



**Opal HealthCare Bella Vista, NSW -
Operational Waste Management Plan.**



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Conflict of Interest

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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 used as they include nominal allowances for normal daily problems encountered in aged care.

Contents:**Opal HealthCare – Bella Vista Operational WMP.**

1. Introduction.	Page 5.
2. Waste management key requirements.	Page 7.
3. Waste and recycling volumes.	Page 13.
4. Light fittings.	Page 22.
5. Waste removal vehicle requirements.	Page 23.
6. Waste minimization recommendations – Waste area.	Page 26.
7. Concept plan and spatial requirements – Waste area.	Page 27.
8. Risk and Hazard analysis	Page 28.
9. Conclusion	Page 29.
Appendix A.	

The Definitions.

Acronyms	Description
BCA	Building Code of Australia
DA	Development Application
DCP	Development Control Plan
EPA	NSW Environmental Protection Authority
LAP	Local Approvals Policy
Local Council.	The Hills Shire Council.
WMP	A document that details the type and quantity of garbage and recyclable material that is likely to be generated the ongoing operation of a facility. 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 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 banded 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.
FOGO	Food Organics, Garden Organics referring to a waste management system for collecting food scraps and garden waste to be composted.
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, etc.
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.

1. Introduction.

Opal HealthCare is looking to develop a new aged care Home located at 26,28 and 30 Norfolk Drive Bella Vista, NSW 2153. The Home will cater for upwards of **135 ageing in place 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 (Hills Shire Council) Authority and NSW State codes, legislative requirements and policies that will apply to this development.
- As part of SEARS, provide the measures to be implemented to manage, reuse, recycle and safely dispose of waste, in accordance with Hills Shire Council waste management requirements. Identify appropriately sited waste storage areas, collection access paths/roads, and appropriate servicing arrangements for the site.
- Compliant disposal and treatment of generated waste as detailed by Local (Hills Shire Council) Council Authority and the NSW EPA waste generation rates.
- 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 Hills Shire 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 NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

All waste calculations and figures provided by UFD are based on the proposed DA drawings prepared by Jackson Teece Architects, room numbers as provided by the Client and NSW EPA waste generation rates.

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

Note: The management of medical waste (as used in aged care homes) 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 successful day to day operation of the Proposed Opal HealthCare, Home located at 26,28 and 30 Norfolk Drive Bella Vista, NSW 2153.

As such, the collection, compaction, sorting and dispatching of all waste emanating from the future RACF should be seen as a service which plays a **fundamental role in the functioning of the aged care Home 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 collection and removal of the generated waste streams.

Recommendations are provided regarding the capacity and performance requirements of new waste management equipment and systems as well as the periodic removal, General, FOGO, Medical, Cytotoxic, and recyclable waste.

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:

- Jackson Teece Architect drawings for the new Opal HealthCare Bella Vista 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.
- The Hills Shire Council requirements.
- AS4586-2013 – slip resistance ratings.
- 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.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

2. Waste management key requirements.

Key features.

The new Opal HealthCare Bella Vista RACF waste holding/management area is to on the Basement level of the Home.

The Opal HealthCare contracted waste collector (Veolia) shall remove collected general, FOGO and recyclable waste, medical, cytotoxic, and administration waste periodically as detailed in this report.

Opal HealthCare has contracted Veolia waste collection services nationally, to collect generated waste volumes from all their sites throughout Australia. Veolia over 700 collection vehicles in its fleet nationally. Rear lift HRV type trucks will be employed to remove waste.

Rear lift trucks collect rear lift containers – 120, 240, 660 & 1100 litre bins. Containers are manually collected and taken to the rear of the truck where they are lifted automatically, emptied, and compacted by the truck.

The onsite Opal HealthCare Maintenance Caretaker/Manager will manage the waste management area.

Opal HealthCare 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.

Note: No allowance is made for a central bulky waste hold on this development as this is not an ILU facility and minimal furniture arrives with the resident.

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 Basement Level of the Bella Vista development for the storage of all waste generated in the RACF. The Waste management area is located inside the building envelope and as such, the waste management area **does not impact of the visual aspect of the Home.**

The Opal HealthCare Bella Vista waste holding area will be constructed and installed to comply with the National Construction Code (NCC), the NSW Better practice guide for Waste Management in Multi-unit dwellings and all relevant Australian, NSW State and Hills Shire Council Standards.

Additionally, all the following items are to be incorporated into the basement 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 bins 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 the waste area be a **minimum of 75mm thick** and covered 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.

- 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.).
- Walls in the waste area must be finished in a light colour and finished with a non-absorbent material for ease of cleaning.
- 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 will be complete with a Temperature Mixing Valve 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 waste collection vehicles.
- Vehicle access and turning circle requirements are detailed by the Transport Consultant in accordance with Australian Standards. Enough space and ceiling height shall be made available to assist the Clients Contracted waste collection vehicles to successfully move as required.
- Adequate vehicle access will be provided with the finished floor to ceiling height of the vehicle pathway being 3.9 meters in height and suitable for the largest general and recyclable waste collection vehicle.
- Loading dock entrance and basement turning bay is to be treated with “no parking” signage or equal being detailed by the Architect.

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

- The waste management operation for the Bella Vista Home will always operate in accordance with current Statutory Workplace and Safety standards in mind.
- All waste collection removal time will be nominated by the Opal HealthCare. With regard bin empty times, Opal HealthCare’s waste collection agency will always endeavour to accommodate the Opal’s needs and pick up times (Monday to Friday and during normal business hours).
- Maintenance Staff shall Organise and coordinate both General waste, Medical, Cytotoxic and Recycled Waste pick-ups in a just in time manner with the Opal HealthCare Contracted waste collection agencies.
- 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 and EPA regulations.
- The basement floor waste management area will always be off limits to the home’s residents, guests, and non-approved staff.

Note: Due to the associated residential living areas having noise restrictions, bin empties will occur **only during business hours**. This is in alignment with Noise Policy for Industry 2017.



Figure 1 loading dock and internal waste (highlighted) area are concealed from the main road by a walled courtyard.

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.

Note: General waste bins holding putrescible waste will be removed from site twice (2 times) weekly.

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. UFD recommends the following style of bug zapper.



Figure 2 A proprietary UV styled Bug Zapper is recommended for the Waste collection area.

2.4 Access.

Waste vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). 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 of the waste collection vehicle. 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 garbage store entrance for Veolia to collect generated waste external to the Home.

Note: The Waste management area is located inside the building and does not impact of the visual aspect of the Home.

Service or loading bays for waste collection vehicles.

- The bay is to be of a suitable size and location for the proposed vehicles to be employed.
- The loading bay will be in a position that will enable compliant waste bin pick-up and turning circles of waste collection vehicles in accordance with Australian National Standards.

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 a MGB's 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.

Bin	Image	Use	Colour
60 litre bin with dolly		General waste in the main kitchen, Café, Resident kitchens, Scullery points and Resident.	Red
60 litre bin with dolly		Co-mingled waste in the main kitchen, Café, Resident kitchens, Scullery points and Resident.	Yellow
60 litre bin with dolly		Medical / hazardous waste	Yellow
60 litre bin with dolly		Cytotoxic / hazardous waste	Purple
120 litre waste bin		Medical / hazardous waste	Yellow
120 litre waste bin		Cytotoxic / hazardous waste	Purple

240 litre waste bin		Administration waste (secured bin).	Yellow
240 litre waste bin		Glass waste	Yellow
1,100 litre waste bin		Co-mingled waste – including and cardboard.	Yellow
1,100 litre waste bin		FOGO and General waste	Red

Figure 3 Bin sizes to be employed.

Note: All bins used for the storage of generated waste being held in the waste management area shall be complete with lids to retard odors permeating through the area.

Bin-carting routes

For safety and ease of manoeuvrability, the distance required for homeowners, building managers and caretakers to wheel bins to their collection point must be the minimum achievable. No steps or kerbs are allowed in the path for wheeling bins to the collection point.

Table C.2: Bin-carting design standards

Bin capacity	Up to 360L	360L – 1100L	More than 1100L
Maximum distance	30m	5m	3m
Maximum surface grades	1:14	1:14	1:30
Steps or kerbs	None	None	None

Where the bin-carting route from the storage area to the collection point exceeds these distances or a large number of bins need to be moved around the site, such as in large developments, a dock leveller, bin lift or a tow tug device may be used.

Refer to **Appendix G** for information on mechanical aids to move bins.

Figure 4 Bin cart travel requirements.

3. Waste and recycling requirements.

UFD has conducted an analysis of the waste and recycling requirements of the new Opal HealthCare Bella Vista Home and note the following calculations from the NSW EPA Resource and Recovery for residential developments.

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 used as they include nominal allowances for normal daily problems encountered in aged care.

Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and comingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m ² floor space.
Carparks (commercial)	1	1	Based on per 100 m ² floor space.

Note: The operational waste plan allows for carpark waste, all medical waste, hairdresser waste, office/administration waste streams, general waste, FOGO waste and comingled waste streams.

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	3	2 times
FOGO Waste	1,100 litres	1	2 times
Comingled waste	1,100 litres	2	2 times
Medical waste	120 litres	2	1 time
Cytotoxic waste	120 litres	2	1 time
Secured paper waste	240 litres	1	As volume dictates
Garden Waste	660 litre	1	As volume dictates
Fluid waste	1265mm x 645mm bunded pallet	1	As volume dictates

Note: FOGO waste has been calculated at 25% of the total of General waste.

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

3.2 General and FOGO 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
135 residents	675 litres per day	4,725 litres per week
Main kitchen	380 litres per day	2,660 litres per week
Hair Salon	38 litres per day	224 litres per week
Administration and area Office areas (Combined allowance)	24 litres per day	168 litres per week
Café	17 litres per day	119 litres per week
Multi-Purpose room	11 litres per day	77 litres per week
Gym	8 litres per day	56 litres per week
Carpark	2 litres per day	14 litres per week
GENERAL WASTE TOTALS	1,153 LITRES PER DAY	8,071 LITRES PER WEEK

Note: FOGO waste has been calculated at 25% of the total of General waste = 2,010 litres per week.

3.3 Recycling (co-mingled) generation.

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
135 residents	135 litres per day	945 litres per week
Main kitchen	266 litres per day	1,862 litres per week
Hair Salon	30 litres per day	210 litres per week
Administration and area Office areas (Combined allowance)	36 litres per day	252 litres per week
Café	21 litres per day	147 litres per week
Multi-Purpose room	22 litres per day	154 litres per week
Gym	6 litres per day	42 litres per week
Carpark	2 litres per day	14 litres per week
CO-MINGLED WASTE TOTALS	518 LITRES PER DAY	3,626 LITRES PER WEEK

Note: Co-mingled waste has been calculated in accordance with NSW EPA Resource and Recovery for residential developments. This calculation does not break down glass, cardboard and PET plastics as this is subjective to the style and type of facility.

Note: The Opal HealthCare private waste collection agency will be responsible to the removal and sorting of co-mingled waste off site.

3.4 Grease waste

Noted grease waste estimates are provided below. Grease waste will be collected by Opal HealthCare contracted grease waste removal specialist.


		
JOB NAME	Opal Bella Vista	
JOB NUMBER	230100	
PREP. BY:	S.M	
CHECKED BY:	S.T	
HYDRAULIC SERVICES GREASE WASTE ESTIMATE		
SYDNEY WATER GUIDELINES	NURSING HOME 70 - 199 BEDS	MINIMUM 1,500L ARRESTOR
OPAL GUIDELINES	NUMBER OF BEDS 135	MINIMUM 2,000L ARRESTOR
NUMBER OF MEALS / DAY		3
NUMBER OF BEDS		135
TOTAL MEALS / DAY		405
TRADE WASTE WATER PER MEAL		20
TOTAL DISCHARGE (L) DAY		8100
PEAK FLOW RATE DAILY (L/H)		1013
SAFETY FACTOR 30%		1.3
FLOW RATE OF THE GREASE WASTE		0.28
RETENTION TIME HOUR 1 HOUR (SECONDS)		3600
VOLUME OF GREASE ARRESTOR (L)		1316
DESIGN GREASE ARRESTOR (L)		2000
<p>For the purpose of grease arrestor sizing, it is assumed that all meals will be prepared and served within an 8-hour operational period. All calculations have been based on this timeframe to determine peak flow rates and loadings.</p>		

Figure 5 Grease waste estimates.

3.5 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.



Figure 6 Typical bunded pallet

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/>

3.6 Medical waste collection requirements.

135 residents @ 1.3 litres of waste generated per week = 176 litres of medical waste generated per week.

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

1. Waste removal is conducted **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 colour coded (2) x 120 litre bins** are maintained on site if waste cannot be collected due to uncontrollable circumstances.

Note: This medical waste shall be removed as per the waste bin numbers as detailed on Page 13 of this report.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to manage 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.

3.7 Hazardous (Cytotoxic) wastes general comments and requirements.

Cytotoxic Waste Disposal.

All cytotoxic waste containers should be sealed prior to collection by the specialist waste agency. 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.

135 residents @ 1.3 litres of Hazardous medical waste generated per week = 176 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 conducted **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 RACF will be in the following areas:

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

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

Note: This cytotoxic waste shall be removed as per the waste bin numbers as detailed on Page 13 of this report.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to manage 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.

3.8 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 7 A Confidential waste management bin will be provided.

3.9 Pulp master/Mechanical Bio Digester/compaction systems.

UFD notes that a Pulp master system/Food waste compaction/bio digester system or equal **will not be used on this project.**

3.10 Bin washing area.

UFD recommends that adequate bin washing space is made available for the washing of 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 NSW Trade Waste requirements.



Figure 8 Typical trade waste sump to be used in the waste management area.

3.11 Site caretaker/manager – responsibilities.

The size of this 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 Bella Vista 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.

Opal HealthCare 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 Recycled Waste pick-ups in a just in time manner with the Opal HealthCare Contracted waste collection agency (Veolia). 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 collect all generated waste from the following areas:
 - All Resident living areas (including bedrooms).
 - Administration, activity, and wellness areas.
 - Laundry and Foodservice areas.
 - All Back of House areas.
 - All Front of house Areas.
 - Hairdresser.

Note: The collection of all generated waste generated through the Home will be conducted 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 bin 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.

- Require 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, bins, and plant as detailed in this report.

3.12 Collection of waste through the Home.

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

1. General and FOGO waste.

All general waste will be transferred manually by Opal home 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.
- Café area
- Administration, activity, and wellness areas.
- BOH areas including the laundry.
- Nursing stations.
- Hair dressing.

General waste from the main kitchen will be transferred to the waste area by Opal kitchen staff on an as required basis. 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 basement floor waste holding area by Opal 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 Opal 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:

- Administration, activity, and wellness areas.
- Nursing stations.
- Reception.

4. Co-mingled waste.

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

- Dirty Utility areas.
- Upper floor Servery points.
- Resident living spaces.
- Main kitchen.
- Café area
- Administration, activity, and wellness areas.
- BOH areas including the laundry.
- Nursing stations.
- Hair dressing.

3.13 The Hills Shire Council landfill reduction processes.

Much of what we consider 'waste' can be avoided, reused, or recycled. Landfill capacity in the Hills Shire 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. Hills Shire Council has made steps to reduce landfill waste including (but not limited to).

The Management of E-waste

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

Hills Shire Council is committed to the reduction of electronic waste in the local area. Electronic waste items (Computers, printers, TVs, and mobile phones) can be disposed of by being arranging electrical waste pick up days.

Sustainability

UFD notes that the Hills Shire Council is committed to environmental, economic, and social sustainability. With this being the case, the Opal HealthCare Bella Vista will be required to work in conjunction with the Council's waste reduction initiatives.

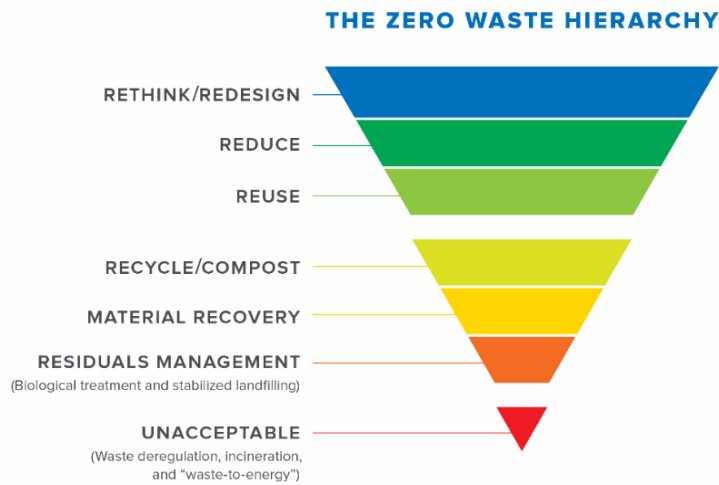


Figure 9 Waste hierarchy.

3.14 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. Instructional signage will be placed on, above and around bins to communicate what can be placed in each bin.



Figure 10 Typical waste signage

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 up 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. Opal Aged Care would simply fill the pack(s) and lodge them at any Australia Post outlet/agent.

5. Waste removal vehicle requirements.

Opal HealthCare specifically use Veolia as their specialist waste removalist. For the Bella Vista Home, Private Contractor (Veolia) HRV waste collection vehicle(s) will be used to remove waste. The waste collection vehicle 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 used the Veolia diagram below indicates the type and size of vehicle that may be required.

Note: Veolia over **700 collection vehicles** in its fleet nationally. Rear lift HRV type trucks will be employed to remove waste on this private site.

Rear lift trucks collect rear lift containers – 120, 240, 660 & 1100 litre bins. Containers are manually collected and taken to the rear of the truck where they are lifted automatically, emptied, and compacted by the truck.

Note: As detailed below, this vehicle has a working height of 3,400mm.

8. Rearlift Trucks



Rear Lift

Vehicle Specification	Measurement
Overall Length	9.8 metres
Travel Height	3.4 metres
Working Height	3.4 metres
Turning Circle Diameter	18.0 metres

Figure 11 Veolia waste removal vehicle 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 (absolute minimum) on both sides of the theoretical Wheel path and 1m as a desirable minimum. The vehicle will require a nominal 18 (maximum) meter turning circle and will nominally 9.8 (maximum) meters in length.

Note: This vehicle will require two (2) meters clearance at the rear for loading and unloading waste bins.

Vehicle dimensions – General and Recyclable waste collection.

The proposed Veolia waste collection vehicle for general and recyclable waste has a working height of 3,400mm and a length of 9,800mm (see Figure 8).

Vehicle dimensions – General and Recyclable waste collection.

The proposed Veolia waste collection vehicle for medical and cytotoxic waste will be either of the following:

- Mercedes Long wheelbase Sprinter Van: Travel Height- 2.80 meters x 6.82 meters in length.
- Eight (8) Ton Truck: 3.6 meters Height x 8.6 meters long x 2.6 meters in width.

Vehicle dimensions – Grease waste collection.

The proposed Veolia waste collection vehicle for grease waste will be either of the following:

Volvo 8-wheel grease trap @ 2.2m wide x 9.7m in length x 3.7m high.

Or

Isuzu 6-wheel grease trap @ 2.2m wide x 8.25m in length x 3.2m high.

Note: Hydraulic Consultant to confirm which vehicle will be used.

Access and turning provisions.

Best design practice for access and egress from the Opal HealthCare 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.

The design aspect of waste removal considered by the architect includes the following:

- The presence of parked cars on access roads / parking areas.
- The trucks three-point allowance to enter and exit in a forward motion.

Note: The Opal HealthCare will be required to contract a private waste removal organization that is proficient and accredited in removing all waste generated on site as detailed in this report.

Waste pickup/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 time will be coordinated with Home Maintenance team to ensure that all bins ready for collection are correctly located prior to the pickup time.

Note: To assist in the management of waste removal from the home the Waste collection vehicles used shall be equipped with a GPS tracking system that will show the waste vehicle driver what job he goes to next, the directions, instructions whilst on site, site contacts and estimated arrival and departure times.

If any of the noted protocols are not adhered too, the tracking system alerts the waste collection agency service office and steps are put into place to ensure corrective actions are achieved.

Note: The collection of general waste (the largest waste volume) will be removed with a ten (10) minute time frame.

- 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 in and near the waste collection loading area.

Note: Vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). 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.
- A compliant waste collection 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.
- The waste collection vehicle will not be reversing into the inside of the Bella Vista Homes' loading dock. Home staff will bring waste bins to the loading dock entrance for Veolia to collect generated waste external to the Home.

6. Waste minimization recommendations – Waste area.

All businesses are encouraged to reduce/minimise its volume of waste. Opal HealthCare are no different.

All businesses (including aged care homes) are encouraged to reduce/minimise its volume of waste. Opal HealthCare are no different. To this end UFD recommends the following practices and processes be initiated as part of the facilities waste management plans:

- Set all computers to print on both sides of the page – reducing paper consumption by 50%.
- Reduce plastic bottle usage by providing filtered water in jugs to the Resident Kitchen areas.
- Undertake regular audits of rubbish collected in cleaners' bins noting what can be placed in recycled bins instead of general waste.
- Employ recycling signage through the Opal HealthCare team areas to promote a positive recycling message.
- Recycle light fittings.
- Discuss options with suppliers to reduce packaging (e.g., buying in bulk).
- Discuss options with suppliers to provide packaging that can be returned, sterilised, and reused (e.g., returnable crates).
- Purchase products with high or 100% recycled content (e.g., toilet paper, tissues).
- Donate old resident furniture to charities.

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 33 square meters** shall be provided.

Note: The below waste management planned area as well as the outlined recommendations detailed in this report has been based on the Current Calder Flower Architect drawings for the new Opal HealthCare Bella Vista Home.

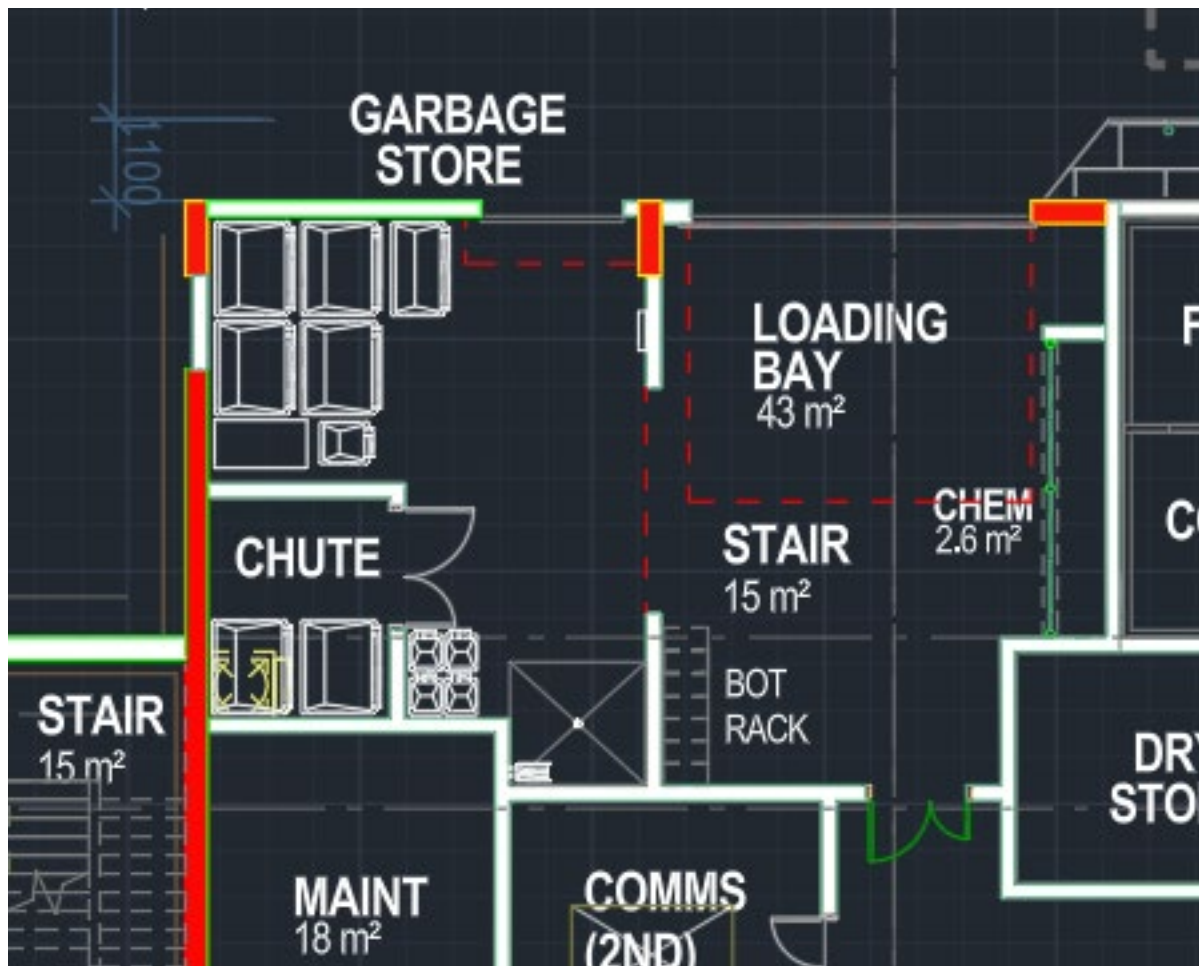


Figure 12 Proposed Waste Management Area

8. Risk and hazard analysis

UFD provides the below risk and hazard analysis to ensure potential risks to staff, residents and waste collectors are minimised, taking into consideration the transfer of bins to the bin collection point bin room and transfer of waste.

Note: Residents **will not transfer** waste to the waste management areas.

Activity	Identified Hazard	Control measure
Manual handling of bin movements to & from refuse room	Transferring bins across circulation aisles for staff and residents through the building.	Staff to be managed on best work health and safety practices relating to manual handling processes.
Bin Washing procedures.	Staff movement around the washing of bins.	Staff to be managed on best work health and safety practices relating to manual handling processes when washing bins.
Sightlines for waste collection vehicles.	Landscaping may impede sightlines for drivers at internal intersections	On-site maintenance staff will be required to maintained landscaping to ensure it does not impede on waste vehicle sightlines.
Waste collection.	Collecting bins near vehicular entry.	Design and install appropriate WH+S signage and line marking including low speed limits for vehicles. Vehicles to engage should alarm when reversing into the loading bay. Approved and compliant waste bins as detailed in the WMP to be employed. Contracted Waste collection staff only to be used to transfer waste from bins to the vehicle.
Hazardous fluid spillage in the waste area	Contaminated fluids entre the sewage system.	Contaminated fluid to be kept on the specified banded pallet.

9. 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 NCC requirements.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- The Shire Hills Council – Waste Generation Rates for Aged Care.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

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.

By Opal HealthCare moving ahead with the recommendations as noted in this report, UFD note that they are rising to the challenge of creating an efficient and sustainable Waste management operation as part this new Home that will cater to the Waste management needs of the Home in the years to come.

Table F3: Calculating commercial and industrial waste and recycling generation rates

Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m ² floor space.
Carparks (commercial)	1	1	Based on per 100 m ² floor space.

95

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Childcare	20	5	Per child
Cultural and recreational services: (museums, theatres, cinemas)	5	10	Based on per 100 m ² floor space for patrons (seating areas for theatre/cinema). Calculate cafes separately. Calculate office areas separately.
Dry cleaning	15	5	Per premises (80 m ²)
Food retail: bakeries	240	120	Per premises (80 m ²)
Food retail: butchers	250	50	Per premises (80 m ²). If organics recycling implemented, then 150L may be transferred from waste.
Food retail: seafood	250	50	Per premises (80 m ²) If organics recycling implemented, then 150L may be transferred from waste.
Food retail: greengrocers	540	60	Per premises (80 m ²) A higher rate needs to be considered for larger premises (based on a pro-rata increase for the 80 m ² premises). If organics recycling implemented, then 300L may be transferred from waste.
Food retail: other	120	80	Per premises (80 m ²)
Food retail: takeaway (with sit-down area)	500	240	Per premises (80 m ²) – day operation only Note consideration must be given to the number of hours of operation.
Food retail: takeaway (food preparation only)	120	60	Per premises (80 m ²)
Gymnasiums	20	15	Based on per 100 m ² floor space
Hair and beauty	50	40	Per premises (80 m ²)
Hotels/pubs (without meals provided at the bar)	50	50	Based on per 100 m ² floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Licensed clubs (with gaming)	50	50	Based on per 100 m ² floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Medical	20	10	Per number of doctors' consulting rooms. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Motels	10	5	Based on the number of guest rooms with other types of facilities calculated separately.
Offices	10	15	Based on per 100 m ² floor space that is used for staff activities (e.g. exclude lobby areas).
Optical	15	25	Per premises (80 m ²)
Restaurants	400	280	Based on per 100 m ² floor space
Retail: chemists	20	45	Per premises

96

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Retail: chain stores (clothing, manchester etc.)	5	20	Based on per 100 m ² floor space. Other facilities such as cafes calculated separately.
Retail: other non-food	50	100	Per premises
Retail: grocery and convenience stores	120	240	Based on per 100 m ² floor space
Retail: homeware and kitchenware shops	20	120	Per premises
Retail: newsagents and stationery shops	30	60	Per premises
Retail: office-based (e.g. travel agents)	30	40	Based on per 100 m ² floor space that is used for staff activities (e.g. exclude lobby areas).
Retail: variety gift stores	20	120	Per premises
Schools: pre-school	10	15	Per student
Schools: primary	15	20	Per student
Schools: secondary	20	15	Per student
School: tertiary	10	10	Per student (full time equivalent). Note that other waste such as chemical waste will be generated. Need to calculate other services (e.g. food halls, student accommodation, childcare, gyms), separately.
Showrooms	10	25	Based on per 100 m ² floor space
Supermarkets	240	300	Based on per 100 m ² floor space. Larger supermarkets may have a number of recycling streams, so advice should be sought as to what systems will be provided.
Wholesale trade	100	50	Based on per 100 m ² floor space

Table F3 has been developed using a range of data sources including literature review of other published waste generation data and the results from the 2014 NSW EPA Generator site survey of the commercial and industrial waste stream in the regulated areas of NSW as well as comparisons to actual waste audit data from a range of commercial types.