and/or waste storage areas do not discharge flow into the stormwater drain.
- Provision of smooth, cleanable and durable floors and wall surfaces that extend up the wall to a height equivalent to any bins held in the area.
- Ensuring ceilings are finished with a smooth-faced non-absorbent material capable of being cleaned.
- All surfaces (walls, ceilings and floors) finished in a light colour.

5.6 Waste Chute Specifications

The site will incorporate two, dual stream chutes (one per tower) to manage residential waste. Chutes will have an accessible inlet on every residential level and will discharge into 1,100L bins located on the lower ground floor, in

dedicated chute rooms. Chutes will be designed according to the requirements of the NSW EPA's (2019) *Better Practice Guidelines for Resource Recovery in Residential Developments* as outlined below:

- Chutes must not open onto any habitable or public space and doors must have an effective self-sealing system.
- The chute discharge outlet must have restricted access to prevent damage to equipment or injuries from people tampering with it.
- Chutes must be completely enclosed in a fire-rated shaft constructed of an approved material and fitted with sprinklers and must comply with the BCA.
- Chute inlets must be accessible to anyone with a disability and comply with AS1428 Design for access and mobility.
- Clear signage is required on how to use the system and which materials are acceptable in the chutes and per bin.
- During council collection periods empty bins must be placed at the base of the chute to allow residents to have access to the system at all times.
- Bins at the bottom of the chute are to be mounted on an liner system for easy rotation and servicing.

5.7 Signage

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia, 1994).

Signage will be designed to consider language and non-English speaking backgrounds, vision impairment and accessibility. Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in the waste room indicating:

- Details regarding acceptable recyclables;
- Recyclables are to be decanted loose (not bagged)
- *No standing* and *danger* warnings apply to the area surrounding the waste storage area;
- Contact details for arranging the disposal of bulky items;
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix A).

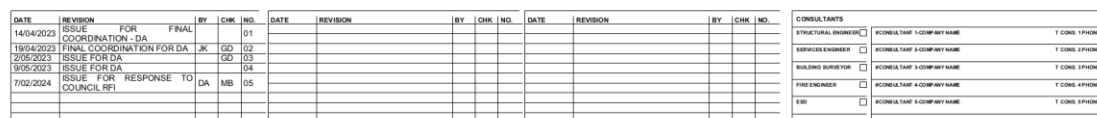
5.8 Prevention of Pollution and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), building management and the site cleaning staff will also be responsible for:

- Maintenance of open and common site areas;
- Ensuring waste areas are well maintained and kept clean;
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);
- Taking action to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

6 References

- Australian Department of Sustainability, Environment Water, Population and Communities (2011) Construction and Demolition Waste Guide - Recycling and Re-use Across the Supply Chain.
- Australian Standards 4123.7 Mobile Waste Containers.
- Cabramatta Town Centre Development Control Plan No. 5/2000
- Fairfield Local Environmental Plan (FLEP) 2013.
- Fairfield City Wide Development Control Plan (FCWDGP) 2013.
- NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities.
- NSW EPA (2021) NSW Waste and Sustainable Materials Strategy 2041.
- NSW EPA (2014) Waste Classification Guidelines.
- NSW EPA (2016) Recycling Signs, Posters and Symbols. Available at:
<http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.
- NSW EPA (2019) Better Practice Guide for Resource Recovery in Residential Developments.
- NSW Government (1979) Environmental Planning and Assessment Act.
- NSW Government (1997) Protection of the Environment Operations Act.
- NSW Government (2000) Environmental Planning and Assessment Regulation.
- NSW Government (2001) The Waste Avoidance and Resource Recovery Act.



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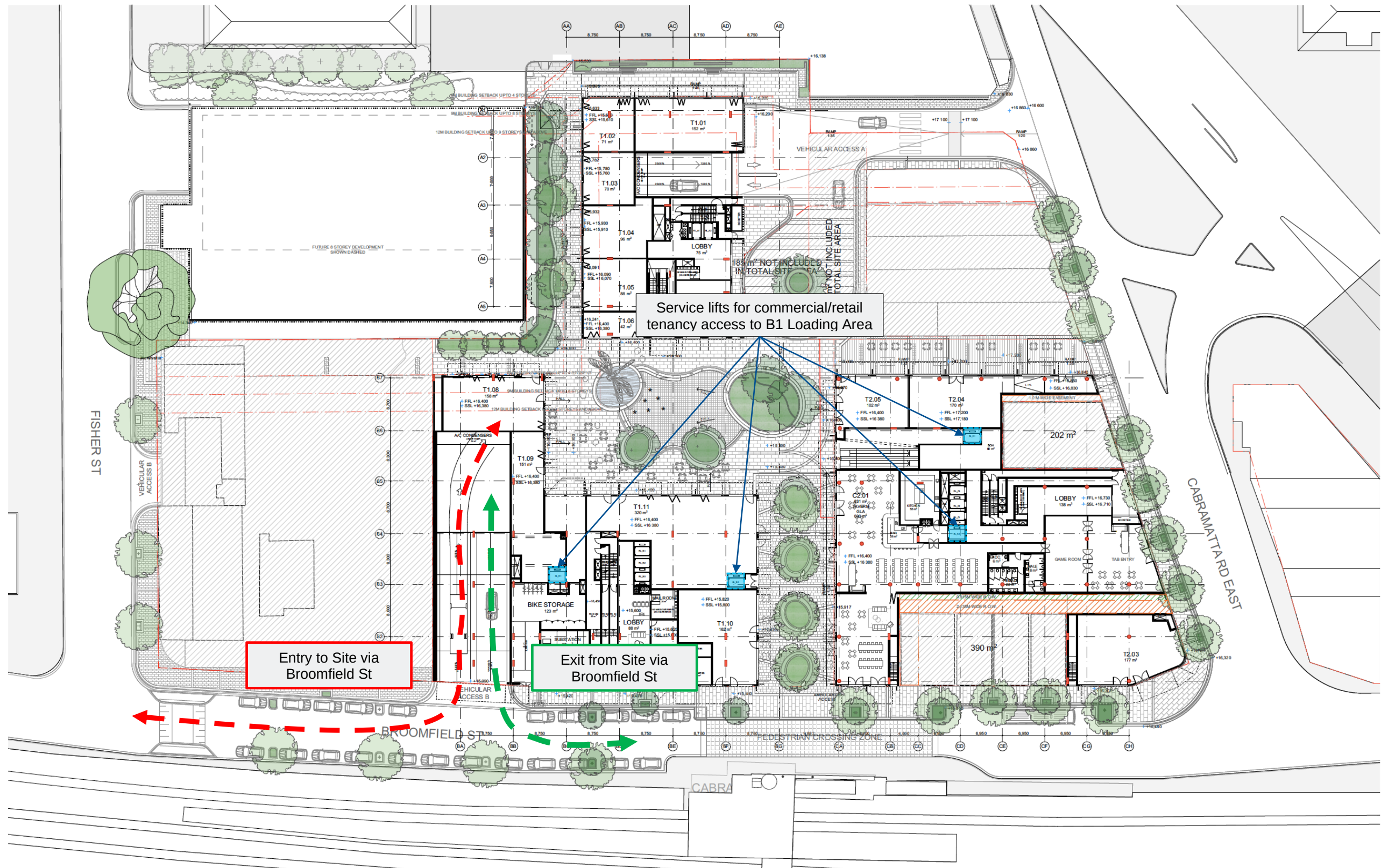
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Western Australia

Level 6, 212 Gorman St
Sydney, NSW 2000 Australia

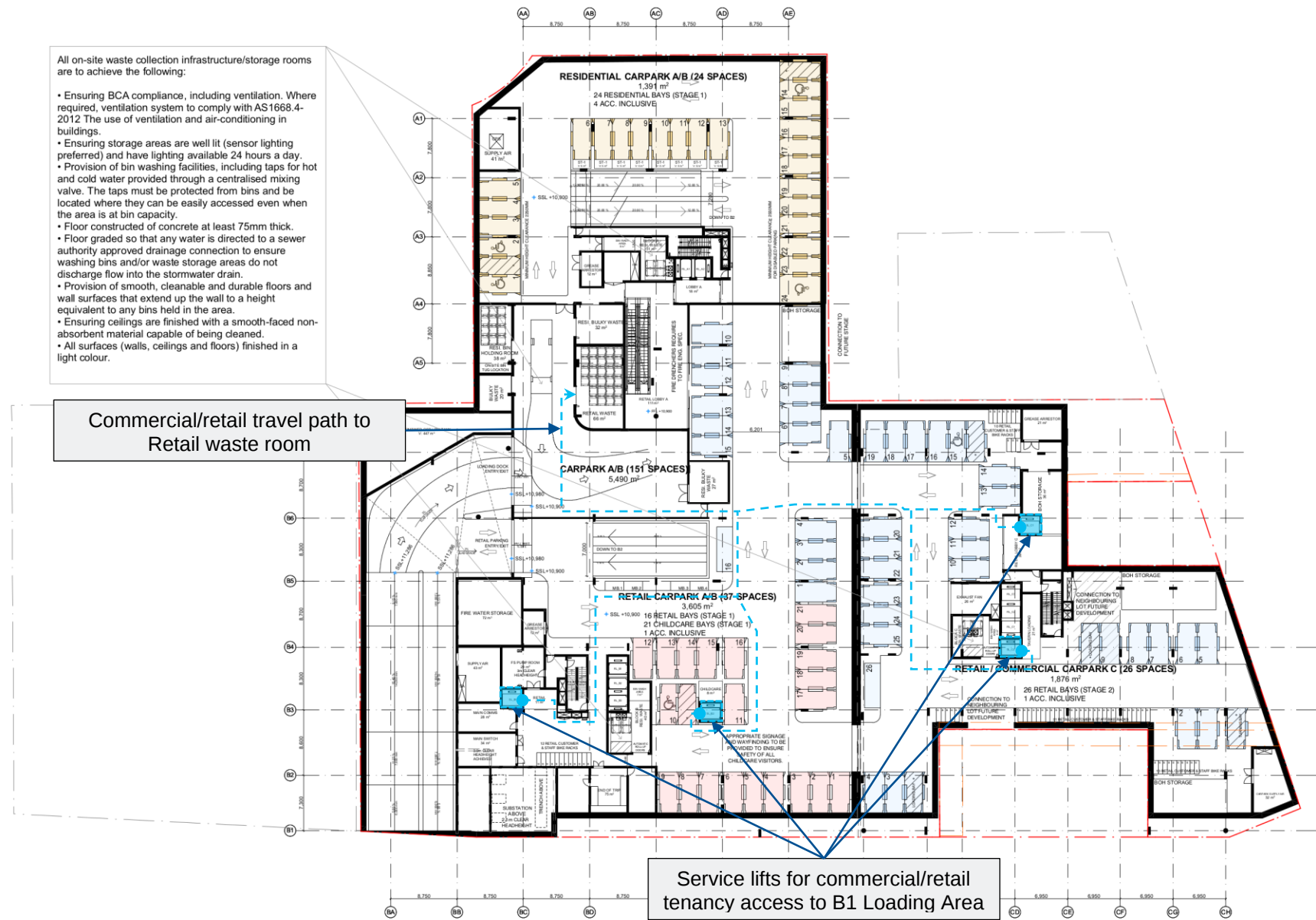
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PROJECT Corner of Cabramatta Rd and Broomfield St NSW 2166	DRAWING TITLE BASEMENT 1	SCALE 1:250 (BH)		
		DATE 7/10/2024		PLOT DATE 7/10/2024
		DRAWN CHECKED		
Notwithstanding to whom the required approval has been granted, the Australian Standard Spacing (AS) 1702 (AS1702) applies, unless the relevant authority has approved the design. The designer is responsible for ensuring that the design complies with the relevant standards and codes of practice. The designer is responsible for ensuring that the design complies with the relevant standards and codes of practice. The designer is responsible for ensuring that the design complies with the relevant standards and codes of practice.		JOB NO. 20073	DRAWING NO. DA0098	REVISION 05



Source: Plus Architects



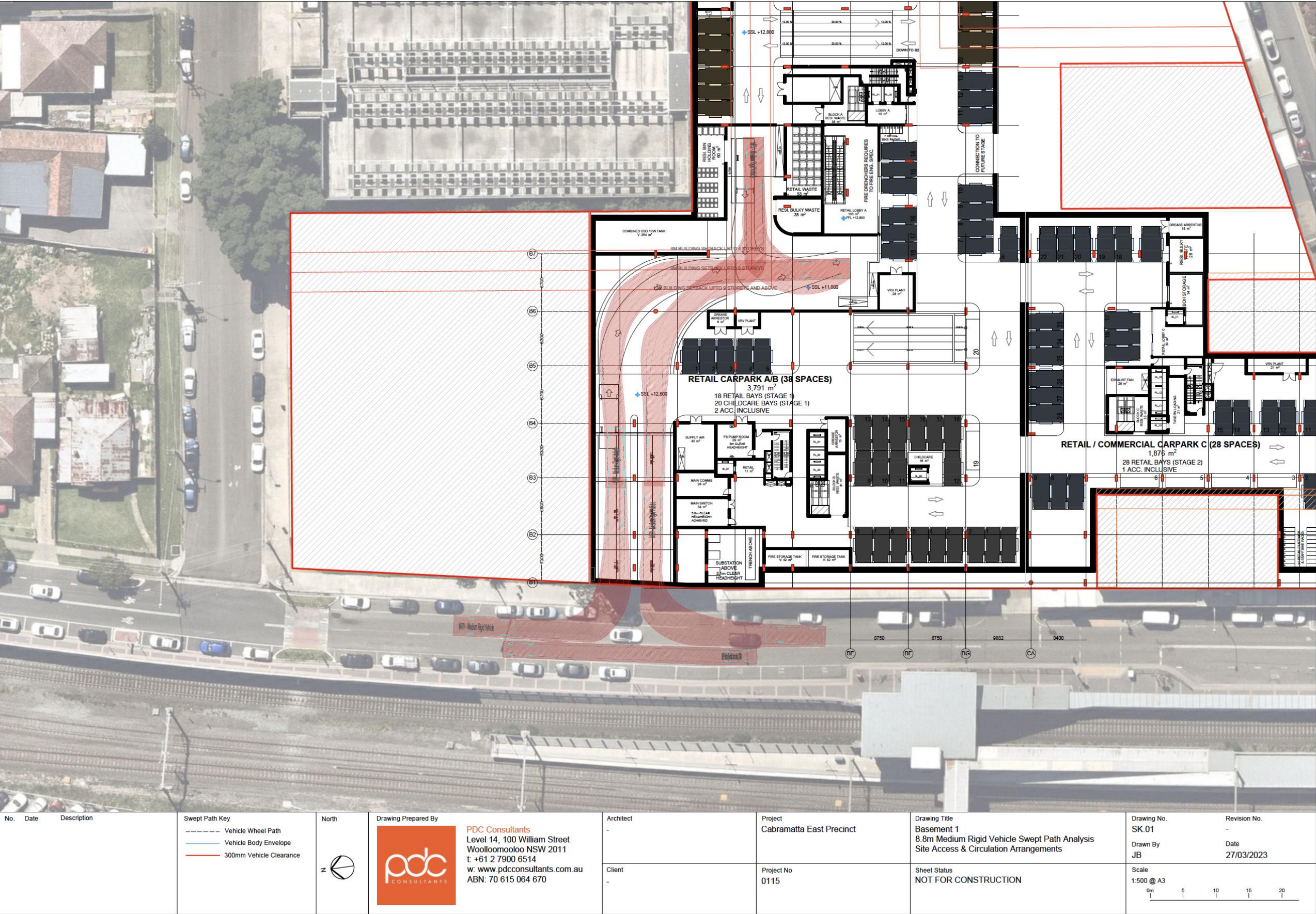
DATE	REVISION	FOR	FINAL	BY	CHK	NO.	DATE	REVISION	BY	CHK	NO.	DATE	REVISION	BY	CHK	NO.
14/04/2023	ISSUE FOR COORDINATION	DA		JK	GO	01										
19/04/2023	FINAL COORDINATION FOR DA	JK		GO	02											
2/05/2023	ISSUE FOR DA	JK		GO	03											
30/05/2023	ISSUE FOR DA	DA		MB	04											
7/02/2024	ISSUE FOR RESPONSE TO COUNCIL RP1	DA		MB	05											

CLIENT
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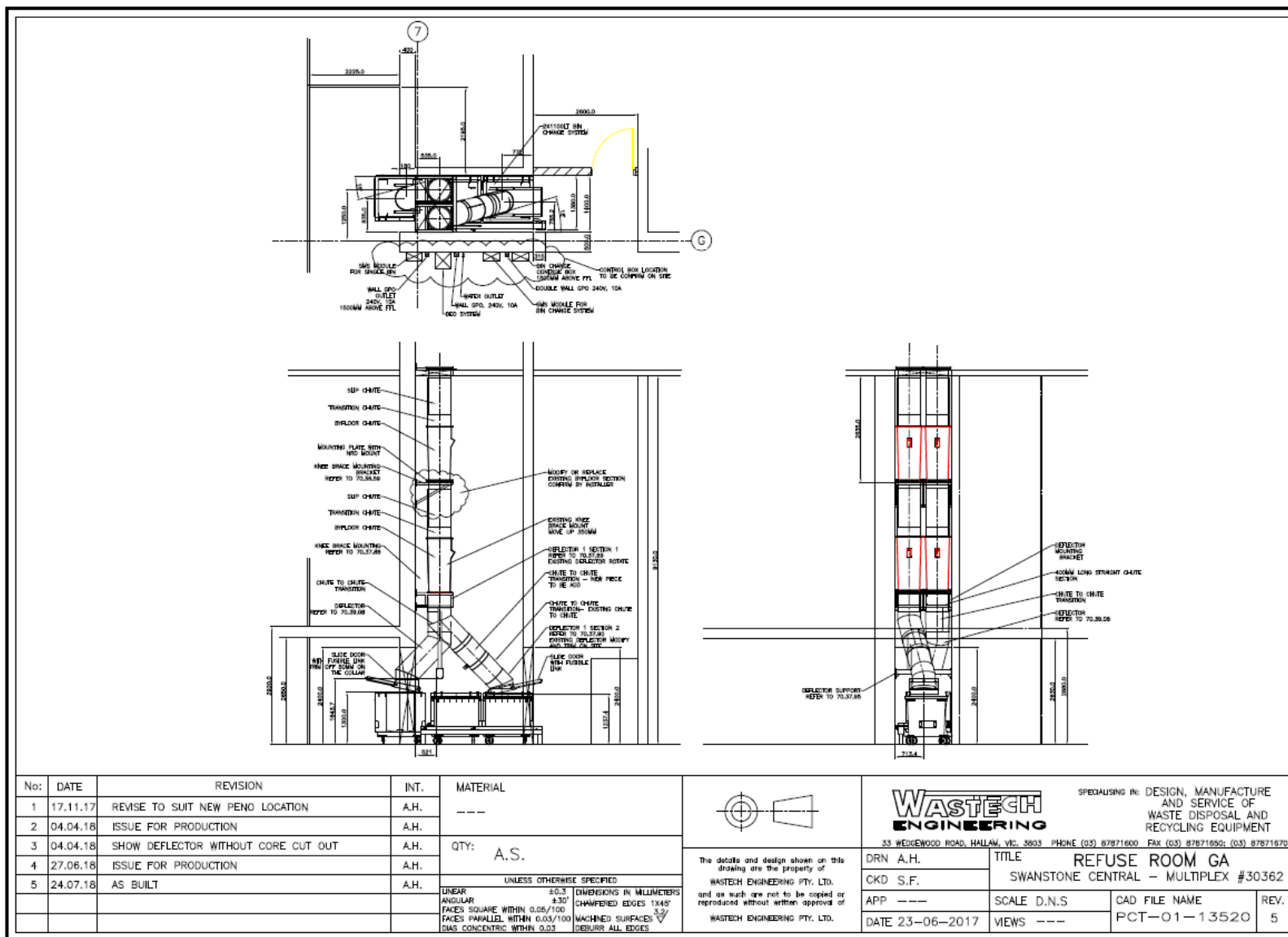


DEVELOPMENT APPLICATION			
PROJECT Corner of Cabramatta Rd and Broomfield St NSW 2166	DRAWING TITLE BASEMENT 1	SCALE 1:250 @B1	
DATE 7/02/2024	PLOT DATE 7/02/2024	CHECKED	
DRAWN			
JOB NO. 20073	DRAWING NO. DA0098	REVISION 05	

Appendix B Swept Paths (Waste Collection Vehicles)



Appendix C Example Waste Management Equipment – WasteTech 2 bin Linear Track System



Appendix D Standard Signage

Waste Signage

Signs for garbage, recycling and organics bin should comply with the standard signs promoted by the NSW Office of Environment and Heritage.

Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

Safety Signs

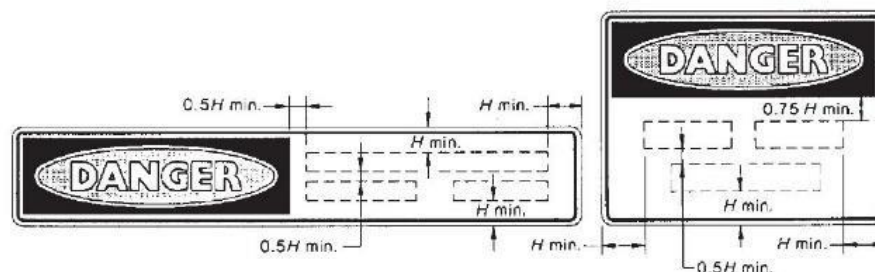


The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.



(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



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