

PLANS AND DOCUMENTS
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DEVELOPMENT APPROVAL

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ttm



Operational Waste Management Plan

Proposed Commercial Development

At Albert Street Cross River Rail

On behalf of CRR Albert Street Pty Ltd (CAN 660 319 693) as
trustee for CBR Albert Street Trust



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Revision Record

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Executive Summary

This document is an Operational Waste Management Plan (OWMP) developed for a proposed commercial development to be located at 83-109 Albert Street, Brisbane.

The purpose of the OWMP is to provide compliance and design information relating to the handling, storage, and collection of refuse within the proposed development. Compliance relates to alignment with the relevant section (2,3 and 5) of Brisbane City Council's (BCC) Refuse Planning scheme policy and complies with A063 Point 1 and 2 of the 9.3.3 Centre Mixed Use Code. The content of the OWMP is written with the purpose of providing a guide for the design, construction, and operational phases of the development and therefore may be updated to include detailed information as required for each phase.

Greenstar rating has been considered when preparing this OWMP. This includes additional separation of refuse streams. It should be noted that Greenstar utilises the City of Sydney Waste Generation Rates, these rates are not accepted by Brisbane City Council, who use an un-verified/audited set of rates to formulate the refuse generation

- Proposed bins and equipment:

Commercial	Bin Requirements	Services Per Week
General Waste	25 x 1100L bins	3 Collections Per Week
Food Waste	6000L Tank / Equivalent System	3/4 Collections Per Week or 7 Per Fortnight
Commingled Recycling	10 x 1100L bins	3 Collections Per Week
Cardboard	3 x 1100L bins / equivalent bales	3 Collections Per Week
Secure Destruct Paper	61 x 240L bins / or 1 per office tenancy	1 Per Week / Ad-Hoc

Equipment	Comments
6000L Food Waste Processing System	Specific Systems have not been purchased. "Standardised Sized" equipment has been used to provide design for the Refuse Room.
Cardboard Baler	
Cooking Oil Tanks	
Bin Wash Area	
Weight Scales	

- Refuse collection:
 - All collections will be conducted onsite.
 - RCVs will enter via Albert Street and navigate to basement 1.
 - Refuse collection is based on three collections per week for waste and recycling, and seven collections per fortnight for food waste (to reduce odours and amenity issues associated with the storage of food waste refuse).

- Refuse storage:
 - A refuse room has been provided on the basement 1. This room is of sufficient size to accommodate all required equipment and bins.

- Refuse transfer:
 - Minimal transfer is required, as all bins / equipment will be serviced directly from the retail bin room by the contractors.

- Refuse disposal:
 - Retail/Food and Beverage tenancies will be equipped with back-of-house bins for disposal of refuse at the end of day or when required directly into the bins provided in the refuse room.
 - Office areas will have bins provided around desk and kitchen areas. Staff and Cleaners will circulate the building to collect the waste and dispose of it directly into the refuse room.

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1 Introduction

1.1. Background

TTM Consulting has been engaged by CBR Albert Street Pty Ltd (CAN 660 319 693) as trustee for CBR Albert Street Trust to prepare an OWMP to support the proposed commercial development located at 83-109 Albert Street, Brisbane. It is understood that a Development Application (DA) will be lodged with Economic Development Queensland (EDQ). A Greenstar rating is also being sought for the project.

1.2. Scope

The content of this plan is intended to provide information in reverse order to the typical movement of waste streams from disposal to collection. Information about refuse disposal and disposal points is given for each use area within the development. The items covered within the report are explained in Table 1.1. The key information for Council approval can be found in Section 2.

Table 1.1: Scope Items

Item	Explanation
Refuse streams	Identification of refuse streams & anticipated development refuse volumes likely to be produced
Refuse separation	Recommendations for appropriate segregation methods for each refuse stream in accordance with Greenstar.
Refuse collections	Assessment of refuse collection vehicle (RCV) access and manoeuvring
Refuse storage	Detailed analysis of refuse storage facilities and design
Refuse transfer	Assessment of refuse transfer between refuse storage and collections areas
Refuse disposal	Recommendations for refuse disposal within the development
Refuse management equipment	Identification of recommended and optional refuse management systems and equipment
Refuse management operations	Recommendations for operational efficiency and ongoing management, including refuse minimisation, tenant education and safety
Building design	Recommendations for design of refuse management facilities

Detailed information including refuse calculations, site plans and drawings, recommended refuse management equipment and system specifications, common refuse signage as well as a list of terms and abbreviations are provided in the appendices.

The recommendations in this OWMP relate to the operational phase of the development. Additional requirements for refuse management during or after demolition or construction phases are not included and require a dedicated plan.

The provisions outlined in this OWMP are considered appropriate for this type of development. It is noted that the refuse rooms are suitably sized to accommodate the refuse generated and number of bins proposed based on standard storage and collection methods. The refuse rooms will also accommodate all options for alternate equipment and disposal methods.

1.3. Regulatory Considerations

1.3.1. Council's Refuse Planning Scheme

The plan satisfies BCC's requirements by providing the following information:

- Type and quantity of refuse materials to be generated during the occupancy of the proposed site.
- Refuse collection, storage, transfer, and disposal arrangements during occupancy of the completed development.
- Recommended operational requirements for the operational phase of the development, and design requirements for the building and refuse management facilities.

As this development is a non-residential use site, TTM has referred to BCC requirements as outlined in the Refuse PSP under section 2,3 and 5 as these sections relate to Non-Residential Uses. Table 1.2 demonstrates the refuse management items addressed to align with BCC's Refuse PSP requirements. This also meets the acceptable outcomes as described with A063 .1 and .2 of the 9.3.3 Centre Mixed Use Code.

Table 1.2: OWMP Compliance Checklist

BCC SC6.26 Refuse Planning Scheme Policy		
Item	Requirement	Compliance / Comment
Section 2 – General Requirements		
(1)	A written design proposal for waste collection is to be provided giving full details of the number of refuse bins and the storage and collection areas.	Details provided in this OWMP
(2)	The collection of refuse is to be considered during the planning phase of development. This includes the physical manoeuvring area for the refuse collection vehicle and the bin storage areas and collection points. Access for other road users including pedestrians, cyclists, motorists and other service providers (e.g. postal) is to be maintained.	Considerations provided within this OWMP
(3)	Uses with high trip-end densities provide a transport impact assessment report in accordance with the Transport, access, parking and servicing planning scheme policy with an assessment of refuse storage and collection included.	Traffic Report has been submitted with DA
(4)	The waste collection system is to achieve the following outcomes: <ol style="list-style-type: none"> both the customer and service provider can access the bin storage area and collection point conveniently; the location, design and operation of the bin storage and collection system do not have unreasonable adverse acoustic, odour or visual impacts on the development, surrounding properties or the streetscape; the supply and servicing of either mobile garbage bins or bulk bins or refuse compactors complies with the requirements of this planning scheme policy. 	Complies Complies – Collection service will be undertaken on the site.
Section 3 - Access and Manoeuvrability		
(1)	If refuse collection is from an on-site bin storage area for multiple dwellings or from mobile garbage bins located throughout a development, the pavement/carriageway trafficked by the refuse collection vehicle is a minimum 6.5m wide.	Refer to Traffic Engineering Report
(2)	For detached dwellings on rear lots, pavements/carriageways trafficked by a refuse collection vehicle have a minimum width of 5.5m.	N/A
(3)	The pavement/carriageway has a minimum crossover width of 6.5m and is free from overhanging gardens or trees.	Complies

(4)	If the collection point is at the kerbside of the internal private road, it is preferred that mobile garbage bins are placed in front of each dwelling. If there are short dead-end streets off the main internal circulating road, sufficient level areas are to be provided beside the main internal circulating road (near the intersection) for a collection point for the mobile garbage bins required for those dwellings.	N/A
(5)	Turning and manoeuvring facilities for refuse collection vehicles are provided to meet design requirements for the vehicles identified in Table 3.	Complies See Traffic report
(6)	Subdivision layouts are to provide for the safe and efficient operation and manoeuvring of a side loading refuse collection vehicle. Layouts that require a refuse collection vehicle to reverse more than two truck lengths are to be avoided. If a temporary turnaround is provided, an easement in favour of BCC for this purpose will be required over any turning area located within private property. The temporary turnaround is to be constructed to a standard that is satisfactory to Council.	N/A
(7)	Adequate lift clearances are provided to overhanging trees and wires in accordance with Table 3.	Complies Min 3.6m clearance is provided.
(8)	For MGB's, if it is necessary to wheel them to a collection point from a bin storage area: (a) the distance does not exceed 50m; (b) for a retirement facility, the distance does not to exceed 25m; (c) the mobile garbage bin transfer path is free of steps or other obstructions and does not exceed a 1:14 grade.	N/A
(9)	In instances where the gradient of the on-site manoeuvring area is greater than 5% (1:20), the pad that the collection vehicle will stand on while accessing refuse bins at the collection point, is to have a maximum gradient of 2% (1:50).	Complies RCV will stand on a flat grade for servicing.
Section 4 - Residential Refuse Collection – Not Applicable to this Site		
Section 4.1 – Residential Kerbside Collection (MGB's) - Not Applicable to this Site		
Section 4.2 – Residential On-site Collection (Bulk Bins) – Not Applicable to this Site		
Section 5 – Non-Residential Refuse Collection		
(1)	The requirements for refuse bins or refuse compactors for non-residential development will be assessed case by case, based on the type and amount of waste generated by the development, which is dependent on the operational activities of the development.	OWMP – Provides the details for assessment
(2)	Sufficient information is provided to demonstrate that refuse collection can occur in an efficient and safe manner on site without adverse impact on amenity (acoustic, odour or visual impacts) and pedestrian and vehicular traffic.	Complies – Services are performed a dedicated loading bay
(3)	This information may include evidence from a refuse collection contractor to demonstrate that collection will occur outside normal service/delivery or business times, where seeking permission to allow a refuse collection vehicle to use service bays or parking spaces on the site for access.	Commercial Contractor to be confirmed and to complete a site risk assessment
(4)	If proposing to use clearances less than the minimum vertical clearances in Table 3, a written confirmation from the proposed waste collection contractor giving full details of the proposed system, bin sizes, number of bins, frequency of collection and the refuse collection vehicle size is to be provided.	N/A – full size BCC spec RCV used for design purposes.
(5)	If the gross floor area of a freestanding food and drink outlet, shop or office is less than 200sqm a dedicated service bay is not required for a refuse collection vehicle.	N/A
(6)	Provision is made for on-site refuse collection for Short-term accommodation if an accommodation hotel or motel.	N/A
(7)	Where disposal of industrial or commercial liquid waste by discharge to a road tanker, the road tanker is to be wholly on-site during collection.	Complies – Vacuum Tankers are able to stand wholly on-site
(8)	The storage areas for industrial bins are to be either within a building or enclosure.	Complies – Bins are stored within the building and in an enclosure

1.4. Site Location

The subject site is located at 83-109 Albert Street, Brisbane as shown in Figure 1.1. The property description is Lot 1 on SP318840, Lot 100 on SP321125 and Lot 31 on RP208866. Site access for RCVs is from Albert Street.

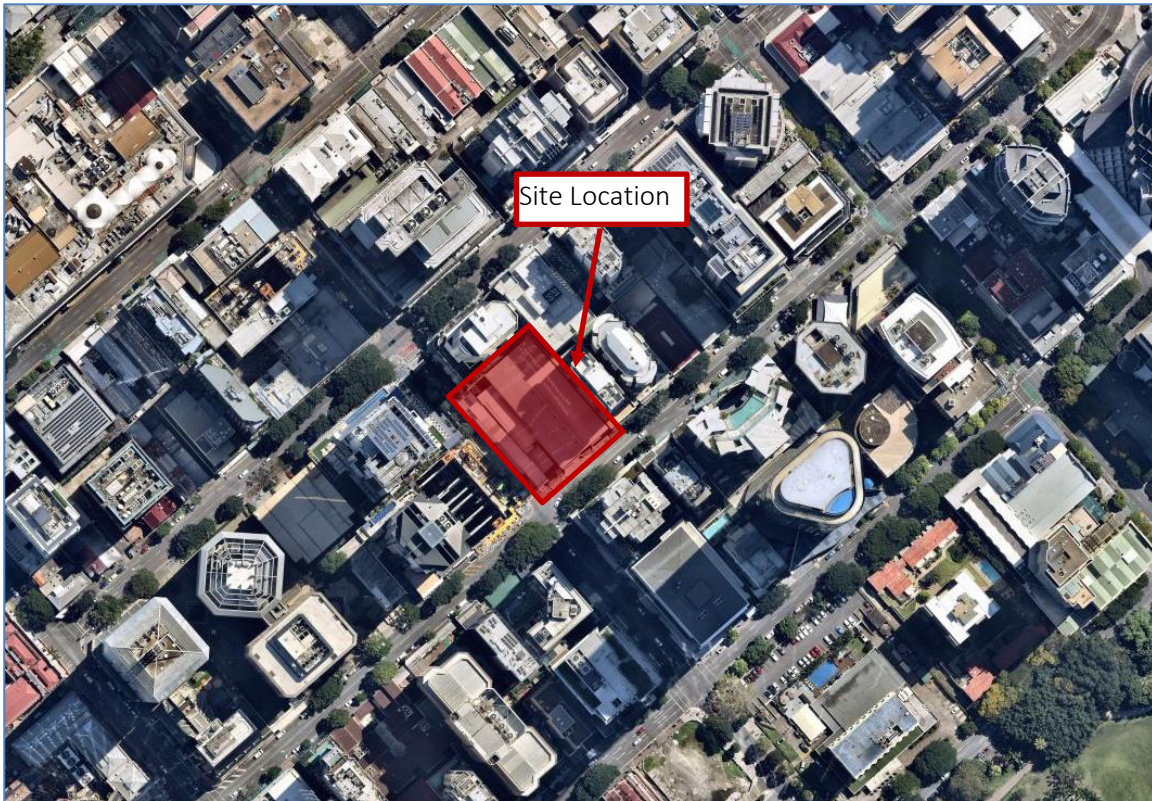


Figure 1.1: Site Location (Map View)
Source: Google Maps

1.5. Development Summary

Table 1.3 provides a summary of the development, including the refuse infrastructure areas as context for the volume information provided in Section 2.

Table 1.3: Development Summary

Level	Description	Measure *
All Levels	Office / Meeting Rooms	48,716 m ² GFA
	EOT Facilities / Wellness Centre	602 m ² GFA
	Retail / Food and Beverage	1,694 m ² GFA

* Areas and unit numbers relevant for refuse calculations only. All retail space has been calculated as food and beverage outlets.

2 Refuse Management

This section provides the detailed refuse calculations and describes the arrangements for the collection, storage, transfer, and disposal of refuse within the development. This includes associated bin quantities, storage capacities, equipment details, collection frequencies and site access details.

2.1. Refuse Collection

The generation rates used for the calculation of commercial refuse produced have been applied based on rates recommended by Brisbane City Council to achieve compliance. It should be noted that these rates are not published, or audit verified for accuracy, these are the only rates being accepted by Brisbane City Council WaRRS team.

It is understood Greenstar rating is being sought for the development

Table 2.1: BCC Provided Generation Rates

Type	Measure	General Waste	Food Waste	Combined Recycling	Days of Operation
Office / Meeting Rooms	L / 100m ² / Day	10	5	20	5
End of Trip / Wellness Centre	L / 100m ² / Day	10	5	20	5
Retail / Food and Beverage	L / 100m ² / Day	330	330	200	7

A collection frequency of 3 days per week or 6 days per fortnight has been established to be compliant with BCC's un-documented maximum service frequency requirement.

Due to food waste being generated on site TTM recommends the removal of food waste materials at a frequency of 7 services per fortnight. This allows for a storage of waste materials for 2 days between services. This recommended service frequency is still considered low when compared to the daily / twice daily services that is undertaken within the city centre.

Table 2.2: Refuse Calculations

Level	Description	Area	Measure	General Waste L/Week	Food Waste L/Week	Commingled Recycling L/Week	Cardboard L/Week	Secure Destruct Paper L/Week
All Levels	Office / Meeting Rooms	48,716	GFA (m ²)	24,358	12,179	14,615	19,486	14,615
	End of Trip / Wellness Centre	602	GFA (m ²)	301	151	602	0	0
	Retail / Food and Beverage Outlets	1,694	GFA (m ²)	39,131	39,131	9,486	14,230	0
Total Weekly Volumes (L / Week)				63,790	51,461	24,703	33,716	14,615
Volumes per Day (L / Day)				9,113	4,411	10,587	2,890	14,615
Volumes per Collection (L / Collection)				33,462	5,722	13,479	3,064	11,686
Collection and Equipment Details		Collections per Week		3	4	3	3	1 / Ad-Hoc
		Storage Capacity		3	2	3	3	7
		Equipment Size		1100L	6000L	1100L	1100L	240L
		Equipment Quantity Required		25	1	10	3	61 / Or 1 per Office Tenancy

2.2. Refuse Bins and Equipment Requirements

Table 2.3 and Table 2.4 below outlines the number of bins and additional equipment required for the development. As waste volumes may vary according to the development occupants' attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation. The table shows the maximum number of bins and equipment expected.

Table 2.3: Bin Requirements

Component	Refuse Stream	Bin / Equipment - Type or Size	Bins Required
Commercial	General Waste	1100L Bins	25
	Food Waste	6000L Food Processing System	1
	Commingled Recycling	1100L Bins	10
	Cardboard	1100L Bins	3 or bale equivalent
	Secure Destruct Paper	240L Bins	61 or 1 per Office Tenancy

Table 2.4: Additional Equipment

Component	Description	Quantity	Notes
Commercial	Cardboard Baler	1	Mil-Tek Baler shown on plans
	Bin Wash Area	1	
	Cooking Oil Tanks	1	Bunded Pallet and Drum / Collection or Storage Tanks
	Refuse / Cleaner Trolleys	TBD	See Appendix B.2 and B.3.
	Weight Scales	1	

2.3. Refuse Room Requirements

All refuse will be stored within the refuse room located on basement level for everyday use. Bins will be presented within the holding area for collection.

The refuse room is sufficiently sized to accommodate all of the bins and equipment required as provided in Table 2.3 and Table 2.4. Figure 2.1 below shows potential configuration for the refuse room. The configuration and size of the refuse room is provided to ensure the majority of bins are accessible or easily rotated.

Generally, Secure Destruct Papers bin collections are performed as a bin to truck service to ensure security around the contents of the bins and therefore have not been accounted for within the refuse room.

The refuse area also has the following features in order to minimise odours, deter vermin, protect surrounding areas, and make it a user friendly and safe area:

- Doors wide enough to allow for the easy removal of the largest container to be stored.
- Adequate artificial lighting.
- Not located adjacent or within any habitable portion of a building or places used in connection with food preparation (including food storage).
- Permits unobstructed access for removal of the containers to the service point.
- Does not have any steps or lips.
- Is enclosed on all side except for the gated entrance to ensure bins are not visible from a public place, neighbouring properties, passing vehicles or pedestrian traffic external to the site.
- Is of sufficient size to accommodate the bins with sufficient clearance around the combined bin area.
- Is positioned away from the entrances to shops or residential premises.
- The height of the bin storage area allows for waste bins to be opened and closed.
- The floors to be graded to fall to a drainage point.
- Drainage points connected to sewer in accordance with trade waste requirements.
- A hose cock provided inside the room for cleaning bins and the rooms.
- The walls, ceilings, floors, and equipment are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning.
- Is designed to minimise their visual impact on the surrounding areas.
- Is naturally or mechanically ventilated.

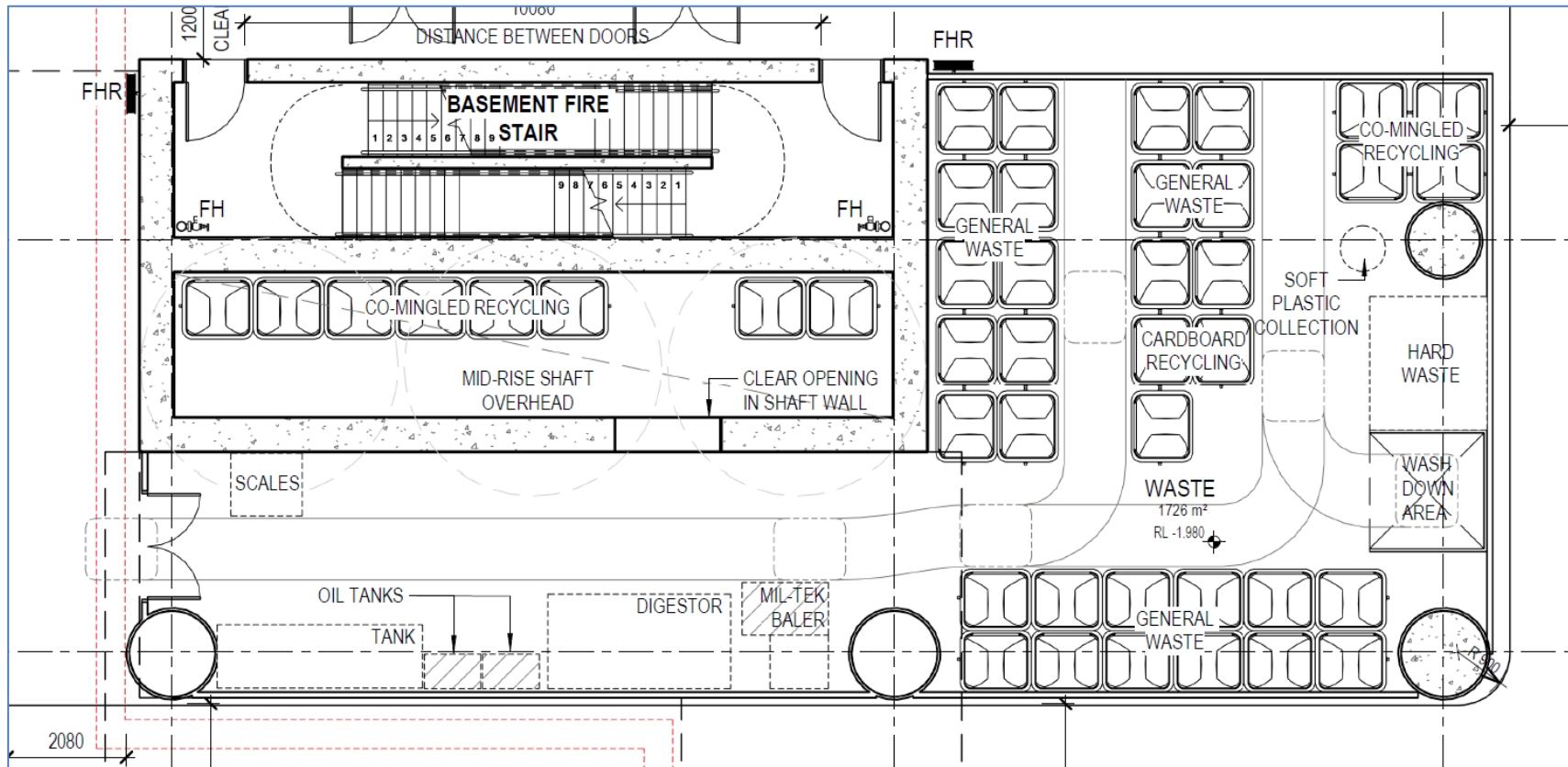


Figure 2.1: Refuse Room Layout

Source: Architectus, Project: Albert Street, Drawing: DA-1001, Issue: P7, Date: 08.12.2022, Plan: Level B1 – Loading Services

2.4. Refuse Transfer

Minimal transfer is required, all refuse will be collected directly from the refuse room by the collection contractor at the time of servicing.

The refuse transfer path has been designed to allow for:

- The bins to be transferred via hard stand pathway.
- Allows bins to be easily manoeuvred.
- Does not impede traffic flow.
- Does not extend through any habitable parts of a building or food premises.
- Does not have any lips, stairs, or steps for bins to be manoeuvred easily.

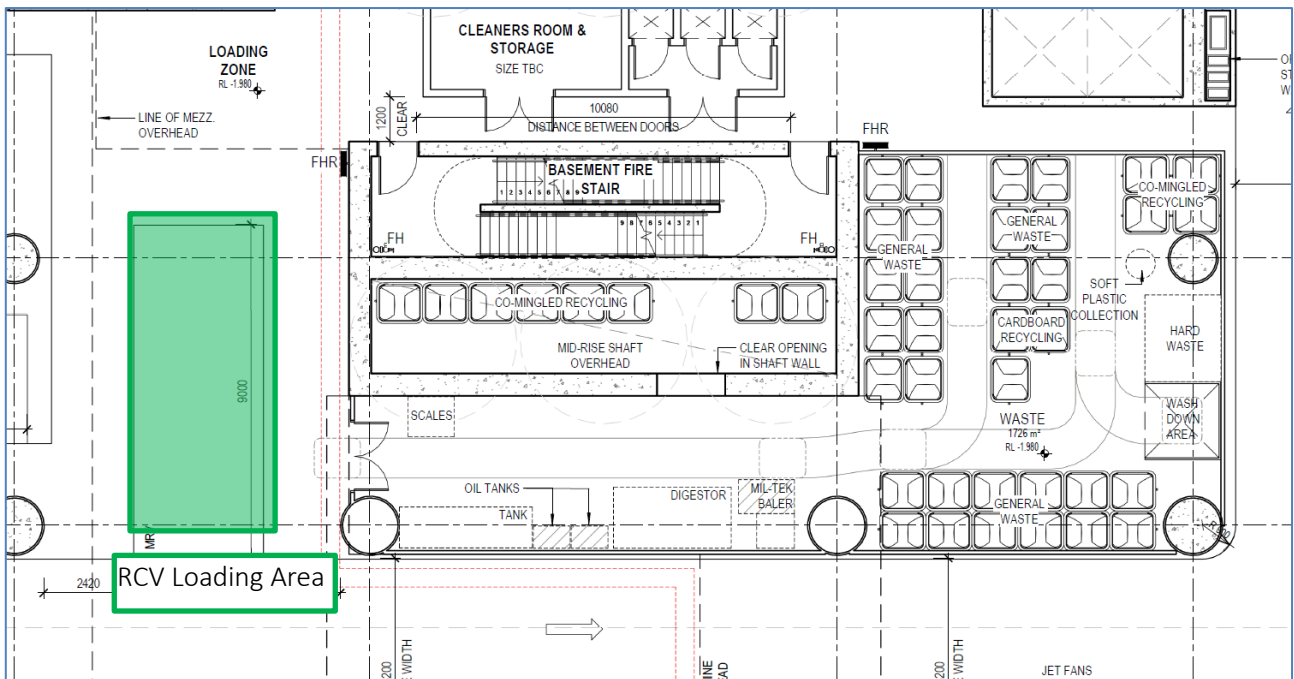


Figure 2.2: Refuse Room and Loading Area

Source: Architectus, Project: Albert Street, Drawing: DA-1001, Issue: P7, Date: 08.12.2022, Plan: Level B1 – Loading Services

2.5. RCV Arrangements and Bin Servicing Areas

RCV's will enter the site from Albert Street entry and navigate to the loading area located on basement 1. The refuse room is located adjacent to the loading bays. A manoeuvre will be performed to align the RCV with the loading bay to perform the collection. Once the collection has been performed the RCV will exit the site in a forward gear.

The types of vehicles allocated, and demand will be subject to final design and potential selection of volume reduction equipment. The collection days and frequency form a part of the contract between building management and the preferred contractor and is agreed based on both the building and contractors' business requirements. Figure 2.3 shows the swept paths for the MRV sized RCV, this vehicle is readily available across the waste collection industry.

As the development is currently at the assessment process no contract has been entered into. Any contractor letter request from Council should be conditioned to be provided prior to the commencement of operation at the construction finalisation stage.

The bin servicing area / loading bay has been designed with the following features:

- Has sufficient access and clearance for the waste and recycling collection vehicles to service the bins, including no overhead obstructions.
- Allows bins to be serviced safely while minimising the impediment to vehicle movements during servicing.
- Is clearly separated from car parking bays, footpaths, and pedestrian access.
- Is devoid of stairs, lips or ramps and allows bins to be manoeuvred easily.
- Does not block the entry and exit to the property.
- Is not adjacent to a kitchen or eating area for public use.
- Is over 5m from any door, window or fresh air intake within the development or any adjoining site.
- Is screened sufficiently to minimise the view of bins from neighbouring properties or passing vehicles and pedestrian traffic external to the site.
- Is positioned away from entrances to shops or residential premises.

3 Recommended Operational Requirements

3.1. Refuse Management

The tables in this section summarise general recommended disposal arrangements for frequently generated and infrequently generated refuse for each use within the development. Section 3.1.1 describes the frequently generated refuse streams that are generated in high volumes for any given period and require significant capacity for storage prior to collections.

Section 3.1.2 describes the infrequently generated refuse streams that are generated in relatively low volumes, and where minimal provision for storage can be easily managed by collection frequency.

The most effective way to maximise opportunities for recycling and resource recovery, reduce waste to landfill and provide a more sustainable development, is to separate refuse streams at the source of generation. IE: food prep areas are the best place to stop food waste from being disposed of into general waste by providing a container to capture the food waste.

3.1.1. Immediate Refuse Disposal / Transfer Arrangements

Bins will be provided for each separate refuse stream in both the retail / food and beverage and office tenancies.

Retail / food and beverage tenancies will in the back of house areas for the retail / food and beverage tenancies.

Bins will be provided for the office tenancies in centralised bin station with limited number of stations in each tenancy, under desk bins will be discouraged. Kitchen and tearoom / break-out facilities in each tenancy must have a food waste caddy to optimise collection of food organics.

Bins will be provided for each anticipated waste stream in that area, at a minimum a comingle recycling bin will be placed with every general waste bin, general waste bins will not be placed individually.

Sufficient signage will be provided at each bin station, colour coded in accordance with AS 4123.7–2006 Mobile waste containers. After each day of operation or as required, refuse will be transferred by staff / cleaners to the refuse room and decanted into the appropriate bulk bins. Further details are provided in Table 3.1.

Table 3.1: Disposal of Commercial Waste

Refuse Stream	Disposal Details
WASTE	
General Waste	<p>Depending on the type of operations of the individual tenancies, different wastes may be produced. Waste bins should always be lined with bags and the bags tied before removal. Waste bins should be accompanied by a recycling bin in order to facilitate separation of general waste and recycling.</p> <p>Retail / Food and Beverage Tenancies</p> <p>General waste from food and beverage outlets such as restaurants, takeaways, cafés will be captured by bins typically ranging in size from 30L to 80L that will be placed within the kitchen or back-of-house area to meet the design or layout criteria of the café or restaurant operators.</p> <p>Commercial Offices</p> <p>Office waste typically includes food waste in pantry / kitchen areas, general non-recyclable material from office activities as well as infrequent wastes such as bulky items, hazardous waste (e.g. printer cartridges) and electronic waste (e.g. computers and screens) (see respective sections for disposal of infrequent wastes). Bins are typically placed near or under the workers’ desks or workstations and in pantries.</p> <p>Kitchen waste will be captured by bins typically ranging in size from 10 L to 40 L and will be placed within the kitchen or breakout areas.</p>
Organic (Food) Waste	<p>Separating organic or food waste from general waste is recommended to reduce the total amount of general waste produced.</p> <p>120L bins can be used in retail and food and beverage outlets, commercial offices should consider benchtop style bin, for disposal of food waste if required. The bins are then transferred to the refuse room for collection. Smaller bins of 120L or 60L caddy bins can be used and the content decanted into the bins provided within the refuse room. A purpose-built trolley should be used to transfer caddy bins.</p>
Cooking Oil Waste	<p>Waste oils should be disposed separately from general waste if large quantities are produced (e.g. in food and beverage outlets). All waste liquids / oils (e.g. from commercial kitchens) should be separated and stored in clearly labelled containers. Typically, waste oils are removed during delivery of new oils by the supplying contractor.</p> <p>Bunded areas or bunded plastic pallets should be supplied for the storage of liquid waste / oils and stored in a levelled area (e.g. refuse room). Bunded pallets can be stored indoors or purpose built for outdoors. They should be routinely inspected to ensure maintenance of their integrity. Each pallet should be capable of storing of at least one-third of its contents if there is a leak.</p>
RECYCLING	
Commercial Comingled, including	<p>Depending on the type of operations of the individual tenancies, different recycling materials may be produced. Items for recycling must not be bagged and disposed in loose form. This can be done by decanting the materials from the individual receptacles into a larger container / bin on a trolley for transport to the refuse room.</p> <p>Retail / Food and Beverage Tenancies</p> <p>Commingled recycling from food and beverage outlets such as restaurants, takeaways, cafés can be captured by bins up to 120L that will be placed within the kitchen or back-of-house area to meet the design or layout criteria of the café or restaurant operators.</p> <p>Commercial Offices</p> <p>Recycling from offices largely consists of clean paper (and cardboard) which can be collected separately from comingled recycling if large quantities are produced. In addition, comingled recycling may originate from pantries and meeting / conference rooms where food is consumed.</p>
<ul style="list-style-type: none"> • glass • aluminum • steel cans • tins • cardboard • semi rigid plastics 	<p>Container deposit / refund schemes are currently in place in Queensland. Various models exist including bottle return facilities and (automated) reverse vending machines.</p> <p>Occupants should be encouraged to separate containers that qualify for the schemes from the waste or recycling streams, and send back to a return points. Storage space or dedicated bins within the units or refuse rooms can be provided. For the proposed developments, consideration should be given to placement of a reverse vending machine on site for disposal.</p>

Refuse Stream	Disposal Details
Secure Destruction Paper	<p>Office areas can often produce an amount of secure destruction paper / confidential paper documents which need to be disposed separately from general recyclable cardboard / paper. Special 240L bins are typically placed within the offices for disposal of secure destruction paper.</p> <p>The bins are collected from the individual office areas by the respective contractor and replaced by empty bins. Alternatively, staff / cleaners may take the bins to the refuse room or loading dock prior to collection.</p>

3.1.2. Infrequent Waste

Table 3.2: Disposal of Infrequently Generated Waste

Refuse Stream	Disposal Details
Green Waste	Green waste is not typically produced from this type of development other than from surrounding landscaped areas or potted plants. Green waste is usually removed by the designated maintenance contractor. The engaged contractor will be required to send this material to a composting or resource recovery facility rather than to a landfill if locally available.
Hard Waste / Bulky Goods	Hard waste may be stored in a designated room which should be located on the loading dock level. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock or a designated area for removal prior to collection. When storing bulky goods in a loading dock, it is recommended that items are placed on a pallet for easy loading via a pallet jack or forklift onto the RCV.
Hazardous Waste (paints, batteries and cartridges) Electronic Waste	<p>Where applicable, occupants usually make their own arrangements for the disposal of specialized or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to BCC and QLD government websites for disposal options.</p> <p>It is an expectation that the building management assist with disposal of hazardous, electronic or liquid waste and any paint or chemicals as required and requested. Hazardous waste must be handled with due care, separated and securely stored for collection by a specialist waste contractor. Please refer to local BCC and QLD government websites for further information.</p>

3.2. On-going Management

The following section outlines the on-going management requirements to ensure a safe and effective waste management system is implemented.

The tables below are not for assessment purposes, instead for the demonstration of required tasks during the operational phase of the development and therefore intentionally left blank.

3.2.1. Refuse Audit

Refuse minimisation requires regular reviewing to ensure operationally, refuse management is on the right track to meet reductions of waste to landfill and sustainability targets. It is recommended that refuse weights and movements are noted from the commencement of operation.

An external review should be conducted after the initial opening phase to provide a baseline to which further waste reduction / recycling targets can be set. Following this, audits should then be conducted every 6-12 months after the implementation of the plan and reviewed against the initial targets. Processes, procedures, and targets should be reviewed at the conclusion of each audit to allow for improvements.

Equipment requirements / volumes, and collection frequencies should also be reviewed to ensure a cost-effective and efficient operation is provided.

3.2.2. General Management

Responsibilities have to be assigned for all on-going refuse management operations. This is generally done by a building manager, staff and / or cleaners. The following are designed to help managing responsibilities and monitor the refuse operations in order to maintain efficient services and a safe environment.

Table 3.3: General Refuse Management Checklist

Objectives	Checked	Remarks
Organising of weekly pick-ups for all refuse streams.		Liaise with private contractors and local council as required.
Regular spot checks are performed on equipment and bins		Checking for compliance and no contamination
Managing daily bin transfers between refuse storage / collection areas if required.		
Check bin fill levels and rotate / swap bins as required		

3.2.3. Cleaning and Maintenance

Regular cleaning and maintenance of all refuse management facilities is important to maintain a safe and hygienic environment for residents, visitors, staff and contractors.

Table 3.4: Cleaning and Maintenance Checklist

Objectives	Checked	Remarks
General cleaning of all refuse holding and transfer areas including <ul style="list-style-type: none"> • Refuse rooms and storage areas • Refuse bins • Refuse transfer areas including lifts and staircases • Refuse chutes and hopper doors • Any other refuse management equipment 		Frequency depends on refuse generation and building operation.
Coordination of specialised cleaning contractors as required.		
Maintenance and servicing of refuse management equipment as per schedule.		Frequency depends on equipment and building operation.
Coordination of specialised equipment contractors as required.		

3.2.4. Refuse Minimisation

Refuse minimisation is an important part of any site operation. At a minimum, the following should be implemented. Additional refuse minimisation options can be found in Appendix B.

Refuse minimisation requires regular reviewing to ensure operational sustainability of refuse volumes, equipment, and economic feasibility. It is recommended that refuse weights and movements are noted and reviewed. An external review should be conducted after the initial opening, this initial audit will be conducted to provide a baseline for how and what is being disposed of correctly. Audits should then be conducted every 6-12 months after the implementation of the plan.

Table 3.5: Refuse Minimisation Checklist

Objectives	Checked	Remarks
Regular review of bin quantities / refuse stream.		
Consideration of further recycling and equipment.		
Encouraging refuse minimisation through education and signage (see below).		Education for all tenancies / outlets
Reduce refuse through continuous monitoring and review (see below).		
Initial Audit Conducted – After initial event		
Regular waste management audits – 6-12 months		

3.2.5. Education and Communication

On-going education is important to ensure people continue to use the facilities as originally intended. All body corporate and leasing contracts should contain clauses pertaining to waste management arrangements and use of any associate equipment.

Building management will ensure an ongoing recycling rate will be published, circulated and easily accessible such as via an e-newsletter, with the purpose of highlighting current rate and performance against benchmarked recycling rate target.

Table 3.6: Education and Communication Checklist

Objectives	Checked	Remarks
Communication of refuse management arrangements to staff and contractors as required.		
Consideration of promotional opportunities for any successes e.g. awards programs.		
Targets set for refuse separation for each tenancy/outlet		

3.2.6. Safety

Transferring refuse bins and using refuse management equipment are considered hazardous tasks. Therefore, contractors must ensure that a full risk assessment of equipment, surfaces and related gradients is complete. The contractor must provide procedural documentation to appropriate personnel prior to delivery of equipment and occupancy of the development.

Table 3.7: Safety Checklist

Objectives	Checked	Remarks
Abiding by all relevant occupational health and safety legislation, regulations and guidelines to ensure site safety for residents, visitors, staff and contractors.		
Assessment of any manual handling risks and preparation of a manual handling control plan for waste and bin transfers.		
Provision of equipment manuals, training, health and safety procedures, risk assessments and personal protective equipment to staff / contractors in order to control hazards associated with all waste management activities.		

3.2.7. Signage

All receptacles, bins and other refuse management equipment will have adequate signage. Standard signage will be provided in and around waste collection and storage areas (see Appendix C).

Table 3.8: Signage Checklist

Objectives	Checked	Remarks
Ensuring compliance of signage with government local council regulations.		Use signage provided by Council's if available
Ensuring that labelling on bins, refuse room etc. is appropriate and clear and easy to read and updated if required.		

3.2.8. Monitoring and Review

Regular monitoring and inspections of waste and related equipment and facilities from the development should be conducted by building management or designated staff for maintenance and sustainability.

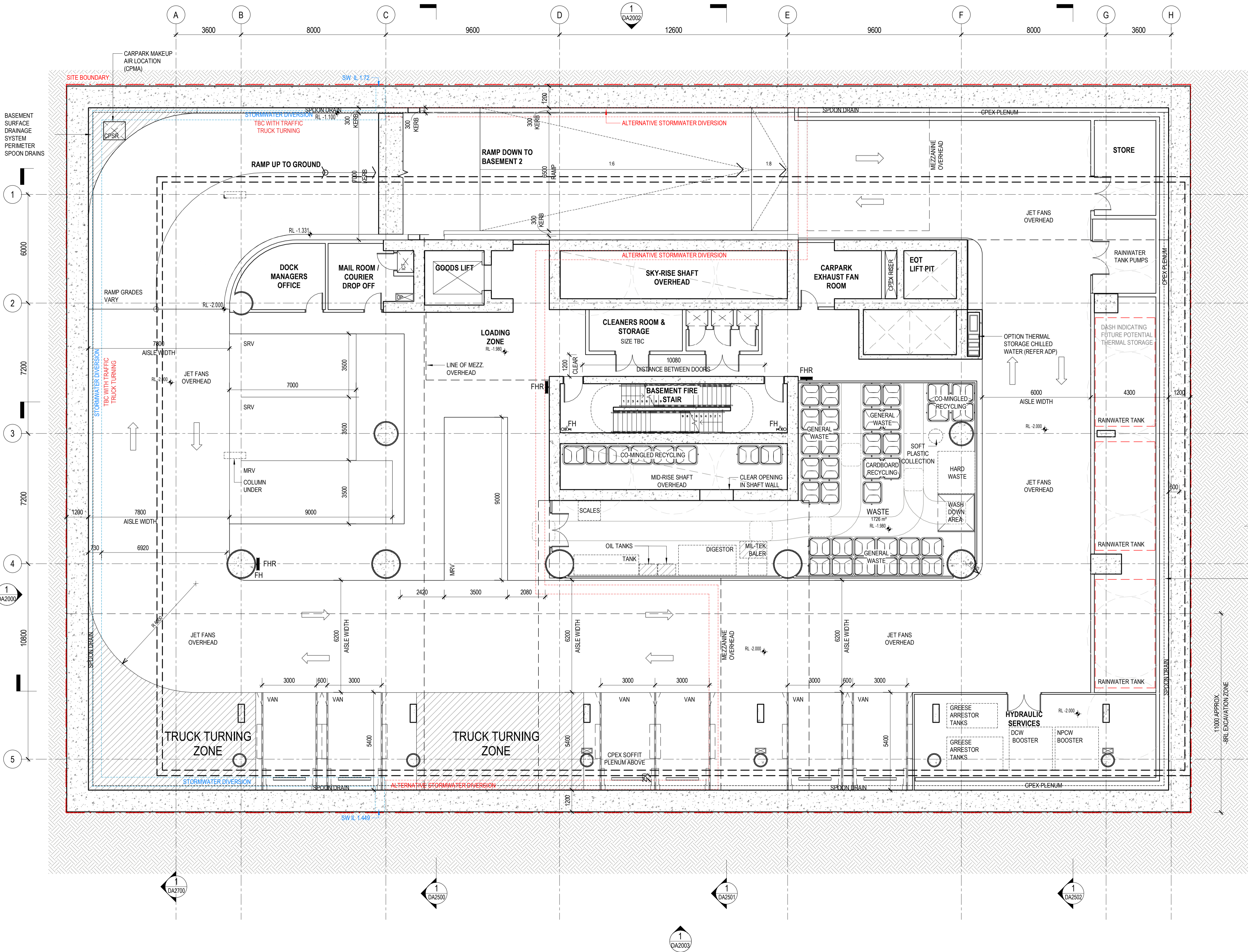
Waste composition audits are recommended on routine (12 monthly) basis to identify potential improvements in the recycling process taking place. Audits may be undertaken by an external contractor or initially by visual inspection during on-site waste management handling activities. For example, cleaners may observe contents of waste receptacles when decanting caddies in larger bins and recording results, this method is less accurate than a comprehensive audit, however, gives immediate indicative results and may be undertaken on an ongoing basis.

Table 3.9: Monitoring and Review Checklist

Objectives	Checked	Remarks
Continual monitoring of equipment uses and scheduling to ensure best operational outcomes.		
Regular review of refuse management equipment and facilities such as bin volumes, refuse storage capacities and stormwater management arrangements.		

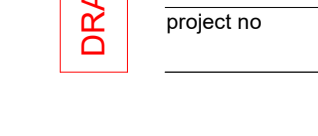
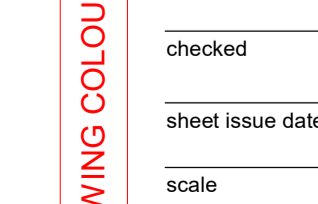
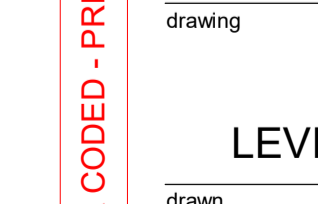
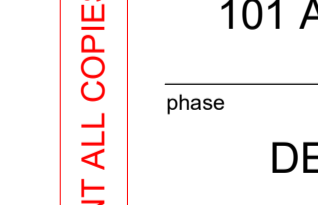
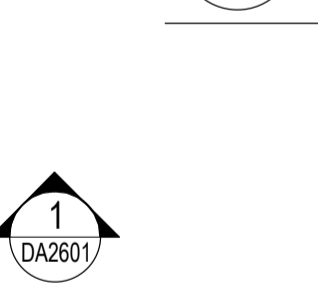
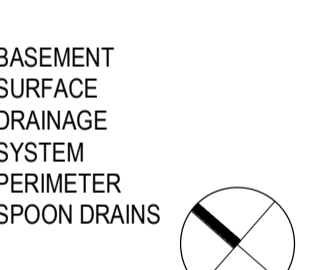
Appendix A Site Plans and Drawings

issue	amendment	date
C4	ISSUE FOR INFORMATION	20.10.2022
P2	ISSUE FOR COORDINATION	25.10.2022
P3	ISSUE FOR COORDINATION	27.10.2022
P4	ISSUE FOR COORDINATION	31.10.2022
P5	ISSUE FOR COORDINATION	08.11.2022
P6	ISSUE FOR COORDINATION	02.12.2022
P7	OWNERS CONSENT ISSUE	08.12.2022



- 1 DA2505
- 1 DA2503
- 1 DA2001
- 1 DA2701
- 1 DA2000
- 1 DA2601
- 1 DA2700
- 1 DA2500
- 1 DA2501
- 1 DA2502
- 1 DA2003

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project
101 ALBERT STREET, BRISBANE

phase
DEVELOPMENT APPLICATION

drawing

LEVEL B1 - LOADING SERVICES

drawn TC drawing no. short DA1001

checked KN drawing no. long ALB-ARC-DRW-DA1001





sheet issue date 21/10/2022

scale 1 : 100@A1 issue

project no 200048.00



Appendix B Systems and Specifications

B.1 Typical Refuse Bins

Bin Types	Waste Streams	Examples	Information
Back-of-house bins	General waste, recycling, food waste, paper / cardboard		<p>Various options and sizes available. Tenant to supply depending on preference and space available.</p> <p>Example: 60L multisort bins https://www.sourceseparationsystems.com.au/product/multisort</p>
Caddy Bins	Food Waste		<p>Example: https://pulpmaster.com.au/pulpmaster-caddy-system</p>
240L bins	General waste, paper, recycling, green waste		<p>Dimensions approx. 740 x 580 x 1080mm (L x W x H) (dimensions may depend on contractor)</p> <p>Examples: http://www.justwheeliebins.com.au, http://wheeliebinsonline.com.au</p>
1100L bins	General waste, recycling, paper / cardboard		<p>Dimensions approx. 1070 x 1240 x 1330mm (L x W x H) (dimensions depend on contractor)</p> <p>Examples: http://www.justwheeliebins.com.au, https://www.australianwaste-management.com.au</p>

B.2 Typical Refuse Management Equipment

Systems	Waste Streams	Examples	Information
Bin Weighing Scales	All streams		<p>Scales are used to capture all outgoing refuse weights for ongoing analysis of recycling rates.</p> <p>Examples</p> <p>https://www.osat.info/</p> <p>https://bintracker.com.au/</p>
Organics Household Composting, Worm Farm, Digesters	Food waste / organics		<p>Organics / food waste separation, composting and digesting; household-type and commercial grade equipment available</p> <p>Examples</p> <p>Urban Composter https://www.urbancomposter.com.au</p> <p>Closed Loop https://closedloop.com.au/upcycling-products</p> <p>ORCA https://www.feedtheorca.com</p>
Food Waste Processing, Storage and Disposal	Food waste / organics		<p>Volume reduction and organics / food waste recycling through food waste separation and macerating</p> <p>Examples:</p> <p>Pulpmaster Food Processing and Storage https://pulpmaster.com.au</p> <p>Under-sink food waste macerators and disposers (household type macerators) https://www.insinkerator.com.au</p> <p>(commercial-grade macerators) https://insinkerator.emerson.com</p>

Systems	Waste Streams	Examples	Information
			
Cooking oil storage and recycling	Used cooking oil	 	<p>Cooking oil recycling</p> <p>Example: https://www.cookers.com.au</p> <p>Cooking oil delivery, used oil collection and provision of required equipment</p>
Bunded pallets	Liquid Waste	 	<p>Spill containment, e.g. for waste cooking oil containers</p> <p>Example: https://www.tradeenviro.com.au/bunded-pallets https://www.materialshandling.com.au/products/bunded-pallet</p>

Systems	Waste Streams	Examples	Information
Compactors / bin presses	General waste		<p>Volume reduction through refuse compaction</p> <p>Examples:</p> <p>Stationary compactor, range between 10000L to 35000L https://www.wastech.com.au/products/compactors</p> <p>Litter bin compactor https://www.solarbins.com.au/features/big-belly-solar-bin</p> <p>Under-chute compactor https://www.wastech.com.au/products/chutes/ecopac-compactor</p> <p>Bin press https://wasteinitiatives.com.au/products/waste-compactors</p>
Balers	Paper / cardboard, plastics		<p>Volume reduction of paper, cardboard, plastics by compaction (baling)</p> <p>Examples:</p> <p>https://www.miltek.com.au/balers-and-compactors</p> <p>https://www.wastech.com.au/products/balers</p> <p>https://wasteinitiatives.com.au/product/vertical-balers/wastepac-60</p>



Systems	Waste Streams	Examples	Information
			
Trolleys	General waste, recycling, food waste, paper / cardboard		<p>Assisted manual transfer of refuse</p> <p>Examples:</p> <p>https://rubbermaidcommercial.com.au/products/waste-management/mega-brute</p> <p>https://www.materialshandling.com.au/products/deluxe-compact-cleaning-carts</p>
Bin Decanting	General waste, recycling, food waste, paper / cardboard		<p>Bin lifting equipment example</p> <p>https://www.materialshandling.com.au/product-category/waste-cleaning-equipment/</p>

B.3 Refuse Transfer and Disposal Methods



Method	Examples	Description
Manual transfer / disposal		<p>Manual transfer is simply the process of physically carrying waste bags, food waste receptacles or recycling boxes and crates without assistance.</p> <p>From a safety perspective, this is acceptable for small quantities and initial disposal into refuse chutes, refuse compartments or, in the case of ground level activities, directly into the refuse storage room.</p> <ul style="list-style-type: none"> • Waste material should be bagged prior to any transfer from apartments, suites, offices, back-of-house areas etc. to waste storage compartments or rooms. • Food waste should be placed in receptacles such as a caddy style bin or bucket which will not allow leakage during transfer. • Recycling material should be placed in boxes or crates prior to transfer. • Cardboard and paper items can be placed within another cardboard box for transfer. <p>Examples: https://www.alamy.com</p>
Assisted manual transfer		<p>Assisted manual transfer includes the use of any wheeled container, wheelie bin or trolley with a capacity to carry refuse items with a combined weight of 20kg and above. The equipment bares the weight of the material, but it still requires physical force and or balance to move the bin or trolley.</p> <p>From a safety perspective, this type of equipment should be a minimum requirement for transfer of material greater than 20kg and when transferring between individual levels to the refuse storage room or loading areas. Use of enclosed or caged equipment will also eliminate 'litter or leakage trails' which can occur when using open or unsealed equipment.</p> <p>Examples: http://www.justwheeliebins.com.au, https://rubbermaidcommercial.com.au, https://www.materialshandling.com.au</p>
Assisted transfer		<p>Assisted transfer includes the use of any container with capacity to carry 20kg or more, pushed or towed by mechanical or electrical self-propelling equipment.</p> <p>Examples: http://ev.spacepac.com.au/categories/tugger, https://www.spacepac.com.au/product/wheelie-bin-aluminum-steel-trailers</p>

B.4 Refuse Minimisation Options

Refuse Minimisation Options – Waste

Systems	Description
<p>Food rescue</p>	<p>OzHarvest and Second Bite are food rescue organisations working throughout Australia. The organisation collects surplus foods from businesses (including Woolworths, Coles, Goodman Fielder and other smaller companies) and redistributes the foods to welfare agencies. They provide regular scheduled collections or ad-hoc / on call collections, and they have refrigerated vehicles. Other accepted items include fresh fruit and vegetables, tinned goods, cold meats and deli items, and readymade meals (which will only be accepted frozen).</p> <p>Where food rescue organisations are available, consideration may be given to suitable space for the temporary storage of food stuffs, including dry storage and the placement of a small fridge if cold room space is not available. There is no associated collections cost. Hence, it can be considered a zero-cost option for disposal of what would otherwise be food waste, and it supports the community at the same time.</p>  <p>Sources: www.ozharvest.org, www.secondbite.org</p>
<p>Composting</p>	<p>Food waste composting is an option of reducing the amount of general waste going to landfill where organic waste can create methane gas due to anaerobic digestion, which contributes to global warming. Systems of different scales exist from small benchtop composters for individual households or apartments to commercial size systems. Examples are shown below.</p> <p>The process usually involves breaking down organic food scraps through natural processes. This includes systems such as worm farms or composters where microbes break down the food waste, with or without the aid of compost additives. The composted products are rich in nutrients and good bacteria, and they can be added to flower bed or gardens.</p> <p>Most food wastes and other organic (garden) material can be composted including meat, fish, vegetables, fruit, dairy, coffee or wilted flowers. However, large bones, excessive liquids such as cooking oil or seafood shells should not be placed in the composters.</p>  <p>Sources: https://www.urbancomposter.com.au, https://closedloop.com.au/upcycling-products, https://www.feedtheorca.com</p>

Systems	Description
<p>Food waste separation and collection</p>	<p>When considering separation of organic food waste, the handling and potential for volume reduction should also be considered.</p> <p>As an example, the Pulpmaster system can be used to reduce the stored volume of food waste produced, and to prepare the material for re-use. Typically, the system is placed in proximity to sink areas in the kitchen, particularly where food preparation waste or plate scrapings can be easily disposed. This provides a fully sealed transfer system for storage and collection. Pulping systems can also be placed back-of-house spaces for restaurants and cafes or placed within a refuse room for centralisation to multiple users. Pulped food waste is pumped into holding tanks for storage and collection via a 50mm pipe and collected by a liquid vacuum tanker.</p> <p>The images below provide visual context of the connection from pulping machine to storage tank and the option for decanting 120L bins into the machine via a bin lifter and auger feed. The tank may be up to 20m away from the pulping machine. The distance is increased when including vertical drops from upper levels of the building. The storage tank may be up to 30m from a loading area, with the only requirement being a service pipe with camlock end connection placed within proximity of the loading area. Collections are completed by a vacuum tanker which may range in size depending on the size of the storage tanks and the distance of the tank from the loading area.</p>  <p>Source: http://pulpmaster.com.au</p>
<p>Waste Conversion</p>	<p>Converting waste by reducing its volume and weight means less material to be disposed of, which results in fewer refuse collection vehicle kilometres. This allows cost savings in logistics and has a positive environmental effect due to less fuel used per amount of waste to be disposed.</p> <p>As an example, OMPECO provide a solution for converting general and medical waste into a sterilised, dehydrated ground material as shown below. The process involves loading the sterilisation chamber with waste material and crushing / shredding of the material by rotors to produce a fine ground. During the process, the material is heated by friction to 100°C which causes the moisture in the waste material to evaporate. After evaporation, the material is heated further to sterilisation or pasteurisation. The ground material is then cooled down to be unloaded from the converter. The final product has excellent long-term handling and storage properties, the it has up to 80% less volume and 50% less weight than the original waste material. It can be used in waste to energy systems as it is comparatively dry with a high calorific value.</p>

Systems	Description
	 <p>Source: http://www.ompeco.com/italian/language/en/home-2/#</p>
Waste compaction	<p>Various compaction equipment exists for reducing the volume of (general) waste. As a result, less bins and / or fewer bin collections and service vehicle trips are required, which helps to reduce costs and environmental impact.</p> <p>Examples of typical waste compaction equipment include the following:</p> <ul style="list-style-type: none"> • Under chute compactors can be installed in developments with waste chutes. This allows to compact waste material before it is discharged from the chute into the waste bins. • Bin presses can be used to annually compress waste material in bins of different sizes. • For public spaces, litter bins are available with a built-in compaction mechanism that reduces the volume of waste material in the bins. An innovative example is the solar compactor shown below. Energy produced by a solar panel on top of the bin is used to operate a fill level sensor and automated internal compaction mechanism, allowing up to eight times more waste to be stored in the bin before collection is required. In addition, notification about the fill level of the bins can be sent out in order to monitor bins and manage collection frequencies.  <p>Sources: https://www.wastech.com.au/products/compactors, https://www.wastech.com.au/products/chutes/ecopac-compacto, https://wasteinitiatives.com.au/products/waste-compactors, https://www.solarbins.com.au/features/big-belly-solar-bin</p>
Charity donations	<p>A good way of minimising waste is to reuse items that are still good to use. Several charity organisations exist that accept items such clothing, shoes, bedding, books, toys, furniture, kitchenware and other household items. The donated items must not be torn, damaged or broken. Electrical appliances such as white goods are usually not accepted.</p> <p>Common organisations operating in Australia include Saint Vincent de Paul Society (Vinnies) and Lifeline (see images below). Items can be placed into the organisations' charity / donation bins located in various public spaces such as near community or shopping areas. Alternatively, they can be dropped off at the organisations' shops during opening hours. Refer to https://www.lifeline.org.au or https://www.vinnies.org.au for further information.</p> <p>For larger developments and precincts where large amounts of donation items can be expected, the placement of charity bins within the development should be taken into consideration.</p>

Systems	Description
	 <p>Sources: https://www.vinnies.org.au, https://lifelinesouthcoast.org.au</p>

Refuse Minimisation Options – Recycling

Systems	Description
<p>Container deposit schemes</p>	<p>Container deposit / refund schemes are currently in place in several states in Australia. Various models exist including bottle return facilities and (automated) reverse vending machines.</p> <p>Residents, tenants, staff and cleaners should be encouraged to separate containers that qualify for the schemes from the waste or recycling streams, and return them to one of the return points. Storage space or dedicated bins within tenancies, apartments or communal areas should be provided.</p> <p>For larger developments or precincts where large amounts of empty containers are expected, consideration may be given to an on-site return point. The return points should be located near recycling bins so that cardboard boxes or plastic bags that have been used to transfer the empty containers to the return point can be disposed appropriately. This can prevent cluttering of the area around the return point.</p> <p>The images below show a typical return point and containers that commonly qualify for a deposit refund.</p>   <p>Sources: https://returnandearn.org.au, https://envirobank.com.au/bottle-and-can-recycling-queensland, https://www.containersforchange.com.au/how-it-works</p>
<p>Glass crushing</p>	<p>Bottle crushers can reduce back-of-house and refuse room storage volumes by up to 80%. The machines are quiet and efficient. The inclusion of a glass crusher may either be designed into bar or kitchen areas, placed in back-of-house areas, or a machine may take the place of an existing recycling bin within a refuse storage room. Scanners are also being developed for these machines for scanning of bottles prior to crushing to align with government bottle return schemes. The images below show a typical setting of a glass crusher in a bar.</p>    <p>Sources: http://www.insideenterprises.com.au/bottlecycler/index.html, http://www.bottlecycler.com</p>

B.5 Refuse Management Equipment Suppliers

	Balers	Compactors	Shredders	Glass Crushers	Chutes	Bin Tugs / Trailers	Trolleys / Manual Handling Equipment	Bin Lifters / Tipplers	Bin Rotation	Weighing Systems	Spill Containment, Spill Response, Absorbents, Drain Protection	Food Waste Management / Vacuum Systems, Pulping, Digestors	Composting	Waste Cooking Oil Systems	Smoking Management	Bins (General), Bin Stands	Bin Cleaning Equipment	Sorting Equipment
Waste Management Equipment																		
Elephants Foot Recycling Solutions http://www.elephantsfoot.com.au	✓	✓		✓	✓			✓	✓	✓								
Waste Initiatives https://wasteinitiatives.com.au	✓	✓	✓	✓														✓
Wastech http://wastech.com.au	✓	✓	✓		✓			✓										
Pakmor http://pakmor.com.au	✓	✓	✓					✓		✓								
Miltek http://www.miltek.com.au	✓	✓																
BottleCycler http://www.bottlecyclor.com				✓														
Materials Handling https://www.materialshandling.com.au						✓	✓	✓			✓					✓	✓	
Spacepac http://ev.spacepac.com.au						✓	✓											
Spacepac Solutions http://www.spacepac.com.au						✓	✓								✓	✓		
Draffin http://draffin.com.au								✓							✓	✓		
Electrodrive / Lift Master http://www.electrodrive.com.au						✓		✓										
Absorbenviro http://www.absorbenviro.com.au											✓							
Trade Environmental http://www.tradeenviro.com.au											✓							
Spillstationaustralia www.spillstation.com.au											✓							

Waste Management Equipment	Balers	Compactors	Shredders	Glass Crushers	Chutes	Bin Tugs / Trailers	Trolleys / Manual Handling Equipment	Bin Lifters / Tipplers	Bin Rotation	Weighing Systems	Spill Containment, Spill Response, Absorbents, Drain Protection	Food Waste Management / Vacuum Systems, Pulping, Digestors	Composting	Waste Cooking Oil Systems	Smoking Management	Bins (General), Bin Stands	Bin Cleaning Equipment	Sorting Equipment
Pulpmaster http://pulpmaster.com.au												✓						
Australian Vacuum Systems http://www.australianvacuumsystems.com.au												✓						
Meiko https://www.meiko.com.au												✓						
Closed Loop Organics https://closedloop.com.au/upcycling-products													✓					
Compost Revolution https://compostrevolution.com.au													✓					
Urban Composter https://www.urbancomposter.com.au													✓					
ORCA Digester https://www.feedtheorca.com													✓					
Cookers https://www.cookers.com.au														✓				
Rubbermaid https://rubbermaidcommercial.com.au/products/waste-management							✓				✓				✓	✓		
Sulo http://www.sulo.com.au							✓						✓			✓		
Australian Waste Management http://www.australianwastemanagement.com.au/products								✓								✓		

B.6 Refuse Management Service Providers

	Food Waste	Waste Cooking Oil	Hazardous Waste	Liquid Waste	Electronic Waste	Industrial Waste	Construction & Demolition Waste	Waste Water	Secure Document Destruction
Specialist Waste Services									
Cleanaway * https://www.cleanaway.com.au		☑	☑				☑	☑	
JJ Richards * https://www.jjrichards.com.au		☑	☑	☑		☑	☑	☑	
Veolia * https://www.veolia.com/anz			☑	☑	☑		☑	☑	☑
Suez * https://www.suez.com.au				☑	☑		☑	☑	
SecondBite https://www.secondbite.org	☑								
OZ Harvest https://www.ozharvest.org	☑								
Cookers https://www.cookers.com.au		☑							
ToxFree https://www.toxfree.com.au			☑		☑	☑			
AceWaste https://www.acewaste.com.au			☑			☑			

Appendix C Refuse Signage

C.1 Refuse Signage

Waste signage guideline are provided by the Queensland government:

<https://www.qld.gov.au/environment/pollution/management/waste/recovery/recycling/signage>.

General Refuse Signage



Other Refuse Signage



Colour coding as per AS 4123.7-2006

Mixed (Commingled) Recycling	PMS 108
General waste (landfill)	PMS 032C
Organics	PMS 15-0343
Paper and cardboard recycling	PMS Process Blue C
Soft Plastics	PMS 1655
Used Cooking Oil	Grey

C.2 Other Refuse, Facility and Safety Signage

Various signage including refuse area, safety and facility signage should be arranged through certified signage providers. Example signs can be found at <http://www.signblitz.com.au>, <https://www.wayout.com.au> or <https://www.smartsign.com>.

Example Refuse Room Signage



Example Facility Signage



Example Safety Signage



Appendix D Terms and Abbreviations

In this OWMP, a term or abbreviation has the following meaning unless indicated otherwise:

TERM	ABBREVIATION	DEFINITION
Equipment		
Bin (Refuse Bin)		A plastic or steel container for disposal and temporary storage of waste or recycling items. Various types and sizes exist for different items and purposes. Examples include residential unit bins, bulk bins, MGB, steely bins and specialised for medical waste or cigarette butts.
Bin Storage Area		An enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Bin		A galvanized or steel bin receptacle that is greater than 360L in capacity generally ranging from 1.00m ³ to 4.50m ³ used for the storage of refuse that is used for on-site refuse collection.
Bulk Mobile Garbage Bin	Bulk MGB	A plastic (polypropylene) receptacle that is greater than 360L in capacity generally ranging from 660L to 1100L used for the storage of refuse.
Collection Point		An identified position where refuse bins are stored for collection and emptying. The collection point can also be the bin storage area.
Compactor		A receptacle that provides for the mechanical compaction and temporary storage of refuse. It allows to reduce bin numbers and collection frequency.
Composter		A container or machine used for composting specific food scraps and/or organic materials.
Food Waste Recycling System		Defined as a vacuum or pump-based system for shredding, macerating or pulping of food waste. The food waste is transferred through pressure (service) pipes to sealed liquid storage tanks.
Green Waste		All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers.
Liquid Waste		Non-hazardous liquid waste generated by commercial premises should be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste).
Mobile Garbage Bin	MGB	A plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360L in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste		Putrescible waste is the component of the waste stream liable to become putrid and usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling		Recycling contains all material suitable for re-manufacture or re-use, e.g. glass bottles and jars; plastics such as PET, HDPE and PVC; aluminium aerosol and steel cans and lids; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse		Refuse is material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items.
Refuse Storage Room		An area identified for storing on-site MGBs or Bulk Bins within the property.
Refuse Trolley		A cart on wheels that can be used to collect smaller quantities of refuse from different areas or rooms of a building or site, and wheel the collected refuse to a (bulk) bin storage area where it is disposed. Refuse trolleys are commonly used in hotels or offices.
Regulated Waste		Regulated waste is waste prescribed under legislation as regulated waste.

TERM	ABBREVIATION	DEFINITION
Transfer (Manual Transfer)		Manual transfer means physical transfer of refuse material and associated bulk bins or trolleys without assistance.
Waste		Waste is referred to as refuse material with the exclusion of recycling, green waste, hazardous waste, special waste, liquid waste and restricted solid waste.
Waste (General Waste)		General waste is generally referred to as material free of any actual or apparent contamination such as pathological / infectious, radioactive materials and / or hazardous chemical. Reporting use is for material considered to be free of food waste.
Wheelie Bin		A MGB of up to 360L, usually with 2 wheels for easy transfer. A common type is a 240L wheelie bin used for kerbside collection in many residential areas.
Measures		
Cubic Metre	m ³	Volume in cubic metre(s) related to refuse management equipment.
Ground Floor Area	GFA	The GFA of all storeys of a building is measured from the outside of the external walls or the centre of a common wall. It is commonly measured in square metres.
Kilogram	kg	Kilogram(s) related to refuse weight.
Litre	L	Litre(s) related to refuse volumes.
Square Metre	m ²	Square metre(s) related to refuse areas.
Ton	T	Ton(s) related to refuse weight.
Collection Vehicles		
Body Truck		A conventional heavy vehicle with a covered loading area. It is generally not specifically designed for emptying the content of bins into the truck during refuse collections, but can be used to carry entire (full) bins for servicing by bin swap-over.
Refuse Collection Vehicle	RCV	A vehicle specifically designed for collecting and emptying refuse bins and refuse compactors.
Rear-End-Loading Refuse Collection Vehicle	REL RCV	A truck specially designed to collect municipal solid waste and recycling, typically 240L wheelie bins to 1100L bulk bins, from rear loading mechanism and haul the collected waste to a solid waste treatment facility.
Tank Truck		An RCV that is specifically designed to collect liquid wastes such as waste cooking oil and food waste pulp. The waste is typically pumped from a waste storage tank into the truck via a hose. Liquid waste management equipment is often provided by the contractor who collects the waste and operates the truck.