165 Milton Street, Ashbury: Waste Management Plan

A Submission to Coronation Property

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MRA Consulting Group

Prepared by

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Disclaimer

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Glossary

Terminology	Definition
AS	Australian Standard
C&D	Construction and Demolition
C&I	Commercial and Industrial
CDCP	Canterbury Development Control Plan 2012
CLEP	Canterbury Local Environmental Plan 2013
DA	Development Application
DC	Development Consent
DCP	Development Control Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
LGA	Local Government Area
MGB	Mobile Garbage Bin
MSW	Municipal Solid Waste (also referred to as domestic or residential waste)
VENM	Virgin Excavated Natural Material
WMP	Waste Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

Response to RFI – 06/04/2022 - Waste

Item	Detail	Response
Bin Storage Area	*Building C has only 1 x 240L space in the cupboard. It is preferred to extend the cupboard to include 2 x 240L as this will allow future FOGO service bin to be provided.*	Building C has been adjusted to accommodate 2 x 240L bins to address this point. See site plans in Figure 2.
	There needs to be sufficient bin capacity in each of the recycling cupboards for three days of recycling. The correct size of cupboards needs to be demonstrated to fit at a min 2 x 240L bins.	Each building is designed to accommodate 2 x 240L bins available on each habitable level in a dedicated recycling cupboard. See Figure 2 and site plans in Appendix A.
On-site Collection/ Loading	*Further details need to be provided regarding the bin host function, incl. maintenance agreements.*	Two bin hoists are located at the northwest and southeast ends of the proposed loading dock and would enable bins to be hoisted up/down, to and from the loading dock level without the need to access the main roller doors. Bin hoists also allow bins to be transferred over a shorter distance than if transferring all bins via the main loading dock roller doors. The Developer will cover the maintenance costs of the Bin Hoists for a 3-year period from commencement of occupation of the site. This is expected to be noted as a condition of development consent for the proposed development. See Section 5.1.3.

1 Introduction

MRA Consulting Group (MRA) was engaged by Coronation Property Pty Ltd (Coronation) to prepare a Waste Management Plan (WMP) for a proposed medium-high density residential lot located at 165 Milton Street Ashbury, in Sydney's Inner West. The proposed development will feature 138 residential dwellings across five buildings. The buildings will include a mix of terrace housing and residential flat buildings up to six storeys and will include a shared basement carpark. The lot is located in the Canterbury-Bankstown Council (Council) Local Government Area (LGA).

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

- *Canterbury Local Environmental Plan (CLEP) 2013; and*
- *Canterbury Development Control Plan (CDCP) 2012.*

Consideration has also been given to the following supplementary documents in the preparation of this WMP:

- *Better practice guide for Resource Recovery in Residential Developments (NSW EPA, 2019).*

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 construction and operational phases for the development. The WMP addresses waste generation and storage associated to the excavation, construction and ongoing occupation of the proposed development.

The *CDCP (2012)* outlines the following waste management objectives which include:

O1 To ensure that facilities for handling, storage, collection and disposal of waste are incorporated into all development and are compatible with the design of the development.

O2 To encourage the reduction in the generation of waste and maximise reuse and recycling of building/construction materials, household generated waste and industrial/commercial waste through:

- Practical building designs and construction techniques;
- Design and location of waste facilities, that will assist waste and recycling collection and management services offered by Council and private contractors; and
- Waste facilities that are easy to use for occupants.

2 Background

2.1 Description of Proposed Development

The proposed development site is identified as DP 30778 in the CLEP (2013). The site is located at 165 Milton Street, Ashbury, and will establish a medium density residential area comprised of five main buildings:

- A – 13 x terraces;
- B – 5 storey building featuring 38 units;
- C – 6 storey building featuring 38 units;
- D – 21 x terraces; and
- E – 28 x terraces.

The lot will feature:

- 138 residential dwellings (mix of terraces and units);
- Single level of shared basement parking across the site
- Basement loading dock;
- Common open spaces;
- Communal Gym; and
- Waste storage and recycling areas.

The proposed development is situated in a largely residential precinct and is located approximately 1km from Ashfield train station and Ashfield mall.

2.2 Location

The proposed development site is located at 165 Milton Street Ashbury. The site is accessed by Milton Street and is bordered to the East and South by residential dwellings. The north of the site is currently light industrial warehousing which forms part of the High Density Residential Rezoning. To the west of the site is the W H Wagener Oval.

Figure 1 depicts the site in relation to surrounding roadways and land uses.

Figure 1: Aerial image of the site and surrounds

Source: Nearmap, 2021.

2.3 Zoning and Use

The site is zoned as R4 – High Density Residential in the CLEP, having been previously rezoned from IN2 – Light Industrial. The site is currently undergoing preparation works and is largely cleared of all previous buildings. Zones surrounding the site include RE1 – Public Recreation and R2 – Low Density Residential.

2.4 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, SJB Architects (21th January 2022);
- The CDCP (2012) outlines waste generation rates and services available for new developments which 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 Waste Management

Construction activities at the site will generate a range of construction related 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 recovery.

Waste storage during construction operations will involve some stockpiling of reusable material, as well as the use of skip 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. Skip 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 (Appendix A) shall be designated by the demolition and construction contractor and shall be sufficient to store the various waste streams expected during operations. Waste storage areas will be kept clear to maintain vehicular access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons.

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 Construction

Construction works would include the following:

- Excavation of a single level basement for parking and ancillary services;
- Construction of five main building structures including terrace housing and residential flat buildings; and
- Sitewide landscaping.

Table 1 outlines indicative volume to weight conversion factors for common construction materials.

Table 1: Building waste material by percentage and conversion factor for volume and weight

Building waste material	Tonnes per m^3	Waste as % of the total material ordered
Brick	1	5-10%
Concrete	2.4	3-5%
Tiles	0.75	2-5%
Timber	0.5	5-7%
Plasterboard	-	5-20%
Metal	2.4	-

Source: Parramatta Waste Management Plan Application Template 2017.

Table 2 outlines the expected construction waste quantities to be generated at the site, in addition to the appropriate management methods for each material type.

The information below presents multiple options for materials reuse, recycling and disposal where applicable (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to landfill if contaminated).

Table 2: Construction waste generation estimates

Type of waste generated		Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Excavation material		39,000m^3	✓	-	-	On site: testing (if necessary) for contamination and stockpiling of material for reuse as fill material. C&D processor: reuse/recycling of VENM and ENM Landfill if contaminated.
Concrete		400-500m^3	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D processor: crushing and recycling for recovered products (aggregates).
Bricks/pavers		10-20m^3	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Tiles	Roof	N/A	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
	Interior	5-10m^3	✓	✓	-	
Timber (engineered/ treated)		<5m^3	-	✓	-	On site: to be separated wherever possible to enhance resource recovery.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
					Reuse: surplus and offcut material returned to manufacturer for reuse. C&D processor: recovery and recycling for recovered product (e.g. mulch) or organics processing.
Metals (ferrous and non-ferrous)	<5m^3	-	✓	-	Onsite: to be separated wherever possible to enhance resource recovery. C&D processor: metals recovery and recycling.
Plasterboard	10-20m^3	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse.
Glass	5-10m^3	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. Glass recycler: recovery and recycling.
Fixtures and fittings	<5m^3	✓	✓	-	On site: reuse wherever possible or return to manufacturer. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Floor coverings	<10m^3	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Packaging (used pallets, pallet wrap)	50m^3	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D processor: recycling of timbers and plastic.
Garden organics (Vegetation)	5-10m^3	✓	✓	-	Minimal garden organic waste from landscaping. Organics processor: storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment.
Paper/cardboard	50m^3	-	✓	-	Commercial contractor: segregation of paper, cardboard or other streams.
Residual waste (general refuse)	50-100m^3	-	-	✓	Separate recyclables where possible and disposal at principal licensed waste facility.
Hazardous/special waste (e.g. spills and contaminated wastes)	Unknown	-	-	✓	Management by a licensed asbestos and site hygienist should hazardous or special waste be found at the site.

3.2 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 3: 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: • Aussies Skips; • Bingo Bins; • Freddy Skip Bins; and • Orange Skip Bins. 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: • Gow Street Recycling Centre (Padstow), • Bingo Auburn, Or another appropriate facility as elected by the waste management contractor.
Principal Licensed Landfill Site	Kelso Landfill, or other appropriate facility as elected by the waste management contractor.

3.3 Site documentation

This WMP will be retained on-site during the excavation and 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 Use & Ongoing Waste Management

Waste management strategies related to site operations have been established according to the documents outlined in the CDCP. Waste generation for the operational phase of the development will be addressed in applying waste generation rates outlined in Section 4.1. Equipment requirements are addressed in Section 4.2. Site waste management responsibilities and management methods have been outlined in Section 5.

For the purposes of this WMP, the following bin dimensions are used:

Table 4: MGB capacity and footprint

Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m^2)
240	1,080	735	580	0.43
660	1,250	850	1,370	1.16
1,100	1,470	1,245	1,370	1.71

Source: Better practice guide for resource recovery in residential developments (2019).

4.1 Waste Generation

The CDCP specifies 660L bins which are appropriate for the waste volumes generated and bin storage areas allocated for the development. Advice provided by Council suggests that 1,100L bins will reduce collection times and are appropriate for the proposed development. The waste generation rates for the site are outlined in Table 5 below:

Table 5: Bin Allocations for residential flat buildings

Waste Stream	Bin Allocation
General Waste	1 x 660L bin per six units, plus one bin for any three units over
Recycling	1 x 660L bin per eight units, plus one bin for any four units over
Garden Vegetation	1 x 240L bin per five units, plus one for any 1-4 units over (maximum 12 bins)

It is noted that landscaping at the site will be maintained by an external contractor who will remove all vegetation waste from ongoing maintenance activities. In addition, since the proposed development is for a multi-unit dwelling complex, it is unlikely that a high quantity of garden waste will be produced due to the small amount of private garden space and therefore, no garden waste bins will be retained at the site.

4.2 Storage Requirements

Temporary Waste Storage

Each dwelling must have sufficient space provisioned for the storage of one days' waste generated. This includes separate receptacles for general waste and recycling. Typically, this is located in the kitchen of the dwelling.

Building Waste Storage

Waste chutes servicing each building will terminate in the basement level into 1,100L bins on a two-bin linear track. This provides at least 3 days' worth of waste storage under each chute which would be managed by site cleaners.

All residential floors will have access to 2 x 240L recycling bins on each level which will be sufficient for the storage of up to 3 days' worth of recycling per floor. 240L recycling bins would be managed by site cleaners and decanted into larger 1,100L bins stored in the loading dock bin hold for collection. In future, should food organic and garden organic (FOGO) services become available to the site, a FOGO bin could be provided on each level or otherwise provided in common basement level storage areas for the disposal of food waste.

From the above requirements and expectations, the following site-specific bin requirements have been derived (Table 6).

Table 6: Bins required for weekly waste generation

Building	Residential Dwellings	General Waste (1,100L)	Recycling (1,100L)	Garden Waste (240L)
Building A	13	2	1	12 (for the site, if necessary)
Building B	38	4	3	
Building C	38	4	3	
Building D	21	2	2	
Building E	28	3	2	
Total	**138**	**15**	**11**	**12**

Council's waste contractor will service the residential component of this development. The service frequency will be as follows:

- General Waste: Weekly
- Recycling: Weekly
- Garden Waste: Fortnightly

Bulky Waste

Additional provisions for the storage of bulky waste items is required. Canterbury DCP stipulates an area of 4m^2 per residential flat building for the temporary storage of bulky waste.

The frequency of collection must be considered in space allocation for bulky waste. The waste caretaker will be responsible for arranging timely bulky waste collection by council, or a private contractor. The spaces will be managed to avoid overspill into space required for manoeuvring and access. Properly managed and maintained, the bulky waste storage areas for each building will be able to store more than a months' worth of bulky waste.

Prior to collection of bulky waste, site cleaning staff will transfer bulky waste material from each building bulky waste store to the main loading dock. The bin hold designated on site plans will be utilised to temporarily store bulky waste prior to collection, which would be scheduled to occur on a different day to regular general waste and recycling bin collection days to avoid excessive bins being stored in the bin hold.

4.2.1 Bin Hold Requirements

The site will have a central bin hold and several smaller chute rooms for the discharge of general waste (see Figure 2 for typical chute and recycling cupboard per residential level). Table 7 outlines the number of general waste bins that would be required to service a weeks' worth of waste from all buildings while Table 8 outlines the number of recycling bins required to be stored to decant all recycling waste generated across the site through a week.

Table 7: General Waste Bin Requirements

Building	Number of Bins (1,100L)	Approx. Bin Footprint
A	2	4m^2
B	4	8m^2
C1	2	4m^2
C2	2	4m^2
D	2	4m^2
E1	2	4m^2
E2	2	4m^2
Total	**16**	**32m^2**

Note: *Only two general waste bins would be stored in each chute room at any time while under the chute, in the linear track system. Spare bins would be retained in the loading dock bin hold for changeover as general waste bins become full.*

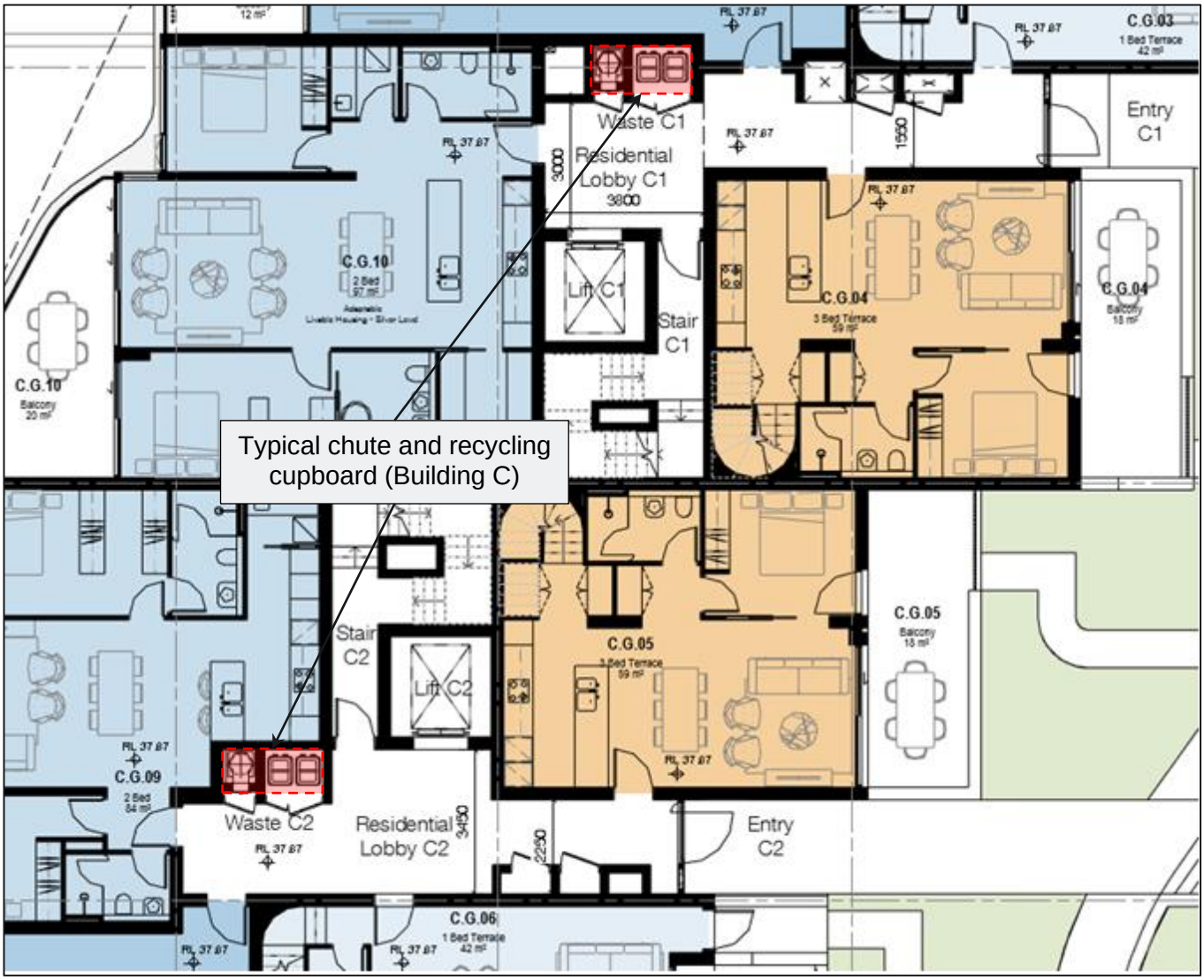
Table 8: Recycling Bin Space Requirements

Building	Number of Bins (1,100L)	Approx. Bin Footprint
A	1	2m^2
B	3	6m^2
C	3	6m^2
D	2	4m^2
E	2	4m^2
Total	**11**	**22m^2**

Note: *240L recycling bins would be provided on each residential level. 1,100L recycling bins would be retained in the loading dock bin hold for decanting of smaller 240L bins and collection.*

**Each residential level for buildings would have access to 2 x 240L recycling bins for the disposal of recycling by residents. These bins on each level can also be utilised for FOGO if/when services become available through Council.*

Figure 2: Typical chute and recycling bin cupboard (example building C)



Source: SJB, 2022.

4.2.2 Waste Storage and Recycling Area Provision

The loading dock is sufficiently sized for a collection vehicle to enter across the turntable and for the required bins to be stored temporarily prior to collection.

The waste management and storage areas proposed for the site fulfil waste management requirements, facilitating safe access and manoeuvring of all bins and equipment. The site waste management areas will be enclosed and concealed from general view to maintain site amenity while also reducing the risk of windblown litter, vandalism and illegal dumping.

Actual space provided for each waste storage area is outlined in Table 9 and as show on site plans in Appendix A.

Table 9: Actual waste storage area provision

Location	Actual bin storage space	Bulky waste storage space	Total available space
A	18m^2	6m^2	24m^2
B	17m^2	9m^2	28m^2
C1	15m^2	7m^2	22m^2
C2	15m^2	8m^2	23m^2
D	14m^2	7m^2	21m^2
E1	15m^2	7m^2	22m^2
E2	18m^2	5m^2	23m^2
Additional Recycling		9m^2	

5 Waste Management Systems

5.1 Collection method and loading areas

Council's waste contractor will be the waste service provider for the site and will utilise a rear loading Heavy Rigid Vehicle for waste collection. The collection point for the site is located in and areas for handling and loading are as follows:

- Collection and loading will occur at the loading dock which accessible via Milton Street;
- The loading dock will be in the basement, with appropriate space for a waste truck to enter and turn on the loading dock turntable;
- Clear, safe, accessible and convenient space for handling of MGBs and equipment and loading of collection vehicles; and
- Identifiable areas where residents, visitors and site staff can recognise and avoid any risk associated with moving vehicles, and bin moving and handling.

Table 10 outlines relevant specifications.

Table 10: Collection point and loading area specifications

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 the loading dock is assisted by the installation of a vehicle turn-table due to the floor space restriction; - Adequate loading bay dimensions do not impede rear lift clearance; - Operational clearance for truck manoeuvring in a forward direction in and out of the loading bay; and - The provision of space clear of vehicle parking spaces.
Operating times	Appropriate collection times to limit noise and traffic disturbance	- Collection times will be arranged to ensure minimal disturbance to residents, pedestrians and visitors.

The main loading dock bin storage area will be utilised for the storage of full bins prior to collection. Trucks will access the basement level via the ground floor ramp, where the waste caretaker will position bins for collection.

5.1.1 Turntable

The loading dock will be installed with a turntable capable of manoeuvring a HRV in accordance with the Australian Standards. If the automatic turntable is inoperable for any reason, there will be a manual override function that can be operated by the building manager to ensure access to the loading dock is still applicable for waste collection (and other heavy) vehicles.

5.1.2 Bin Tug/Trailer

The site waste caretaker will utilise a bin cart or tug (see Appendix B for examples) to transfer bins between building waste storage areas and the central loading dock. The bin tug/trailer will reduce the need for excessive manual handling, and will allow for quick and efficient transfer of bins across the basement level.

5.1.3 Bin Hoists

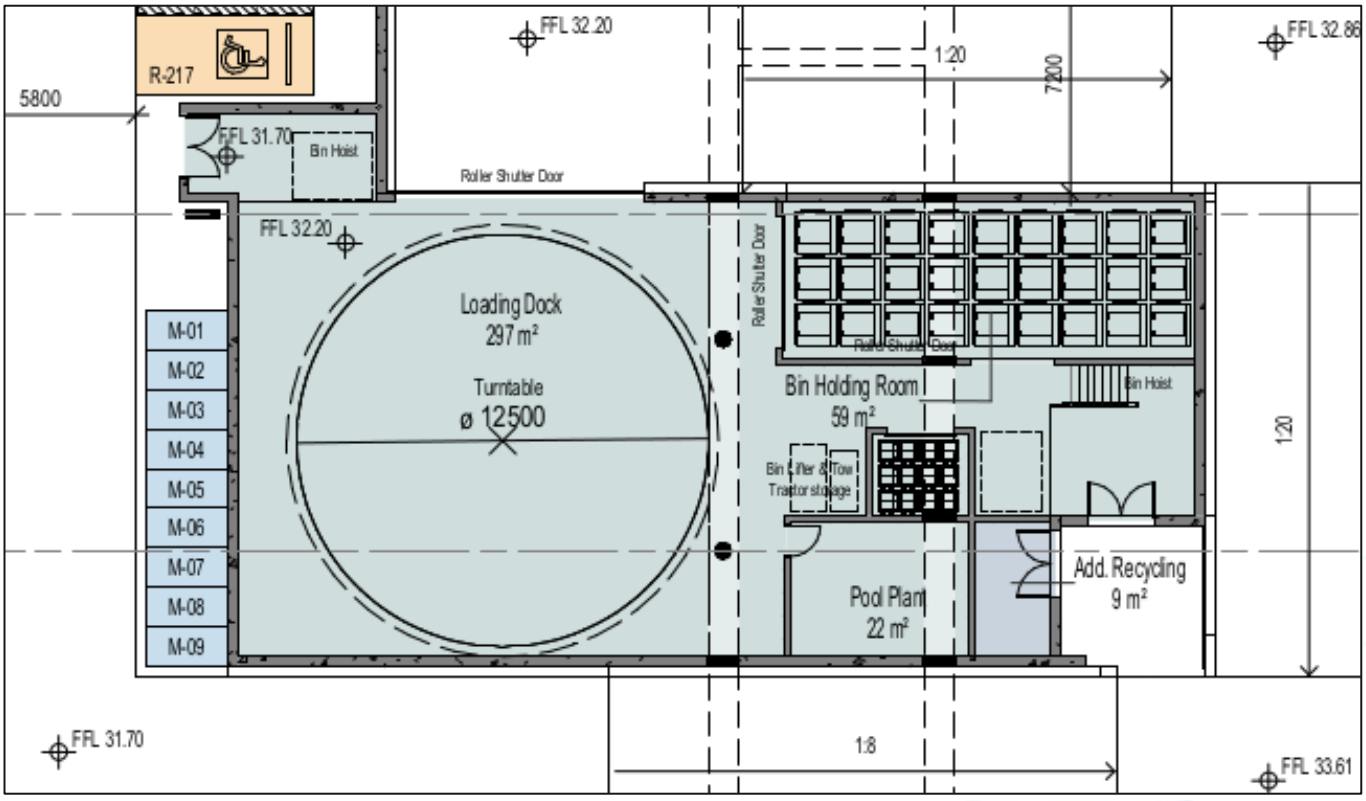
Two bin hoists are located at the northwest and southeast ends of the proposed loading dock and would enable bins to be hoisted up/down, to and from the loading dock level without the need to access the main roller doors. Bin hoists also allow bins to be transferred over a shorter distance than if transferring all bins via the main loading dock roller doors.

The developer is expected to cover the maintenance cost of the proposed bin hoists for a 3-year period, commencing from operation of the site and loading dock facilities.

5.1.4 Bin Lifter

A bin lifter will also be utilised to decant 240L recycling bins into larger MGBs for collection. The proposed bin tug/trailer and bin lifter will be kept in the loading dock for ease of access to the main bin hold and collection point (see Figure 3).

Figure 3: Loading dock and associated waste management infrastructure



Source: SJB, 2022.

5.2 Resident waste disposal and recycling method

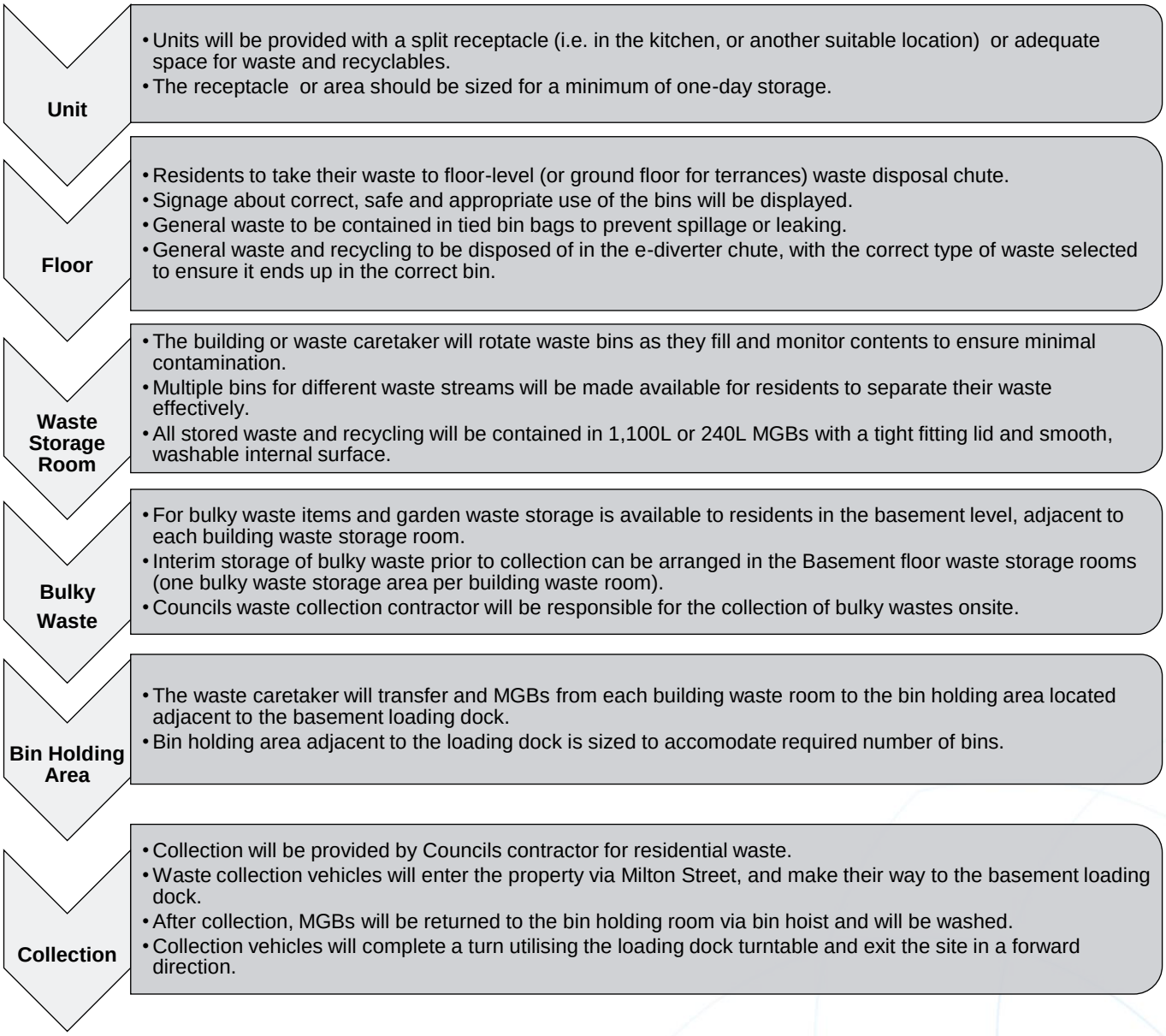
Residents will dispose of their waste in one of two ways, depending on the type of dwelling they live in:

- Residents in RFB dwellings associated with buildings B and C will deposit their waste in a general waste chute inlet or recycling bin provided on each level.

- Residents in a terrace associated with buildings A, D and E will take their waste to the waste chute inlet and recycling bin cupboard associated with the building, provided on the ground floor.
- All residents will have access to their associated building waste room located on the basement level to dispose of garden waste or bulky waste in the bulky waste storage room adjacent to the main building waste room.
- Bulky waste rooms are sized to cater for the management of additional waste streams as outlined in Section 5.6, and may be available to residents.

The flow of waste goes from unit generation to collection through several steps (Figure 4).

Figure 4: Residential waste flow



5.3 Management System and Responsibilities

Building management and the site waste caretaker 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, the waste caretaker will inform management. Operation of the waste management system is the responsibility of building management and the waste caretaker. 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, visitors and site staff about waste management procedures;
- Collection of waste from ground floor ancillary services in a mobile waste management/janitor trolley, for direct disposal into designated bins retained in ground floor bin storage area;
- Manoeuvring bins to specified onsite collection point prior to and following scheduled collection of waste bins;
- Organising, maintaining and cleaning waste management areas as part of a regular maintenance schedule;
- Maintenance of equipment and infrastructure for waste where possible (within the means of staff);
- Organising the relevant waste contractor for additional maintenance or waste management for the site (including bulky waste);
- 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 Waste Storage and Recycling Area Specifications

The WSRAs will provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. Each WSRA will be constructed to improve amenity, minimise odour, protect surrounding areas and promote user safety. WSRA specifications include:

- Signage for safety and waste bin identification;
- Safety precautions, staff training and signage for plant;
- Noise attenuation for waste management and WSRAs that limits effects to residents from compactor, bin transfer and collection vehicle noise;
- Floors constructed of concrete or other approved solid, impervious material that can be cleaned easily;
- Grading and draining to an approved drainage fitting located in the room;
- A smooth, even floor surface covered with vertical wall and plinth faces;
- Doorway ramp (if not level);
- Light colour finish for all room surfaces;
- Adequate supply of water with hose cock as close as practicable to the doorway;
- Close-fitting and self-closing doors large enough to facilitate access of up to 1,100L bins and bulky waste items (approximately 1.4m double doors provided for each waste room) – depth of an average 1,100L bin is no more than approximately 1,250mm (NSW EPA, 2019) and therefore, double doors proposed would be sufficient to accommodate the largest bins proposed;
- Suitable construction including limited entry paths to prevent vermin;
- Ventilation through permanent unobstructed ventilation (5% of floor area) or mechanical exhaust ventilation system (5L/s per m^2 of floor area); and
- Security and lighting.

5.5 Bulky Waste Storage

Sufficient space has been provisioned for the storage of bulky waste items as part of the waste management system for residents. Bulky waste storage areas have been provided on the basement level, adjacent to each building chute room to facilitate appropriate management of these wastes. Management and access of the bulky storage room will be the responsibility of building management and/or the site waste caretaker.

The room provisions for the storage of bulky items (such as mattresses, whitegoods and furniture). Educational materials for sorting may be provided to residents to promote resource recovery, waste minimisation and appropriate disposal.

5.6 Additional Waste Streams

A separate recycling room has been provisioned adjacent to the loading dock of approximately 9m^2. This space will be utilised for the management of alternative waste stream management as provided by Canterbury Bankstown Council and may include (but are not limited to) the following:

5.6.1 Container Deposit Scheme (CDS) eligible materials

Recyclable containers eligible for the NSW EPA's "Return and Earn" container deposit scheme can be collected separately to commingled recycling. Reverse Vending Machines (RVMs) accept these containers and issue refunds through retail vouchers (to spend or swap for cash), online into a PayPal account, or donated to a selected charity. Management may like to install a Reverse Vending Machine for customers and residents to utilise. Collected CDS materials are collected from the RVM by Cleanaway trucks.

5.6.2 E-Waste collection

This can be either an on-call service or scheduled collection depending on the need. On call collections generally take 1-2 weeks until collection. The bins supplied are standard blue 660L bins with an education sticker and phone number. Collection is completed via a Pantech and the bins are swapped at time of collection.

5.6.3 Clothing bins

This is an on-call service with a call being made when the bin is nearly full. Collection generally takes 2-3 days from the date of call. The bins supplied are cage bins with an education poster and hold approximately 100 kgs of fabric. Collection is completed via a van which and the cages can be swapped at time of collection (see https://clothingcleanup.com.au/).

5.6.4 Polystyrene, soft plastic, and bulk cardboard collection

Source separation of polystyrene, soft plastics and bulk cardboard can be done with dedicated bulk bins or cages. The cages have 400L capacity and are supplied with an education message and 400L bins to collect the polystyrene and loose plastic. 1,100L bins can be supplied for the separation of cardboard.

5.6.5 Mattress Collection

This service is provided as an on-call service when required. Soft Landing is a leading social enterprise in Sydney, providing collection and resource recovery services for mattresses. Bookings can be made online or by phone.

5.7 Signage and Education

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia 1994, Figure 2 and 3).

Signage is designed to consider language and accessibility (i.e. to be understood as clearly as possible by those with different abilities of vision, knowledge of the English language, intellectual ability and with other conditions). Signage is to be prominently posted in each WSRA and relevant waste service area indicating:

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

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

5.8 Prevention of Pollution, Illegal Dumping and Litter Reduction

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

- Maintenance of communal areas and the WSRA;
- 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);
- Acting 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 Building Codes Board (2016) National Construction Code (NCC).

Blue Environment (2020) Australian National Waste Report.

Canterbury-Bankstown Council (2013) Canterbury Local Environmental Plan. NSW legislation.

Canterbury-Bankstown Council (2012) Canterbury Development Control Plan.

Department of Environment and Climate Change (2008) NSW Model Waste Not DCP Chapter.

Department of Environment, Climate Change & Water (2010) House deconstruction fact sheet: Bricks and concrete removal.

Department of the Environment (2016) Working together to reduce food waste in Australia, Australian Government.

Environment Protection and Heritage Council (2009) National Waste Policy: Less Waste, More Resources. Available at: http://www.nepc.gov.au/system/files/resources/906a04da-bad6-c554-1d0d-45216011370d/files/wastemgt-rpt-national-waste-policy-framework-less-waste-more-resources-print-ver-200911.pdf.

NSW EPA (2016) Recycling Signs, Posters and Symbols. Available at: http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm.

NSW EPA (2019) NSW Better Practice Guide for Resource Recovery in Residential Dwellings,

Standards Australia (1994) AS 1319: Safety signs for the occupational environment, Homebush, NSW: Standards Australia.

Standards Australia (2008) AS 4123 Mobile waste containers.

WorkCover (2011) Managing Work Environment Facilities Code of Practice.

Appendix A Site Plans

Figure 5: Proposed site plans (Basement)

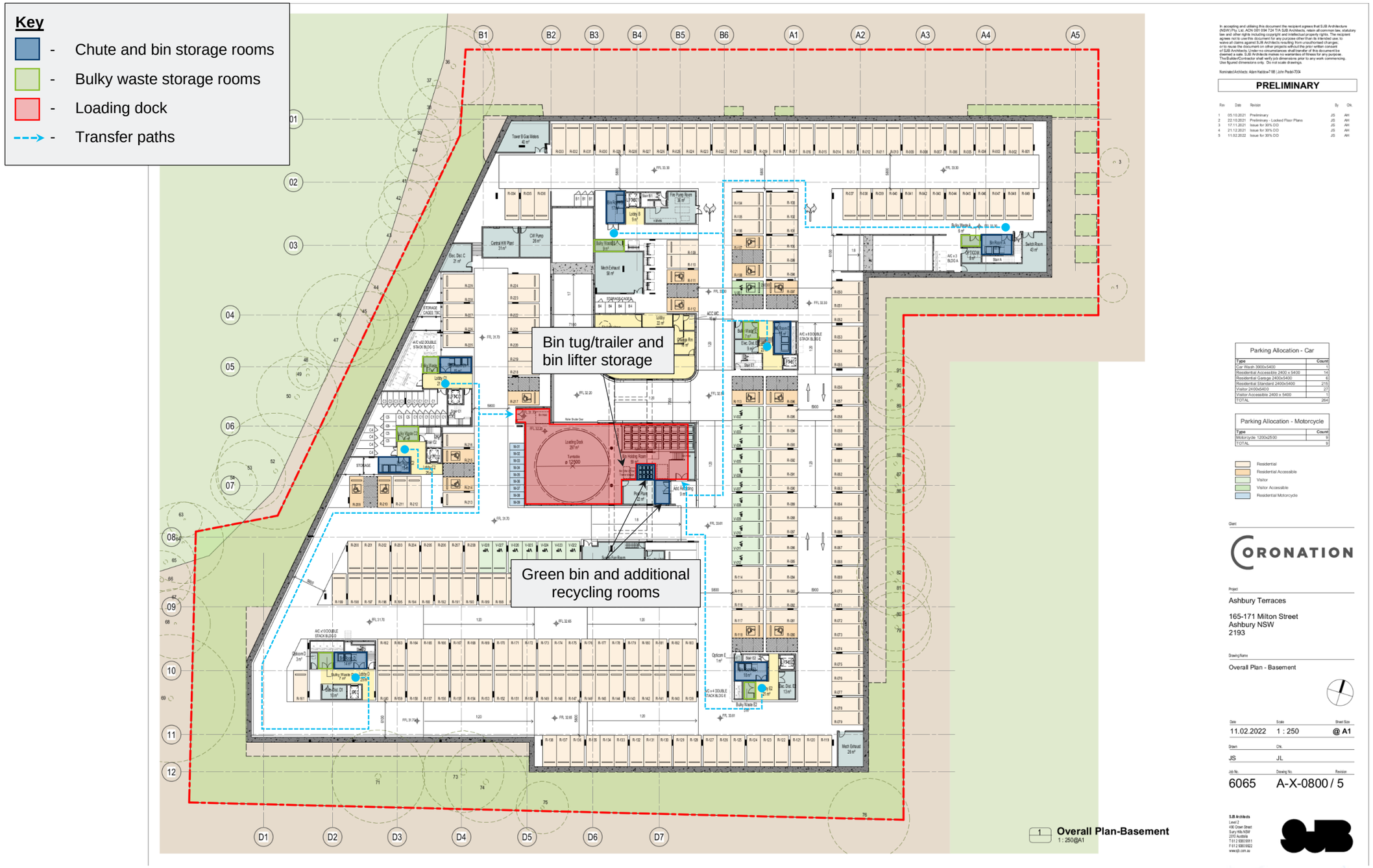
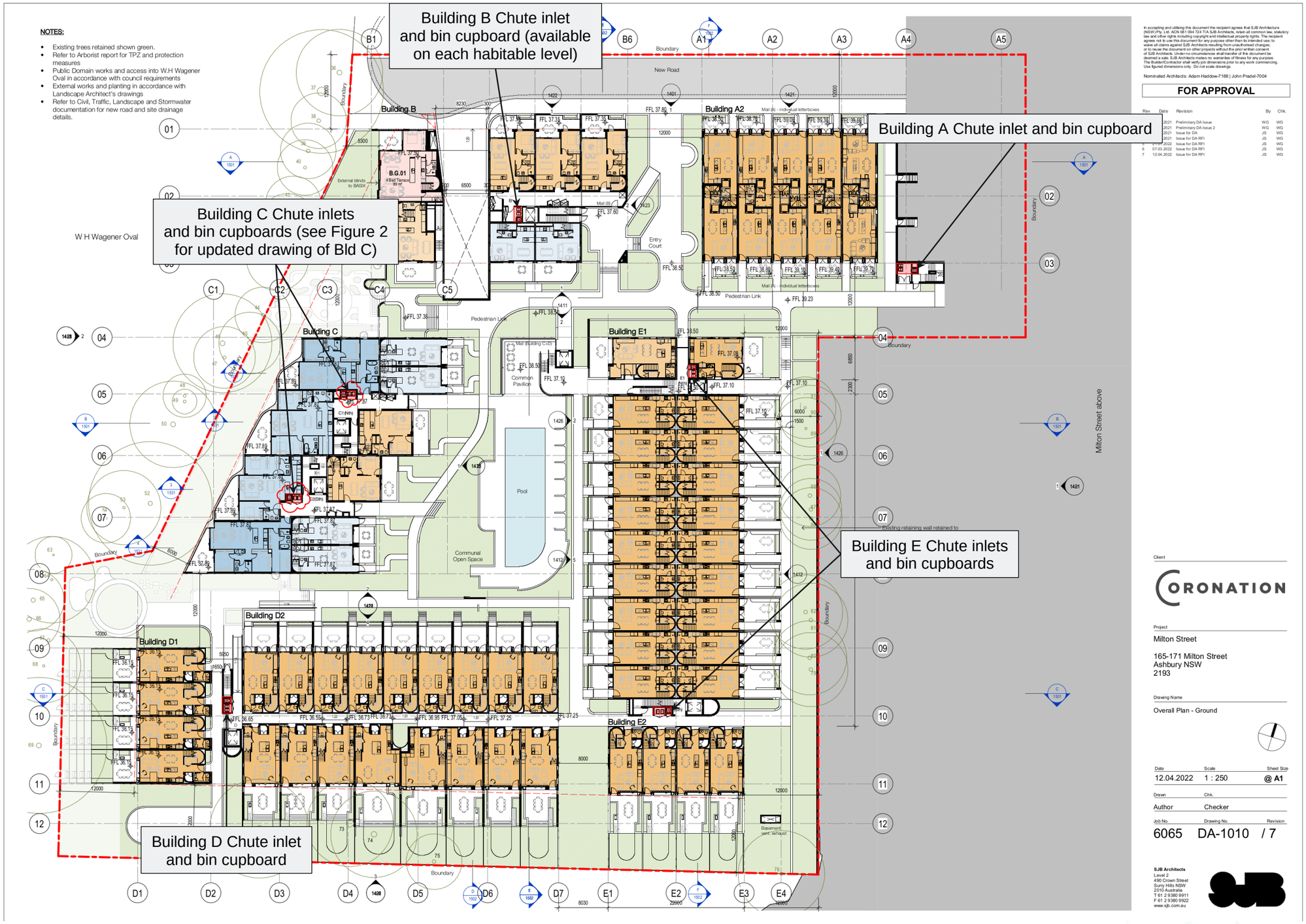


Figure 6: Proposed site plans (Ground floor)

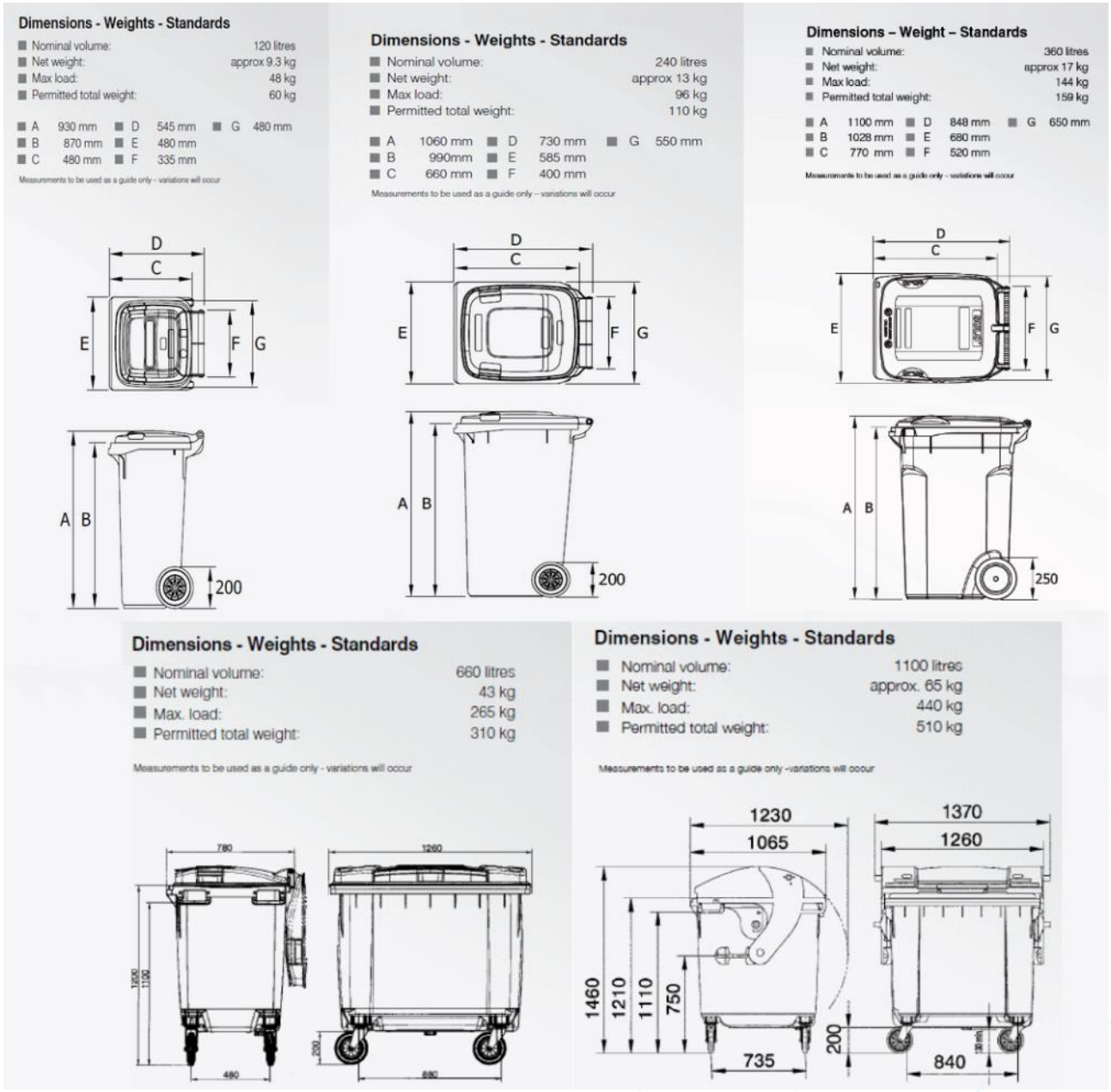


Appendix B Waste Handling Equipment Examples

This OWMP proposes the use of MGBs (rear-lift) and/or bulk (front-lift) bins. Each bin type is specific to each store as the bin size will impact on the vehicle access requirements. This section outlines the dimensions of each bin type. Some bin types below are not in the recommended bin types throughout the OWMP, but may be useful for planning purposes should other options be preferred.

Rear-lift wheelie bins are ideal for sites with limited restrictions like specialty retail and small offices. Lightweight and easy to manoeuvre, these small-sized containers are easy to use and can be secured with lockable lids.

Figure 7: Rear-lift mobile bins (120L, 240L, 360L, 660L & 1,100L)*



**Sizes may vary with manufacturer or supplier.*

Figure 8: Bin tipper example

The Dumpmaster MegaDumper is a double width bin tipper used to empty bins from floor level effortlessly with the simple push of a button. They are the safe alternative with no bending or lifting required by the operator. Bins are raised vertically, then gently rolled forward when they are at the right height. This design uses a minimum of space, and is much safer than tippers that rotate the bin around a fixed pivot point. The bin and cradle come down by gravity alone, which increases safety. Simply wheel the bin onto the cradle, close the safety gate and press the "up" button. When the bin has emptied, press the "down" button. There is no need to strap or clamp the bin. Stop the machine at any time by taking your finger off the button. The MegaDumper has four castors for total maneuverability. The front two castors have brakes that lock both the wheel and swivel mechanism.

Model:7802552

* Cradle: Designed to lift 2 x 240 Litre Bins, 1 x 660 Litre Bin or 1 x 1100L Bin
* Tipping Height: 1800mm
* Length: 1342mm
* Height: 3455mm
* Capacity: 600kg
* Power: 3-phase (4 pin 20A 56series plug)
* Compliant with CAT1 requirements
* IP65 electrical enclosure and AS/NZ3000 (electrical wiring)
* Standard metal guarding
* Galvanized mainframe and cradle
* Gas strut assisted lift-up door with dual electrical interlocks
* 200mm heavy duty castors

Figure 9: Waste transport tug/cart examples

CUSHMAN

MODEL: TITAN XD (4 PASSENGER)
TYPE: ELECTRIC 48 VOLT INDUSTRIAL BURDEN CARRIER
MODEL YEAR: 2019
Part No:. 671549

PRODUCT SPECIFICATION

CONFIGURATION HIGHLIGHTS

- Solid state continuously variable AC speed controller for increased efficiency
- Dash mounted multi-function display for SOC, speed, and hour meter
- 15.3 ft² of weather proof cargo deck, easily removable for service
- Fold down rear seat for added cargo or passengers
- Four wheel hydraulic brakes with Intellibrake
- E and EE type rating availalble

Battery Charger:	1000 Watt, 48VDC, 120/240 VAC 60/50 Hz. UL Listed
Motor:	48 Volt AC induction, solid copper windings. Non vented 16.8 hp (12.5 kW) (Peak)
Drive Train:	Direct motor shaft connected to transaxle pinion shaft
Electrical System:	48 Volt DC, eight, 6 volt deep cycle batteries (115 minute minimum @ 75 amps, 225 amp-hour @ 20 hr. discharge rate)
Transaxle:	Differential with helical gears
Brakes:	Front hydraulic disc brakes. Rear wheel hydraulic 160mm self-adjusting drum brakes. Intellibrake automatic parking brake
Cargo Bed:	Weather proof deck board, 75 in x 41 in (191 x 105 cm). Removable for access to powertrain.
Capacity:	Seating for 4 persons, 3000 pound vehicle capacity

PRODUCT OVERVIEW

Dimensions	
Overall Length	114.0 in (290 cm)
Overall Width	44.5 in (113 cm)
Overall Height (Steering Wheel)	47.5 in (120.6 cm)
Overall Height (Optional Cab)	72.0 in (183 cm)
Wheel Base	67 in (170 cm)
Front Wheel Track	38 in (96.5 cm)
Rear Wheel Track	38 in (96.5 cm)
Gnd Clearance @ Differential	4.75 in (12.1 cm)
Cargo Deck Width	41.5 in (105 cm)
Cargo Deck Length	53.5 in (136 cm)
Cargo Deck Load Height	29.0 in (74 cm)
Cargo Deck Material	Weather proof deck board

Vehicle Power	
Power Source	48 Volts DC
Motor Type	AC Induction
Horsepower (kW)	16.8 HP (12.5 kW) Peak
Electrical System	48 Volt
Batteries (Qty, Type)	Eight, 6 Volt Deep Cycle
Key or Pedal Start	Pedal Start
Battery Charger	48V On-Board, 120/240 VAC UL
Speed Controller	450 Amp AC
Drive Train	Motor Shaft Direct Drive
Transaxle	Differential with Helical Gears
Gear Selection	Dash Mounted Forward-Neutral-Reverse
Rear Axle Ratio	17:1

Performance	
Capacity	4 Persons
Dry Weight	1225.0 lb (560 kg) (Without Batteries)
Curb Weight	1720.0 lb (780 kg)
Cargo Deck Load Capacity	2200 lb (998 kg)
Vehicle load capacity	3000 lb (1361 kg)
Outside Clearance Circle	21.25 ft (6.47 m)
Intersecting Aisle Clearance	84.0 in (213 cm)
Speed (Level Ground)	Haul Mode: 14 mph ±.5 (21 kph ± 0.8) Tow Mode: 5 mph ± .5 (8.1 kph ± .8)
Drawbar	211 lb (96 kg) Normal, 1015 lb (460 kg) Max
Towing Capacity*	8000 lb (3628 kg)

Steering & Suspension	
Steering	Rack and Pinion
Front Suspension	Independent, Transverse Leaf Spring, Shocks
Rear Suspension	Leaf Springs & Shock Absorbers
Service Brake	Front hydraulic disc, Rear hydraulic drum
Parking Brake	Intellibrake Automatic Parking Brake
Front Tire	5.70 x 8 (Load Range C)
Rear Tires	5.70 x 8 (Load Range C)

Body & Chassis	
Frame & Body	Welded steel with DuraShield™ powder coat
Body & Finish	Diamond plate ptn. Polyester primer + acrylic
Standard Color	Yellow

Noise & Vibration	
Noise	Sound pressure; continued A-weighted =/< 70 db(A)
Vibration, WBV	Highest RMS value of weighted acceleration is less than 2.5 m/s²
Vibration, HAV	Highest RMS value of weighted acceleration is less than 2.5 m/s²

Measurement methods were applied per the ISO 2631 and ISO 5349 standards under conditons of typical vehicle surfaces.

2013 Titan XD (4 Passenger)
Released: 01/20/2013
Revised: 07/14/2017

Specifications are subject to change without notice
* Field installed accessories may require installation charges

1 of 2

The powered tug specification sheet

Move trolleys and equipment safely by maximising forward vision, reducing the risk of collisions and the risk of back and side strains.

		Tug Compact	Tug Evo 1T	Tug Evo 2T	Tug Classic 3.5T
Features	**Tug capacity**	500 kg	1000 kg	2000 kg	3500 kg
	Max. pulling force	20 kg	40 kg	80 kg	160 kg
	Speed mode	Three speed settings			
	Max. speed	up to 5 km/h	up to 5 km/h	up to 5 km/h	up to 4 km/h
	Dimensions (W/L/H)	610/1100/985 mm	610/1480/852 mm	610/1480/852 mm	740/1550/750 mm
	Unit weight	130 kg	140 kg	160 kg	320 kg
Motor	**Power (watts)**	250	250	400	375
	Voltage (V)	24			
Batteries	**Technology**	MK-Gel			
	Amp-hour	26	42	42	42
	Voltage (V)	12			
	No. of batteries	2			

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Electrodrive

Appendix C Standard Signage

Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW Office of Environment and Heritage (NSW OEH 2008b).

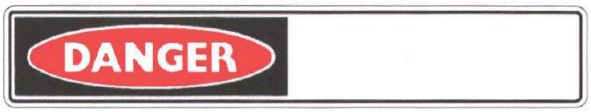
Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details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

Figure 10: Examples of standard signage for bin uses

Safety Signs

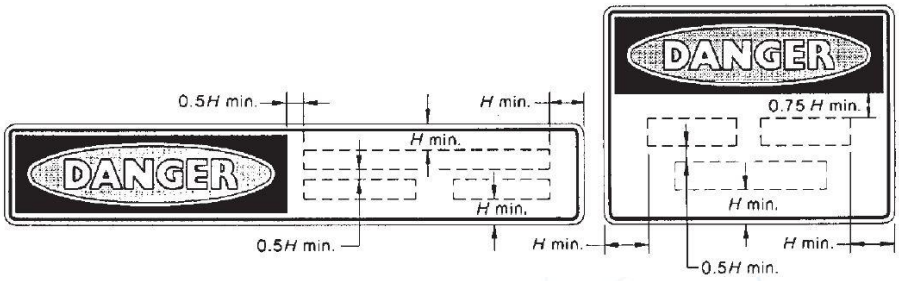
The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. 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.

Figure 11: Example and layout of safety signage



(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



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