universal foodservice designs

Rockpool Residential Aged Care – Northshore Hamilton, Qld.

Proposed

Waste Management Plan Operational Brief.

Rockpool Residential Aged Care

Date
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WMRR WASTE MANAGEMENT & RESOURCE RECOVERY ASSOCIATION AUSTRALIA

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It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and Council rates have been utilised as they include nominal allowances for normal daily problems encountered in aged care.

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The Definitions

Acronyms	Description
NCC	National Construction Code of Australia
DA	Development Application
DCP	Development Control Plan
CLIENT	Rockpool Residential Care
Brisbane City Council	Local Council.
WMP	A document that details the type and quantity of garbage and recyclable material that is likely to be generated during the construction, demolition, and ongoing operation of a development. It also details where and how the garbage and recycling should be stored, how it will be reprocessed or disposed of and handling procedures.
MGB	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1,100.
WH+S	Work Health and Safety
Bund or bunded pallet	To be enclosed by a low wall or enclosed pallet system intended to contain any liquid spillage or inundation from extending beyond an area.
Clean-up service	A booked, weekly collection service for large and bulky items such as furniture, whitegoods, or garden waste offered by the Council to residents.
Electronic waste or e-waste	Unwanted or broken electronic goods that can be recycled, including TVs, computers, and peripherals, electric appliances, mobile phones, VCRs, stereos, photocopiers, and fax machines.
Waste and recycling storage area	A dedicated space (including a bin room or bin bay) for the storage of waste, recycling, food and/or garden. organics bins, and bulky waste, problem waste and textile waste that is convenient for residents and occupiers to access and use.

1. Introduction

Rockpool Residential Care is looking to develop a new aged care facility located at MacArthur Ave, Angora Rd and Karakul Rd at Hamilton Northshore, Qld 4007. The Home will cater for upwards of **153 aged care residents when full.**

This waste management plan is an **operational plan** that will address the operational requirements of the Home and includes spatial comments for the waste area(s).

The purpose of this plan is to outline specific measures to attain the following outcomes:

- Comply with all relevant Local (Brisbane City Council) Council Authority and State codes, legislative requirements and policies that will apply to this development.
- Compliant disposal and treatment of generated waste as detailed by Local (Brisbane City Council) Council Authority.
- Options and processes to minimise the quantities of wastes generated ending up as land fill.
- Waste material handling processes required for the safe and compliant movement of recyclable and general waste from the RACF waste management area.
- Support the principles of Ecologically Sustainable Development.
- Adhere to the Brisbane City Council Authority commitment to reducing land fill.
- The waste management operation for this RACF Home will always operate in accordance with current **Workplace and Safety standards** in mind.
- Comply with the **Brisbane City Council – Refuse planning scheme policy. (Waste generation Rates).**

All waste calculations and figures provided by UFD are based on the proposed DA drawings prepared by GJG Architects, room numbers as provided by the Client and the Brisbane City Council – Refuse planning scheme policy. (Waste generation Rates).

Waste management facilities for this site are to be designed and constructed in accordance with current NCC requirements, Australian Standards and Statutory requirements.

Note: The management of medical waste (as used in aged care facilities) is a highly specialised field. If not stored and treated appropriately, some materials can cause infections or injuries, while others can be highly toxic. As such the correct and safe handling of generated waste will always be required.

Note: This Waste Management Plan **does not** provide comments or facilitate key requirements for a Construction waste management plan. A Construction waste management plan will need to be developed and employed by the Construction team.

Return Briefing

A. Background

A comprehensive waste management operation is crucial to the succesful day to day operation of the Proposed Rockpool Residential Care Northshore Hamilton Home.

As such, the collection, compaction, sorting and dispatching of all waste emanating from the future re-developed RACF should be seen as a service which plays a **fundamental role in the functioning of the aged care facilitiy that it supports**.

This plan shall provide specific details and requirements that the facilities waste management area will need to operate too.

B. Objectives

The objective of this report is to provide a way forward through a series of recommendations regarding the proposed future methods of transportation, handling, storage, compaction, and periodic waste removal of the waste stream.

Recommendations are provided regarding the capacity and performance requirements of new waste management equipment and systems as well as the periodic removal of General, Administration, Medical, Cytotoxic, Contaminated fluids, and Co-mingled waste.

Comments regarding the reduction of landfill and potential waste reduction rates are outlined in this report.

C. Methodologies

The review of the current waste management operations as well as the outlined recommendations detailed in this report has been based on the following:

- Current GJG Architect drawings for the proposed new Northshore Hamilton RACF Home.

Additionally, the following Standards, Codes and Guidelines have been adhered to in the production of this report.

- AS1668.2-2012 – Mechanical ventilation.
- Current NCC requirements relating to waste management areas.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- Brisbane City Council – Refuse planning scheme policy. (Waste generation Rates).
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- Australian Standard 1319:1994 Safety signs for the occupational environment.

Note: This waste management plan is not a Construction Waste Management Plan. A Construction Waste Management Plan will need to be developed.

D. Landfill reduction targets and waste management opportunities to reduce waste volumes.

As part of this development, consideration has been given to ways in which waste volumes can be reduced. The following systems have been employed in the waste management operation and food service operation:

1. The introduction of a Mechanical Bio-Digestor which will reduce putrescible waste volumes by a nominal 525 litres per week (estimate) = This equates to a nominal 27,300 litres of putrescible waste ending up in land fill.

2. The introduction of an Ewater system in the foodservice operations of the Home. This potentially reduces chemical package waste in the kitchen upwards of a nominal 75% (excluding dishwashing operations).

Note: Based on the Ewater system being used on a day-to-day basis, there are opportunities to save upwards of 30,000 liters of chemicals per annum. This will reduce the delivery, storage, use and removal of a significant percentage of Chemical packaging waste.

3. Set all computers to print on both sides of the page – reducing paper consumption by 50%.

4. Reduce administrative paper consumption by using "Cloud based" storage solutions.

5. Reduce plastic bottle usage by providing filtered water in jugs to the Servery points and Lounge areas.

6. Undertake regular audits of rubbish collected in cleaners' bins noting what can be placed in recycled bins instead of general waste.

7. Employ recycling signage through the Rockpool team and Servery areas to promote a positive recycling message.

8. Limit the Homes use of single-use and disposable products and choose alternatives which can be used again.

9. When buying paper or cardboard products, Rockpool will look out for items that contain a high percentage of Australian recycled fibre or are made with fibre content from sustainably managed sources, such as plantations or sustainably managed native forests. Australian paper manufacturers must meet environmental production standards which may not have to be met in other countries.

2. Waste management key requirements

Key features

The new Rockpool Northshore Hamilton Homes waste holding/management area is to be located on the Ground floor level of the Home – being located within easy access of the Homes loading dock for ease of access and waste removal.

A **private contracted (JJ Richards) waste collector** specialist shall remove collected general and recyclable waste, periodically (multiple times per week) as detailed in this report.

Medical and cytotoxic waste generated on site shall also be removed by the same private contracted (JJ Richards) waste collector specialist.

The waste management area will be managed by the onsite Maintenance Caretaker/Manager.

Rockpool team members will be required to maintain and manage all bin holding/collection areas on this site. Home maintenance Team members will also be required to maintain all bin movement, compaction, and equipment.

As part of this development UFD has recommended the employment of a mechanical bio-digestor to reduce waste volumes, Co^2 emissions, odour, and vehicle movements. Refer to the report for details.

As part of the waste management operations the following points need to be applied:

2.1 Waste management area – Building fabric & waste services.

A dedicated waste holding area will be located on the Ground floor level of the Northshore Hamilton development for the storage of all waste generated in the RACF.

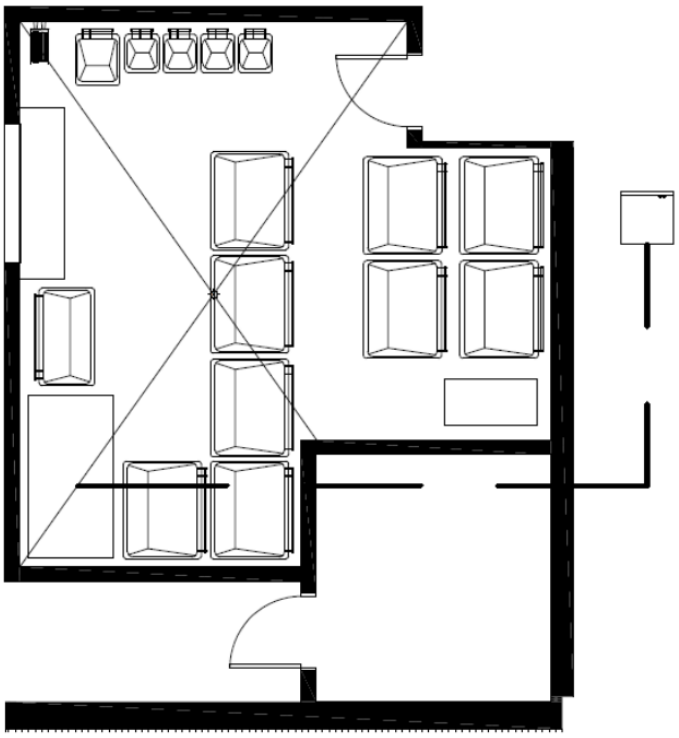


Figure 1 Proposed Waste Management Area

A **contracted (JJ Richards) waste collector** must collect all general and Co-mingled, Administration, Green, Medical and Cytotoxic waste generated on a regular basis. The waste management/holding area will be located on the Ground floor for the ease of removal of both recyclable and general waste by the waste collection agency. A waste collection/vehicle access pick up point will be provided at the loading dock area to the south of the site. Allowance will be made for the vehicle to enter and exit in a forward manner.

The Northshore Hamilton Central waste holding area will be constructed and installed to comply with the National Construction Code of Australia, Brisbane City Council and all relevant Australian and Local Standards.

Additionally, all the following items are to be incorporated into the Ground floor waste management area.

- The ceiling height of waste storage area shall be a **minimum of 2400 mm.**
- The doorway opening to the waste room shall be of adequate size to allow easy access to the noted bins in this report and permit the installation and maintenance of waste handling and compaction equipment (if required) that may be used in the garbage rooms.
- UFD recommends that the floor to each waste area be a **minimum of 75mm thick** and coved at the walls and graded to a centrally located floor drain. Flooring will be slip rated in accordance with current Australian Standards (AS4586).
- A centrally located approved drain point with accessible and Watermark approved removable bucket trap will be installed into the floor. This drain point will be connected to the sewer.
- UFD recommends that all walls in the Waste Management areas be painted in an epoxy-based paint that is **both washable and cleanable**. The walls of the waste room must be constructed of approved solid impervious material. The Waste room will be constructed to prevent the entry of vermin (rats, mice etc.).
- All internal walls of the waste areas will be fitted with protective bumper railings (or Rockpool Residential Care approved equal). UFD recommends BR-200 Latham bump rail (**or GJG Architect detailed equal**) for these spaces.
- The waste management area will be complete with hot and cold-water hose cocks which will have fitted to them a proprietary hose reel assembly.
- Hot and cold-water points complete with a Temperature Mixing Valve will be provided in the waste collection point.
- UFD recommend that the waste management area will be under surveillance to minimise vandalism.
- Lighting shall be provided in accordance with Australian Standards for LUX requirements in Waste Management areas.
- The section of driveway that will be used by the nominated Waste Collection Contractor will need to be designed in accordance with Australian Standard AS 2890.2 – 2002 Parking Facilities Part 2: Off-street commercial vehicle facilities for commercial waste collection vehicle details as outlined in this report.

- Vehicle access and turning circle requirements are detailed by the Transport Consultant in accordance with Australian Standards. Enough space shall be made available to assist the Clients Contracted waste collection vehicles to successfully move as required.

- Adequate vehicle access needs to be provided with the finished floor to ceiling height of the vehicle pathway being no less that the height of the general and recyclable water collection vehicle.

Note: Please refer to Section 5 of this report for the anticipated Waste Collection Vehicle size and details.

- The waste management operation for this Home will always operate in accordance with current Statutory Workplace and Safety Standards in mind.

- The waste collection and holding area of the Northshore Hamilton Home will be designed into the building in such a manner as to not compromise the streetscape character.

- Waste collection times shall be nominated by the Client. UFD recommends that the waste collection vehicle attend site during normal business hours and outside shift change times to minimise noise and enhance pedestrian safety.

- Maintenance Staff shall Organise and coordinate both General Waste, Medical, Green. Administration, Cytotoxic and Co-mingled Waste pick-ups in a just in time manner with the Rockpool Residential Care's Contracted waste collection agencies.

- Maintenance staff shall ensure that bin all movements from the waste management area to the waste collection area shall be done in accordance with current WH+S requirements.

- The Ground floor waste management area and loading dock will always be off limits to the home's residents, and their guests.

- The Clients Contracted Waste Collection Agency is JJ Richards. JJ Richards has a Certification in Environmental Management systems. **Please refer to Appendix F for details**.

2.2 Ventilation requirements

- The waste collection space will be constructed with a supply and exhaust air system, being constructed in accordance with AS1668.2-2012.

- The waste management room must be ventilated by A mechanical exhaust ventilation system exhausting at a rate of 5L/s.m2 floor area, with a minimum rate of 100L/s min.

2.3 Insect control

A proprietary bug/insect zapper shall be installed in the waste collection room. A general-purpose outlet will be provided at high level (2000mm AFFL) near the insect zapper's location. This will assist in controlling insects in the waste management area.

2.4 Access

Note: Please refer to the Transport/Access Consultant's traffic report on access and egress requirements for waste collection vehicles at this site.

Note: Vehicle access and vehicle movements shall be aligned with the Brisbane City Council – Refuse planning scheme policy. Which details the following:

- The collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre within the Home.
- The Waste collection vehicle must be able to enter and exit the home in a forward direction. The waste collection point is positioned to minimise manoeuvring within the site.
- The travel route shall suit the dimensions and turning capabilities of the proposed waste collection vehicle.
- Travel routes shall be adequately surfaced.
- The grades of entry must not exceed the capabilities of the waste collection vehicle.
- The waste collection vehicle will partially reverse into the Homes loading dock. Home staff will bring waste bins to the loading dock entrance for the waste collection agency to collect generated waste external to the Home.
- To facilitate the development of adequate, safe, and compliant waste storage and removal facilities. that meets the needs of the residents.

2.5 Waste bins standards

All waste bins used at this Home (including waste collection points through the building) are to be aligned with current Australian Standards regarding waste management.

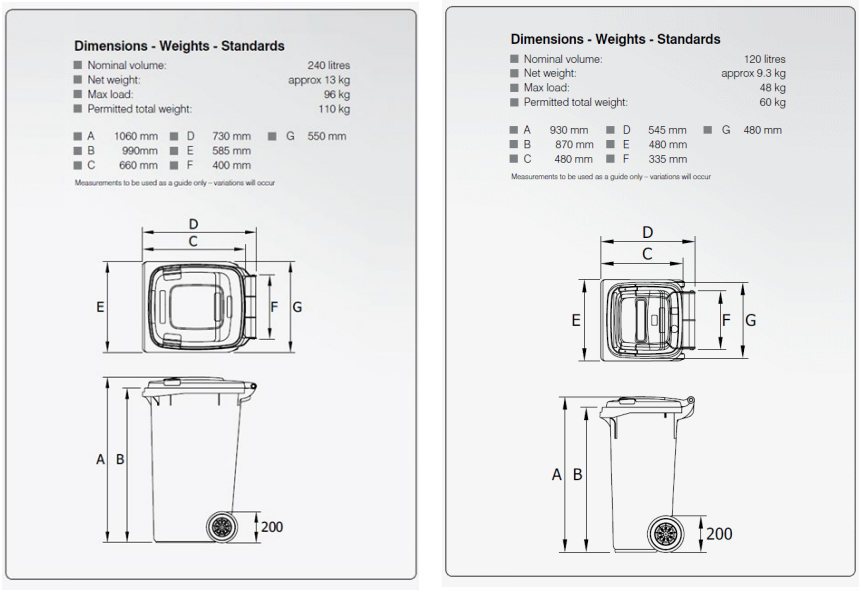
An Australian Standard has recently been developed for mobile bin colours (AS4123.7-2006 mobile waste containers - Part 7: colours, markings, and designation requirements). The colour designations for common waste categories are listed in the table below.

Waste Category	Bin body colour	Bin lid colour
Garbage	**Dark green or black**	**Red**
Recycling (commingled or containers)	**Dark green or black**	**Yellow**
Paper / Cardboard	**Dark green or black**	**Blue**
Organics (including co-collected food and garden organics)	**Dark green or black**	**Lime green**

AS4123 consists of several sections covering critical areas of MGBs design and functionality.

- Two (2) wheel containers with a capacity up to 400L for lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 500L to 1,200L with flat lid(s), for trunnion and/or lifting devices' Dimensions and design.

- Four (4) wheel containers with a capacity from 770L to 1,300L with dome lid(s), for trunnion and/or lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 750L to 1,700L with flat lid(s), for wide trunnion or BG and/or wide comb lifting devices' Dimensions and design.
- Performance requirements and test methods.
- Health, safety, and environment.
- Colors, markings, and designation requirements.



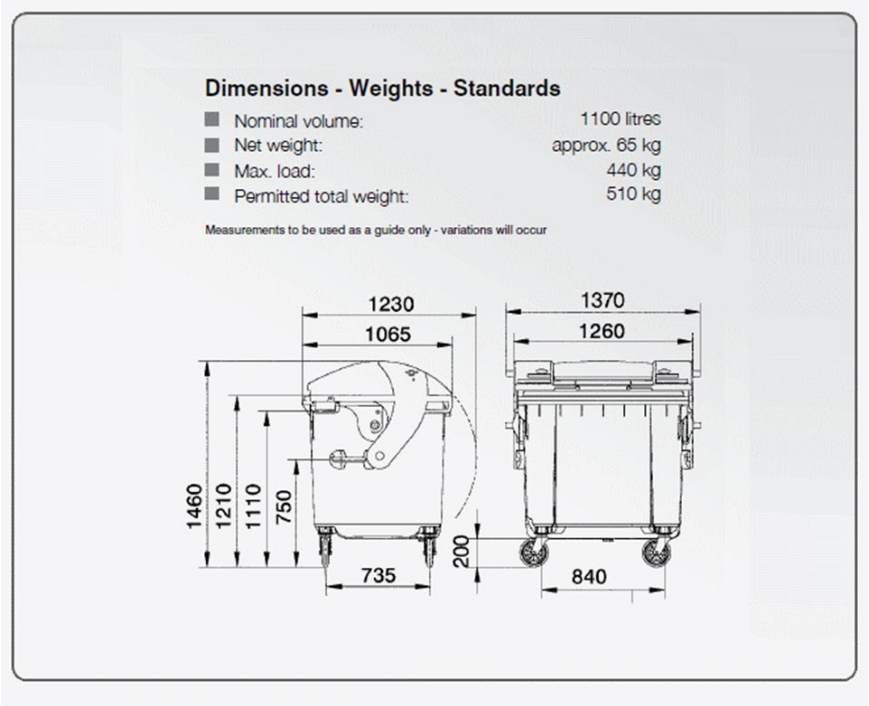


Figure 2 Bin sizes to be employed.

3. Waste and recycling requirements

Universal Foodservice Designs, UFD has carried out an analysis of the waste and recycling requirements of the new Home and note the following calculations.

It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and Council rates have been utilised as they include nominal allowances for normal daily problems encountered in aged care.

Residential care facility			
Rooms	L/bed/day	5L	5L
Kitchen facilities/dining facilities	L/100m^2/day	660L	200L
Retirement facility			

3.1 Waste bin numbers

The following bin numbers will be required for this project.

Bin type	Bin size/capacity	Bin numbers	Pickups – per week
General waste	**1,100 litres**	**5**	**2 times**
Co-mingled waste	**1,100 litres**	**4**	**2 times**
Medical waste	**120 litres**	**2**	**As volume dictates**
Cytotoxic waste	**120 litres**	**2**	**As volume dictates**
Secured paper waste	**240 litres**	**1**	**1 time – per month**
Green/Garden waste	**660 litres**	**1**	**As volume dictates**
Fluid waste	**1265mm x 645mm bunded pallet**	**1**	**As volume dictates**

The waste calculations to determine the noted bin numbers are as detailed below.

3.2 General waste

Based on this amount of general waste generated UFD recommends the following estimates be applied:

Area	General waste litres per day requirement	General waste litres per week requirement
150 residents	750 litres per day.	5,250 litres per week.
Main kitchen	693 litres per day.	4,851 litres per week.
Hair Salon	20 litres per day.	140 litres per week.
Administration and area Office areas (Combined allowance)	17 litres per day.	119 litres per week.
Café	69 litres per day.	483 litres per week.
Multi-Purpose function room	6 litres per day.	42 litres per week.
GENERAL WASTE TOTALS	**1, 555 LITRES PER DAY**	**10,885 LITRES PER WEEK.**

With the employment of the Pulpmaster mechanical Bio-Digestor this will reduce food waste and landfill by a nominal 1,100 litres per week (estimate).

Savings Calculator

Use this calculator to determine how much your business will benefit by using Pulpmaster, simply input the kilograms of food waste your business generates per week and press the Calculate button. The resulting savings will be displayed in the area below

Total Greenhouse Gas Saved: 3322 kilograms
Carbon Dioxide Emissions Saved: 2332 kilograms
Landfill space saved: 2.2 cubic metres
Plastic Bags diverted from landfill: 73.33 bags

3.3 Co-mingled Waste Generation Rates (RACF Co-mingled, paper, and cardboard waste).

Based on this amount of Co-mingled waste generated UFD recommends the following estimates be applied:

Area	Co-mingled waste litres per day requirement	Co-mingled waste litres per week requirement
150 residents	750 litres per day.	5,250 litres per week.
Main kitchen	348 litres per day.	2,426 litres per week.
Hair Salon	20 litres per day.	140 litres per week.
Office areas (Combined allowance)	34 litres per day.	238 litres per week.
Café	46 litres per day.	322 litres per week.
Multi-Purpose function room	12 litres per day.	84 litres per week.
CO-MINGLED WASTE TOTALS	**1,210 LITRES PER DAY**	**8,470 LITRES PER WEEK**

3.4 Liquid waste storage requirements

UFD recommends a **bunded area** be provided in the waste collection area. This will assist in ensuring the waste liquids such as oil, fuels, cooking oils, paint, chemical's etc. do not enter the trade waste system.

UFD recommends an area of a **nominal 1.00 square meters (1,245mm x 645mm)** be allowed for bund pallet in the waste collection area for this purpose.

Note: No floor waste should be required for the bunded pallet.

Note: To EC Pallets for detail - https://www.materialshandling.com.au/products/polyethylene-low-profile-spill-control-pallets/

3.5 Medical waste collection requirements

153 residents @ 1.3 litres of waste generated per week = 199 litres of medical waste generated per week.

Based on this amount of waste generated UFD recommends the following:

1. Waste removal is carried out **once per week** (or as waste accumulation dictates).

2. Medical waste is held in two (2) x 120 litre bins.

3. A Specialist private contractor is engaged to remove the waste.

4. At the same time that the medical waste bins are removed from the Waste holding area, the waste collector will also go through the Home and collect all full 2 litre and 5 litres 'sharps' bins – exchanging them with empty bins.

Note: UFD recommends that two (2) colours coded (yellow) x 120 litre bins are maintained on site if waste cannot be collected due to uncontrollable circumstances.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to handle the waste generated. The bin numbers noted are estimates based on volumes estimated and the amount of times waste is collected during the typical weekly period.

3.6 Hazardous (Cytotoxic) wastes general comments and requirements.

Cytotoxic Waste Disposal

All cytotoxic waste containers should be sealed prior to collection by JJ Richards. Cytotoxic preparations must be transported in sealed designated containers and labelled as Cytotoxic waste. Personnel engaged

in the routine handling and transport of cytotoxic waste should wear industrial workwear, polyvinyl chloride (PVC) industrial gloves and safety boots.

Cytotoxic waste should be segregated from other waste streams. At present incineration is the only acceptable method for treating cytotoxic waste.

153 residents @ 1.3 litres of Hazardous medical waste generated per week = 199 litres of Hazardous medical waste generated per week.

Based on this amount of waste generated UFD recommends the following:

1. Hazardous medical waste removal is carried out **once per week** (or as waste accumulation dictates).

2. Hazardous medical waste is held in **two (2) x 120 litre bins.**

3. A specialist private contractor is engaged to remove the waste.

4. At the same time the Cytotoxic waste bins are removed from the Waste holding area, Home Medical waste collectors will also go through the Home and collect all full 4 litre and 20 litres 'sharps' bins/pails – exchanging them with empty bins.

Note: All full Cytotoxic 4 litre and 20 litres 'sharps' bins/pails bins used in the Northshore Hamilton RACF will be in the following areas:

- Dirty Utility rooms
- Team Nurse Stations
- Doctors' treatment room or treatment areas

Note: UFD recommends that that two (2) colour coded (purple) x 120 litre bins are always maintained on site if waste cannot be collected due to uncontrollable circumstances.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to handle the waste generated. The bin numbers noted are estimates based on volumes estimated and the amount of times waste is collected during the typical weekly period.

Certain medical and liquid wastes have properties that make them hazardous or potentially harmful to human health or the environment. Some liquid wastes can also be hazardous.

If not stored and treated appropriately, some hazardous materials can cause infections or injuries, while others can be highly toxic. As such the correct and safe handling of generated Hazardous waste will always be required.

3.7 Administration/Secured paper waste

A single 240 litre Administration/Secured paper waste bin shall be in the Waste management area. This will be emptied once (1 time) per month or as waste volumes dictates.

Figure 3 A Confidential waste management bin will be provided.

3.8 Mechanical Bio Digestor/compaction systems

UFD notes that an Pulpmaster mechanical bio-digestor will be used on this project to reduce food waste volumes, bin numbers, odours and possible vehicle movements or collection times.

Advantages of using a Mechanical Bui-Digestor are:

Recycling:

To be considered a recycling solution, you must be able to convert waste into a reusable material. ORCA recycles food waste by breaking it down into water (mainly), and some carbs, fats and proteins which are then captured or repurposed by your wastewater treatment plant. ORCA's effluent is fully recovered and recycled throughout its life.

Green House Gas Reduction (reduced landfill):

Commercial food operation is a resource intense undertaking. The proposed Mechanical Bio digestor is a cost-effective solution to lower the environmental impact of homes foodservice operation. ORCA helps your organization to avoid emitting both methane and carbon dioxide by recycling on-site, reducing landfill.

3.9 Bin washing area

UFD recommends that adequate bin washing space is made available for the washing of 30, 60, 120, 240, 660 and/or 1,100 litre bins inside the waste management area. As such, cold and warm water hose cocks will be required in this area along with a waterproof general power outlet and proprietary hose reel assembly.

Note: The Waste Management area will be complete with a proprietary floor grate assembly complete with a removable bucket trap assembly which will also be connected to the grease arrestor to meet Brisbane Trade Waste requirements.

3.10 Northshore Hamilton Site caretaker/manager - responsibilities

The size of the Northshore Hamilton development will influence the responsibility for ongoing management and maintenance of all bins and associated waste management areas.

All waste bin and waste equipment movements in and around all the Northshore Hamilton Home are always to be managed by the Home's maintenance staff.

RACF Residents **will not be allowed** to transfer waste to any waste holding areas.

Rockpool Residential Care maintenance and cleaning staff duties include, but are not limited to, the following:

- Organising, maintaining, and cleaning the general and recycled waste the holding area (Frequency will be dependent upon waste generation rates and will be determined based upon the Home's operations).

- Organising and coordinating both General waste and Co-mingled Waste pick-ups in a just in time manner with the Rockpool Residential Care's Contracted waste collection agency **(JJ Richards).** Maintenance staff shall ensure that bin movements from the waste management area to the waste collection area shall be done in accordance with current WH+S requirements.

- Cleaning staff shall be required to continually collect all generated waste from the following areas:

    - All Resident living areas (including bedrooms).
    - Administration areas.
    - Laundry and Foodservice areas.
    - All Back of House areas.
    - All Front of house Areas.
    - Administration areas.
    - Multi-Purpose function room.
    - Lounge areas and living spaces.
    - Hairdresser.

Note: The collection of all generated waste generated through the Northshore Hamilton Home will be carried out on a regular basis, with all generated waste being removed from the noted areas and transferred to the BOH waste management area by staff.

Note: Different waste streams (as indicated in this report) will require different coloured bins. Maintenance and Cleaning staff shall be responsible for training residents and staff on the correct placement of generated waste into the correct bin type.

- Cleaning and exchanging (servicing) all bins as required through all areas of the Home.

- Home staff will ensure that waste bins are not left un-attended in the loading of the Home.

- The maintenance staff will also be responsible for the following to minimise dispersion of site litter and prevention of stormwater pollution to avoid impact to the environment and local amenity.

- Promoting adequate waste disposal into all bins across all waste holding areas on site.

- Keep under surveillance the bin room and dock areas (whilst affording access to staff/contractors).

- Prevent overfilling of all waste bins; keep all bin lids closed and bungs leak-free.

- Act to prevent dumping or unauthorised use of waste areas or litter on site.

- Ensure waste collection contractor/s to clean-up any spillage that may occur when clearing bins.
- Manage the access of staff, tradespeople, and contracted agencies to the loading dock.
- Coordinate preventative maintenance requirements on all waste machinery and plant as detailed in this report.

Monitoring Waste Collection:

The collection of all waste streams will be subject to the following:

- Age and demographic of the Resident.
- Time of year.
- Religious and Cultural practices.
- Events participated through the year.

The Homes and Management will be required to monitor waste volumes and continually update waste management practices throughout the life cycle of the building.

3.11 Collection of waste through the Home.

UFD notes the following waste collection processes to be applied during the day-to-day operation of the Home.

1. General waste.

All general waste will be transferred manually by Northshore Hamilton facility cleaning staff to the waste holding area on an as required basis. General waste shall be collected from the following areas:

- Dirty Utility areas.
- Upper floor Servery points.
- Resident living spaces.
- Main kitchen.
- BOH areas including the laundry.
- Function space.
- Nursing stations.

General waste from the main kitchen will be transferred to the waste area by Northshore Hamilton kitchen staff on an as required basis. Putrescible food waste will be placed into the proposed Power Knot mechanical Bio-Digestor.

As the Main kitchen is on the same floor as the waste holding area, a waste chute will not be employed.

2. Medical and Cytotoxic waste

All Medical and Cytotoxic waste shall be removed from installed locations and returned to the Ground floor waste holding area by Northshore Hamilton facility cleaning staff. This will occur on a regular basis as demands dictates. Medical and Cytotoxic waste shall be collected from the following areas:

- Dirty Utility areas.
- Nursing Stations.
- Medical rooms.

3. Secured Administration waste.

All secured Administration waste shall be collected on an as required basis by Northshore Hamilton facility cleaning staff. This waste stream will not be transferred to the waste area via the waste chute. Secured waste will be transferred manually to the waste holding area. Secured waste shall be collected from the following areas:

- Reception areas.
- Office administration areas.
- Nursing stations.

4. Co-mingled waste.

Co-mingled waste will be transferred manually by Northshore Hamilton facility cleaning staff to the waste holding area on an as required basis. Recyclable waste shall be collected from the following areas:

- Main kitchen
- All Servery operations.
- Function space.
- Nursing and Medical stations.
- Medical rooms.
- Dirty Utility rooms.

Note: Please refer to Appendix E for proposed waste bin locations.

3.12 Brisbane City Council landfill reduction processes

Much of what we consider 'waste' can be avoided, reused, or recycled. Landfill capacity in the Brisbane City Council is like all Council landfill areas across Australia is running out and waste sent to landfill represents resources lost forever. With an increasing population and an increase in consumerism, it is important to conserve resources whenever possible. The Brisbane City Council has made steps to reduce landfill waste including (but not limited too).

<u>The Management of E-waste</u>

Electronic waste or e-waste is unwanted electronic or electrical equipment. E-waste should be kept out of landfill for several reasons:

- E-waste is one of the fastest growing components of the waste stream in the world, growing three (3) times faster than any other type of waste.

- Australia currently sends 90% of e-waste to landfill e-waste contains valuable metals such as copper, aluminium, gold, silver, and tin, all of which are recyclable e-waste also contains materials which are hazardous both to humans and the environment if disposed of incorrectly using recycled materials for new products produces up to 80% less carbon emissions than processing virgin materials.

Electronic waste collection point

The Brisbane City Council is committed to the reduction of electronic waste in the local area. Electronic waste items (Computers, printers, TVs, and mobile phones etc.) can be disposed of by being taken the noted waste collection point below:

Locations and opening times for Council transfer stations.	
Location	**Daily opening hours**
1372 Nudgee Road, Nudgee Beach	6.30am to 5.45pm
360 Sherbrooke Road, Willawong	6.30am to 5.45pm
101 Upper Kedron Road, Ferny Grove	6.30am to 5.45pm
728 Tilley Road, Chandler (opposite the Sleeman Sports Complex)	6.30am to 5.45pm

Sustainability

UFD notes that the Brisbane City Council is committed to environmental, economic, and social sustainability. With this being the case, the Rockpool Northshore Hamilton Home will be required to work in conjunction with the Brisbane City Council's waste reduction initiatives.

3.12 Recommended signage for waste areas.

UFD recommends that signs for garbage, recycling should be used. These signs will need to comply with the standard signs promoted by the Environmental Protection Agency.

WH+S Standard wall posters and bin lid stickers etc. must be provided in accordance with Australian Standard 1319:1994 Safety signs for the occupational environment.

Figure 4 Waste signage to be used where applicable in accordance with Australian Standards.

4. Light fittings

It is estimated that Australia generates from 30+ million end-of-life fluorescent tubes and a further 20+ million end-of-life mercury-containing globes (CFL/HID etc.). Currently, around 96% of this end in landfill.

Mercury is a potent neurotoxin that contaminates water supplies through leakage from landfill.

There is growing environmental and social desire to eliminate dangerous chemicals from entering landfill and subsequently finding their way into waterways and our living environment.

At the same time, it is also highly desirable to recycle as much metal and glass to further reduce the community's carbon footprint.

The Federal Government recently launched the Fluoro Cycle Scheme (Sep 2010), which is indicative of the issue's growing importance.

Based on this information UFD recommends that as part of a recycling process a Company such as Lamp recyclers assist in collecting broken lamps and bulbs. http://www.lamprecyclers.com.au/default.aspx

Lamp Recyclers can now help you to comply with environmental standards, with their Ezy-Return reply-paid lamp recycling packs. Rockpool Residential Care would simply fill the pack(s) and lodge them at any Australia Post outlet/agent.

5. Mechanical Bio-Digestor

UFD recommends the employment of an Pulpmaster Mechanical Bio-Digestor on this project.

The Pulpmaster offers a simple, cost-effective way to save money and reduce the environmental footprint of the home.

The sustainable technology is housed in a stainless-steel container, with a door on the top which employees open to throw food waste inside. Within the container, the Power Knot's proprietary, natural Microorganism solution works with water and recycled plastic Bio Chips to quickly break down the waste. Through a process called "aerobic digestion," this technology constantly churns all this material, adding oxygen that accelerates the time it takes to transform the food waste disposal into earth-friendly water.

With Australian businesses generating around 2.5 million tonnes of putrescible waste annually, contributing to around 90% of the non-hazardous landfills within Australia*, even a fraction of that waste being processed by Power Knot will achieve a significant improvement to our environment.

* The Full Cost of landfill in Australia Report. The Department of Environment, Water, Heritage and the Arts, 13 July 2009. BDA Group.

UFD propose that the proposed Mechanical Bio-Digestor holding tank be in the Central waste management area of the facility (see plan for details). As such food waste generated in the Café, Kitchen, Servery areas and Staff amenities can be centrally disposed of.

UFD recommends that two (2) colour coded bins beings be used at the source (Café, Kitchen, Servery points) for sorting co-mingled and food waste, with the food waste going into the Pulpmaster system.

Advantages of the Pulpmaster system:

- Remove odours from the waste holding area thus reducing issues with vermin in the waste area.
- Reduce landfill and Co^2 emissions.
- Reduce waste bin numbers.
- Food waste can be converted to energy or fertilizer.

Figure 5 Pulpmaster system

6. Waste removal vehicle requirements

The JJ Richard vehicles used for the collection of general and recyclable waste will be rear/end loading. With UFD recommending a series of 1,100 litre bins be utilised the diagram below indicates the type lifting mechanism to be employed.

Note: The noted rear lift waste collection vehicle will remove waste from 120, 240, 660 and 1,100 litre waste bins as required.

Note: As detailed below, this vehicle should have a notional working height of 3,400mm to 3,600mm.

Table 3—Collection vehicle specifications

Vehicle type and description	Specifications	Measurements
Rear loading collection vehicle Commonly used for domestic garbage and recycling collections from multiple dwellings. Rear loading collection vehicles can be used to collect waste stored in mobile garbage bins or bulk bins, particularly where bins are not presented on the kerbside	Length overall	10.24m
	Width overall	2.5m
	Operational height	3.6m
	Travel height	3.6m
	Turning circle kerb to kerb	R9.5m
	Turning template	As per BSD-3008-2

Figure 6 Proposed Rear lift waste removal vehicle notional details.

Turning circle considerations must also include allowances for driver steering error and overhangs. The steering error allowance must be at least 0.6 metres on both sides of the theoretical wheel path and 1m as a desirable minimum. The vehicle will require a turning circle and length that is in allignment with the Traffic Consultants report.

Vehicle Height:

The noted rear lift vehicle (working height) vehicle is 3,900mm in height.

Waste measuring:

Rockpool uses **JJ Richards** as their contracted Waste collection agency. JJ Richards vehicles can measure collected waste. These collected and recorded waste volumes can be provided to Rockpool for coordination and action. As such waste generated on site can be measured.

Access and turning provisions:

Best design practice for access and egress from the Northshore Hamilton Home will always call for a separate entrance and exit to allow the collection vehicle to travel in a forward direction. Where there is a requirement for collection vehicles to turn at a cul-de-sac head within a development, the design must incorporate either a bowl, 'T' or 'Y' shaped arrangement (this has been allowed for by the Traffic Consultant) Please refer to the Traffic Consultant drawings below.

The design aspect of waste removal must be considered by the Architect and should include the following:

- The presence of parked cars on access roads
- Trucks must only be expected to make a three-point turn to complete a U-turn.

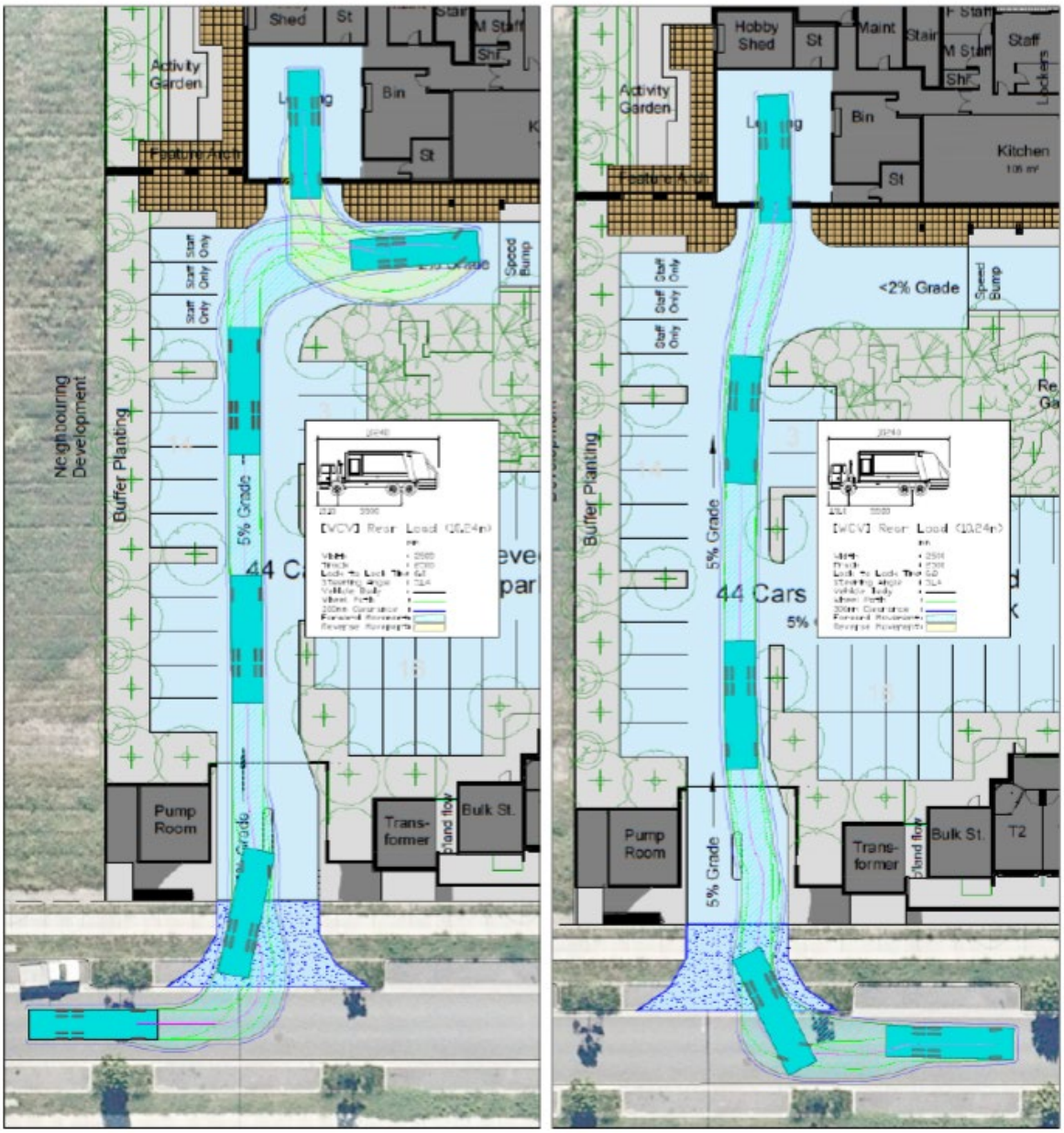


Figure 7 Swept Path details provided by the Traffic Consultant for the waste collection vehicle.

Waste pick up/collection zone:

To assist the private waste collection agency and ensure that the vehicles used in the collection of waste do not clash with the Homes building elements, **UFD notes that a dedicated waste collection zone will be allowed for**. Key features of the waste collection processes are as follows:

- The **contracted waste collector** must collect all general and recyclable generated on a regular basis. The collection of waste and pick-up times will be coordinated with Northshore Hamilton Home Maintenance team to ensure that all bins ready for collection are correctly located prior to the pickup time.

- Maintenance team members or the Private Waste collection agency will be required to move the required waste bins from the waste management area to the noted waste collection point for pick up before returning the waste bins back to the allotted waste areas.

- The waste collection area will have enough height to allow for the waste collection vehicle to gain movement into this area.

- Appropriate WH+S signage will be provided in and near the waste collection loading area.

Note: Vehicle access and vehicle movements shall be aligned with the Brisbane City Council – Refuse planning scheme policy. Which details the following.

- The collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre within the Home.

- The waste vehicle must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site.

- The travel route shall suit the dimensions of the waste collection vehicle. Travel routes shall be adequately surfaced in accordance with EPA requirements.

- The grades of entry must not exceed the capabilities of the waste collection vehicle.

7. Spatial allowance – Waste area

Based on the above information of waste bins being picked up multiple times per week, UFD note that a nominal allowance of **32 square meters** shall be provided.

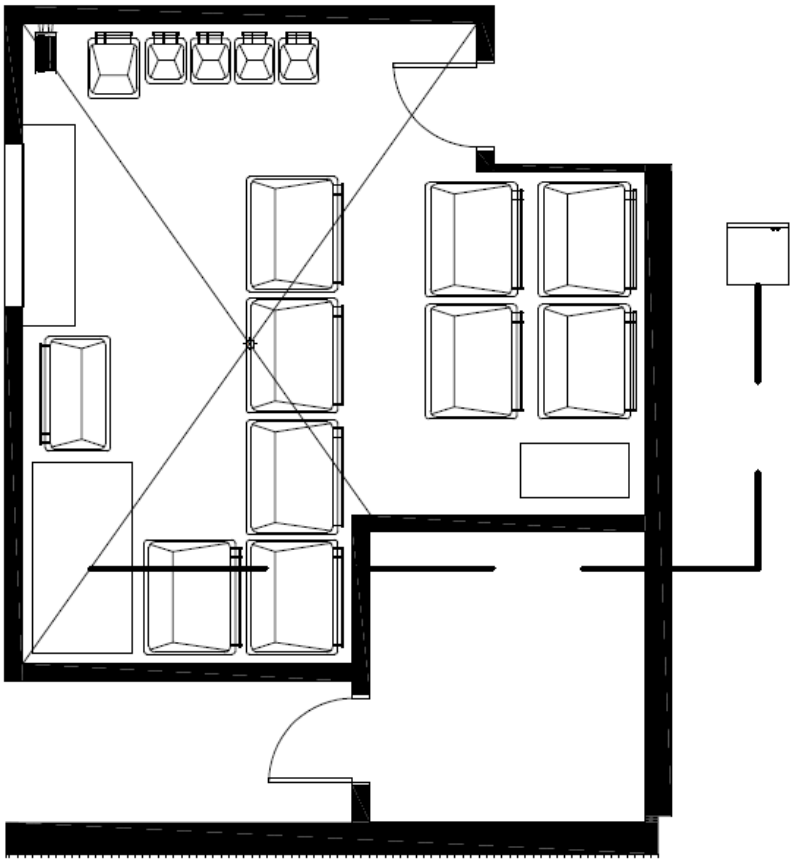


Figure 8 Proposed Waste Management Area.

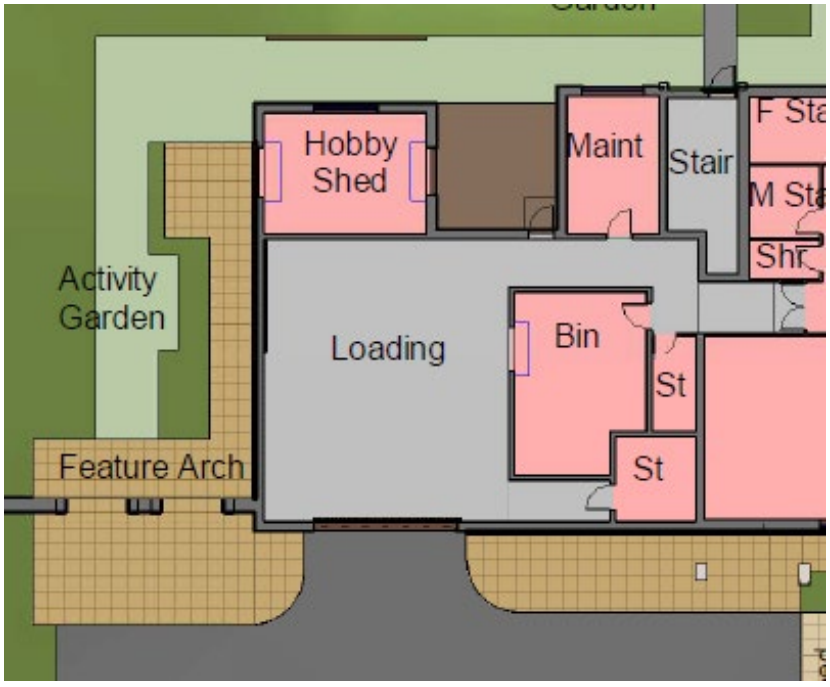


Figure 9 Loading dock and waste hold.

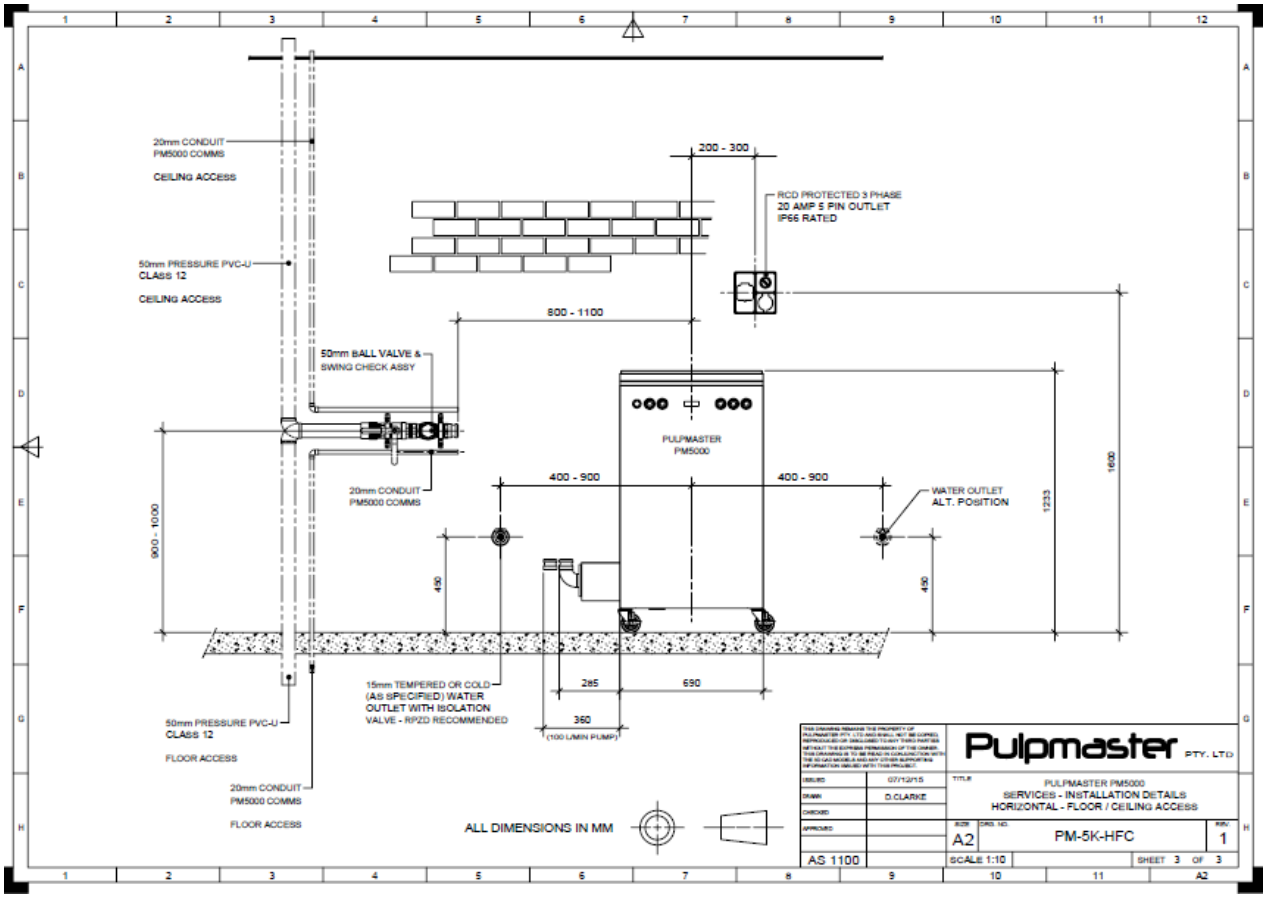
8. Conclusion

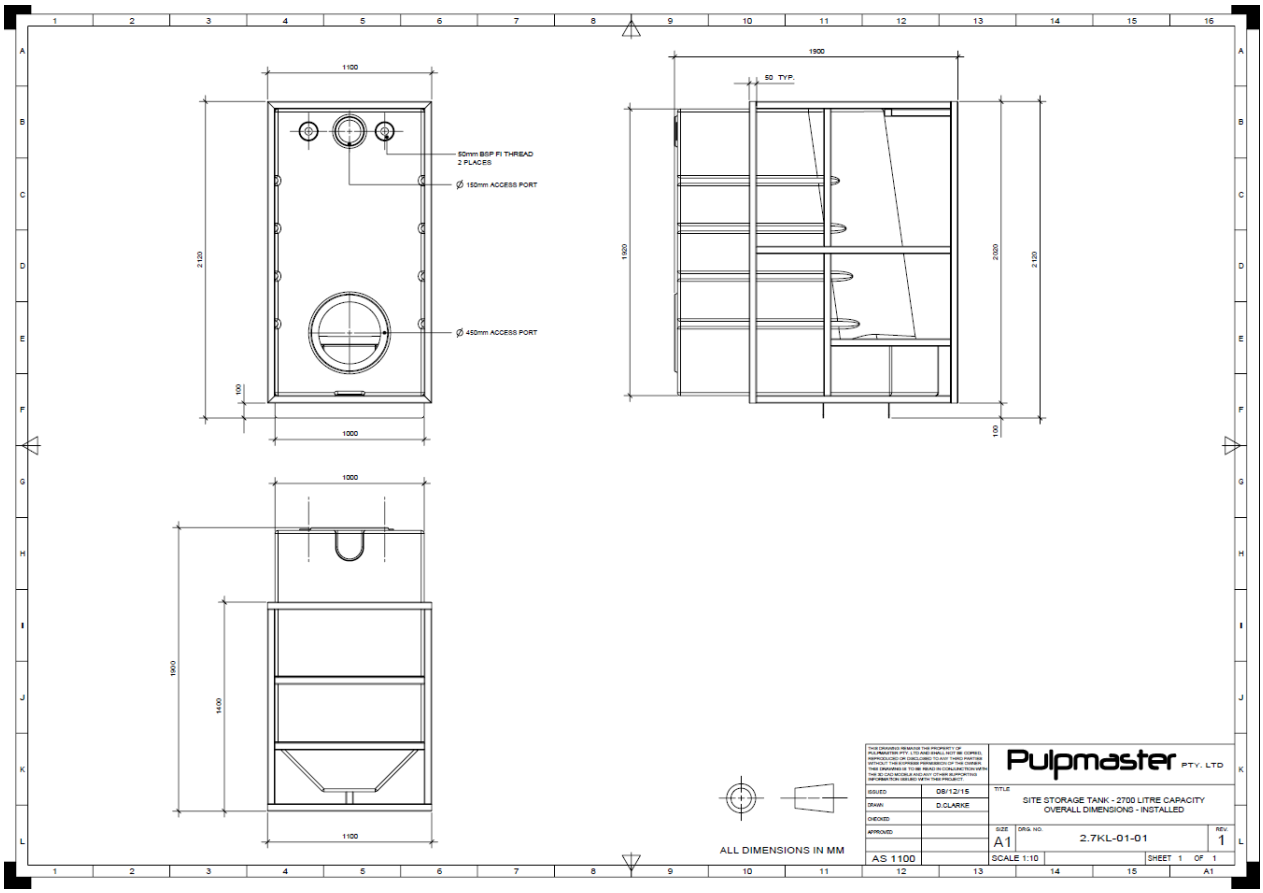
The Waste Management report that you have just read is a set of comments based on the following:

- AS1668.2-2012 – Mechanical ventilation.
- Current BCA requirements.
- AS4586-2013 – slip resistance ratings.
- Brisbane City Council – Refuse planning scheme policy. (Waste generation Rates).
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- Australian Standard 1319:1994 Safety signs for the occupational environment.

Additionally, all material provided by UFD has always been done so based on being independent and representing the Stakeholders best interest. Thought and consideration has been provided on how to reduce operational costs, consolidate labour costs, and increase Safe work practices across the Home.

Appendix A Pulpmaster





Appendix B Waste Generation Rates.

people)			
Club (an association established for social, sporting or other similar purposes)	L/100m^2/day	50L	50L
Nightclub entertainment facility	L/100m^2/day	50L	50L
Childcare centre			
Childcare centre	L/100m^2/day	250L	120L
Community use			
Library/community hall/community centre/art gallery (no kitchen facilities)	L/100m^2/day	10L	20L
Library/community hall/community centre/art gallery (with kitchen facilities)	L/100m^2/day	250L	120L
Food and drink outlet			
Food and drink outlet (if less than 150m^2)	L/100m^2/day	300L	200L
Food and drink outlet (if greater than 150m^2)	L/100m^2/day	660L	200L
Function facility			
Conference centre/reception centre (no preparation of food or liquor for consumption)	L/100m^2/day	10L	20L
Conference centre/reception centre (with preparation of food or liquor for consumption)	L/100m^2/day	250L	120L
Health care service			
Dental clinics/medical centres/physiotherapy clinic (additional provisions for regulated waste to be provided)	L/100m^2/day	10L	20L
Hotel			
Pub/tavern	L/100m^2/day	50L	50L
Hotel ancillary use to pub/tavern	L/bed/day	5L	5L
Indoor sport and recreation			
Gym	L/100m^2/day	10L	10L
Industry			
Industry	L/100m^2/day	50L	50L
Commercial food production	L/100m^2/day	150L	150L
Office			
Office	L/100m^2/day	10L	20L
Residential care facility			
Rooms	L/bed/day	5L	5L
Kitchen facilities/dining facilities	L/100m^2/day	660L	200L
Retirement facility			
Retirement living	L/unit/week	80L	80L

Appendix C. Brian Lennox CV.

CV for BRIAN JAMES LENNOX

Brian Lennox FCSI is a foodservice, laundry, and operational waste management design consultant, who specialises in the design of compliant facilities that meet the needs of the operator.

A refrigeration technician by trade, Brian has also successfully completed accreditations in Engineering drafting, AutoCAD, Small business operations and freelance journalism having contributed articles to International and local industry magazines.

Brian has been involved in the foodservice industry for over thirty (35) years working in various roles which have culminated in his work over the last decade as an operational Waste management, Foodservice and Commercial Laundry Design consultant.

Having worked on a diverse range projects over the past twenty (20) years including the National Portrait Gallery, Park Hyatt Sydney, Villawood Detention Centre, Google, Apple, South Sydney Juniors Rugby Leagues Club, Bankwest corporate head office in Perth, Virgin airline lounges throughout Australia, Busselton Health Campus, Tetsuya's Restaurant Sydney, Bupa Care Services projects in Wodonga, Bankstown, Sutherland and the Goodman Fielder test kitchen, Brian has a solid understanding of controlling budget costs, spatial planning requirements and compliant laundry, waste and foodservice facility designs.

Brian specialises in providing credible advice concerning sustainable Waste management, laundry and foodservice designs which operate on less water, chemicals, power, and labour. This provides the operator with a healthier bottom line. Using cutting edge ideas and emerging trends in sustainable designs, Brian looks to bring the future of foodservice and laundry designs into existence now.

Australian Standards, health code regulations, Occupational health and safety, BCA requirements and HACCP procedures are all applied in the designs created by Brian and his team.

Brian is a Professional Member of the FCSI (Foodservice and Consultants Society International) and WMAA (Waste Management Association of Australia) and as such works in accordance with the ethical guidelines of excellence outlined by these Societies. In 2010 Brian was promoted to the Worldwide Council of members who oversee the Professional standards of the Society, assessing and giving direction to material that assists all members to continue growing professionally.

Brian is the Company director of Universal Foodservice Designs. This firm has been in existence for the past ten (10) years and works on design and documentation projects throughout Australia. The Company has a total staff of nine (9) which Brian manages on a basis.

Brian's unique background allows him to offer the Client a range of services including Facility Design, budget control, Specification and Documentation packages, tender review assistance, services co-ordination, Project Management assistance and facility dilapidation and certification reporting.

Brian provides important input to any Consultant design team.

Brian can be contacted on 0422 468 834 or on his Email address at Brian@ufd.net.au.

Appendix D. JJ Richards.

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Certificate of Approval

This certificate confirms that the company below complies with the following standard:

Company Name	J.J. Richards and Sons Pty Ltd		
Company Other Name			
Client ID	105147	*Scheme*	Environmental Management Systems Scheme
Certification Standard	AS/NZS ISO 14001-2016: Environmental management systems - Requirements with guidance for use		
Scope of Certification	Waste Management Solutions for private and public sector customers encompassing Waste Management (Transport & Associated Services), Resource Recovery and Treatment, Education and Environmental Consultancy, Fleet Repair and Maintenance including business support functions such as Administration, Finance, IT, Sales and Marketing and Systems Management.		
Type of Certification	Management System		

CERTIFICATE DATES:

Original / Initial	24/04/2018	*Last Certificate update*	1/07/2020
Certification / Re Certification	24/04/2018	*Expiry*	13/12/2020
Last Certification Decision	1/07/2020		

Please refer to Page 2 for Approved Sites

The use of the Accreditation Mark indicates accreditation by the Joint Accreditation System of Australia and New Zealand in respect to those activities covered by JAS-ANZ accreditation. Refer to www.jas-anz.org/register for verification. This certification remains valid until the above mentioned expiry date and subject to the organisation's continued compliance with the certification standard, and Global-Mark's Terms and Conditions. This Certificate of Approval remains the property of Global-Mark Pty Ltd, Company Number: ACN.108-087-654

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Unique Certificate Code: 076888E1AF59F417CA25858F0017A984

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