

# WA Children's Hospice

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## Waste Management Plan

30 November 2021

Project No. 21-1236

Rev\_1





waste less, achieve more

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## Glossary of terms and acronyms

Clinical and Related Waste (CRW)	<p>(a) clinical waste, or            (b) cytotoxic waste, or            (c) pharmaceutical, drug or medicine waste, or            (d) sharps waste.</p> <p>Clinical waste means any waste resulting from medical, nursing, dental, pharmaceutical, skin penetration or other related clinical activity, being waste that has the potential to cause injury, infection or offence, and includes waste containing any of the following:</p> <p>(a) human tissue (other than hair, teeth and nails),            (b) bulk body fluids or blood,            (c) visibly blood-stained body fluids, materials or equipment,            (d) laboratory specimens or cultures,            (e) animal tissue, carcasses or other waste from animals used for medical research,</p> <p>but does not include any such waste that has been treated by a method approved in writing by the Director-General of the Department of Health.</p>
Commingled recycling	Common recyclables, mostly packaging; such as glass, plastics, aluminium, steel, and liquid paper board (milk cartons). Commingled recycling may include paper but often, and particularly in offices, paper and cardboard are collected separately.
Container Deposit Scheme (CDS)	In Western Australia 'eligible containers' (usually for soft and alcoholic drinks) have a 10 cent deposit which can be refunded when the container is redeemed at a refund facility.
Cytotoxic waste	Material which is, or may be, contaminated with a cytotoxic drug during preparation, transport, or administration of cytotoxic therapy. This includes any residual cytotoxic drug remaining after administration to patients, equipment used in the administration of cytotoxic drugs, disposable protective equipment (PPE) used in administration of cytotoxic therapy or in handling cytotoxic waste, urine, faeces and vomitus of patients receiving cytotoxic therapy, and any used or expired cytotoxic drugs.
E-Waste	Electrical, IT and associated equipment. Much of this is re-useable or recyclable.
General waste	Any waste not included in other waste categories, which is not capable of being composted, recycled, reprocessed or reused. Examples of this stream in a hospital setting include incontinent pads (unless blood contaminated), stoma bags, urinary catheters, suction catheters, gloves, hand towels, medical disposals, and disposal nappies.
MGB	Mobile Garbage Bin. Wheeled movable bin, usually lidded and standard sizes (e.g. 120 L, 240 L, 660 L). Also often referred to as a 'wheelie bin'.
MRB	Mobile Recycling Bin. Wheeled moveable bin, similar to an MGB but generally have a different colour body and/or lid to MGBs.
Organic waste	Separated food and/or 'green' material (e.g. grass clippings or vegetation prunings).
Pharmaceutical waste	Pharmaceutical substances include expired or discarded pharmaceuticals, those no longer required by patients or departments and waste materials/substances generated during the manufacture and administration of pharmaceuticals.

Recyclable products	Items that are composed of materials, components or compounds, capable of being remanufactured or reused i.e. plastic bottles, cans, cardboard boxes, glass, clean office paper (that is not confidential). Items are considered recyclable if facilities are available to collect and reprocess them.
Recycling	Where a material or product undergoes a form of processing to produce a feedstock suitable for the manufacture of new products.
Reuse	The transfer of a product to another user, with no major dismantling or processing required. The term "reuse" can also be applied in circumstances where an otherwise disposable item is replaced by a more durable item hence avoiding the creation of waste (e.g. using a ceramic coffee mug in place of disposable cups).
Sharps	Any object capable of inflicting a penetrating injury, which may or may not be contaminated with blood and/or body substances. This includes needles and any other sharp objects or instruments designed to perform penetrating procedures. Sharps include: <ul style="list-style-type: none"> <li>· Glass ampoules</li> <li>· Needles</li> <li>· Glucometer lancets</li> <li>· Scalpel blades</li> <li>· Razor blades</li> <li>· Stitch cutters</li> <li>· Suture needles</li> <li>· Syringes with needles attached</li> <li>· IV tubing spikes</li> </ul>
Waste	includes: <p>(a) any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment, or</p> <p>(b) any discarded, rejected, unwanted, surplus or abandoned substance, or</p> <p>(c) any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, processing, recovery or purification by a separate operation from that which produced the substance, or</p> <p>(d) any processed, recycled, re-used or recovered substance produced wholly or partly from waste that is applied to land, or used as fuel, but only in the circumstances prescribed by the regulations, or</p> <p>(e) any substance prescribed by the regulations to be waste.</p>

# 1 Introduction

This Waste Management Plan (WMP) has been prepared for Hassell, as the lead designer, and the Child and Adolescent Health Service (CAHS,) as the future operator, and is provided to support the Development Application for the proposed WA Children's Hospice (WACH).

The proposed development will consist of a new children's hospice including seven (7) guest bedrooms, three (3) family suites, kitchen/dining area, shared facilities (e.g. pool, therapy rooms, lounge, playrooms, outdoor living etc.), clinical spaces and staff workstations.

This WMP has been prepared based on the following information:

- Functional Brief v5.0 dated 11 March 2021
- Architectural plans received 18 November 2021
- City of Nedlands Local Planning Policy – Waste Management (2020)
- WALGA Commercial and Industrial Waste Management Plan Guidelines (2018)
- Discussion with Shaun Oostryck (Encon), Belinda Dodds (Project Manager – Infrastructure, CAHS) and Shaun Voysey (Logistics including waste services, Perth Children's Hospital), 10 November 2021
- Discussion with James French, Hassell, 17 November 2021

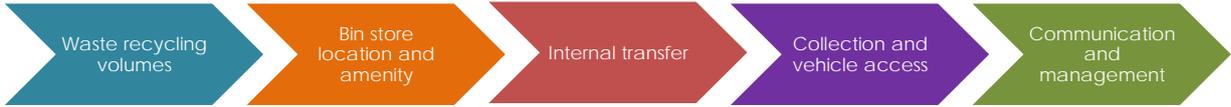
## 1.1 Context

For efficient and effective waste management, the collection and centralisation of waste and recyclables has been carefully considered at the building design phase. Key factors to consider at the design phase include:

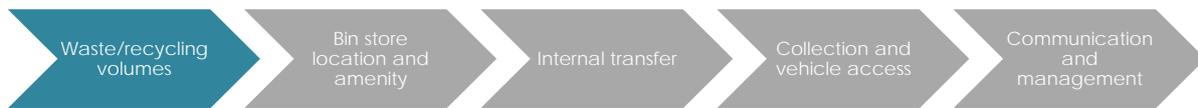
- The volumes of waste, CRW, organics and recyclables likely to be generated during hospice operation
- Size of bin storage areas
- Safety for all operatives involved in waste management
- Access to bins and storage areas from within the building
- Access for trucks for waste collection
- Local council requirements
- Amenity (odours and noise)
- The ongoing management of waste and recycling services

## 1.2 Key components of the WMP

This WMP consists of five core components. The following report will present detailed information on each of the following components.



## 2 Estimated waste and recycling volumes



### 2.1 Local government requirements for waste volumes and bin type

The City of Nedlands has a Local Planning Policy - Waste Management (2020) which outlines requirements relating to waste management and minimisation in proposed developments. The generation rates from the WALGA 'Commercial and Industrial Waste Management Plan Guidelines' (2018) applicable to the hospice development and Encycle's experience and knowledge of the functions of the hospice have been used to determine waste generation for this building.

Specifically, the generation rates used are presented below. WALGA waste generation rates do not include a breakdown of material streams included in the 'recycling' stream. The final column presents Encycle Consulting's in-house estimate of the material streams present in the recycling stream based on our working experience of operational buildings in Perth. Waste generation rates for clinical areas are based on averages for quantity and composition of waste generated, as determined by industry data (i.e. data / information obtained from hospital waste audits in Australia).

For waste calculation purposes, the following waste generation rates have been applied:

- WALGA waste and commingled recycling generation rates for 'commercial offices' have been applied to the main entry and welcome area, staff workstations, messy play/playroom, bereavement suite and staff amenities.
- WALGA waste and commingled recycling generation rates for 'hotel rooms' have been applied to the family suites on the understanding that most stays will be short-term and most meals will be provided by the main kitchen; this rate is calculated on number of beds being four (4) per suite.
- WALGA waste and recycling generation rates for 'hotel dining areas' have been applied to the main kitchen and dining area.
- WALGA waste and recycling generation rates for 'retail' (e.g. pharmacy) have been applied to the clinical spaces including clinical feed room.
- WALGA waste and recycling generation rates for 'gymnasiums' have been applied to the hydrotherapy and allied health areas.
- Hospital waste generation rates obtained by Encycle have been applied to five (5) of the guest bedrooms and oncology rates to two (2) guest bedrooms.

**Table 1: WALGA waste generation rates applied to WACH**

Premises type	Waste generation rate	Recycling generation rate	Percentage breakdown of recycling stream by material
Office	0.1 L /1m <sup>2</sup> /day	0.1 L /1m <sup>2</sup> /day	7% commingled 79% paper 14% cardboard 10% soft plastics 20% of waste is organics
Hotel rooms	5 L / bed / day	2 L / bed / day	40% commingled 50% cardboard 10% soft plastics
Hotel dining areas	6.7 L /1m <sup>2</sup> /day	1.3 L /1m <sup>2</sup> /day	40% commingled 50% cardboard 10% cooking oil 10% soft plastics 20% of waste is organics
Retail <100 m <sup>2</sup>	0.5 L /1m <sup>2</sup> /day	0.25 L /1m <sup>2</sup> /day	25% commingled 50% cardboard 25% soft plastics
Gymnasium	0.1 L /1m <sup>2</sup> /day	0.1 L /1m <sup>2</sup> /day	40% commingled 50% cardboard 10% soft plastics

## 2.2 Number and type of bins required

### 2.2.1 General waste and recycling bin store

The number of bins required for the general waste and standard recycling streams and their collection frequency are shown in Table 2. Waste and recycling is generated by the accommodation areas, office areas and clinical areas.

In addition, there will be two (2) 240 L confidential document bins within the office areas; these will be collected by the service provider directly from the office areas and will not be stored in the bin stores.

The waste collection frequency for WACH has been set at weekly (at most) to minimise the interruption to the tranquillity of the setting.

**Table 2: Number of bins to be stored in the general waste and recycling bin store**

	Bin size (L)	Number of bins	Collection frequency
General waste (excluding food waste)	1100	6	Weekly
Commingled recycling	1100	1	Weekly
Paper recycling	240	1	Weekly
Cardboard recycling	1100	1	Weekly
Used cooking oil	200	1	As required

Soft plastics	660	1	As required
Organics – food waste	120	5	Twice-weekly
CDS recycling	240	1	As required
PVC recycling	240	1	As required
Battery recycling	20	1	As required
Electronic waste (e-waste)	1 m <sup>2</sup>	As required	
Bulk waste and recycling storage (see discussion in Section 2.4.3 below)	2 m <sup>2</sup> (minimum)	As required	

## 2.2.2 Hazardous / Clinical and Related Waste bin store

The number of bins to be stored in the Clinical & Related Waste (CRW) waste bin store are set out in Table 3.

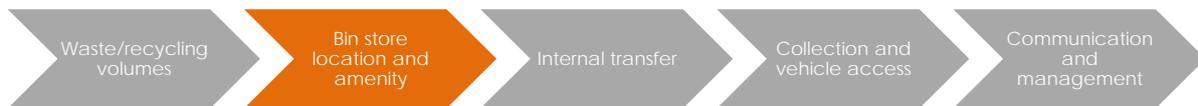
Table 3: Number of bins to be stored in the CRW bin store

	Bin size (L)	Number of bins (dirty)	Number of bins (clean)	Collection frequency
Clinical and related waste (CRW)	240	1	2	Fortnightly
Sharps	240	1	2	Weekly
Cytotoxic	240	1	2	Fortnightly
Metal recycling	120	1	2	As required
Pharmaceutical waste	120	1	1	Monthly

## 2.2.3 Bulk waste and recycling storage

For waste generation purposes, WACH will be an amalgamation of a hospital, administration centre and residential home. Bulk waste items are expected to be produced that will not fit into the general waste bins, or that may be stored before being moved to another site (e.g. Perth Children's Hospital, Department of Health), or taken for specialist recycling. These items may include empty gas cylinders, polystyrene from packaging, fabrics (curtains, soft furnishings), mattresses and furniture, household appliances, batteries, light globes and electronic waste. A bulk general waste area within the bin store is provided to store these items until they can be collected, recycled or otherwise disposed of. The waste service provider will provide storage containers for some recycling streams (e.g. batteries, light globes, toners and printer cartridges) as required.

### 3 Bin stores location and amenity



#### 3.1 Bin store location

Two bin stores will be required to service the main accommodation / office space and medical spaces of the WACH:

- i. General waste and standard recycling streams
- ii. Hazardous / medical waste – this will be a secure, bunded bin store.



Figure 1: Basement plan showing location of bin stores

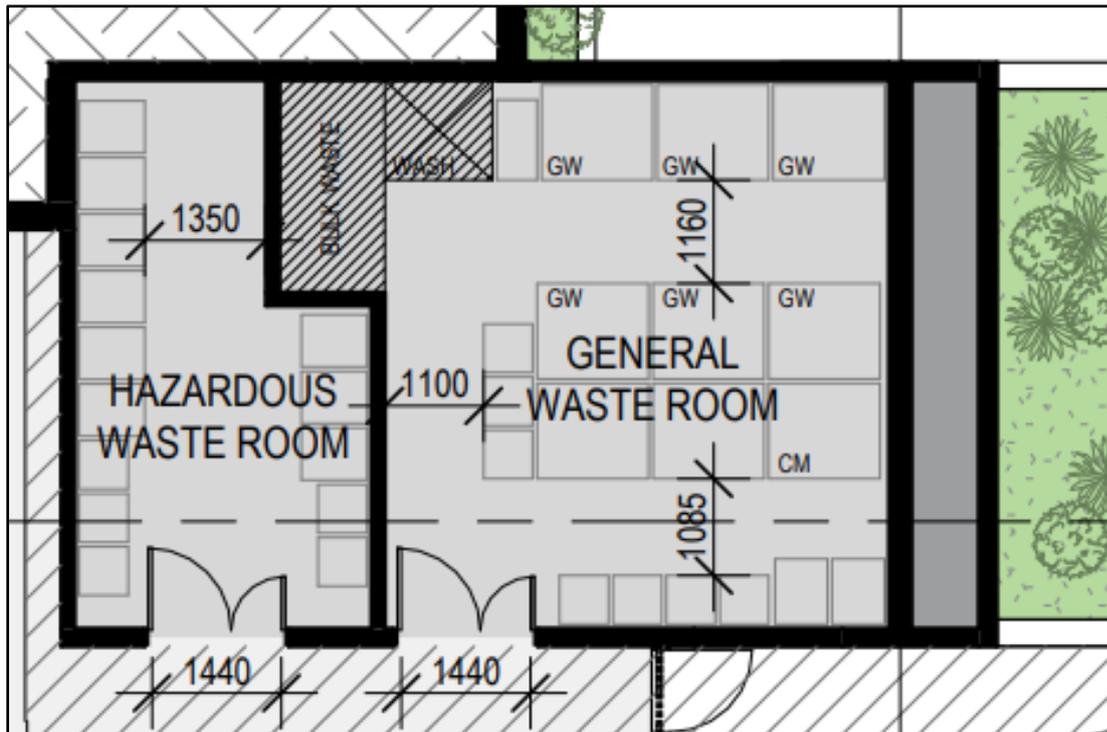


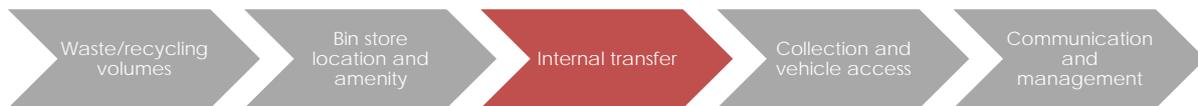
Figure 2: Basement floor plan showing the general waste and standard recycling bin store and hazardous / medical waste bin store

### 3.2 Bin store amenity

Bin Transfer	
Aisle door and lift width:	All doors, corridors and lifts on the transfer route are designed for the largest bin to fit through.
General health and safety:	Waste systems are designed to ensure that bins (particularly when full) are not required to be moved over any significant distances, up/down steep ramps (grade of slope <1:14) and definitely avoid stairs or other potential hazards.
	Manual handling of waste in garbage bags is excluded from the waste management systems where possible.
Bin store	
Washing bins and waste storage area:	<p>Impermeable floors grading to an industrial floor waste (including a charged 'water-trap' connected to sewer or an approved septic system), with a hose cock to enable bins and /or the enclosure to be washed out. 100 mm floor waste gully to waste outlet. Both hot and cold water will be available.</p> <p>The hazardous / medical waste bin store will drain to a sump or sewer to collect spills and wash waters. No liquid waste, washdown waters or stormwater contaminated with biohazardous waste are disposed of via the stormwater drainage system.</p>

Bin store walls and ceilings:	All internal walls in bin stores will be cement rendered (solid and impervious) to enable easy cleaning. Ceilings will be finished with a smooth faced, non-absorbent material capable of being easily cleaned. Walls and ceilings will be finished or painted in a light colour.
Bunded:	The hazardous / medical waste bin store will have an impervious base surrounded by an appropriate bund to contain any spills.
Ventilation and odour:	The design of bin stores will provide for adequate separate ventilation with a system that complies with Australian Standard 1668 (AS1668). The ventilation outlet is not in the vicinity of windows or intake vents associated with other ventilation systems.
Doors:	Ventilated roller doors will be specified both internally and externally to enable bins to be easily wheeled into and out of the bin stores.
Vermin:	Self-closing doors to the bin stores will be installed to eliminate access by vermin
Lighting:	Bin stores will be provided with artificial lighting, sensor or switch controlled both internal/external to the room.
Noise:	Noise is to be minimised to prevent disruption to occupants or neighbours.
Fully Enclosed:	The bin stores will be fully enclosed and only be accessible by residents, tenancy staff and the waste service provider.  The hazardous / medical waste bin store will be a separate bin store, to avoid mixing these wastes with other stored materials.
Aesthetics:	The bin stores will be consistent with the overall aesthetics of the development.
Signage:	Visual aids and signage will be provided to ensure that the area works as intended.  The hazardous / medical waste bin store will be signposted with the biohazard symbol and other labelling appropriate to the types of waste stored within.
Spill kits:	A spill kit will be available in the hazardous / medical waste bin store and contain all items as necessary to clean up spills of biohazard waste.

## 4 Internal transfer



Clinical areas will hold small (4 L) clinical waste bins, sharps bins, and cytotoxic bins; when full they will be transferred to 240 L bins in the dirty utility room. Similarly, metal recycling bins (20 L) will be provided in clinical rooms and transferred to a 120 L bin in the dirty utility room. Pharmaceutical waste is stored in the dirty utility room in locked 120 L bins.

When bins in the dirty utility room are full, they will be transferred to the CRW bin store via the internal lift.

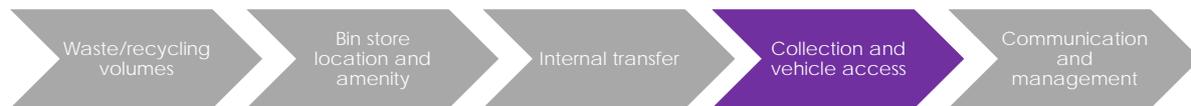
Secure confidential document bins will be available in both the staff desk spaces (level 1) and clinical spaces (ground floor). These will be accessed directly by the service provider on collection days and not presented in the bin store.

Organic (food) waste will be collected in 120 L bins in the kitchen and small (~20-40 L) caddies in the office kitchen, clinical areas, bereavement centre and apartments to decant into 120 L bins in the general waste and recycling bin store.

Soft plastic bins will be located in kitchen and staff areas.

WACH cleaning staff will remove waste from bins in the internal and external areas of the building and transfer directly to the general waste and recycling bin store.

## 5 Collection and vehicle access



WACH falls under the State Government's Common Use Agreement (CUA) for Waste Disposal and Recycling Service and will utilise one or more of the service providers under the Agreement.

It is recommended that one service provider services the full range of general waste and recycling bins where possible. Clinical, pharmaceutical, cytotoxic and sharps will be collected by service providers licenced to collect and transport controlled waste, also under the Agreement. Other specialist service providers may collect specific recycling streams (e.g. toners and printer cartridges).

A range of rear-lift vehicles will require access to the loading area and a tanker vehicle will service the used cooking oil storage unit. A separate tanker vehicle will service the grease trap.

Swept path analysis for vehicle ingress and egress has been completed by Forth Consulting using an 8.8m long service vehicle (see Figure 3).

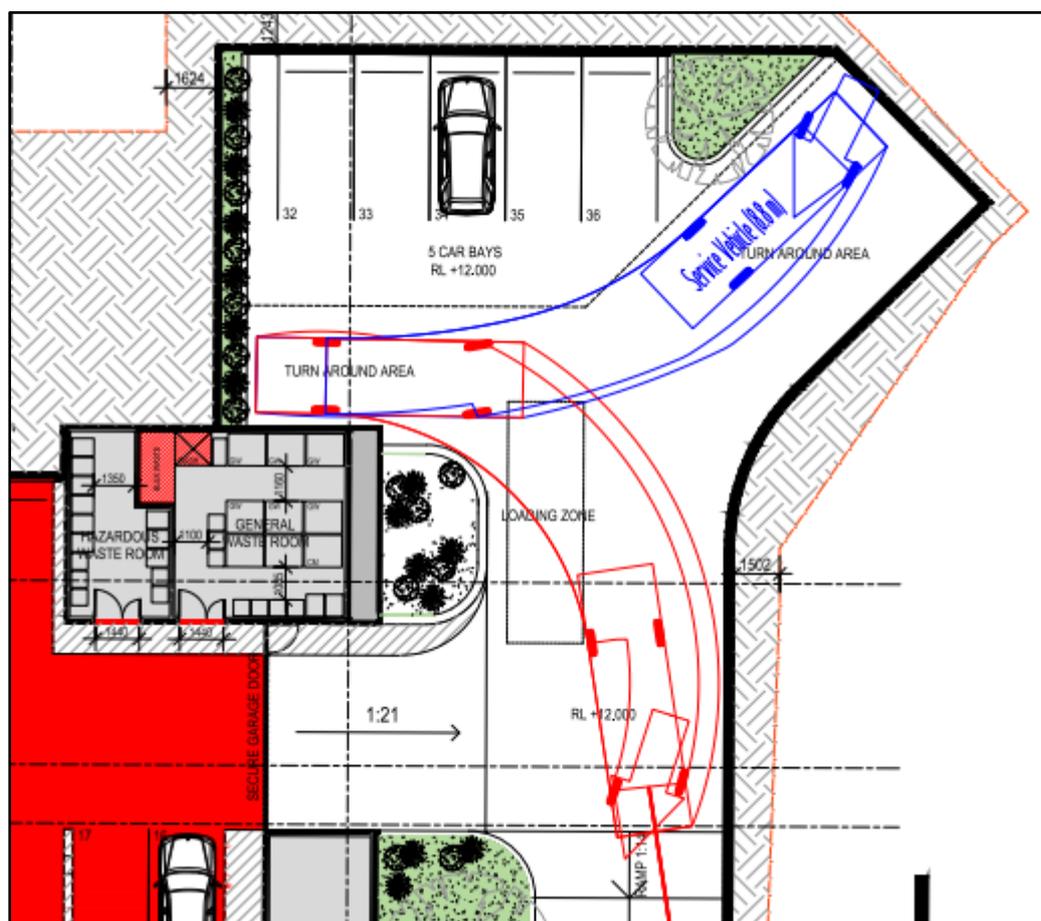
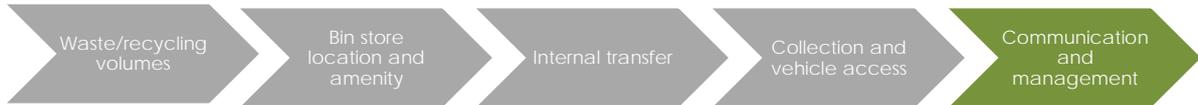


Figure 3: Swept path analysis showing access for waste collection vehicles

## 6 Ongoing communication and management



### 6.1 Management

CAHS personnel will be responsible for overseeing the waste management systems and ensuring correct procedures are followed in relation to storage of CRW. Relevant personnel will be trained and informed about their responsibility to work closely with the service providers regarding the schedule for collection and presentation of bins in the two bin stores. Relevant staff members will be responsible for maintaining the bin stores in a clean and tidy condition at all times and ensuring waste and recycling bins are washed regularly.

### 6.2 Communication

All staff will be made aware through appropriate channels (e.g. newsletter, signs, training) of the waste and recycling systems and how they should be used.

CAHS will be responsible for the continuing education of staff on correct segregation of waste, CRW, organics and recyclables to ensure correct and safe disposal.

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