Operational Waste Management Plan

Proposed Commercial Development- Paramatta Leagues Club

At 1 Eels Place, Paramatta

On behalf of APP Corporation

About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

T: (07) 3327 9500
F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au

Revision Record

No.	Author	Reviewed/Approved	Description	Date
1.	R. Kochhan	S. Kenny SDK	Draft	08/11/2018
2.	A. Stamatiou	S. Kenny	Draft Sub	19/11/2018
3.	R. Kochhan	S. Kenny	Final Sub	28/11/2018
4.	A. Stamatiou	S. Kenny	Final Sub	04/12/2018
5.				

Level 8, 369 Ann Street, Brisbane. PO Box 12015 George Street Brisbane QLD 4003

Executive Summary

The proposed development at 1 Eels Place, Paramatta will be a hotel and ancillary uses, with associated access and public domain works. This includes hotel suites, function and meeting rooms, café and sports training and leisure facilities.

An Operational Waste Management Plan (OWMP) is required, for the development, to comply with the NSW Department of Planning - Secretary's Environmental Assessment Requirements (SEARs) and associated conditions. The OWMP is also required to meet the waste management assessment criteria contained within the City of Parramatta - Development Control Plans for new developments.

The OWMP, therefore, has been developed as an amendable report for the purposes of:

- Outlining base design requirements for the separation, handling, storage and collection of waste and recycling materials generated by the development.
- Providing information relating to future or alternative processes and equipment that can be implemented or integrated within the developments base design*.
- Providing ongoing building design documentation and operating information for the development builders, site managers, occupants and associated operations.
- Provide support documentation to achieve environmental sustainability for the development.

**All base design considers use of various refuse separation and associated equipment throughout the development i.e. refuse room sizes and collection areas include capacity for any configuration of equipment without footprint or structural change to current building designs.*

All aspects of the OWMP and development design for the management of waste is compliant with SEARs conditions 11, 18 and 19 as shown in the compliance summary table below. The OWMP complies with City of Parramatta development control plans. Reference should also be made to the Planning for Waste Minimisation and Management – Compliance Checklist.

SEARs Compliance Summary

Condition	Description	Demonstrated Compliance
11	**Ecologically Sustainable Development ESD** Detail of how best practice ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development,	Full excerpt is shown in Appendix E ↵
	Environmental Planning and Assessment Regulation 2000 – Clause 7(4) 7 Content of environmental impact statement *(4) The principles of ecologically sustainable development are as follows:*	↵
	(a) the *precautionary principle*, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:	↵
	(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and	The entire report contributes to overall compliance for waste management elements and aligns to the ESD Principles All report sections and appendices provide a level of evaluation which culminates in design outcomes for waste rooms that provide appropriate space and connection to service vehicle loading areas. All waste collections are completed within the building loading dock and therefore limit external impact to the environment. Reference: Sections 5 & 6 and Appendix B&C provide specific information with regard to design and operational requirements. Reference can also be made to the Planning for Waste Minimisation and Management – Compliance Checklist

Condition	Description	Demonstrated Compliance
	(ii) an assessment of the risk-weighted consequences of various options,	The entire report contributes to overall compliance for waste management through assessment of volumes and provision of design space and equipment elements including the capacity to support multiple equipment scenarios. Reference: All Sections and Appendices, provide specific information with regard to design and operational requirements.
	(b) ***inter-generational equity***, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,	The entire report contributes to overall compliance for waste management elements. Refuse Stream separation and alternate equipment have been included in the assessment and design outcomes. Reference Section 4 and Appendix C provide specific information with regards to refuse separation and volume reduction through optional equipment.
	(c) ***conservation of biological diversity and ecological integrity***, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,	The entire report contributes to overall compliance for waste management elements. The development cannot directly control external factors relating to this item but can improve the outbound material and manage collection vehicle requirements to lessen the impact, via the OWMP strategies Design outcomes consider all options for best practice and alternate equipment with capacity to utilise base waste management options or the alternate equipment. Items like food waste and recycling stream separation can be achieved under any scenario to minimise environmental impact. Refer: All Sections and Appendices,

Condition	Description	Demonstrated Compliance
	(d) ***improved valuation, pricing and incentive mechanisms***, namely, that environmental factors should be included in the valuation of assets and services, such as:	↵
	(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,	The entire report contributes to overall compliance for waste management elements. Refer to (b) disposal methods, storage and collections outcomes include capacity for value-add or avoidance / abatement options.
	(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,	Refer to (b) disposal methods, storage and collections outcomes include capacity for value-add or avoidance / reduction of higher cost waste streams.
	(iii) environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.	Refer to (b) disposal methods, storage and collections outcomes include capacity for value-add or avoida nce / abatement options
18	**Air Quality, Odour and Waste** The potential air quality**, odour and waste** impacts, during the construction and operation of the development and appropriate mitigation measures.	All refuse storage and collection areas are contained within the development building structure and will be appropriately temperature controlled and ventilated to minimise any odour impacts on the surrounding area. Refer to Sections 5&6 for recommended Design and Operational Requirements.
19	**Environmental, Construction and Site Management Plan** An Environmental and Construction Management Plan for the proposed works, and include: • community consultation, notification and complaints handling • impacts of construction on adjoining development and proposed measures to mitigate construction impacts • noise and vibration impacts on and off site	These elements do not relate to an operational waste management plan. A construction & demolition waste management plan should be completed by the builder or construction company prior to commencement of works. A template report may be completed for compliance however details for calculating the type and volume of material are not available until later stages in the building process.

Planning for Waste Minimisation and Management – Compliance Checklist

Objectives	Compliance	Comments
O.1 To reduce the quantity of waste and encourage the recycling of waste generated by demolition and the construction of new developments.	✓	The OWMP aims to reduce the quantity of waste and encourage the recycling of waste generated by the operational phase of the development. A separate waste management plan should be provided for demolition and construction wastes.
O.2 To encourage building design that will minimise waste generation over the lifetime of the building.	✓	Refuse arrangements, including manoeuvring, vehicle and storage areas/ collection points have been considered and are detailed below.
O.3 To ensure that the disposal of waste generated by a building's occupants over its lifetime is managed appropriately and efficiently.	✓	Refuse storage and collection arrangements are managed appropriately and efficiently. Further information is outlined below in the OWMP.
O.4 To ensure that waste storage facilities are located appropriately and do not impact negatively on the streetscape.	✓	The refuse rooms and storage/collection points are easily accessible for all users. Bin storage and collections are screened and do not have acoustic, odour or visual impacts on the site, surrounding properties or streetscape. Further details below.
O.5 To ensure that waste can be effectively collected and managed.	✓	Refuse storage and collection arrangements collected and managed effectively. Further information is outlined below in the OWMP.
O.6 To assist in achieving Federal and State Government waste minimisation targets.	✓	The OWMP aims to reduce the quantity of waste and encourage the recycling of waste generated by the operational phase of the development, to achieving Federal and State Government waste minimisation targets.

Contents

1 Introduction 12

1.1 Background 12

1.2 Scope 12

1.3 Site Location 13

1.4 Development Summary 14

1.5 Development Refuse Profile 15

2 Refuse Collection and Storage 16

2.1 Site Access Arrangements 16

2.1.1 RCV Arrangements 16

2.1.2 Loading Dock Access and Manoeuvring 17

2.1.3 Vehicle Descriptions and Estimated Demands 18

2.2 Building Refuse Storage 19

2.2.1 Standard Storage Configuration 21

3 Refuse Disposal Points 23

3.1 Roof Top Bar 24

3.2 Hotel Refuse (Levels 4-13) 26

3.3 Hotel Front of House (Level 3) 30

3.4 Function Centre (Level 2) 32

3.5 Sports and Leisure Centre (Ground Level to Level 1M) 35

3.6 Café (Ground Level) 37

3.7 Training Room and Staff Lounge and Amenities (Basement) 39

4 Alternate Refuse Disposal 41

4.1 Food Rescue 41

4.2 Glass Crushers 41

4.3 Food Waste Collection System 42

4.4 Balers 43

5 Recommended Design Requirements 45

5.1 Refuse Rooms 45

5.2 Waste Chutes 45

5.3 Bin Service Point 46

5.4 Storm Water Prevention and Litter Reduction 47
5.5 Ventilation 47
6 Recommended Operational Requirements 48
6.1 On-going Management 48
6.2 Waste Minimisation 48
6.2.1 Education 48
6.2.2 Monitoring and Review 48
6.2.3 Signage 49
6.3 Safety 49
6.4 Operational Equipment 49
6.5 Operational Equipment Suppliers 49
Appendix A Detailed Refuse Calculations 51
Appendix B Refuse Collections and Storage 53
B.1 RCV Swept Paths 54
B.2 Refuse Room Standard Configuration 57
Appendix C Systems and Specifications 59
C.1 Refuse Storage Bins 60
C.2 Refuse Room Equipment Specifications 61
C.3 Refuse Chutes 63
C.4 Bin Rotation Equipment 65
C.4 Waste Oil 66
C.5 Cardboard and Plastic Baler 67
C.6 Pulpmaster Food Waste System 68
C.7 BottleCycler Glass Crusher Specifications 71
Appendix D Refuse Signage 72
Appendix E Excerpt: Environmental Planning and Assessment Regulation 2000_Schedule 2_7(4) 75

Table Index

Table 1.1: Development Summary 14
Table 1.2: Refuse Summary 15
Table 2.1: Refuse Summary 18
Table 3.1: Rooftop Bar Disposal 24
Table 3.2: Rooftop Bar Miscellaneous Disposal 26
Table 3.3: Hotel Suite Disposal 26
Table 3.4: Hotel Suites Miscellaneous Deposal 29
Table 3.5: Hotel Front of House Disposal 30
Table 3.6: Hotel Front of House Miscellaneous Disposal 31
Table 3.7: Function Centre Disposal 32
Table 3.8: Function Centre Miscellaneous Disposal 34
Table 3.9: Sports and Leisure Centre Disposal 35
Table 3.10: Sports and Leisure Centre Miscellaneous Disposal. 37
Table 3.11: Café Disposal 37
Table 3.12: Café Miscellaneous Disposal 39
Table 3.13: Training Room and Staff Lounge Disposal 39
Table 3.14: Training Room and Staff Lounge Miscellaneous Disposal 40
Table 6.1: Operations Equipment 49
Table 6.2: Equipment Suppliers 50

Figure Index

Figure 1.1: Refuse Life Cycle 12
Figure 1.2: Site Location (map view) 13
Figure 1.3: Site Location (satellite view) 13
Figure 1.4: Proposed Development 14
Figure 2.1: Site Access 16
Figure 2.2: Site and Loading Dock Entry Manoeuvre 17
Figure 2.3: Site and Loading Dock Exit Manoeuvre 17
Figure 2.4: Loading Dock Clearance and Bin Manoeuvre 18
Figure 2.5: Basement Refuse Room 19
Figure 2.6: Ground Floor Refuse Room 20
Figure 2.7: Ground Floor Refuse – Temporary Bin Area 21
Figure 2.8: Waste Room Configuration 22
Figure 2.9: Waste Room Configuration – Standard with Food Waste 22
Figure 3.1: Refuse Trolley 23
Figure 4.1: BOTTLECYCLER Glass Crushing Machine 41
Figure 4.2: Pulpmaster 42
Figure 4.3: Example Food Waste Vacuum System 43
Figure 4.4 Typical Baler 43
Figure 4.5 Multi Chamber Slide Baler 44

Glossary

In this waste management plan, a term or abbreviation has the following meaning, unless the subject matter otherwise indicated:

TERM	DEFINITION
Baler	A baler is a device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by wire ties and strapping. It is commonly used to bale cardboard and soft plastics (plastic film).
Bin Hitch	A bin hitch is a galvanized steel bar or similar which allows connection between a bin and a towing vehicle (All-Terrain vehicle, Utility Vehicle, or Bin Tug). The bin hitch is typically fixed to the base of the bin and designed to connect to a towing vehicle or another bin. Bin to bin connection allows for towing of multiple bins with the lead bin connected to the towing vehicle.
Bin Storage Area	A Bin Storage Area in an enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bin Tug	An electric Bin Tug is a battery-powered and pedestrian-operated machine used to move heavy loads on wheels. If the load itself does not have wheels, it would be placed on a wheeled platform often referred to as a trolley, bogie or skate.
Bulk Bin	A Bulk Bin is a galvanized or steel bin receptacle that is greater than 360 litres in capacity generally ranging from 1.00 m^3 to 4.50 m^3 used for the storage of refuse that is used for on-site refuse collection.
Bulk Mobile Garbage Bin (MGB)	A Bulk Mobile Garbage Bin is a plastic (polypropylene) receptacle that is greater than 360 litres in capacity generally ranging from 0.66 m^3 to 1.10 m^3 used for the storage of refuse.
Chute Discharge	A Chute Discharge is the point at which refuse exits from the refuse chute.
Chute Discharge Room	The Chute Discharge Room (separate to a Bin Storage Area) is an enclosed area or room housing the discharge and associated equipment for the refuse chute.
Collection Point	The Collection Point is an identified position where refuse bins are stored for collection and emptying. For Bulk Bins, the collection point can also be the bin storage area.
Compactor	A machine for compressing waste into disposable or reusable receptacles.
Composter	A Composter is a container or machine used for composting specific food scraps and/or organic materials.
Cubic Metre (m^3)	Cubic capacity in Cubic Metre(s) related to refuse areas or equipment.
Food Waste Recycling System (FWRS)	A Food Waste Recycling System is 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.
Ground Floor Area (GFA)	Area related to buildings and rooms.
Hopper	A hopper is a fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit, and it is typically mounted on a wall.

TERM	DEFINITION
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).
Litre (L)	Litre(s) related to refuse volumes.
Mobile Garbage Bin (MBG)	A Mobile Garbage Bin is a plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360 litres 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 Bin	A refuse bin is a receptacle used for the storage of refuse, e.g. Mobile Garbage Bins ('wheelie bins'), bulk Mobile Garbage Bins or Bulk Bins.
Refuse Chute	A Refuse Chute is a ventilated, essentially vertical pipe passing from floor to floor of a building for the purpose of refuse disposal, with openings as required to connect with hoppers and normally terminating at its lower end at the roof of a central refuse room.
Refuse Collection Vehicle (RCV)	A Refuse Collection Vehicle is a vehicle that is specifically designed for collecting and emptying refuse bins and refuse compactors.
Refuse Compactor	A Refuse Compactor is a receptacle that provides for the mechanical compaction and temporary storage of refuse. It allows to reduce bin numbers and collection frequency.
Refuse Storage Room	A Refuse Storage Room is an area identified for storing on-site Mobile Garbage Bins or Bulk Bins within the property.
Refuse Tolley	A Refuse Trolley is 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 Trolley are commonly used in hotels.
Regulated Waste	Regulated Waste is waste prescribed under legislation as regulated waste.
Square Metre (m^2)	Square Metre(s) related to refuse areas.
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.
Collection Vehicles	
Rear-Loading RCV	A Rear-Loading RCV is a truck specially designed to collect municipal solid waste and recycling, typically 240 litre wheelie bins to 1100 litre bulk bins, from rear loading mechanism and haul the collected waste to a solid waste treatment facility.

1 Introduction

1.1 Background

TTM have been engaged by AAP Corporation to prepare an OWMP to support the proposed Parramatta Leagues Club - Hotel Development. The development is located within the Paramatta Leagues Club property as shown in Section 1.3. It is understood that this report will accompany a development application and associated environmental impact statement for consideration authorities.

1.2 Scope

The assessment and associated recommendations include alignment with the City of Paramatta Council Development Control Plan 2011, specifically Appendix 8, Sections A8.6 All Commercial Developments and A8.7 Food Business. TTM has also referred to the NSW Secretary's Environmental Assessment Requirements (SEARs) dated 6 November 2017.

The items covered within the report include:

- Identification of refuse streams and anticipated volumes that will be produced within the development;
- Appropriate segregation methods for each refuse stream;
- Details of refuse storage facilities & design;
- Internal waste systems, equipment and ongoing management;
- Waste minimisation arrangements.
- Refuse Collection vehicle (RCV) access and manoeuvrability; and
- General Safety.

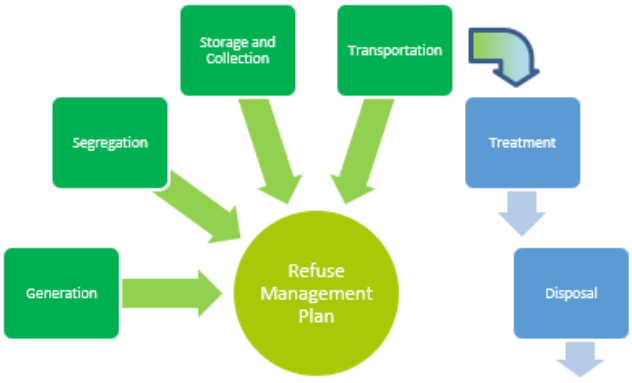


Figure 1.1: Refuse Life Cycle

The recommendations for refuse collection relate to the operational phase of the development only and do not include additional requirements during or after demolition or construction phases, which requires its own separate plan.

1.3 Site Location

The Paramatta Leagues Club property is located at 1 Eels Place, Paramatta. The proposed building will be located to the south / rear of the existing Paramatta Leagues Club building and north of Parramatta Stadium (undergoing redevelopment). Service vehicle access is to occur from Ross Street (Future Extensions) shown in Figure 1.2 to Figure 1.4.

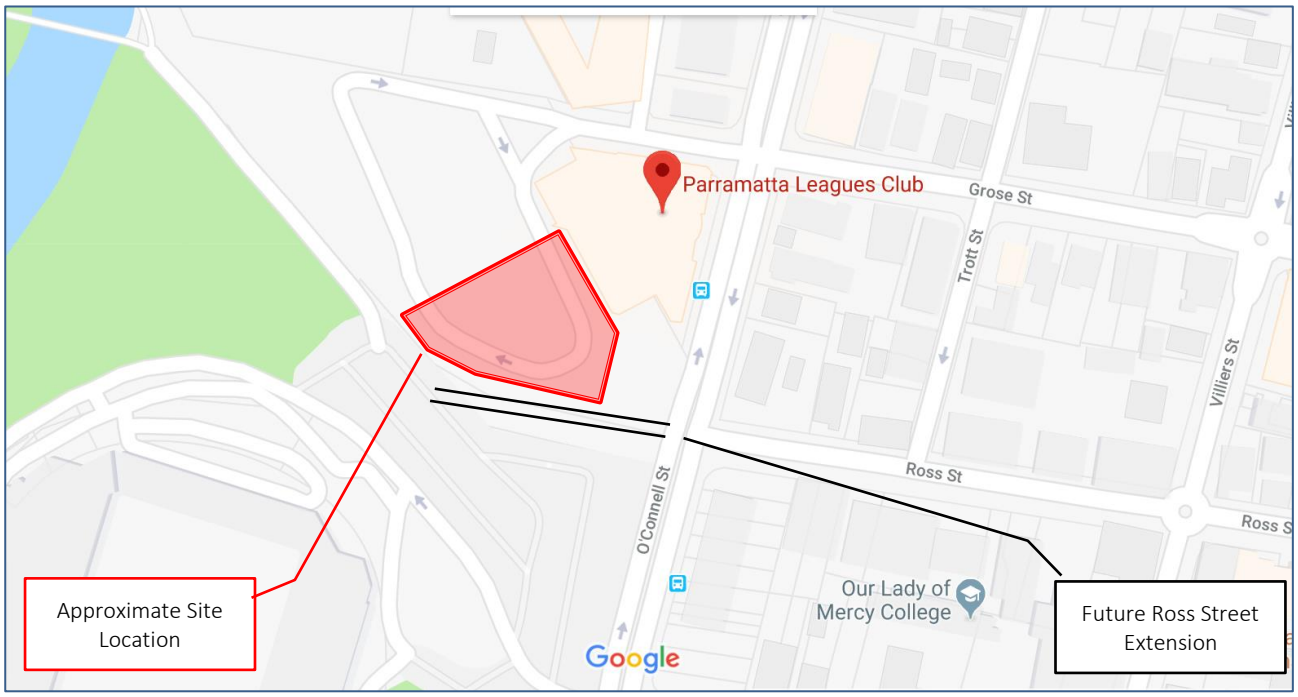


Figure 1.2: Site Location (map view)

Figure 1.3: Site Location (satellite view)

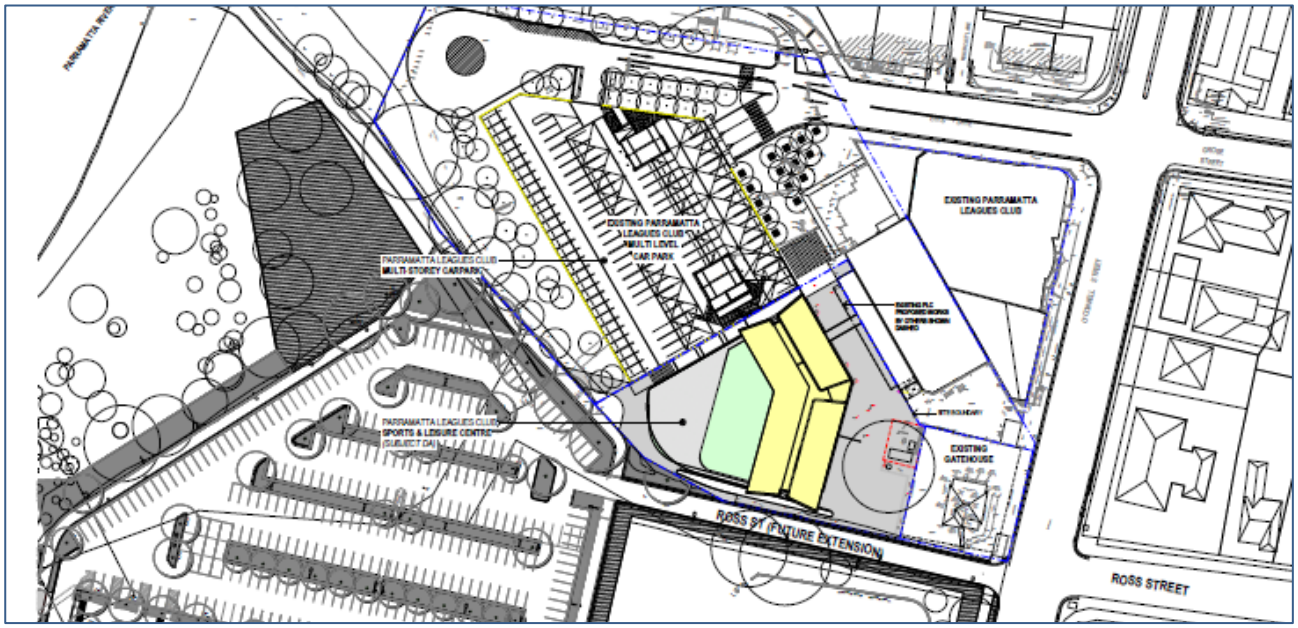


Figure 1.4: Proposed Development

1.4 Development Summary

The proposed 14 level development consists of a hotel and ancillary uses, with associated access and public domain works. This includes hotel suites, function and meeting rooms, café and sports and leisure facilities, including pool on ground level. Table 1.1 contains a summary of the development.

Table 1.1: Development Summary

Level Description	Use Description
Basement	• Building Plant • Storage • Training Room and Staff Lounge • Change Rooms
Ground	• Pool • Change Rooms • Lobbies • Café • Loading Dock
Level 1	• Gym including Admin
Level 2	• Gym and Staff Room
Level 3	• Kitchen • Meeting Rooms / Function Rooms • Storage
Level 4	• Building Plant
Level 5	• Hotel Suites • Garden Terrace
Level 6-14	• Hotel Suites (Typical Floors)

	• Hotel Suites • Building Plant
Level 16	• Rooftop Bar • Conference Room

1.5 Development Refuse Profile

This section summarises the estimated refuse generated by the development as outlined in Section 1.4. The figures in Table 1.2 demonstrate the anticipated volumes for each of the commonly separated refuse streams to assist in identifying recycling or re-use opportunities for onsite volume reduction and processing equipment. Information provided throughout the report aligns with the refuse streams presented.

Table 1.2: Refuse Summary

Level	Description	GFA (m^2)	Waste Streams (Litres per Week)		Recycling Streams (Litres per Week)			
			Waste	Food Waste	Commingled	Cardboard	Paper	Infrequent Disposal (E-waste and Bulk Items)
Ground	Lobby Café	160	1120	1120	1960	2408	896	336
	Admin	37	39	13	23	28	10	4
	Fitness & Wellness Centre Reception	72	76	25	44	54	20	8
1	Gym	1561	1093	0	382	470	175	66
2	Gym	89	93	31	55	67	25	9
	Staff Room	1196	837	0	293	360	134	50
3	Function (including kitchen)	1477	3102	4136	5428	6669	2481	931
	Meeting Rooms (2)	80	280	112	441	542	202	76
5-15	Hotel Rooms	5788	8103	6077	3545	4355	1621	608
16	Roof Terrace Bar	500	3500	1400	1838	2258	840	315
	Conference Room	80	280	112	441	542	202	76
Total		**11040**	**16377**	**18523**	**13026**	**14449**	**17752**	**6605**

All calculations and equipment requirements are based on the development schedules and associated waste generation rates as outlined in the detailed information in Appendix A.

2 Refuse Collection and Storage

This section describes the building access arrangements for the collection of refuse and associated storage facilities, capacity, equipment and frequency of collections.

The refuse rooms and loading areas as outlined in this report are considered sufficient and appropriate for this development. Section 2.1 refers to the refuse vehicle site access. Section 2.2 outlines refuse storage arrangement within the building.

2.1 Site Access Arrangements

All RCV's will enter the proposed Ross Street Extension on the site's south-eastern boundary. Reference should be made to the site traffic engineering report for full details on site entry arrangements and access to the Ross Street Extension. The site access is depicted in Figure 2.1.

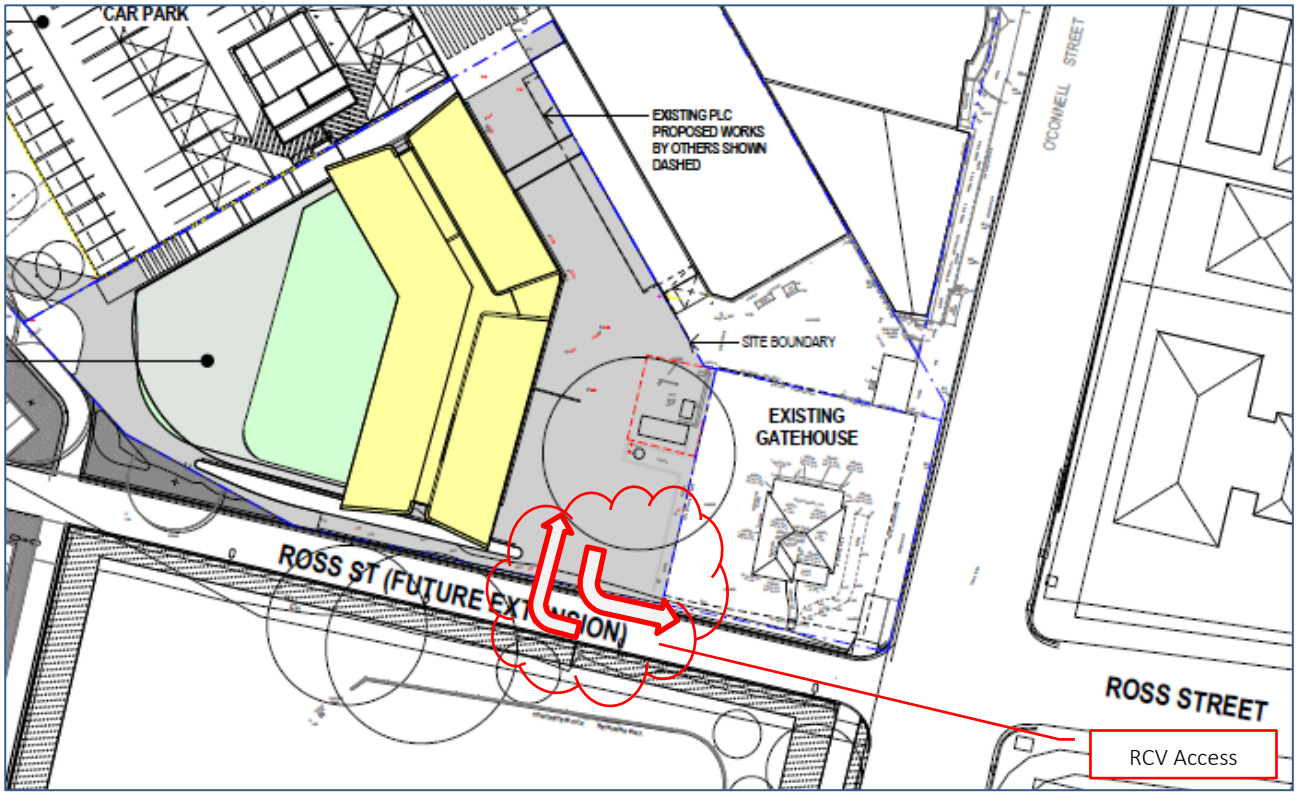


Figure 2.1: Site Access

2.1.1 RCV Arrangements

The proposed collections will occur by private contractors. Private contractors will typically complete a risk assessment on the space allocated and manoeuvring within all entry and service point areas prior to commencement of service. Assignment of the size and type of vehicle used by the contractor is determined by the risk assessment and type of material to be collected. Information relating to the maximum sized refuse vehicle that may be used is outlined in Section 2.1.2.

2.1.2 Loading Dock Access and Manoeuvring

The loading dock and access is located on the eastern side of the building. The loading dock allows suitable manoeuvring clearance for a collection vehicle up to 10.3m in length with a clearance envelope of 500mm and a minimum 1.5m clearance at the rear of the vehicle for manoeuvring of bins and operation of the RCV.

The vehicle length as described above is consistent with the range of RCV lengths (6.7m to 10.3m) used by private contractors for large building / loading dock collections and for all refuse material types. Figure 2.2 and Figure 2.3 demonstrate entry to and exit from the site and manoeuvring to the servicing point.

Figure 2.2: Site and Loading Dock Entry Manoeuvre

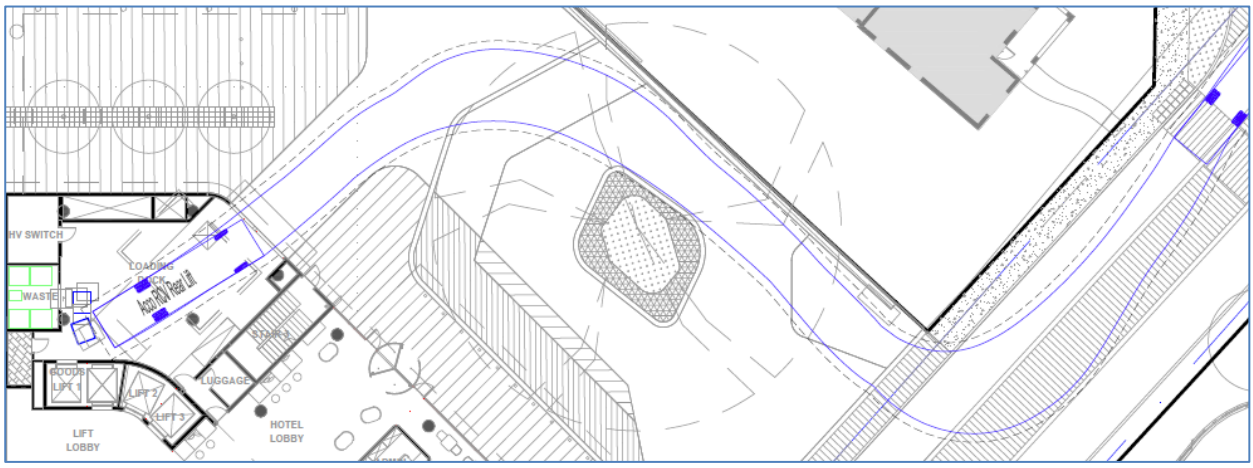


Figure 2.3: Site and Loading Dock Exit Manoeuvre

Figure 2.4 demonstrates clearances within the loading dock when the vehicle reaches standing position for servicing, with bin manoeuvring to the rear of the RCV is also demonstrated. The bin room will have sliding door. All swept path drawings are available in Appendix B.

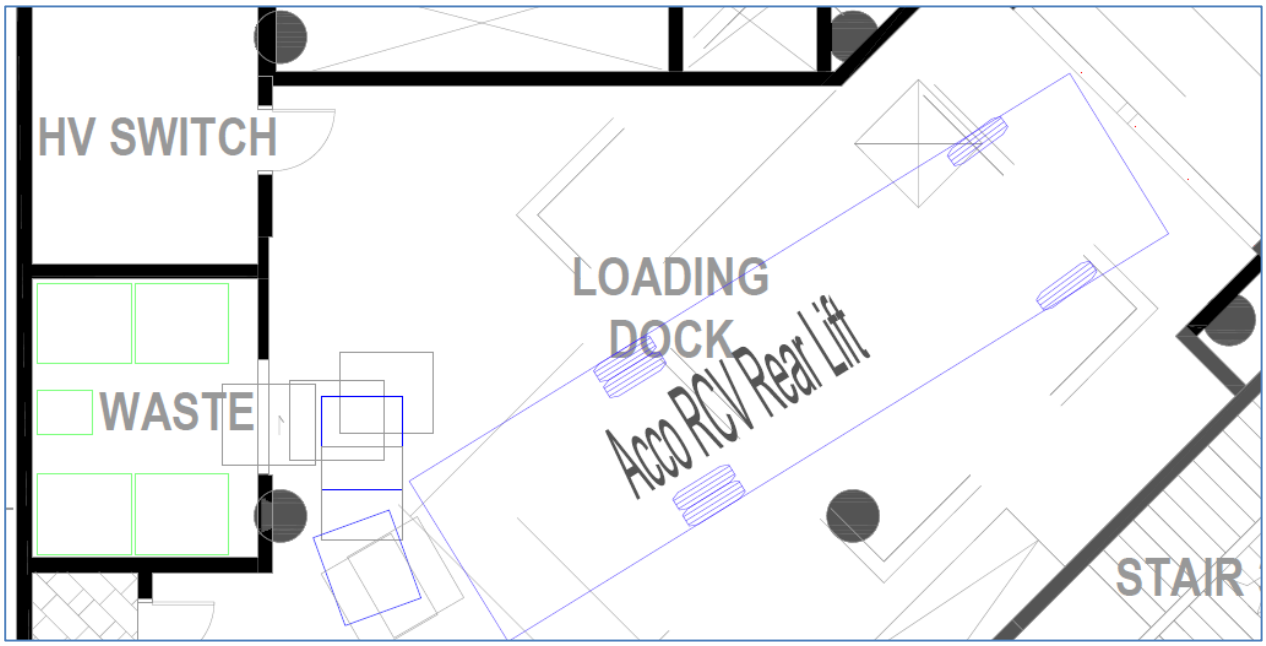


Figure 2.4: Loading Dock Clearance and Bin Manoeuvre

2.1.3 Vehicle Descriptions and Estimated Demands

Table 2.1 outlines the vehicles and estimated entry frequencies required to service the site refuse. The frequencies or entries are based on all options for refuse stream separation with bin service only. The type of vehicles allocated, and demand will be subject to final design and potential selection of volume reduction equipment. The figures demonstrated apply as a maximum demand.

Table 2.1: Refuse Summary

Refuse Stream	Refuse Room Storage Capacity	Vehicle Type	Vehicle Entries per Week
General Waste *	1 Day	Rear-Lift RCV	7 or 4*
Food Waste **	1 Day	Rear-Lift RCV or Vacuum Tanker	7
Commingle Recycling	2 Days	Rear-Lift RCV	4
Cardboard ***	1 Day	Rear-Lift RCV	7
Paper	2 Days	Rear-Lift RCV	4
Glass	3 days	Side-Lift RCV	3

* Waste vehicle entry is reduced to 4 entries per week with inclusion and separation of the food waste stream. Note that removal of food waste will allow for longer storage.

** Food waste collections only apply if separated from general waste. Vehicle entry is further reduced to 1 to 2 entries per week with

introduction of a food waste pulping or macerating system serviced by vacuum tanker.
*** Carboard vehicle entry is reduced to 1-to 2 entries per week with introduction of baler. Baled material is collected by a Rear-Lift RCV or MRV Body Truck.

2.2 Building Refuse Storage

Central refuse storage has been created for the building. Refuse rooms are located on two floors (basement 1 for cardboard, paper and commingled recycling, and ground floor for waste and recycling) with one directly beneath the other, which provides multiple options for equipment and servicing and a total of 27.5 m^2 of refuse storage area. The refuse rooms are indicated in Figure 2.5 and Figure 2.6 and are suitably sized to accommodate the bins required for the development.

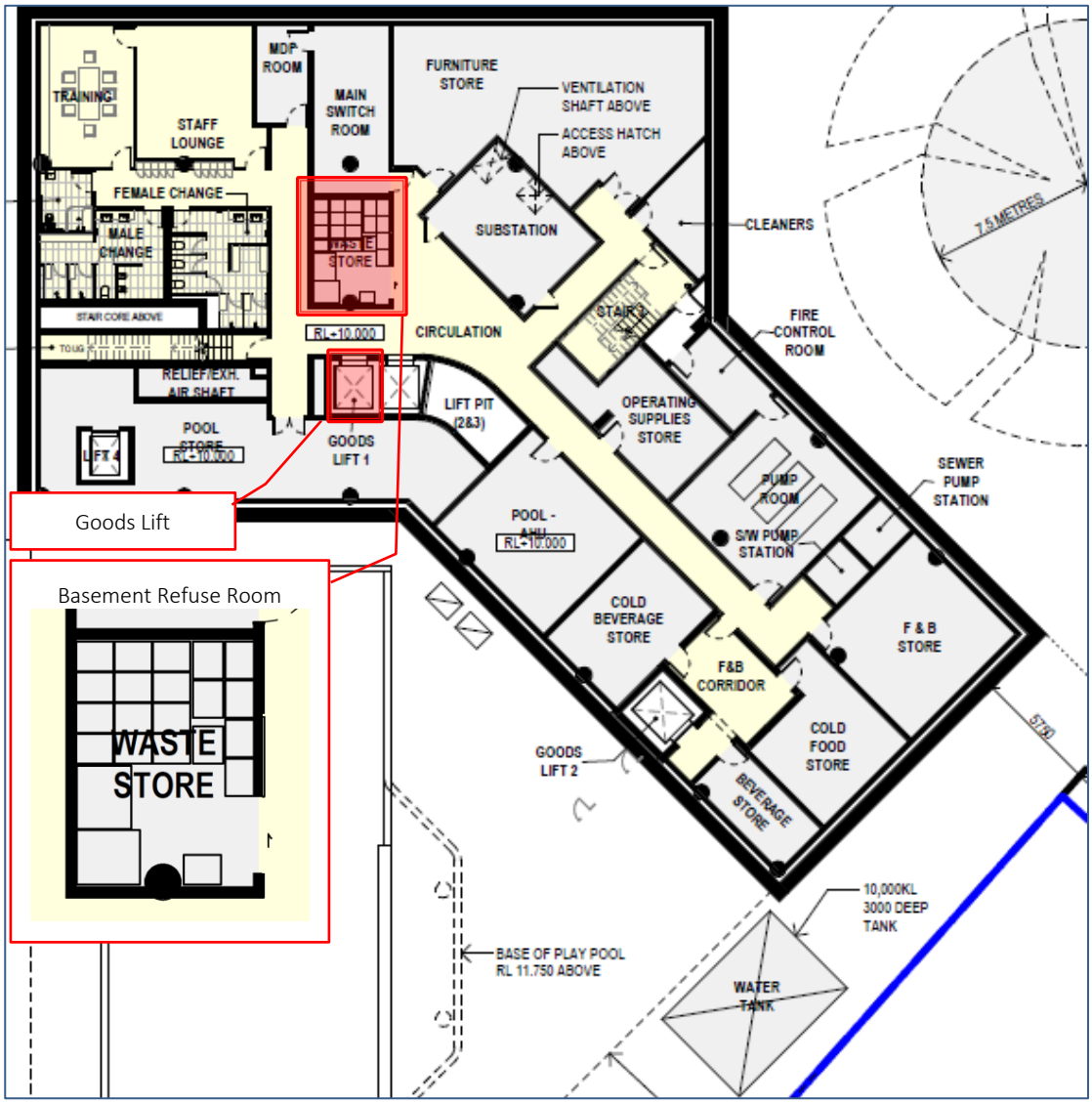


Figure 2.5: Basement Refuse Room

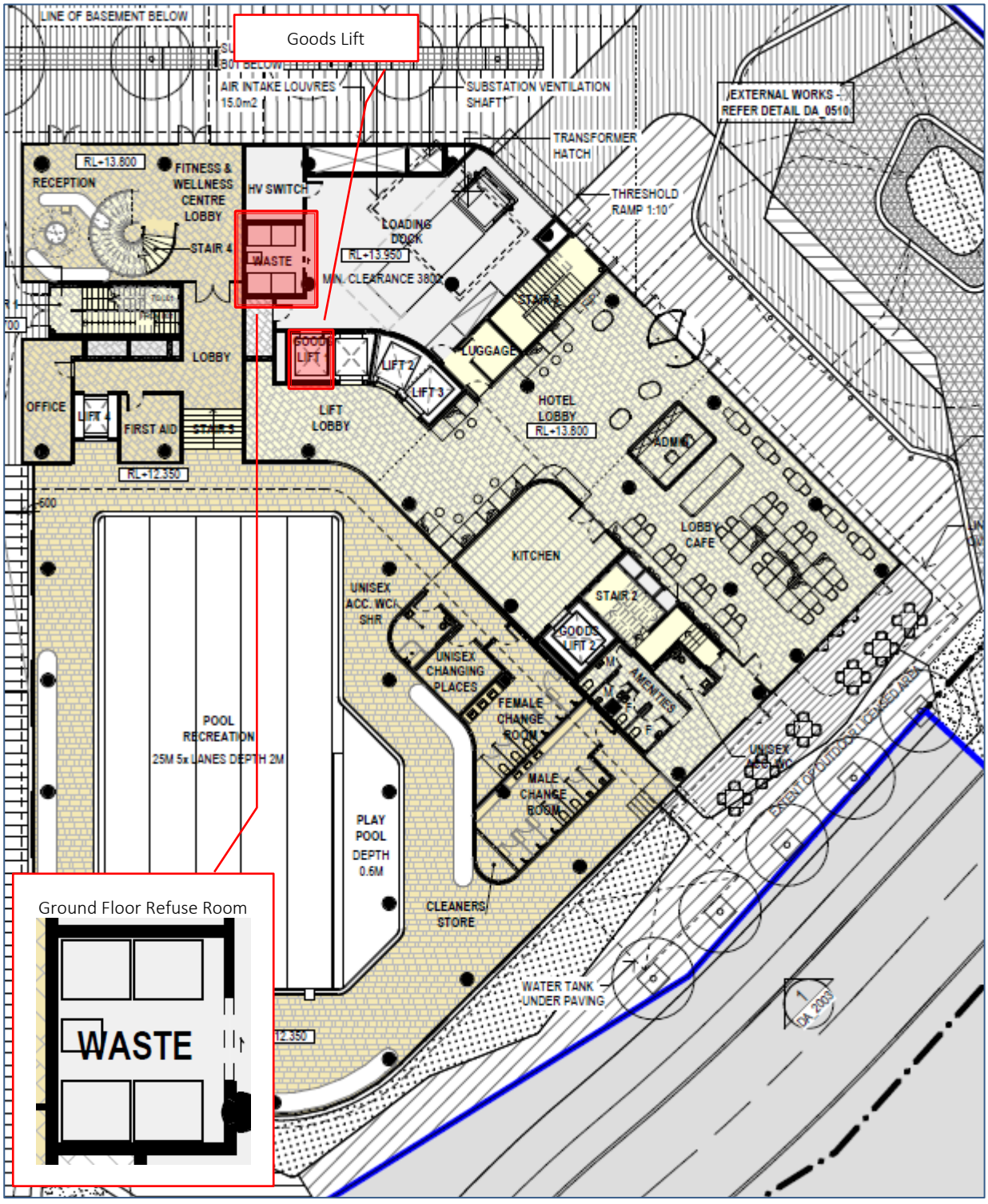


Figure 2.6: Ground Floor Refuse Room

The 11.0 m^2 ground level waste room opens directly onto the loading dock and is within 2.5 m of the RCV when in standing / loading position.

The second room is located within the basement level and the entry to the room is approximately 3.0 m to the goods lift for transfer of bins.

The goods lift access on the ground is also within 3.0 m of the RCV when in standing / loading position, therefore distance for transfer of bins from the basement level to the loading dock for service is under 10 m including the goods lift itself.

Depending on the refuse stream and number of bins to be collected, the RCV driver can either collect bins directly from the basement refuse room or bins can be pre-transferred to the area to the area adjacent to the ground floor refuse room (see Figure 2.7). This area is 4.5 m from the goods lift.

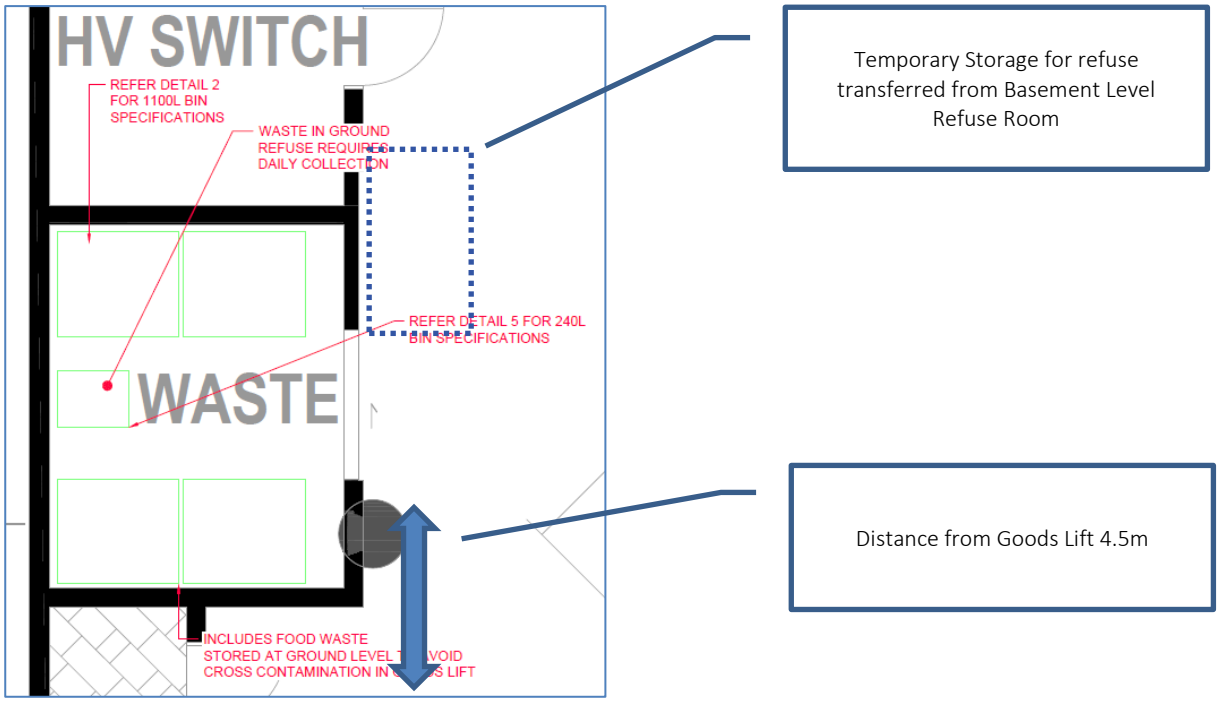


Figure 2.7: Ground Floor Refuse – Temporary Bin Area

The location of the two-refuse room allows for a number of options in relation to service and equipment. A standard configuration is provided in Section 2.2.1 which meets the requirements of this development.

The space provided is adequate for any variation of equipment use for each of the refuse streams outlined in this report. Alternate refuse separation or collection is outlined in Section 4. Disposal and transfer options for individual areas or levels is outlined in Section 3. All drawings are found in Appendix B.

2.2.1 Standard Storage Configuration

Figure 2.8 demonstrates appropriate sizing of the waste rooms including the required number of bins for each refuse stream and operating spatial configuration. The configuration shown is based on standard waste management practises and equipment, i.e. wheelie bin service only and no separation of food waste. Figure 2.9 shows an additional excerpt demonstrating food waste bins included at ground level under this configuration.

All drawings can be seen in Appendix B.

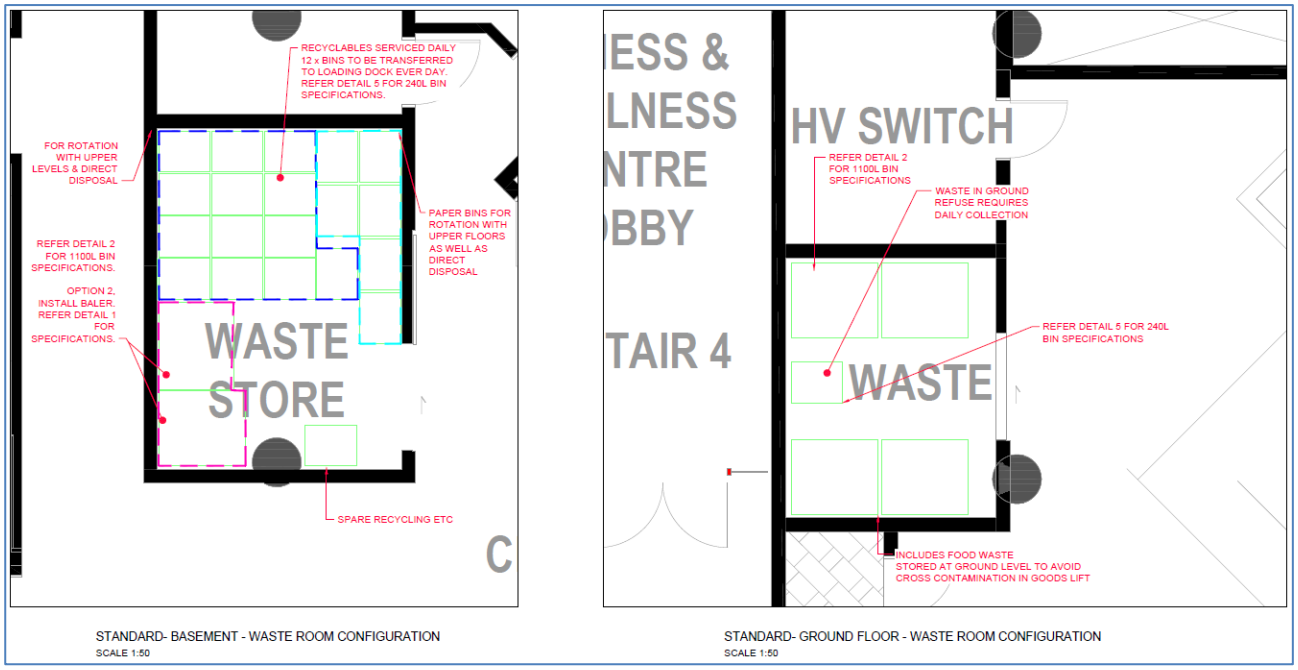


Figure 2.8: Waste Room Configuration

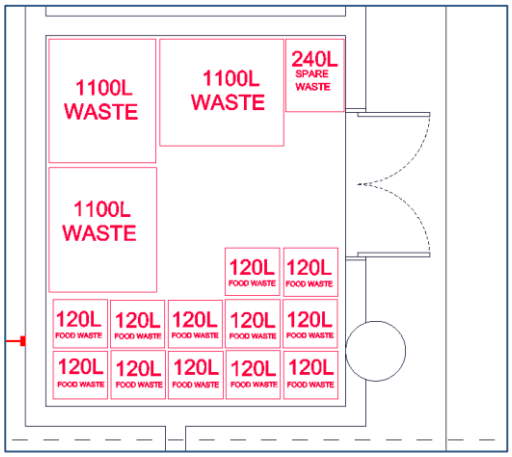


Figure 2.9: Waste Room Configuration – Standard with Food Waste

3 Refuse Disposal Points

The building will have multiple section for various uses. The sections will have their own refuse disposal arrangements.

At a minimum allowance will be made for a disposal point or refuse compartment on every level of the building. This can be in the form a walk-in room or space or a cupboard. Consideration can be given to the use of waste chutes for some or all the levels. Waste bins or waste access points should be placed within sealed and ventilated rooms or bins removed or decanted and transferred daily to the ground and basement refuse rooms. All areas providing food and beverage must have a BOH area assigned for refuse storage. Ideally, a cleaner refuse trolley as shown in Figure 3.1 should be placed where refuse is temporarily stored and transferred to the lower refuse rooms in bagged or loose form. Use of a trolley or similar reduces additional handling of the refuse and cluttering the floors of BOH areas. Standard requirements and alternate disposal options are outlined for each level in Sections 3.1 to 3.7. These sections will become more concise with the execution of detailed design and drawings for each level.

Figure 3.1: Refuse Trolley

The following tables summarise the requirements for frequently generated and infrequently generated refuse within the development.

3.1 Roof Top Bar

Typically, the roof top bar will have bins within in the bar for immediate disposal of refuse and BOH space for storage of bulk items such as carboard, plastic film and food waste as well as decanted waste and recycling bags from the bar area. Table 3.1 summarises the requirements for frequently generated and infrequently generated refuse.

Table 3.1: Rooftop Bar Disposal

Frequently Generated Waste Streams – Bars and Clubs	
Refuse Stream	**Disposal and Transfer Details**
General waste	*Disposal* At a minimum a waste bin up to 60 L capacity should located in the bar area. This also extends to specific points outside of the bar where staff may be required to clean tables etc. without returning to the bar. Placement of bins can be identified prior to the bar becoming operational. Where possible these bins should be accompanied by a recycling (glass or commingled bin). Waste bins should always be lined with bags and the bags tied before removal, the bagged waste should then be transferred to a back of house (BOH) bin up to 240 L or preferably a refuse trolley. *Transfer* All refuse should be placed in movable bins or trolleys and transferred via a goods lift or isolated general lift to ground floor for disposal into the 1100 L waste bins. Lifts should be sprayed and clean each time after transferring waste containers or trolleys it is recommended that a removable rubber mat be used in these lifts for easy removal and cleaning. Alternatively, refuse chutes may be used if available and accessible. *Refuse Chute (s)* Where waste chutes and chute access are available, smaller bins approximately 30 – 40 L should be used. The smaller bins are used to ensure bagged waste does not exceed the dimensions of the waste chute. Large waste items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for waste chutes allows discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.
Comingled Recycling including • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	*Disposal* At a minimum a recycling bin up to 60 L capacity should located in the bar area. This also extends to specific points outside of the bar where staff may be required to clean tables etc without returning to the bar. Placement of bins can be identified prior to the bar becoming operational. Where possible these bins should accompany a waste bin. The recycling bins should always be lined with bags. The bags used for recycling material can be re-used at least once prior to disposal. Recycling material is then disposed in loose form into 240 L MGB or preferably a refuse trolley. *Transfer* All refuse should be placed in MGBs or refuse trolleys. The bins or trolleys are then transferred via a goods lift or isolated general lift to the basement refuse rooms for final disposal into the 1100 L waste bins. Lifts should be sprayed and clean each time after transferring waste containers or trolleys it is recommended that a removable rubber mat be used in these lifts for easy removal and cleaning. *Refuse Chute (s)* Where waste chutes and chute access are available, smaller bins approximately 30 – 40 L should be used. The recycling material requires loose disposal and bins should be able to be carried to the refuse chute access and disposed of in loose form into the chute hopper. Large waste items cannot be placed in chutes and should be transferred to the basement refuse room independently. The option for waste chutes allows discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.

Frequently Generated Waste Streams – Bars and Clubs	
Refuse Stream	**Disposal and Transfer Details**
Cardboard & Plastic Film	*Disposal* Where possible large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to going to each floor. That involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods to each level. Where this material does make it to each a level, a bin, trolley or mobile container should be placed for disposal. Cardboard, plastic film and or packaging should not be placed on floors in refuse rooms or compartments as this causes tripping and slipping hazards. *Transfer* When already placed in a bin or trolley this material is easily transferred to the basement refuse rooms and decanted into the appropriate bin or baling equipment. For operational efficiency consideration can be given to placing fixed bins on each level and cleaners or building staff circulating with a mobile bin or trolley to each level to decant the fixed bins before returning to the basement level to dispose of the material. *Baler* A baler is recommended within the basement refuse rooms or loading dock area for this material. However, small BOH balers are also available as an option to reduce volume and transfer movements from each floor.
Paper	*Disposal* At least one bin (80 L to 240 L) should be placed on each level for separation and disposal of clean office paper, and other clean paper-based material. Office or administration areas should have allowance for a bin with the immediate areas and preferably within proximity to photocopiers or printers. Subject to the occupant's operations, smaller bins may also be placed in multiple locations and at desks to be collected by cleaners during their normal cleaning duties. The material should be decanted into dedicated bins on the cleaners' trolleys or in the larger 80 L to 240 L bins placed on each level. *Transfer* 240 L bins are exchanged (full for empty) as required with bins in the basement level refuse room.
Glass	*Disposal* Glass crushers are recommended as an alternative to placement of glass in the comingled stream, the crushers reduce the storage volume of glass by more than 75%. Glass crushers can be placed directly behind bars or in refuse compartments. Space would be required for the crusher itself and at least one 60 L bin for changeover during operating hours. *Transfer* Due to the weight of the crushed glass the material should either be transferred as a single bin, or the 60 L bins can be placed on a larger trolley for transport to the lifts and down to the ground floor refuse room. Exchange bins are included within the configurations for the refuse rooms.
Organic (Food) Waste	Organic or food waste separation may be considered to reduce the volume of waste produced. *Disposal* Food waste separation for the bar can occur under one of the following scenarios 1. Multiple caddy bins in kitchen or BOH areas, transferred and decanted into larger bins or food processing equipment. 2. 120 L bins in placed in BOH area.

Frequently Generated Waste Streams – Bars and Clubs	
Refuse Stream	**Disposal and Transfer Details**
	3. Food waste macerating or pulping machine placed in BOH area. The process works by anaerobic digestion and is a clean source of composting. *Transfer* 1. Caddy bins may be transferred to a machine or bin on the same level. Using a purpose-built trolley, the waste may be transferred directly to the ground floor refuse room for disposal into a larger bin or food waste macerating or pulping system. 2. 120 L bins may be transferred via lifts to the refuse room for disposal into larger (bulk) bins or food waste macerating or pulping system. Lifts should contain rubber floor mat or bins on a bunded trolley for transfer. 3. A food waste macerating or pulping system is typically placed near sink areas in the kitchen, particularly where food preparation waste or plate scrapings can be easily disposed. This method is a clean instantaneous transfer of food waste via sealed 50 mm service pipes to a holding tank in or around the loading bay area. This option can be used in conjunction with caddy bins placed next to sinks or food preparation areas and transferred as outlined in item 1.

Table 3.2: Rooftop Bar Miscellaneous Disposal

Infrequently Generated Waste Streams – Bars and Clubs	
Refuse Stream	**Disposal and Transfer Details**
Green Waste	Green waste is not typically produced from bar areas a commercial building of this type other than from surrounding landscaped areas. Green waste is usually removed by the designated maintenance contractor. The contractor engaged for this work 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 the designated rooms provided in the basement. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock 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 pallet a jack or forklift onto the collecting vehicle.
Hazardous waste (paints, batteries and cartridges) and Electronic Waste	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options. It is an expectation that the building mangers 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 council and state government websites for further information.

3.2 Hotel Refuse (Levels 4-13)

Table 3.3: Hotel Suite Disposal

Frequently Generated Waste Streams – Hotel Suites	
Refuse Stream	**Disposal and Transfer Details**
General waste	*Disposal* Each hotel suite should be provided with bin(s) for disposal of general waste. At least one bin should be supplied per suite. However, larger suites may include placement of a small bin within both the bathroom / toilet space and general room space linked to use of the desk or minibar (if provided).

Frequently Generated Waste Streams – Hotel Suites	
Refuse Stream	**Disposal and Transfer Details**
	At least one of these bins should be accompanied by a comingled recycling bin. The waste bins should always be lined with bags and the bags tied before removal. ***Transfer*** Bins are typically collected by hotel cleaners in the course of their normal duties and the bagged and tied waste decanted into larger bins or bags connected to cleaners' trolleys. The waste material is then transferred at the end of the shift with other items. Transfer of the material is via the goods lift or isolated general lift to the ground floor and basement waste rooms for final disposal into the 1100 L waste bins. Depending on the individual hotel operations waste transfer may be two staged to include disposal of material into 120 L or 240 L bins within a cleaner's room and subsequently transferred to the refuse rooms. Lifts should be sprayed and cleaned each time after transferring waste containers or trolleys. It is recommended that a removable rubber mat be used in these lifts for easy removal and cleaning. ***Refuse Chute (s)*** Direct disposal of waste can occur where waste chutes and associated access is provided to the individual hotel floor levels. Waste chutes are not typically available to the guests, but housed within a cleaner's room, BOH area or locked compartment. Large waste items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for waste chutes allows transfer and discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.
Food Waste	***Disposal & Transfer*** Food waste may be generated via uneaten room service meals or guest purchased takeaway foods. Typically, cleaners or room service staff will return trays / plates back to the kitchen for scraping and cleaning and the disposal process will then align with the kitchen as per the organics (food) waste section. Takeaway food waste should be disposed as per the general waste option. If the packaging is then viable for recycling, then the recycling process can be followed.
Comingled Recycling Including • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	***Disposal*** Each hotel suite should be provided with a bin for disposal of comingled recycling. At least one bin should be supplied per suite within the general room space linked to use of the desk or minibar (if provided) The comingled recycling bin should accompany a waste bin (generally side by side). ***Transfer*** Bins are typically collected by hotel cleaners in the course of their normal duties and decanted in loose form into larger bins or bags connected to cleaners' trolleys. The comingled recycling material is then transferred at the end of the shift with other items. Transfer of the material is via the goods lift or isolated general lift to the basement waste rooms for final disposal into the 1100 L waste bins. Depending on the individual hotel operations comingled recycling transfer may be two staged to included disposal of material into larger 120 L or 240 L bins within a cleaner's room prior to being transferred to the refuse rooms. ***Refuse Chute(s)*** Direct disposal of comingled recycling can occur where recycling chutes and associated access is provided to the individual hotel floor levels. Recycling chutes are not typically available to the guests, but housed within a cleaner's room, BOH area or locked compartment. Large recycling items cannot be placed in chutes and should be transferred to the basement refuse room independently. The option for recycling chutes allows immediate transfer and discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.

Frequently Generated Waste Streams – Hotel Suites	
Refuse Stream	**Disposal and Transfer Details**
Cardboard & Plastic Film	*Disposal* Where possible large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to going to each floor. That involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods to each level. Where this material does make it to each a level or is generated via hotel guests, e.g. takeaway food packaging, a bin, trolley or mobile container should be placed for disposal. Cardboard, plastic film and packaging should not be placed on floors in refuse rooms or compartments as this causes tripping hazards. *Transfer* When already placed in a bin or trolley, this material is easily transferred to the basement refuse rooms and decanted into the appropriate bin or baling equipment. For operational efficiency consideration can be given to placing fixed bins on each level and cleaners or building staff circulating with a mobile bin or trolley to each level to decant the fixed bins before returning to the basement level to depose of the material. *Baler* A baler is recommended within the basement refuse rooms or loading dock area for this material. However, small BOH balers are also available as an option to reduce volume and transfer movements from each floor.
Paper	*Disposal* Paper may be separated if operationally viable to do so. It will otherwise form part of the comingled recycling material flow. *Transfer* Separated paper may be transferred as per the same processes as described under comingled recycling.
Glass	*Disposal* Glass may be separated if operationally viable to do so. It will otherwise form part of the comingled recycling material flow. *Transfer* Separated glass may be transferred as per the same processes as described under comingled recycling.
Organic (Food) Waste	Organic or food waste separation may be considered to reduce the volume of waste produced. *Disposal* Food waste separation for the bar can occur under one of the following scenarios 1. Multiple caddy bins in kitchen or BOH areas, transferred and decanted into larger bins or food processing equipment. 2. 120 L bins in placed in BOH area. 3. Food waste macerating or pulping machine placed in BOH area. The process works by anaerobic digestion and is a clean source of composting. *Transfer* 1. Caddy bins may be transferred to a machine or bin on the same level. Using a purpose-built trolley, the waste may be transferred directly to the ground floor refuse room for disposal into a larger bin or food waste macerating or pulping system. 2. 120 L bins may be transferred via lifts to the refuse room for disposal into larger (bulk) bins or food waste macerating or pulping system. Lifts should contain rubber floor mat or bins on a bunded trolley for transfer.

Frequently Generated Waste Streams – Hotel Suites	
Refuse Stream	**Disposal and Transfer Details**
	3. A food waste macerating or pulping system is typically placed near sink areas in the kitchen, particularly where food preparation waste or plate scrapings can be easily disposed. This method is a clean instantaneous transfer of food waste via sealed 50 mm service pipes to a holding tank in or around the loading bay area. This option can be used in conjunction with caddy bins placed next to sinks or food preparation areas and transferred as outlined in item 1.

Table 3.4: Hotel Suites Miscellaneous Deposal

Infrequently Generated Waste Streams – Hotel Suites	
Refuse Stream	**Disposal and Transfer Details**
Green Waste	Green waste is not typically produced from hotel suites a commercial building of this type other than from surrounding landscaped areas or potted plants. Green waste is usually removed by the designated maintenance contractor. The contractor engaged for this work 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 the designated rooms provided in the basement. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock 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 pallet a jack or forklift onto the collecting vehicle.
Hazardous waste (paints, batteries and cartridges) and Electronic Waste	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options. It is an expectation that the building mangers 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 council and state government websites for further information.

3.3 Hotel Front of House (Level 3)

Table 3.5: Hotel Front of House Disposal

Frequently Generated Waste Streams – Hotel Front of House	
Refuse Stream	**Disposal and Transfer Details**
General waste	*Disposal* Front of house general waste disposal is generally in the form of public area bins or small bins placed in office and reception areas and related staff breakroom areas. All waste bins should be lined with plastic bags and accompanied by an equivalent sized recycling bin. *Transfer* All bins will be collected by cleaners and decanted into cleaners' trolleys or larger mobile bins up to 240 L in size. The bagged material is then transferred via lifts to the ground floor waste room and placed or decanted into 1100 L bins. *Refuse Chute(s)* Where waste chutes and chute access are available, smaller bins approximately 30 – 40 L should be used. The smaller bins are used to ensure bagged waste does not exceed the dimensions of the waste chute. Large waste items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for waste chutes allows discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.
Comingled Recycling Including • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	*Disposal* Front of house comingled recycling disposal is generally in the form of public area bins or small bins placed in office and reception areas and related staff breakroom areas. All waste bins should accompany an equivalent sized general waste bin. *Transfer* All bins will be collected by cleaners and decanted into cleaners' trolleys or larger mobile bins up to 240 L in size. The material is then transferred via lifts to the basement floor waste room and exchanged with 240 L bins or decanted into 1100 L bins. *Refuse Chute(s)* Direct disposal of comingled recycling can occur where recycling chutes and associated access is provided to the individual floor level. Recycling chutes are typically housed within a cleaner's room or locked compartment. Large recycling items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for recycling chutes allows immediate transfer & discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.
Cardboard & Plastic Film	*Disposal* Where possible large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to going to each floor. That involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods to each level. Where this material does make it to each a level, a bin, trolley or mobile container should be placed for disposal. Cardboard, plastic film and or packaging should not be placed in piles in corners or on floors as this may cause trip or slip hazards. *Transfer* When already placed in a bin or trolley this material is easily transferred to the basement refuse rooms and decanted into the appropriate bin or baling equipment. For operational efficiency consideration can be given to placing fixed bins on each level and cleaners or building staff circulating with a mobile bin or trolley to each level to decant the fixed bins before returning to the basement level to dispose of the material. *Baler* A baler is recommended within the basement refuse rooms or loading dock area for this material.

Frequently Generated Waste Streams – Hotel Front of House	
Refuse Stream	**Disposal and Transfer Details**
Paper	*Disposal* At least one bin (80 L to 240 L) should be placed on each level for separation and disposal of clean office paper, and other clean paper-based material. Office or administration areas should have allowance for a bin with the immediate areas and preferably within proximity to photocopiers or printers. Subject to the occupant's operations, smaller bins may also be placed in multiple locations and at desks to be collected by cleaners during their normal cleaning duties. The material should be decanted into dedicated bins on the cleaner's trolleys or in the larger 80 L- 240 L bins placed on each level. *Transfer* 240 L bins are exchanged (full for empty) as required with bins in the basement level refuse room.
Glass	*Disposal* Glass may be separated if operationally viable to do so. It will otherwise form part of the comingled recycling material flow. *Transfer* Separated glass may be transferred as per the same processes as described under comingled recycling.
Organic (Food) Waste	*Disposal* Organic food waste separation maybe considered for staff break areas. This would include placement of a caddy or larger 120 L bin placed within this area. These bins should accompany waste and recycling bins in a banked bin system **Transfer** 1. Caddy bins may be transferred to a machine or bin on the same level or using a purpose-built trolley may be transferred directly to the ground floor refuse room for disposal into a larger bin or food waste macerating or pulping system. 2. 120L bins may be transferred via lifts to the ground floor refuse room for disposal into a larger bin or food waste macerating or pulping system. Lifts should contain rubber floor mat or bins on a bunded trolley for transfer.

Table 3.6: Hotel Front of House Miscellaneous Disposal

Infrequently Generated Waste Streams – Hotel Front of House	
Refuse Stream	**Disposal and Transfer Details**
Green Waste	Green waste is not typically produced from hotel front of house areas a commercial building of this type other than from surrounding landscaped areas or potted plants. Green waste is usually removed by the designated maintenance contractor. The contractor engaged for this work 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 the designated rooms provided in the basement. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock 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 pallet a jack or forklift onto the collecting vehicle.
Hazardous waste (paints, batteries and cartridges) and Electronic Waste	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options.

Infrequently Generated Waste Streams – Hotel Front of House	
Refuse Stream	**Disposal and Transfer Details**
	It is an expectation that the building mangers 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 council and state government websites for further information.

3.4 Function Centre (Level 2)

Table 3.7: Function Centre Disposal

Frequently Generated Waste Streams – Function Centre	
Refuse Stream	**Disposal and Transfer Details**
General waste	*Disposal* The function and meeting rooms will be serviced via the kitchen and therefore all waste will be generated in or returned to the kitchen. Subject to operational preference, public bins may be placed in hallways on verandas or in proximity to lifts. Kitchen waste will be captured by bins typically ranging in size from 30 L to 240 L and will be placed within the kitchen or BOH area to meet the design or layout criteria of the kitchen operators. Public area waste bin placement is at the discretion of the operator. However, if bins are placed, they should be accompanied by a recycling bin of equivalent size. All Waste bins should be lined with bags and the bags tied before removal. If smaller bins are used in various locations, the bagged waste should then be transferred to a BOH bin up to 240 L in size or a refuse trolley (preferable). *Transfer* As outlined above all refuse should be placed in movable bins or trolleys and transferred via a goods lift or isolated general lift to the ground floor waste room for final disposal into the 1100 L waste bins. Lifts should be sprayed and cleaned each time after transferring waste containers or trolleys. It is recommended that a removable rubber mat be used in these lifts for easy removal and cleaning. *Refuse Chute(s)* Where waste chutes and chute access are available, smaller bins approximately 30 – 40 L should be used. The smaller bins are used to ensure bagged waste does not exceed the dimensions of the waste chute. Large waste items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for waste chutes allows discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.
Comingled Recycling Including • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	*Disposal* The function and meeting rooms will be serviced via the kitchen and therefore all recycling material will be generated in or returned to the kitchen. Subject to operational preference, public bins may be placed in hallways on verandas or in proximity to lifts. Kitchen recycling will be captured by bins typically ranging in size from 30 L to 240 L and will be placed within the kitchen or BOH area to meet the design or layout criteria of the kitchen operators. Public area waste bin placement is at the discretion of the operator. However, if bins are placed then they should be accompanied by a waste bin of equivalent size. If smaller bins are used in various locations, the recycling should then be transferred to a BOH bin up to 240 L in size or a refuse trolley (preferable). *Transfer*

Frequently Generated Waste Streams – Function Centre	
Refuse Stream	**Disposal and Transfer Details**
	All recycling should be placed in movable bins or trolleys and transferred via a goods lift or isolated general lift to the basement waste rooms for final disposal into bins ranging from 240 L to 1100 L in size. ***Refuse Chute(s)*** Direct disposal of comingled recycling can occur where recycling chutes and associated access is provided to the individual floor level. Recycling chutes are typically within a refuse compartment Large recycling items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for recycling chutes allows immediate transfer and discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.
Cardboard & Plastic Film	***Disposal*** Where possible, large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to going to each floor. That involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods to each level. Where this material does make it to this level, a bin, trolley or mobile container should be placed in the refuse compartment for disposal. Cardboard, plastic film and or packaging should not be placed on floors in refuse rooms or compartments. ***Transfer*** When already placed in a bin or trolley, this material is easily transferred to the basement refuse rooms and decanted into the appropriate bin or baling equipment. For operational efficiency consideration can be given to placing fixed bins on each level and cleaners or building staff circulating with a mobile bin or trolley to each level to decant the fixed bins before returning to the basement level to dispose of the material. ***Baler*** A baler is recommended within the basement refuse room or loading dock area for this material. However, small BOH balers are also available as an option to reduce volume and transfer movements from the floor.
Paper	***Disposal*** At least one bin (80 L to 240 L) should be placed on this level for separation and disposal of clean office paper, and other clean paper-based material. Office or administration areas should have allowance for a bin with the immediate areas and preferably within proximity to photocopiers or printers. Subject to the occupant's operations, smaller bins may also be placed in multiple locations and at desks to be collected by cleaners during their normal cleaning duties. The material should be decanted into dedicated bins on the cleaner's trolleys or in the larger 80 L to 240 L bins placed on each level. ***Transfer*** 240 L bins are exchanged (full for empty) as required with bins in the basement level refuse room.
Glass	***Disposal*** Glass crushers are recommended as an alternative to placement of glass in the comingled stream, the crushers reduce the storage volume of glass by more than 75%. Glass crushers can be placed directly behind bars or in refuse compartments. Space would be required for the crusher itself and at least one 60 L bin for changeover during operating hours. ***Transfer*** Due to the weight of the crushed glass the material should either be transferred as a single bin or the 60L bins can be placed on a larger trolley for transport to the lifts and

Frequently Generated Waste Streams – Function Centre	
Refuse Stream	**Disposal and Transfer Details**
	down to the ground floor refuse room. Exchange bins are included within the configurations for the refuse rooms.
Organic (Food) Waste	Organic or food waste separation may be considered to reduce the volume of waste produced. ***Disposal*** Food waste separation for the bar can occur under one of the following scenarios 1. Multiple caddy bins in kitchen or BOH areas, transferred and decanted into larger bins or food processing equipment. 2. 120 L bins in placed in BOH area. 3. Food waste macerating or pulping machine placed in BOH area. The process works by anaerobic digestion and is a clean source of composting. ***Transfer*** 1. Caddy bins may be transferred to a machine or bin on the same level. Using a purpose-built trolley, the waste may be transferred directly to the ground floor refuse room for disposal into a larger bin or food waste macerating or pulping system. 2. 120 L bins may be transferred via lifts to the refuse room for disposal into larger (bulk) bins or food waste macerating or pulping system. Lifts should contain rubber floor mat or bins on a bunded trolley for transfer. 3. A food waste macerating or pulping system is typically placed near sink areas in the kitchen, particularly where food preparation waste or plate scrapings can be easily disposed. This method is a clean instantaneous transfer of food waste via sealed 50 mm service pipes to a holding tank in or around the loading bay area. This option can be used in conjunction with caddy bins placed next to sinks or food preparation areas and transferred as outlined in item 1.

Table 3.8: Function Centre Miscellaneous Disposal

Infrequently Generated Waste Streams – Function Centre	
Refuse Stream	**Disposal and Transfer Details**
Green Waste	Green waste is not typically produced from function rooms or a commercial building of this type other than from surrounding landscaped areas or potted plants. Green waste is usually removed by the designated maintenance contractor. The contractor engaged for this work 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 the designated rooms provided in the basement. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock 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 pallet a jack or forklift onto the collecting vehicle.
Hazardous waste (paints, batteries and cartridges) and Electronic Waste	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options. It is an expectation that the building mangers 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 council and state government websites for further information.

3.5 Sports and Leisure Centre (Ground Level to Level 1M)

Table 3.9: Sports and Leisure Centre Disposal

Frequently Generated Waste Streams – Sports and Leisure Centre	
Refuse Stream	**Disposal and Transfer Details**
General waste	*Disposal* Sports and leisure centres do not typically produce a large amount of general waste other than from offices, administration and staff kitchens or break areas. Therapy areas where medical staff may work might produce some general waste. At a minimum, small bins should be placed in each of these areas. All bins placed should be accompanied by a recycling bin. All bins should be lined with bags. A waste compartment for central waste disposal may also be considered and should include a 120 L to 240 L MGB for waste disposal. *Transfer* Waste is collected by cleaners or as outlined above, placed in movable bins or trolleys within a waste compartment. The material is then transferred via a goods lift or isolated general lift to the ground floor and basement waste rooms for final disposal into the 1100 L waste bins. Lifts should be sprayed and cleaned each time after transferring waste containers or trolleys. It is recommended that a removable rubber mat be used in these lifts for easy removal and cleaning. *Refuse Chute(s)* Where waste chutes and chute access are available, maximum sized bins approximately up to 40 L should be used. The bins are used to ensure bagged waste does not exceed the dimensions of the waste chute. Large waste items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for waste chutes allows discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.
Comingled Recycling including • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	*Disposal* Sports and leisure centres do not typically produce a large amount of comingled recycling material. However, they are more likely to generate material such as plastic bottles and paper out of the general gym areas as well as typical recycling material out of offices, administration and staff kitchens or break areas. At a minimum, small bins should be placed in each of these areas with consideration given to placement at gym area entrance or shared bins for these areas within hallways. All recycling bins should accompany waste bins where placed or be clearly marked recycling where used on its own. A waste compartment for central recycling disposal may also be considered and should include a 120 L to 240 L MGB for waste disposal. *Transfer* Waste is collected by cleaners or placed in movable bins or trolleys within a waste compartment. The material is then transferred via a goods lift or isolated general lift to the basement waste room for final disposal into 240 L or 1100 L waste bins. Lifts should be sprayed and cleaned each time after transferring waste containers or trolleys. It is recommended that a removable rubber mat be used in these lifts for easy removal and cleaning. *Refuse Chute(s)* Direct disposal of comingled recycling can occur where recycling chutes and associated access is provided to the individual floor level. Recycling chutes are typically within a refuse compartment Large recycling items cannot be placed in chutes and should be transferred to the ground floor refuse room independently. The option for recycling chutes allows immediate transfer and discharge directly into the basement refuse room and substitutes the need for decanting and transfer of bins.

Frequently Generated Waste Streams – Sports and Leisure Centre	
Refuse Stream	Disposal and Transfer Details
Cardboard & Plastic Film	*Disposal* Where possible, large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to going to each floor. That involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods to each level. Where this material does make it to each a level, a bin, trolley or mobile container should be placed for disposal. Cardboard, plastic film and or packaging should not be placed on floors in refuse rooms or compartments. *Transfer* When already placed in a bin or trolley, this material is easily transferred to the basement refuse room and decanted into the appropriate bin or baling equipment. For operational efficiency, consideration can be given to placing fixed bins on each level and cleaners or building staff circulating with a mobile bin or trolley to each level to decant the fixed bins before returning to the basement or ground level to dispose of the material. *Baler* A baler is recommended within the basement refuse room or loading dock area for this material.
Paper	*Disposal* At least one bin (80 L to 240 L) should be placed on the floor for separation and disposal of clean office paper and other clean paper-based material. Office or administration areas should have allowance for a bin with the immediate areas and preferably within proximity to photocopiers or printers. Subject to the occupant's operations, smaller bins may also be placed in multiple locations and at desks to be collected by cleaners during their normal cleaning duties. The material should be decanted into dedicated bins on the cleaner's trolleys or in the larger 80 L to 240 L bins placed on each level. *Transfer* 240 L bins are exchanged (full for empty) as required with bins in the basement level refuse room.
Glass	*Disposal* Not applicable. *Transfer* Not applicable.
Organic (Food) Waste	*Disposal* Organic or food waste separation may be considered to reduce the volume of waste produced. Food waste separation for the leisure and sports centre would only occur in the staff kitchen area. Either caddy bins or 120 L bins would be placed within kitchen area. *Transfer* All food waste material would be transferred via the lifts to the waste room for collection (120 L bin) or decanting into another bin (caddy) or macerating / pulping machine (both). Lifts should contain rubber floor mat or bins on a bunded trolley for transfer.

Table 3.10: Sports and Leisure Centre Miscellaneous Disposal.

Infrequently Generated Waste Streams – Sports and Leisure Centre	
Refuse Stream	**Disposal and Transfer Details**
Green Waste	Green waste is not typically produced from a commercial building of this type other than from surrounding landscaped areas or potted plants. Green waste is usually removed by the designated maintenance contractor. The contractor engaged for this work 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 the designated rooms provided in the basement. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock 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 pallet a jack or forklift onto the collecting vehicle.
Hazardous waste (paints, batteries and cartridges) and Electronic Waste	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options. It is an expectation that the building mangers 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 council and state government websites for further information.

3.6 Café (Ground Level)

Table 3.11: Café Disposal

Frequently Generated Waste Streams – Café	
Refuse Stream	**Disposal and Transfer Details**
General waste	*Disposal* Café waste will be captured by bins typically ranging in size from 30 L to 80 L that will be placed within the kitchen or BOH area to meet the design or layout criteria of the cafe operators. All waste bins should be lined with bags and the bags tied before removal. *Transfer* After each service or between peak operating periods, waste will be transferred by the café staff to the ground level waste room and placed / decanted into either 1100 L bins or a spare 240 L waste bin (if waste bins are placed on the basement level).
Comingled Recycling **Including;** • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	*Disposal* Café recycling will be captured by bins typically ranging in size from 30 L to 120 L and will be placed within the kitchen or BOH area to meet the design or layout criteria of the cafe operators. *Transfer* After each service or between peak operating periods, recycling materials will be transferred by the café staff to the basement level waste room and placed into a spare 240 L comingled recycling bin.
Cardboard & Plastic Film	*Disposal* Where possible, large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to transfer to the café. That involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods.

Frequently Generated Waste Streams – Café	
Refuse Stream	**Disposal and Transfer Details**
	Transfer The basement refuse room is within a reasonable distance of the café. Therefore, where this material is generated within the café are, it should be immediately taken to the loading dock or basement refuse room and be disposed into a bin or baler. *Baler* A baler is recommended within the basement refuse room or loading dock area for this material.
Paper	*Disposal* Paper bins are placed within the basement refuse rooms. Transfer The basement refuse rooms are within a reasonable distance of the café. Therefore, where this material is generated within the café area it should be immediately taken to the basement refuse room and be disposed into a 240 L paper bin.
Glass	*Disposal* Glass crushers are recommended as an alternative to placement of glass in the comingled stream, the crushers reduce the storage volume of glass by more than 75%. Glass crushers can be placed directly behind bars or in refuse compartments. Space would be required for the crusher itself and at least one 60 L bin for changeover during operating hours. *Transfer* Due to the weight of the crushed glass, the material should either be transferred as a single bin or the 60 L bins can be placed on a larger trolley for transfer to the ground floor refuse room. Exchange bins are included within the configurations for the refuse rooms.
Organic (Food) Waste	Organic or food waste separation may be considered to reduce the volume of waste produced. *Disposal* Food waste separation for the bar can occur under one of the following scenarios 1. Multiple caddy bins in kitchen or BOH areas, transferred and decanted into larger bins or food processing equipment. 2. 120 L bins in placed in BOH area. 3. Food waste macerating or pulping machine placed in BOH area. The process works by anaerobic digestion and is a clean source of composting. *Transfer* 1. Caddy bins may be transferred to a machine or bin on the same level. Using a purpose-built trolley, the waste may be transferred directly to the ground floor refuse room for disposal into a larger bin or food waste macerating or pulping system. 2. 120 L bins may be transferred via lifts to the refuse room for disposal into larger (bulk) bins or food waste macerating or pulping system. Lifts should contain rubber floor mat or bins on a bunded trolley for transfer. 3. A food waste macerating or pulping system is typically placed near sink areas in the kitchen, particularly where food preparation waste or plate scrapings can be easily disposed. This method is a clean instantaneous transfer of food waste via sealed 50 mm service pipes to a holding tank in or around the loading bay area. This option can be used in conjunction with caddy bins placed next to sinks or food preparation areas and transferred as outlined in item 1.

Table 3.12: Café Miscellaneous Disposal

Infrequently Generated Waste Streams – Cafe	
Refuse Stream	**Disposal and Transfer Details**
Green Waste	Green waste is not typically produced from a commercial building of this type other than from surrounding landscaped areas or potted plants. Green waste is usually removed by the designated maintenance contractor. The contractor engaged for this work 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 the designated rooms provided in the basement. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock 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 pallet a jack or forklift onto the collecting vehicle.
Hazardous waste (paints, batteries and cartridges) and Electronic Waste	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options. It is an expectation that the building mangers 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 council and state government websites for further information.

3.7 Training Room and Staff Lounge and Amenities (Basement)

Table 3.13: Training Room and Staff Lounge Disposal

Frequently Generated Waste Streams – Staff and Training Areas	
Refuse Stream	**Disposal and Transfer Details**
General waste	*Disposal* At a minimum a waste bin up to 60 L capacity should located in the lounge and kitchen areas. Where possible, these bins should be accompanied by a recycling bin (glass or commingled). Waste bins should always be lined with bags and the bags tied before removal. *Transfer* All bagged waste collected by cleaners may be taken directly to the basement refuse room.
Commercial Comingled **Including;** • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	*Disposal* The training / staff rooms should be provided with a bin for disposal of comingled recycling. At least one bin should be supplied within each general room space and the kitchen area. The comingled recycling bin should accompany a waste bin (generally side by side). *Transfer* Recycling materials will be transferred by the staff to the basement level waste room and placed into a comingled recycling bin.
Cardboard & Plastic Film	*Disposal* Where possible large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to going to each floor. That involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods to each level. *Transfer*

Frequently Generated Waste Streams – Staff and Training Areas	
Refuse Stream	**Disposal and Transfer Details**
	Where cardboard or plastic film is generated on this level, it should be taken directly to the basement refuse room or baler. ***Baler*** A baler is recommended within the basement refuse room or loading dock area for this material.
Paper	***Disposal*** At least one bin (80 L to 240 L) should be placed at this level for separation and disposal of clean office paper, and other clean paper-based material. Office or administration areas should have allowance for a bin with the immediate areas and preferably within proximity to photocopiers or printers. Subject to the occupant's operations, smaller bins may also be placed in multiple locations and at desks to be collected by cleaners during their normal cleaning duties. The material should be decanted into dedicated bins on the cleaner's trolleys or in the larger 80 L to 240 L bins placed on each level. ***Transfer*** 240 L bins are exchanged (full for empty) as required with bins in the basement refuse room.
Glass	***Disposal*** Not applicable ***Transfer*** Not Applicable
Organic (Food) Waste	***Disposal*** Organic or food waste separation may be considered to reduce the volume of waste produced. Food waste separation for the basement area would only occur in the staff kitchen area. Either caddy bins or 120 L bins would be placed within kitchen area. ***Transfer*** All food waste material would be transferred via the lifts to the waste room for collection (120 L) or decanting into another bin (caddy) or macerating / pulping machine (both). Lifts should contain rubber floor mat or bins on a bunded trolley for transfer.

Table 3.14: Training Room and Staff Lounge Miscellaneous Disposal

Infrequently Generated Waste Streams – Staff and Training Areas	
Refuse Stream	**Disposal and Transfer Details**
Green waste	Not applicable.
Hard waste / Bulky Goods	Hard waste may be stored in the designated rooms provided in the basement. Alternatively, collections can be coordinated, and hard waste / bulky goods moved to the loading dock 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 pallet a jack or forklift onto the collecting vehicle.
Hazardous waste (paints, batteries and cartridges) and Electronic Waste	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options. It is an expectation that the building mangers 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 council and state government websites for further information.

4 Alternate Refuse Disposal

The following Sections 4.1 to 4.4 provide summary details on alternate options for disposal of the glass and food waste streams. These are considered as operational efficiency and cost benefit options. However, separation of these refuse streams can also be achieved by use of standard storage and collection methods and therefore the equipment or methods should not be considered a condition of building certification or approval.

4.1 Food Rescue

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 a regular scheduled collection or can provide ad-hoc / on call collections and 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.

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 are no associated collection costs. Therefore, it can be considered a zero-cost option for disposal of what would otherwise be food waste, and at the same time support the community.

Further information can be found at www.ozharvest.org or www.secondbite.org.

4.2 Glass Crushers

Glass (bottle) crushers can reduce back-of-house (BOH) and refuse room storage volumes by up to 80%. The machines placed in bar or kitchen BOH areas are quiet and efficient. Scanners are also being developed for these machines for scanning of bottles prior to crushing to align with government bottle return schemes. An example of a glass crusher is shown in Figure 4.1.

Figure 4.1: BOTTLECYCLER Glass Crushing Machine

Source: http://www.insideenterprises.com.au/bottlecycler/index.html, http://www.bottlecycler.com

4.3 Food Waste Collection System

Consideration may be given to the separation of organic food waste. In addition, volume reduction is possible via a food waste pulping or macerating system as outlined below.

Pulping

As an example, the Pulpmaster system can be used to reduce the stored volume of food waste produced and prepare the material for re-use (refer to Appendix C.6). 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. Pulping systems can also be placed in BOH 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 50 mm pipe and collected by a liquid vacuum tanker. Figure 4.2 provides 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 tank, and vertical distance (from upper levels of the building) are unlimited through use of gravity on the system.

Figure 4.2: Pulpmaster

Source: http://pulpmaster.com.au

Vacuum

Scaled vacuum systems currently under development should also be considered for food waste disposal and storage. Only macerator or food waste shredders and vacuum storage tank would be required. Figure 4.3 shows an overview of the system setup.

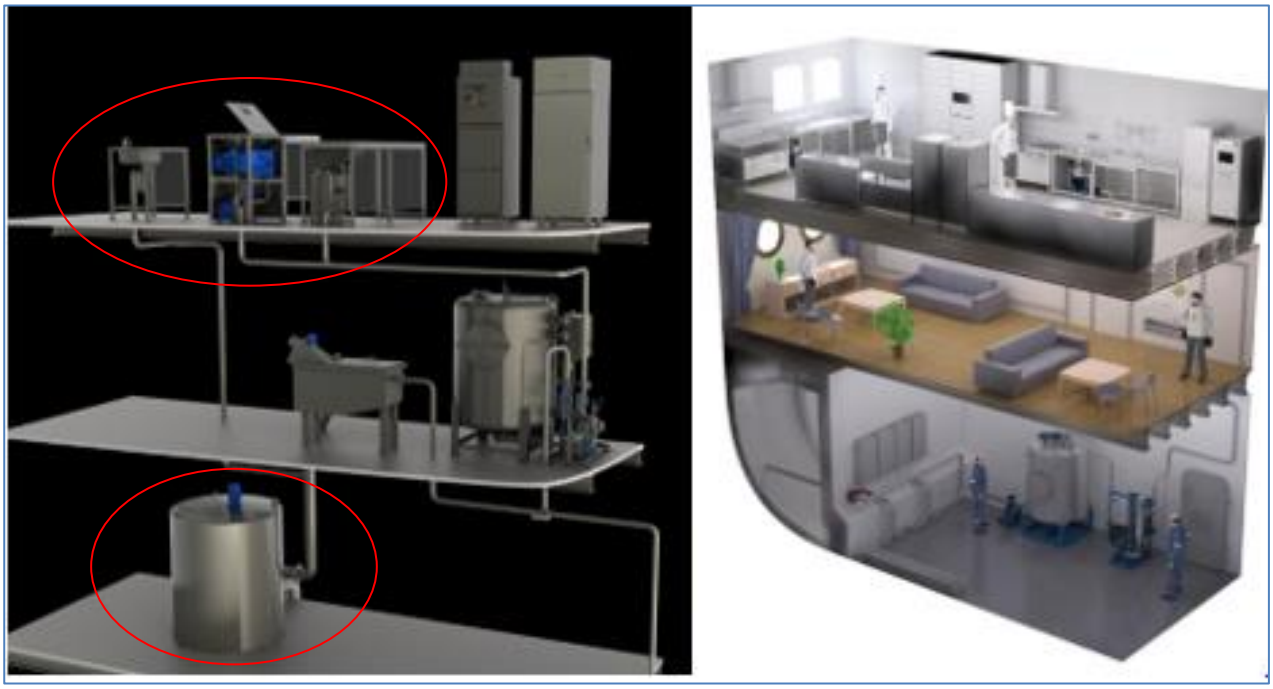


Figure 4.3: Example Food Waste Vacuum System

Source: http://www.australianvacuumsystems.com.au

4.4 Balers

Balers should be a consideration for use in reducing refuse volumes and creating safe environments by removing cardboard and plastic film which tends to overflow bins and clog up refuse room floors and doorways. Figure 4.4 shows a typical mid-sized baler that will produce a 100 kg to 150 kg bale. Figure 4.5 shows an option for a multi chamber baler. Details are outlined in Appendix C.5.

Figure 4.4 Typical Baler

Source: https://wasteinitiatives.com.au/product/vertical-balers/wastepac-60

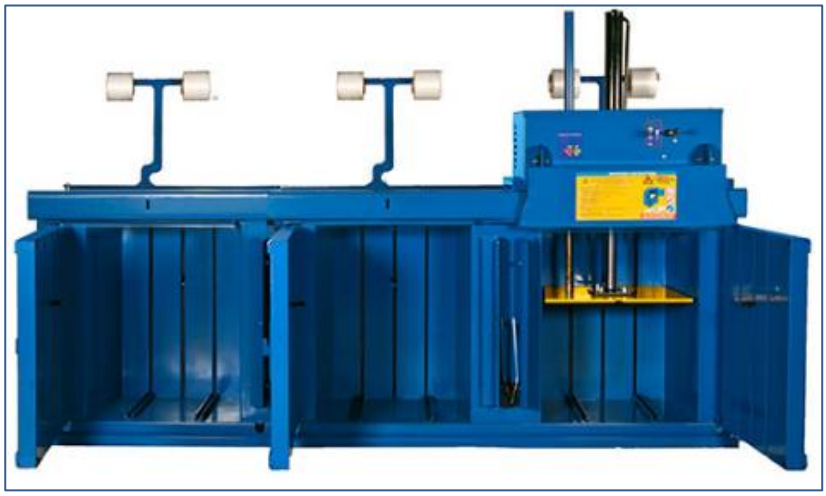


Figure 4.5 Multi Chamber Slide Baler

Source: https://wasteinitiatives.com.au/product/vertical-balers/wastepac-75-multi

5 Recommended Design Requirements

The following sections list recommended requirements for the design of refuse storage and servicing.

5.1 Refuse Rooms

The refuse storage areas/rooms will be required to have the following features in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- If indoors - fire rated and ventilated in accordance with the National Construction Code- Building Code of Australia (Swim School/Retail bin store);
- Doors/gates must be wide enough to allow for the easy removal of the largest container to be stored;
- Walls, ceilings (where applicable), floors and equipment of each waste storage room are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning;
- Floors are to be graded to fall to a drainage point;
- Drainage points connected to sewer in accordance with trade waste requirements;
- A hose cock must be provided directly outside the rooms for cleaning bins and the room;
- Adequate artificial lighting;
- Not located adjacent to or within any habitable portion of a building or place used in connection with food preparation (including food storage); and
- Permit unobstructed access for removal of the containers to the service point.

5.2 Waste Chutes

The following requirements for a waste removal system incorporating waste chutes are as follows:

- Adequate strength for its purpose, including additional reinforcing where necessary at joints, bends and hopper intersections;
- Insect and vermin proof;
- Constructed and installed to prevent the following during use and operation of the system;
  - transmission of vibration to the structure of the premises;
  - limits excessive odour excessive noise to the occupants of the building;
- Installed in a fire rated duct and ventilated in compliance with building requirements of the Building Code of Australia;
- Comply with the waste chute manufacturer's technical specifications and /or operational limitations, including installation design features and ancillary equipment required to prevent blockages and noise disturbances;

- Fitted with a shutter at the base of the chute for closing off the chute manually during bin exchange and automatically in the case of fire;
- Discharge centrally above the waste containers in the waste storage room;
- Hoppers to be:
  - provided on each residential floor and be located in a freely ventilated position in the open air or in a dedicated room or compartment;
  - be easily accessed by the occupants of each unit;
  - be separate from any habitable room or place used in connection with food preparation or living areas;
  - be designed and installed so as to:
    - close off the service opening in the chute when the device is open for loading;
    - be between 1.0m and 1.5m above floor level;
    - automatically return to the closed position after use;
    - permit free flow in to the chute;
    - not project into the chute; and
    - allow easy cleaning of the device and the connection between the service opening and the chute.
  - Have the largest dimension of the service opening (the diagonal of a rectangular opening) not exceeding 0.75 diameter of the chute with which the hopper is connected;
  - Have a surround on the wall around the hopper that is at least 300mm wide and made of glazed tiling or other impervious material that can easily be cleaned;
  - Have a floor adjacent to the hopper that is paved with hard impervious materials with a smooth finished surface; and
  - If located within a waste disposal room, be ventilated and finished with an impervious material covered at all angles.

5.3 Bin Service Point

The bin service point has the following features:

- Has sufficient access and clearance for the waste and recycling collection vehicles to service the bins;
- There is limited overhead clearance (4.5m) throughout the loading dock and as such, all servicing needs to be conducted within this limited space.

- Allows bins to be serviced safely while minimising the impediment to traffic flow throughout the site during servicing;
- Does not impact on car parking bays or footpaths and pedestrian access;
- Is clear of speed control devices;
- Is not adjacent to a kitchen or eating area for public use;
- Is a constructed hardstand within the property boundary; and
- Will be void of stairs, lips or ramps.

5.4 Storm Water Prevention and Litter Reduction

Designated personnel/cleaners are responsible for on-site storm water pollution and litter reduction. To limit the impact on the environment and site, the following measures should be taken into account:

- Providing adequate signage to promote litter control;
- Providing sufficient refuse bins in appropriate areas;
- Preventing unauthorised entry to waste areas;
- Monitoring waste and prevent waste overflow;
- Promoting best practices for waste minimisation; and
- Installing litter traps in car parks for any unwanted discharge.

5.5 Ventilation

Natural (unobstructed, permanent openings direct to external air no less than one-twentieth (1/20) of floor area) or mechanical ventilation (minimum rate of 100 L/s and 5L/m^2 exhausting rate) must be provided to waste storage areas unless refrigerated below four degrees Celsius.

6 Recommended Operational Requirements

The following sections outline recommendations for the ongoing operation of the development.

6.1 On-going Management

All refuse movements are to be managed by staff or cleaners at all times. The staff / cleaner duties include, but are not limited to the following:

- General maintenance and cleaning of the waste holding areas, bins and chute/hopper doors on each level (frequency dependent on waste generation and will be determined based upon building operation);
- Coordination of private bin contractors as required;
- Organising all waste pick-ups as required;
- Ensuring site safety for residents, children, visitors, staff and contractors;
- Abiding by all relevant OH&S legislation, regulations, and guidelines;
- Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers;
- Providing to staff/contractor's equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; and
- Continual monitoring of equipment uses and scheduling to ensure best operational outcomes.

NOTE: 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.

6.2 Waste Minimisation

Waste minimisation is an important part of any site operation. At a minimum, the following should be implemented.

6.2.1 Education

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 associated equipment.

6.2.2 Monitoring and Review

Regular monitoring and inspections of waste and related equipment and facilities from the development should be conducted by building management/designated staff for maintenance and sustainability, including but not limited to, bin volumes, refuse storage areas and stormwater management.

Waste 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 is usually conducted 12 to 18 months after the implementation of the plan.

6.2.3 Signage

All receptacles and bins will have adequate signage, with appropriate labelling, which is clear and easy to read. Standard signage will be provided in and around waste collection and storage areas (see Appendix D).

6.3 Safety

Transferring refuse bins is considered a hazardous manual task and therefore contractors must ensure 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.

6.4 Operational Equipment

Equipment required or suitable for use as part of the operational phase of the development is outlined in Table 6.1. It should be noted that all collection receptacles and bins should be branded with the appropriate stickers to maximise resource recovery and reduce waste disposal costs.

Table 6.1: Operations Equipment

Recommended Equipment	Quantity	Notes
Waste bins (+1 under chute)	4 + 1	1100 L bins
Recycling Bins, thereof: – Commingled recycling bins – Cardboard bins – Paper bins	 13 2 6	 240 L 1100 L 240 L
Glass Bins	3-4	60 L bins
Cardboard Baler	1	
Over-bin compactor (optional)	1	
Food Waste System and Tank (Optional)	1	
Glass Crushers (Optional)	2-3	

6.5 Operational Equipment Suppliers

Equipment suppliers for use during the operational phase of the development are outlined in Table 6.2.

Table 6.2: Equipment Suppliers

Company Name	Equipment	Link
Elephants Foot Recycling Solutions	Chutes & Bin Rotation Equipment, Balers, Compactors, Bin Lifters, Weighing Systems	http://www.elephantsfoot.com.au/
Waste Initiatives	Balers, compactors	https://wasteinitiatives.com.au/
Wastech	Chutes & Bin Rotation Equipment, Balers, Compactors	http://wastech.com.au/
Pakmor	Balers, Compactors, Bin Lifters, Weighing Systems, Shredders	http://pakmor.com.au/
Miltek	Balers and Compactors for waste and recycling i.e. Cardboard, Plastic, Polystyrene, Medical Waste	http://www.miltek.com.au/
Closed Loop Organics	Industrial and Domestic Composters	http://www.closedloop.com.au/domestic-composter
MOVEXX	Bin Towing, Trailers and manual handling equipment	http://www.movexx.com.au/
Spacepac Industries	Trailers	http://www.spacepac.com.au/
Electrodrive / Lift Master	Bin tugs, Trailers and Bin Lifters	http://www.electrodrive.com.au/our-brands/liftmaster.aspx
Absorbenviro	Containment, Absorbents, Drain Protection	http://www.absorbenviro.com.au/
Trade Environmental	Spill Response, Spill Containment, Storm water Management	http://www.tradeenviro.com.au/bunded-pallets/
Spillstationaustralia	Spill Response and Containment Equipment	www.spillstation.com.au
Pulpmaster	Food waste pulping equipment	http://pulpmaster.com.au
BottleCycler	Glass crushing equipment	http://www.bottlecycler.com/

Appendix A Detailed Refuse Calculations

Refuse Management - Estimated Volumes Calculation

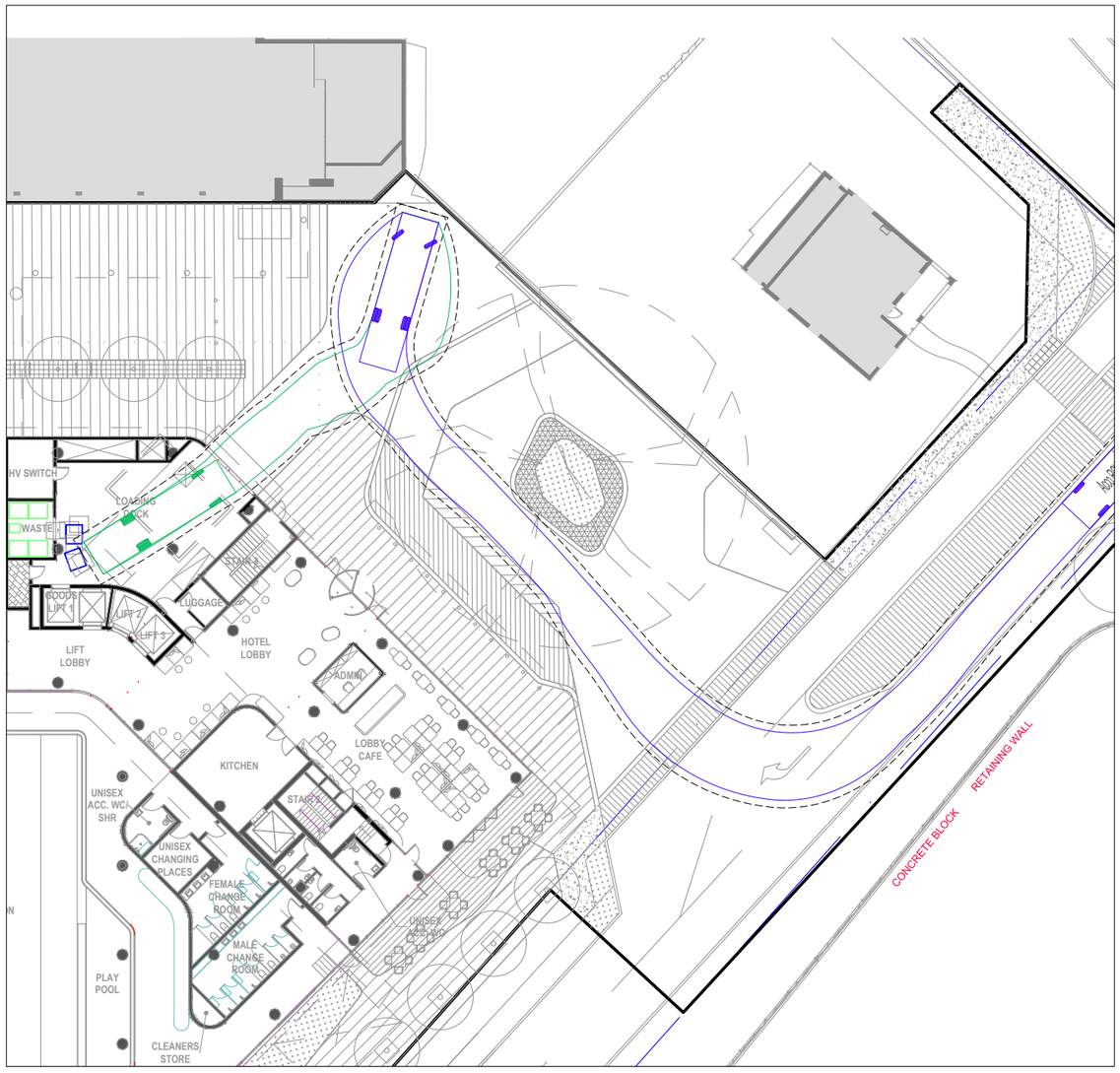
				Waste - Variable % (Calculated based on individual rates for GW and FW)		Recycling Fixed % (Provides stream seperation based on single recycling rate)				
				50%	41%	35%	43%	16%	6%	
Level	**Description**	**Qty**	**Qty Type**	Waste Streams (Litres per Week)		Recycling Streams (Litres per Week)				
				Waste	**Food Waste**	**Comingled Recycle**	**Cardboard and Plastic Film Recycling***	**Paper Recycling**	**Infrequent Disposal Ewaste and Bulk Items**	**Operating Days**
Ground	Lobby Café	160	GFA	1120	1120	1960	2408	896	336	7
	Admin	37	GFA	39	13	23	28	10	4	7
	Fitness & Wellness Centre Reception	72	GFA	76	25	44	54	20	8	7
1	Fitness & Wellness Centre - Gym	1561	GFA	1093	0	382	470	175	66	7
2	Fitness & Wellness Centre - Gym Admin	89	GFA	93	31	55	67	25	9	7
	Gym	1196	GFA	837	0	293	360	134	50	7
3	Function (including kitchen)	1477	GFA	3102	4136	5428	6669	2481	931	7
	Meeting Rooms	80	GFA	280	112	441	542	202	76	7
5-15	Hotel Suites	5788	GFA	8103	6077	3545	4355	1621	608	7
16	Roof Terrace Bar	500	GFA	3500	1400	1838	2258	840	315	7
	Conference Room	80	GFA	280	112	441	542	202	76	7
TOTAL		**11040**	**GFA**	**18523**	**13026**	**14449**	**17752**	**6605**	**2477**	
Daily Volumes (L)				**4507**		**2064**	**2536**	**944**	**354**	
Refuse Rooms & Compartments Details	Storage Capacity (Days)			1		1	1	1	Direct to Storage and Collection Room	
	Bin Size (L)			1100		1100	1100	240		
	No of Bins			5		2	3	4		
	Raw Bin Area (m2)			1.40		1.40	1.40	1.00		
	Refuse Room or Compartment Size or Dimensions			7.0		2.8	4.2	4.0		
				Refer to TTM Configuration Drawings						
Collection Volumes (L)				**4507**		**4128**	**2536**	**1887**		
Storage / Collections and Equipment Details	Collections Per Week			**7**		**7**	**7**	7	Direct to Storage and Collection Room	
	Storage Capacity (Days)			1		2	1	2		
	Equipment type			MGB		MGB	MGB	MGB		
	Equipment size			1100		240	1100	240		
	Equipment No			5		18	3	8		
	Raw Equipment Area (m2)			1.4		1.4	1.4	1.4		
	Collection Room Size or Dimensions			7.0		25.2	4.2	11.2		
				Refer to TTM Configuration Drawings						

*Cardboaard and plastic film are grouped together as a baling option - some companies provide a bin service that will take both i.e. Clenaway recycling "harvest" bins

Use Description	***Garbage Calculation*** (L/100m2/day)	***Measurement Discription***	***Food waste Calculation*** (L/100m2/day)	***Measurement Discription***	***Recycling Calculation*** (L/100m2/day)	***Measurement Discription***
Café	100	Litres / 100m2 / Day	100	Litres / 100m2 / Day	500	Litres / 100m2 / Day
Office	15	Litres / 100m2 / Day	5	Litres / 100m2 / Day	25	Litres / 100m2 / Day
Office	15	Litres / 100m2 / Day	5	Litres / 100m2 / Day	25	Litres / 100m2 / Day
Gym	10	Litres / 100m2 / Day	0	Litres / 100m2 / Day	10	Litres / 100m2 / Day
Office	15	Litres / 100m2 / Day	5	Litres / 100m2 / Day	25	Litres / 100m2 / Day
Gym	10	Litres / 100m2 / Day	0	Litres / 100m2 / Day	10	Litres / 100m2 / Day
Function	30	Litres / 100m2 / Day	40	Litres / 100m2 / Day	150	Litres / 100m2 / Day
Convention / Conference	50	Litres / 100m2 / Day	20	Litres / 100m2 / Day	225	Litres / 100m2 / Day
Hotel	20	Litres / 100m2 / Day	15	Litres / 100m2 / Day	25	Litres / 100m2 / Day
Pubs and Clubs	100	Litres / 100m2 / Day	40	Litres / 100m2 / Day	150	Litres / 100m2 / Day
Convention / Conference	50	Litres / 100m2 / Day	20	Litres / 100m2 / Day	225	Litres / 100m2 / Day

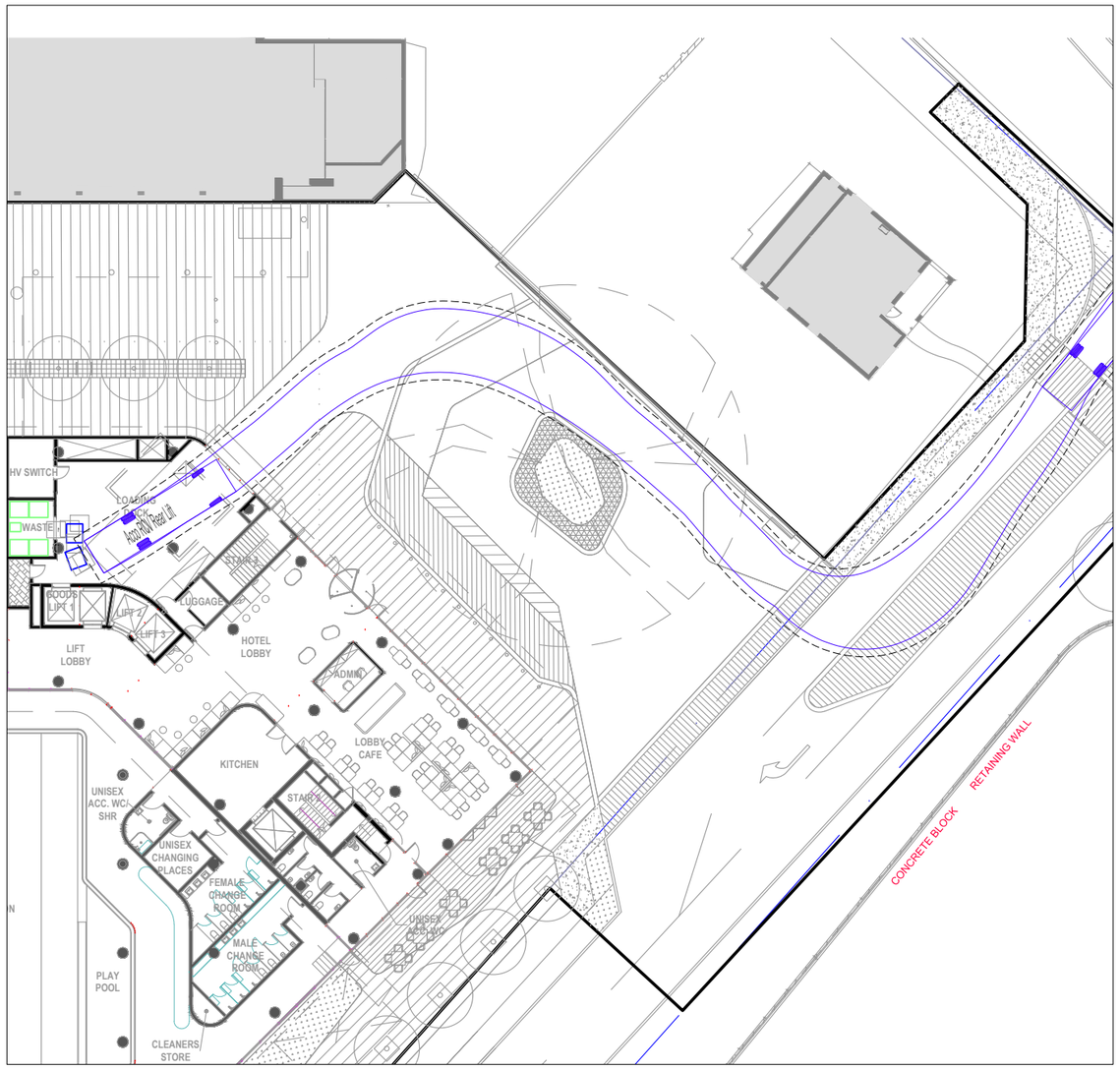
Appendix B Refuse Collections and Storage

B.1 RCV Swept Paths



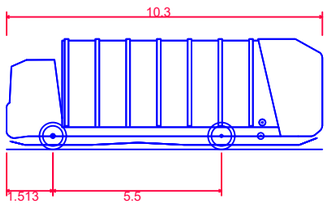
RCV ENTRY MANOEUVRE

SCALE 1:400



RCV EXIT MANOEUVRE

SCALE 1:400



Acco RCV Rear Lift

Overall Length	10.300m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	9.500m

NOTE:

1. DEMONSTRATED VEHICLE LENGTH INDICATES MAXIMUM VEHICLE SIZES OF 10.3m.
2. COMMERCIAL REFUSE COLLECTION VEHICLES TYPICALLY 9.85m OR LESS.
3. NO VERTICAL CLEARANCE MODEL HAS BEEN CONDUCTED, VERTICAL CLEARANCE HEIGHT ASSUMED TO BE GREATER THEN 3.7m.

0 4 8 12 16 20m

SCALE 1:400 AT ORIGINAL SIZE

TTM CONSULTING PTY LTD
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE, QLD, 4000
P.O. BOX 12015, BRISBANE, QLD, 4003
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

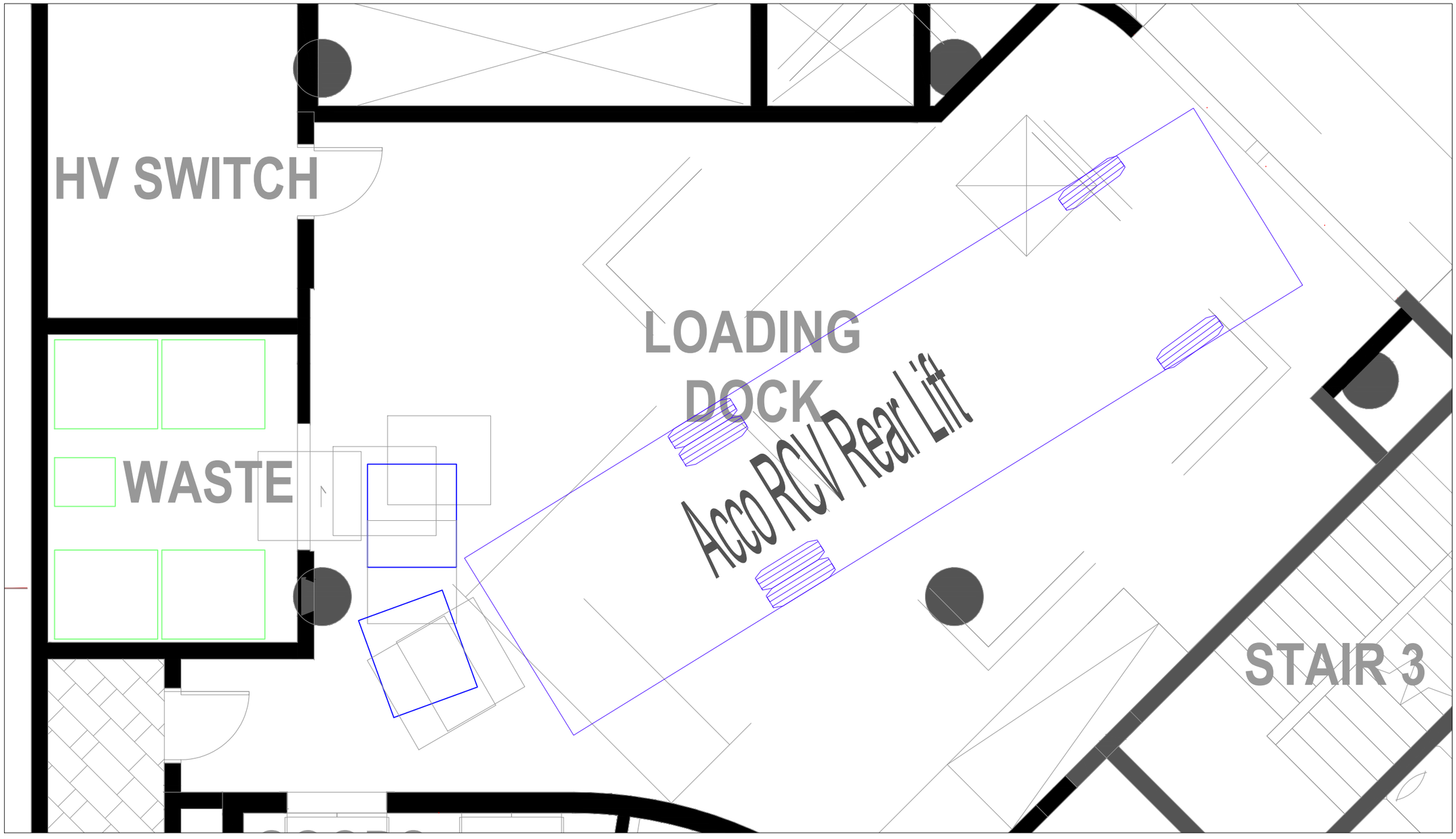
PARRAMATTA LEAGUES CLUB - WASTE MANAGEMENT

WASTE ROOM ACCESS
GROUND FLOOR ACCESS ENTRY/EXIT
RCV 10.3m DESIGN VEHICLE

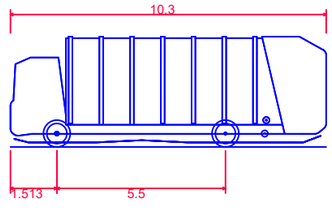
TTM REFERENCE
18SYW0041-SK07

DRAWN SD
CHECKED SK

DATE
28 Nov 2018



WASTE ROOM - BIN MANOEUVRE
SCALE 1:50



Acco RCV Rear Lift	
Overall Length	10.300m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	9.500m

0 0.5 1.0 1.5 2.0 2.5m
SCALE 1:50 AT ORIGINAL SIZE

TTM CONSULTING PTY LTD
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE, QLD, 4000
P.O. BOX 12015, BRISBANE, QLD, 4003

T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PARRAMATTA LEAGUES CLUB - WASTE MANAGEMENT

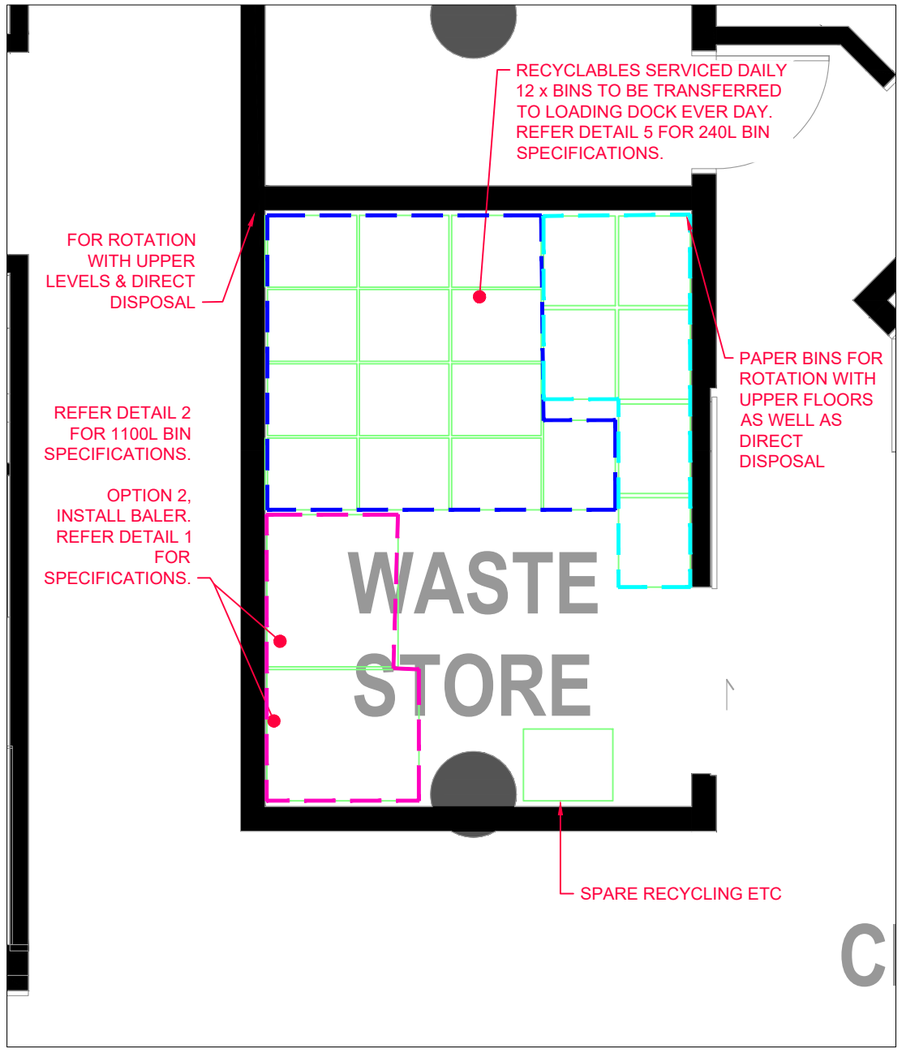
WASTE ROOM 1100L BIN MANOEUVRE
GROUND FLOOR ACCESS
RCV 10.3m DESIGN VEHICLE

TTM REFERENCE
18SYW0041-SK08

DRAWN SD
CHECKED SK

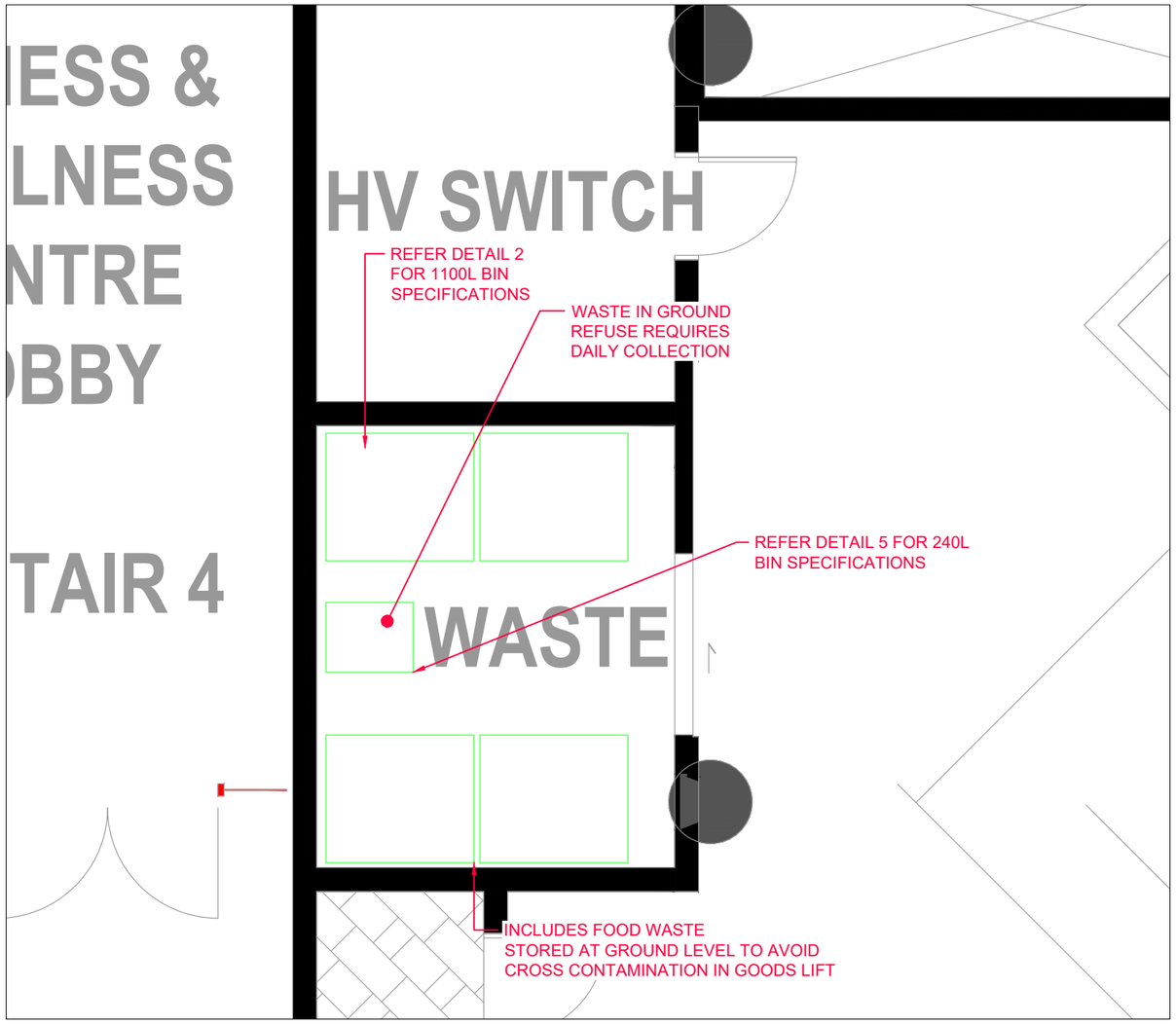
DATE
28 Nov 2018

B.2 Refuse Room Standard Configuration



STANDARD- BASEMENT - WASTE ROOM CONFIGURATION

SCALE 1:50



STANDARD- GROUND FLOOR - WASTE ROOM CONFIGURATION

SCALE 1:50

VEHICLE ENTRIES PER WEEK (WASTE SPECIFIC)	
WASTE	7
CARDBOARD	7
COMMINGLED	4
PAPER	4
TOTAL	22

0 0.5 1.0 1.5 2.0 2.5m

SCALE 1:50 AT ORIGINAL SIZE

TTM CONSULTING PTY LTD
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE, QLD, 4000
P.O. BOX 12015, BRISBANE, QLD, 4003

T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PARRAMATTA LEAGUES CLUB - WASTE MANAGEMENT

WASTE ROOM CONFIGURATION - STANDARD
BASEMENT AND GROUND FLOOR

TTM REFERENCE
18SYW0041-SK01

DRAWN SD CHECKED SK

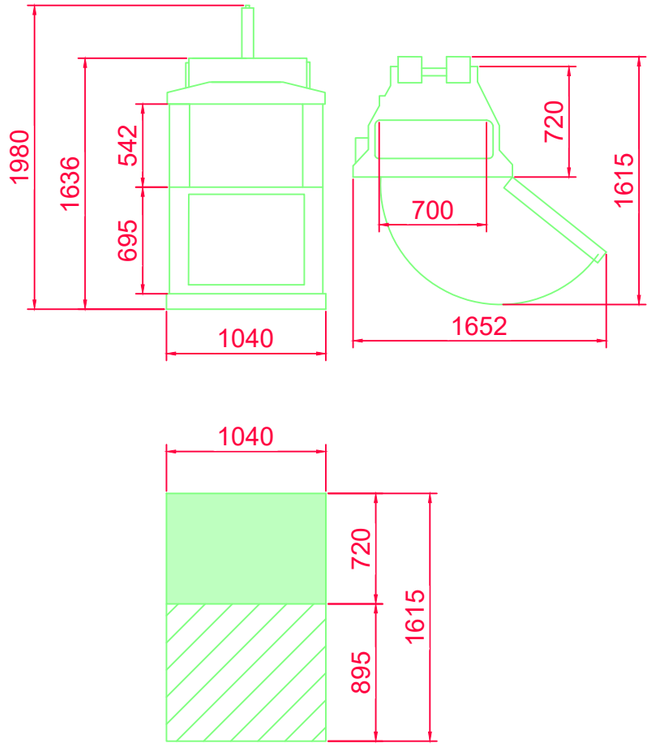
DATE
28 Nov 2018

Appendix C Systems and Specifications

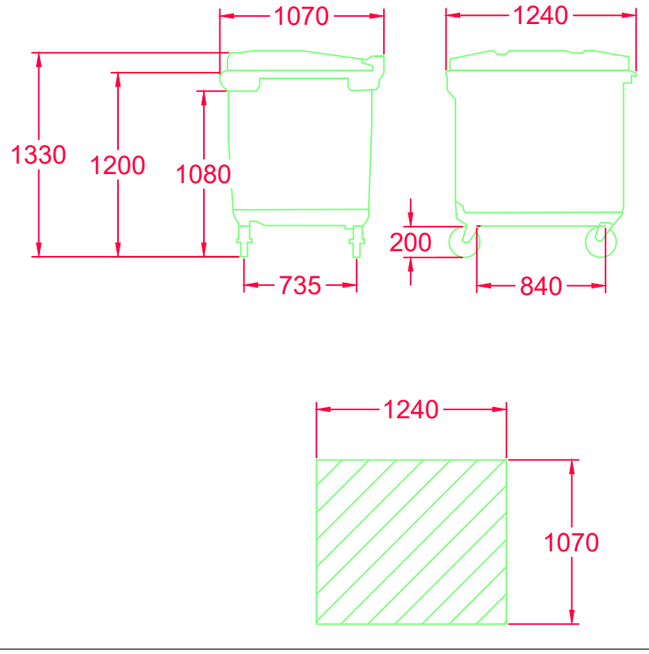
C.1 Refuse Storage Bins

Example System/Service	Waste stream	Example	Additional information
BOH bins	Waste, recycling, food waste, paper/cardboard		Various options and sizes available. Tenant to supply depending on preference and space available. Use 60L Metro Bin Dimensions:
120L bins	Bins (Food Waste)		Dimensions 545mm x 480mm
240L bins	Bins (general waste, paper, commingled recycling)		Dimensions 730mm x 550mm
660L bin	General Waste Paper and cardboard		Various sizes depending on contractor – approximately 1260mm x 780mm
1100L bin	General Waste Commingled Recycling)		Various sizes depending on contractor – approximately 1240mm x 1070mm
Range 10000L to 35000L Stationary Compactor with 1100L bin lifter			

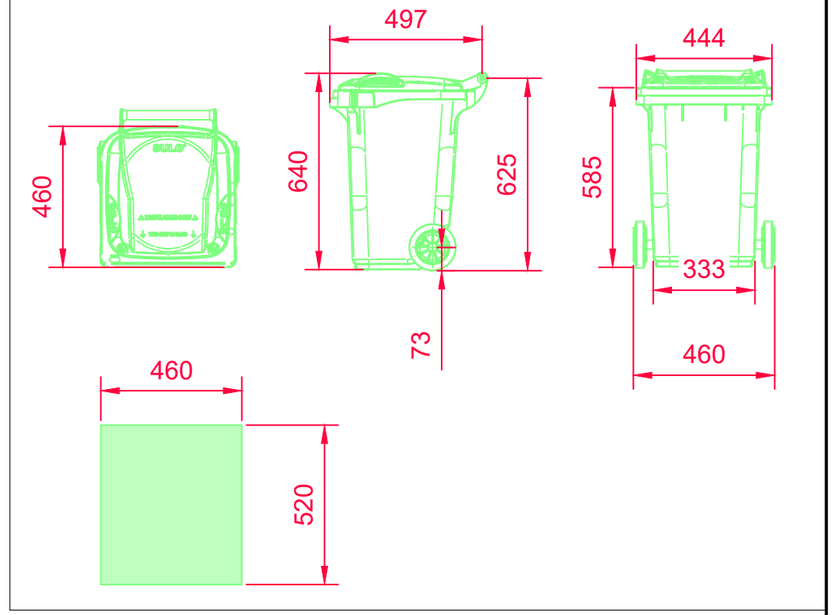
C.2 Refuse Room Equipment Specifications



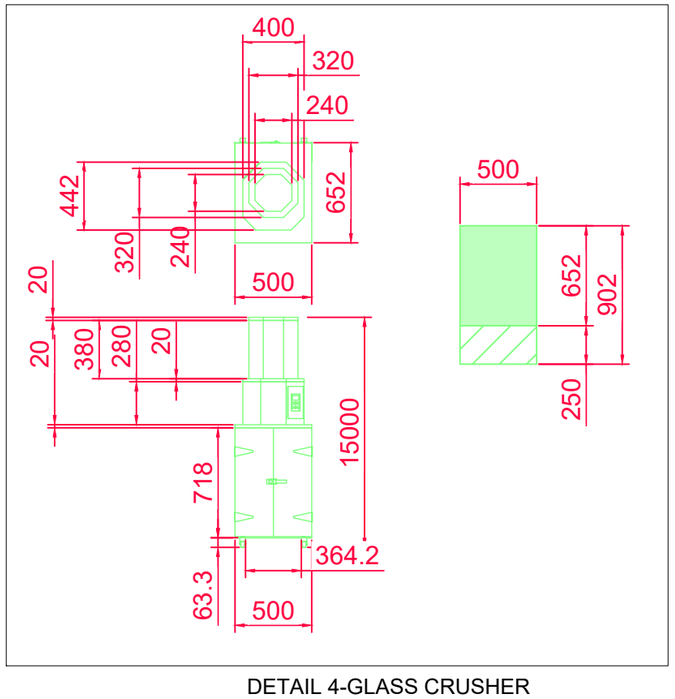
DETAIL 1-60 BALER
SCALE 1:40



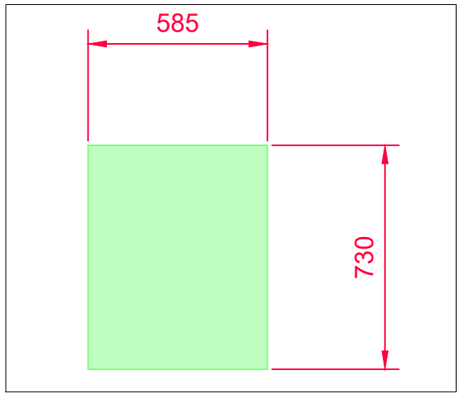
DETAIL 2-1100L SULO BIN
SCALE 1:40



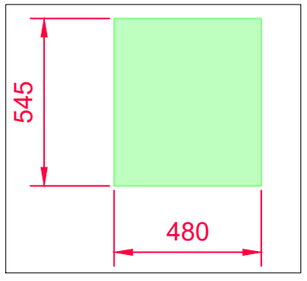
DETAIL 3-60L SULO GLASS BIN
SCALE 1:20



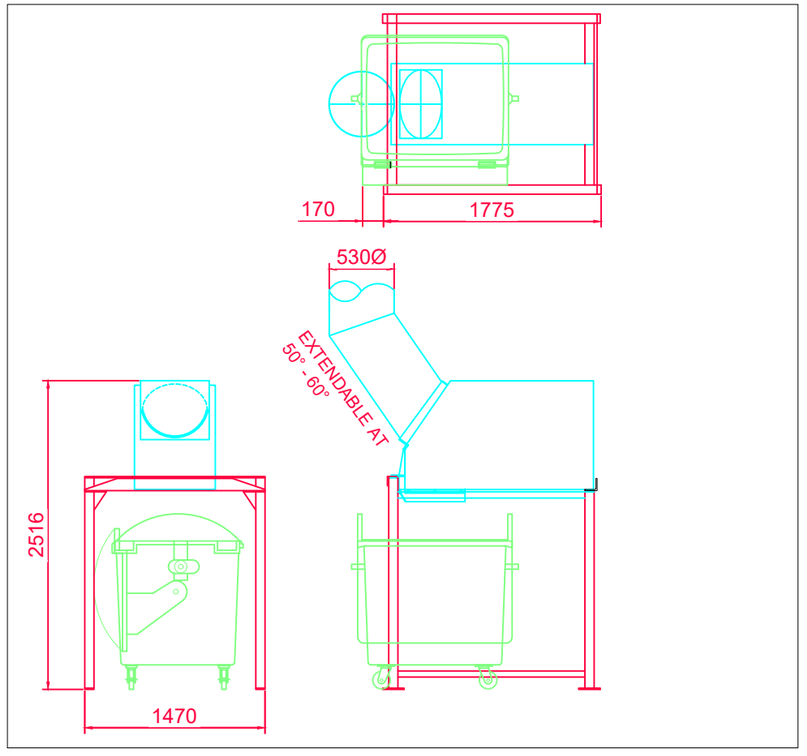
DETAIL 4-GLASS CRUSHER
SCALE 1:40



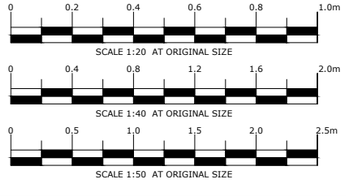
DETAIL 5-240L SULO BIN
SCALE 1:20



DETAIL 6-120L SULO BIN
SCALE 1:20



DETAIL 7-1100L COMPACTOR - INDICATIVE ONLY
SCALE 1:50



TTM CONSULTING PTY LTD
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE, QLD, 4000
P.O. BOX 12015, BRISBANE, QLD, 4003
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PARRAMATTA LEAGUES CLUB - WASTE MANAGEMENT

WASTE DETAILS
DETAILS FOR BASEMENT AND GROUND FLOOR LEVELS

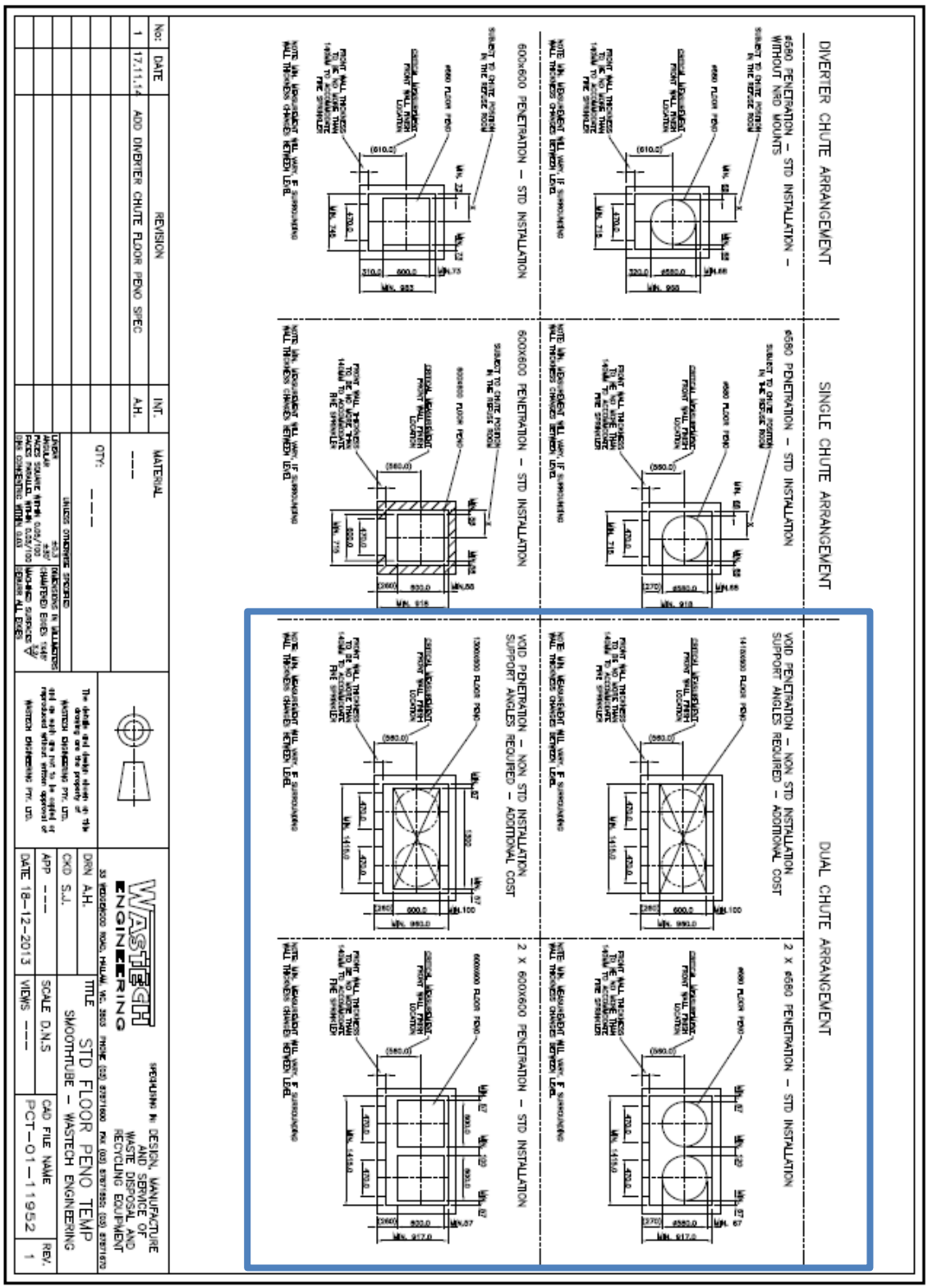
TTM REFERENCE
18SYW0041-SK04

DRAWN SD
CHECKED SK

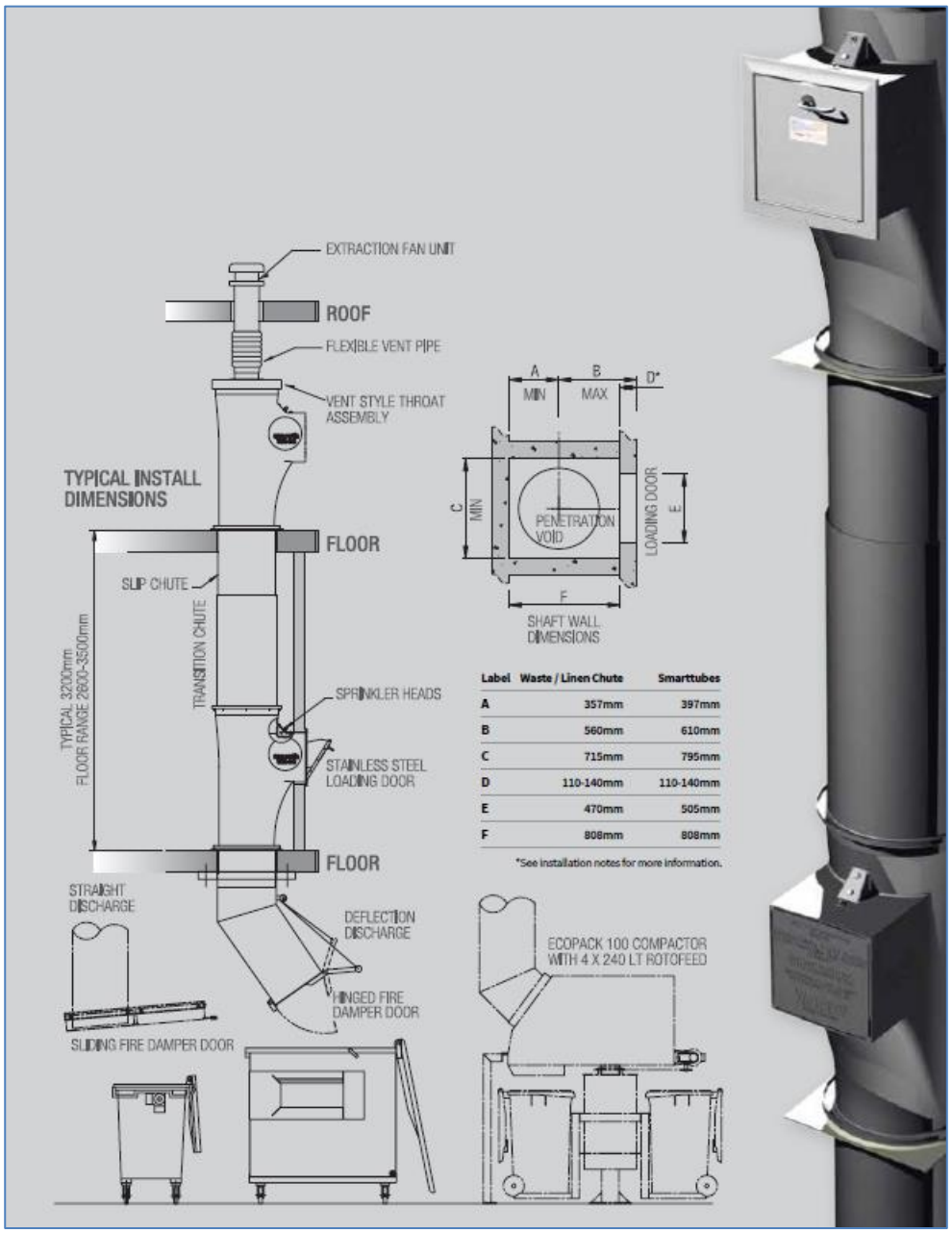
DATE
28 Nov 2018

C.3 Refuse Chutes

Refuse Chutes – Standard Floor Penetration



Refuse Chutes – Typical Chute Section

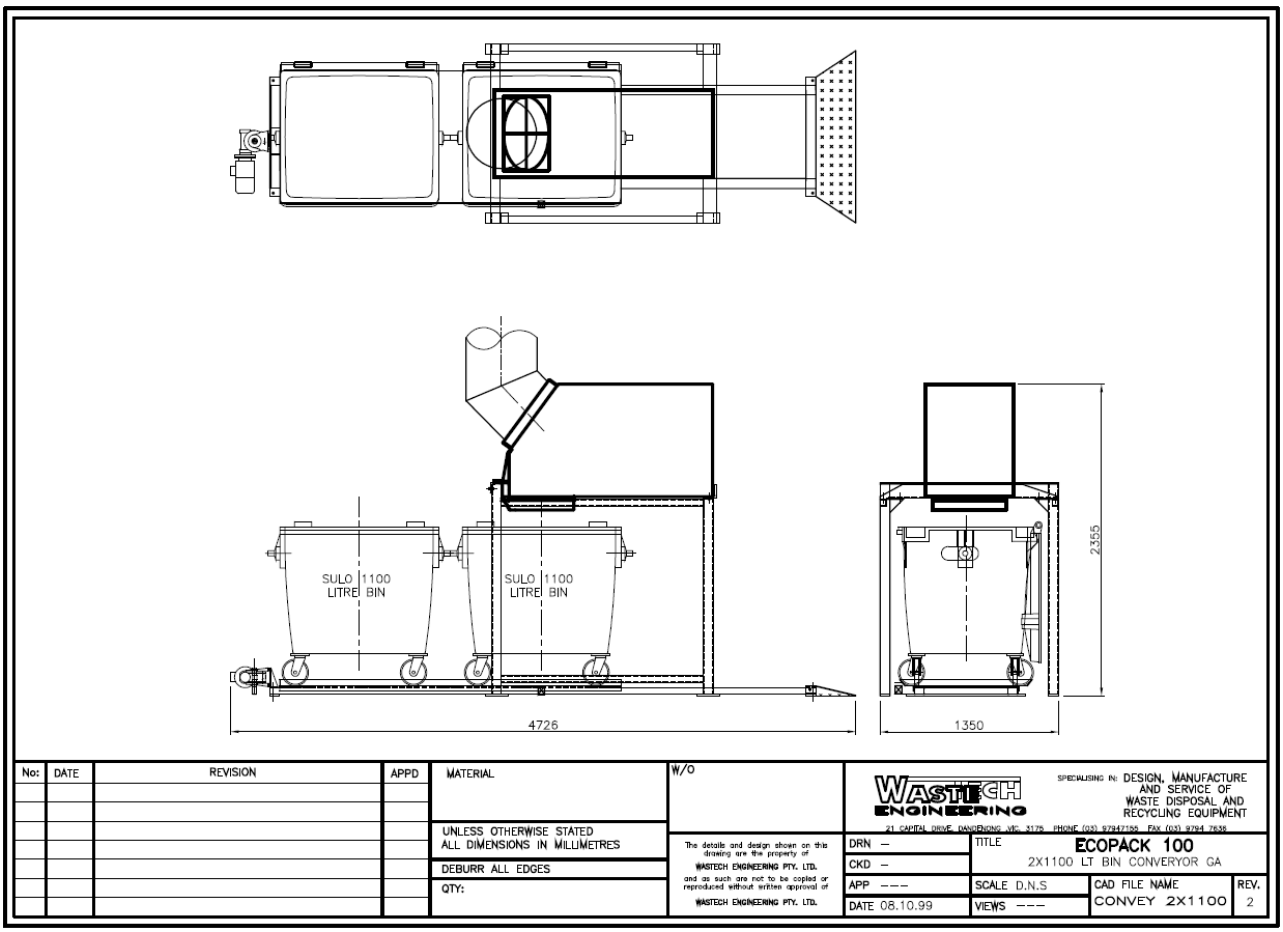


Label	Waste / Linen Chute	Smarttubes
A	357mm	397mm
B	560mm	610mm
C	715mm	795mm
D	110-140mm	110-140mm
E	470mm	505mm
F	808mm	808mm

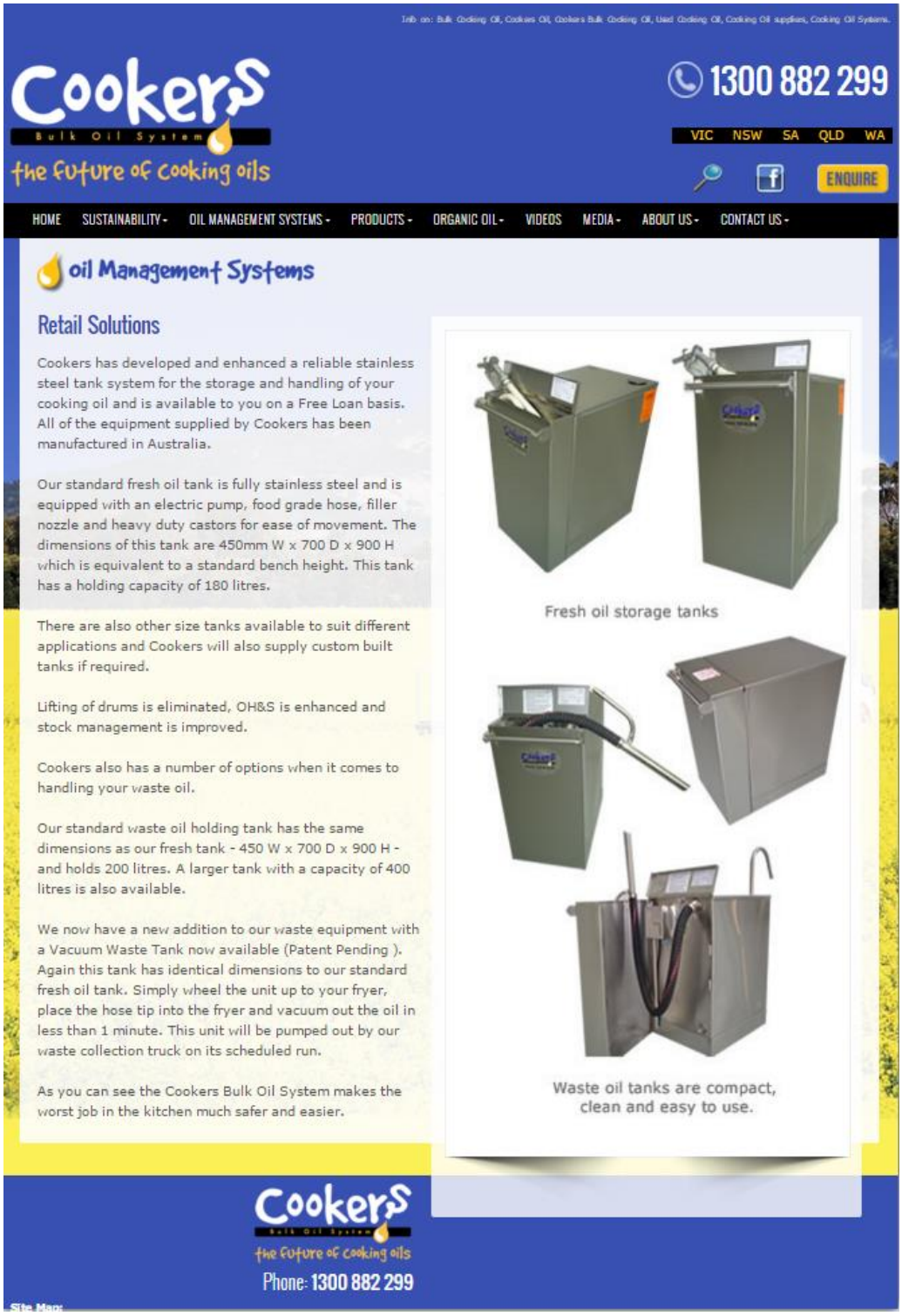
*See installation notes for more information.

C.4 Bin Rotation Equipment

Typical 2 x 1100 L bin conveyer system



C.4 Waste Oil



Source: https://www.cookers.com.au

C.5 Cardboard and Plastic Baler

*Waste*Pac 60 Baler

WASTE INITIATIVES

BALER DIMENSIONS	
Height	1.980 m
Width	1.040 m
Depth	0.720 m
Weight	230 kg
Transportation Height	1.63 m
Power Supply	230V 1 Phase
Motor	1.5kW 13A
Pressing Force	Up to 3.5T
Noise Level	72 dB
Cycle Time	24 Seconds

BALE DIMENSIONS	
Height	0.800 m
Width	0.700 m
Depth	0.500 m
Weight	Up to 60kg

LOADING APERTURE SIZES	
Height	0.492 m
Width	0.700 m

60 BALER FEATURES

- Compact design makes this machine ideal for locations where space is at a minimum e.g. garage fore courts, retail outlets, offices, pubs etc.
- Suitable for small volumes of waste

OPTIONAL EXTRAS

- Bale lifting trolley
- Available with 110 volts power supply
- Available with 3-phase 380/400 volt power supply
- Galvanised finish
- PLC Panel with automatic compaction cycles and bale full light

www.wasteinitiatives.com

Source: https://wasteinitiatives.com.au

C.6 Pulpmaster Food Waste System

Pulpmaster Australia

RECYCLING FOOD WASTE INTO PURE ENERGY

Pulpmaster 5000 – Features and Benefits

- Fully Stainless Steel for Durability
- Back to Base Communication
- All machine functions monitored
- Liquid cycle for organic liquid waste
- Category 4 Safety Rated
- Low water use – average 20L per tonne
- Reduction in waste volume up to 50%
- Auto cycle for quick efficient use
- Tank level monitored electronically
- All mechanical functions in the machine
- Wash cycle for easy cleaning
- Can process 1 kilogram a second
- Power usage – average 2.8kwh per tonne
- Reduced Truck Movements

Pulpmaster 5000 Batch Machine

Lid Lift Position – 70 Litres per load

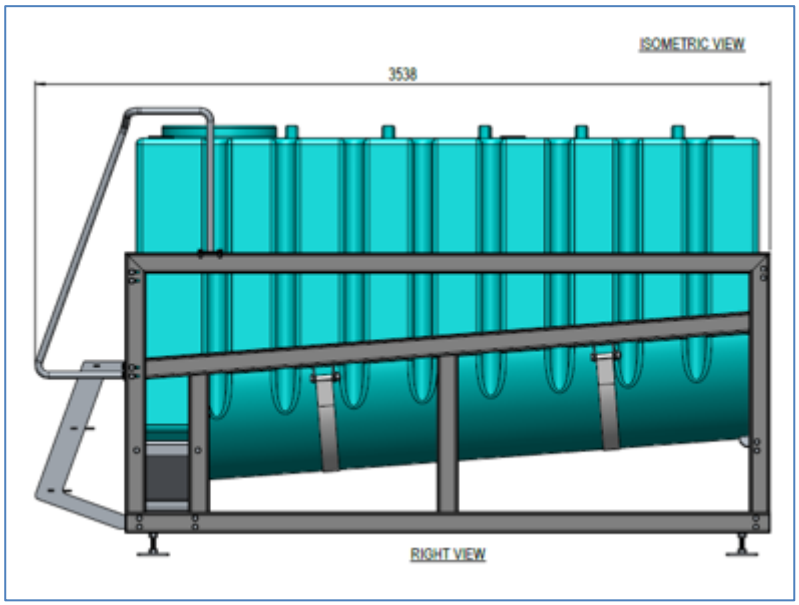
Rental: The Pulpmaster 5000 machines are owned by Pulpmaster Australia Pty Ltd and are supplied on a weekly rental to our Clients. The rental includes the remote monitoring of the Pulpmaster 5000 machine and the Pulpmaster Tank Level. Also any software and hardware maintenance of the Pulpmaster and upgrades to any improved future models.

Source: http://pulpmaster.com.au

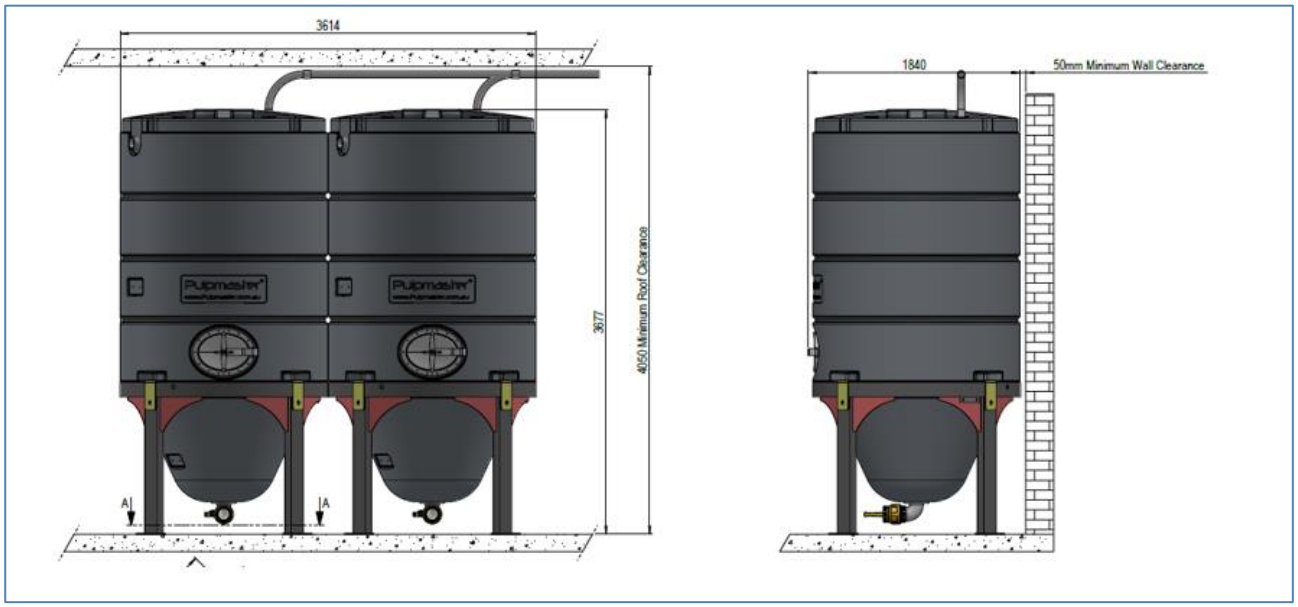
Loading & Pulping Sequence

Typical storage tanks

4000 L tank



6000 L tank / 12000 L configuration



C.7 BottleCycler Glass Crusher Specifications

BOTTLECYCLER MACHINE	
Unit dimensions:	Height 150 cm, Width 50 cm, Depth 65 cm
Unit weight:	90 kg
Noise level:	68 dB (approx.. speaking voice level)
Processing speed:	Approximately 60 wine bottles or 80 beer bottles per minute

BOTTLECYCLER BIN	
Bin dimensions:	Height 60 cm, Width 48 cm, Depth 52 cm
Full bin weight:	65 kg rolling weight
Holding capacity:	Approximately 300 crushed beer bottles or 200 crushed wine bottles
Volume reduction:	2-3 x 1 20 litre bins = Approximately 1 x small 60 litre BottleCycler bin 10 x bar bins = Approximately 1 x small 60 litre BottleCycler bin

TECHNICAL REQUIREMENTS	
Power:	Standard 240 V, single phase, 10 amp 3 – phase can be supplied on request
Installation:	Freestanding or built – in joinery. Allow 30 cm space on top to insert bottles
Ventilation space:	Free flow underneath. The unit is on feet and is partly adjustable
Drip tray	Unit has a rubber protection iris, which can be removed and cleaned easily
Glass colour separation:	In Australia no separation is required, as BottleCycler provides a glass collection service in all metropolitan areas. The glass collected is then recycled.

PREFERRED LOCATION ON SITE	
Close to basin:	For emptying liquids out of bottles. Although the machine will accept liquids, the machine will become dirty faster with residue
Close to the serving area:	In order to eliminate double – handling

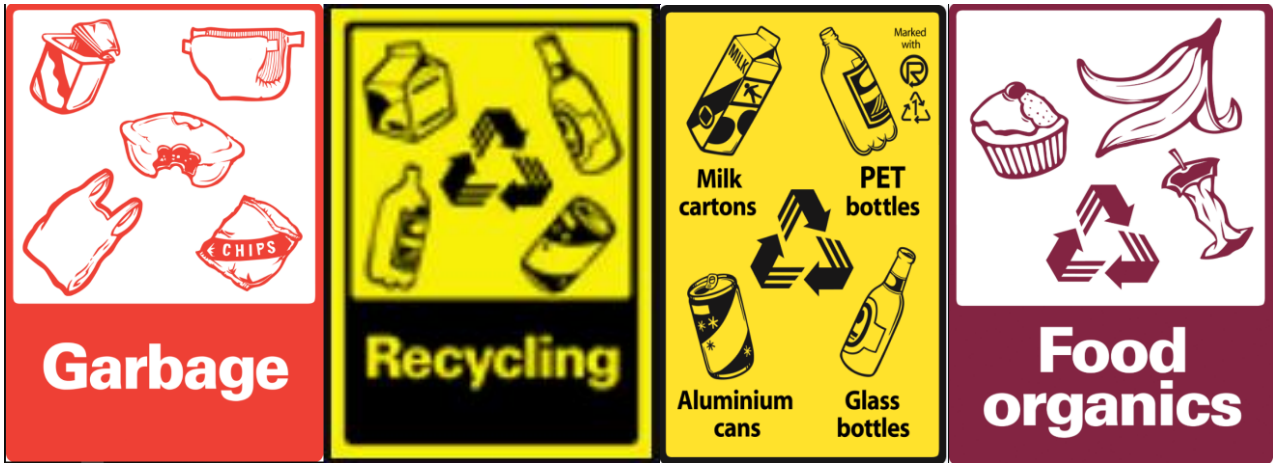
OPTIONAL EXTRAS	
Chute:	Machine can be installed in the cellar with only the top box being in the bar area
Wheels:	Wheels under the unit, which add 40 mm on each side and 10 mm in height

Source: http://www.bottlecycler.com/information/tech-specs

Appendix D Refuse Signage

Typical Refuse Signage can be found in the NSW EPA web site: [https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs.](https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs)

Example Bin and Chute Signage



Example Refuse Room Label Signs

Refuse room and refuse area signage should be arranged through certified signage providers .Example Site: http://www.signblitz.com.au/product-category/safety-facility-signs/building-identification-signs-sydney

Example Refuse Room Safety Signs

Appendix E Excerpt: Environmental Planning and Assessment Regulation 2000_Schedule 2_7(4)

Environmental Planning and Assessment Regulation 2000

under the Environmental Planning and Assessment Act 1979

Schedule 2 Environmental impact statements

7 Content of environmental impact statement

(4) The principles of ecologically sustainable development are as follows:

(a) the ***precautionary principle***, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) ***inter-generational equity***, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) ***conservation of biological diversity and ecological integrity***, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) ***improved valuation, pricing and incentive mechanisms***, namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.