

# Wollongong Private Hospital Expansion – Waste Management Plan Update

15-23 Urunga Parade, 360-364 Crown Street and 366-368 Crown  
Street Wollongong

A Submission to AA Crown Holdings Pty Ltd c/o  
360 Property Agency

29 October 2025



## Prepared by

MRA Consulting Group (MRA)  
 Registered as Mike Ritchie & Associates Pty Ltd  
 ABN 13 143 273 812

Suite 408 Henry Lawson Building  
 19 Roseby Street  
 Drummoyne NSW 2047

+61 2 8541 6169  
[info@mraconsulting.com.au](mailto:info@mraconsulting.com.au)  
[mraconsulting.com.au](http://mraconsulting.com.au)

## Version History

| Ver | Date       | Status       | Author            | Approver          | Signature                                                                             |
|-----|------------|--------------|-------------------|-------------------|---------------------------------------------------------------------------------------|
| 0.1 | 03/03/2022 | Draft        | Candace Lim       | James Cosgrove    | -                                                                                     |
| 0.2 | 25/03/2022 | Review       | James Cosgrove    | -                 | -                                                                                     |
| 1   | 22/04/2022 | Final        | -                 | James Cosgrove    |  |
| 2   | 06/03/2025 | Update       | Marissa Delaveris | James Cosgrove    |                                                                                       |
| 3   | 29/10/2025 | Final Update | Andre Gabagat     | Marissa Delaveris |  |

## Disclaimer

This report has been prepared by MRA Consulting Group for AA Crown Holdings Pty Ltd c/o 360 Property Agency. MRA (ABN 13 143 273 812) does not accept responsibility for any use of, or reliance on, the contents of this document by any third party.

In the spirit of reconciliation MRA Consulting Group acknowledges the Traditional Custodians of Country throughout Australia and their connection to land, sea and community. We pay our respects to Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging.

## Table of contents

|                                                        |     |
|--------------------------------------------------------|-----|
| Glossary .....                                         | iii |
| 1 Introduction.....                                    | 1   |
| 1.1 Waste Management Context.....                      | 1   |
| 1.2 Legislative Context.....                           | 2   |
| 1.3 Objectives.....                                    | 4   |
| 1.4 Assumptions .....                                  | 4   |
| 2 Construction and Demolition Waste Management .....   | 6   |
| 2.1 Demolition Works.....                              | 7   |
| 2.2 Excavation & Construction .....                    | 10  |
| 2.3 Waste Contractors and Facilities.....              | 14  |
| 2.4 Site Documentation.....                            | 14  |
| 3 Operational Waste Management Planning.....           | 15  |
| 3.1 Waste Classification.....                          | 15  |
| 3.2 Medical Waste .....                                | 17  |
| 3.3 Existing Hospital Waste Management.....            | 19  |
| 3.4 Operational Waste Forecast .....                   | 20  |
| 3.5 Waste Handling Equipment.....                      | 25  |
| 3.6 Disposal Rooms and Waste Storage Area .....        | 26  |
| 3.7 Summary of Waste Handling Workflow .....           | 26  |
| 4 Waste Management Systems .....                       | 27  |
| 4.1 Site Waste Management.....                         | 27  |
| 4.2 Information and Training .....                     | 29  |
| 4.3 Signage .....                                      | 30  |
| 4.4 Spill Management .....                             | 30  |
| 4.5 Prevention of Pollution and Litter Reduction ..... | 31  |
| 5 References .....                                     | 32  |

## List of Tables

|                                                                                                                        |    |
|------------------------------------------------------------------------------------------------------------------------|----|
| Table 1: Demolition Waste Generation Estimates.....                                                                    | 7  |
| Table 2: Construction waste generation estimates .....                                                                 | 11 |
| Table 3: Waste service contractors and facilities .....                                                                | 14 |
| Table 4: Waste classification of hospital waste .....                                                                  | 15 |
| Table 5: Detailed description of medical waste streams .....                                                           | 17 |
| Table 6: Estimated total additional waste generation due to the proposed development .....                             | 20 |
| Table 7. Current Waste Generation of the Main Hospital .....                                                           | 22 |
| Table 8. Estimated additional weekly waste generated due to the proposed development and additional requirements ..... | 22 |
| Table 9. Estimated waste generation of the West Wing Building and WSRA space requirements .....                        | 23 |
| Table 10: Mobile garbage bin specifications .....                                                                      | 25 |
| Table 11: Management Requirements of medical waste streams .....                                                       | 34 |

## List of Figures

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Figure 1: Rear-lift mobile bins (120L, 240L, 360L, 660L & 1,100L)* .....                      | 36 |
| Figure 2: Examples of standard signage for bin uses .....                                     | 37 |
| Figure 3: Example and layout of safety signage .....                                          | 38 |
| Figure 4: Example of additional recycling information signage for common and staff areas..... | 38 |

## Glossary

| Terminology | Description                                 |
|-------------|---------------------------------------------|
| AS          | Australian Standard                         |
| BOH         | Back Of House                               |
| C&D         | Construction and Demolition                 |
| C&I         | Commercial and Industrial                   |
| DA          | Development Application                     |
| DCP         | Development Control Plan                    |
| EPA         | Environment Protection Authority            |
| ENM         | Excavated Natural Material                  |
| FM          | Facilities Management                       |
| HETI        | Health Education and Training Institute NSW |
| LGA         | Local Government Area                       |
| MGB         | Mobile Garbage Bin                          |
| PPE         | Personal Protective Equipment               |
| WC          | Wollongong City Council                     |
| WDCP        | Wollongong Development Control Plan 2009    |
| WLEP        | Wollongong Local Environmental Plan 2009    |
| WHS         | Work Health and Safety                      |
| WMC         | Waste Management Committee                  |
| WMP         | Waste Management Plan                       |
| WSP         | Waste Service Provider                      |
| WSRA        | Waste Storage and Recycling Area            |

# 1 Introduction

MRA Consulting Group was engaged by AA Crown Holdings Pty Ltd c/o 360 Property Agency, to prepare a Waste Management Plan (WMP) for the expansion of the Wollongong Private Hospital (hereafter referred to as “the Site”. The Site address is 15-21 Urunga Parade and 360-368 Crown Street, Wollongong, situated in the Wollongong Council (Council) Local Government Area (LGA).

The existing buildings on the site are seven previously residential buildings and the Wollongong Private Hospital. The development seeks to expand the current Wollongong Private Hospital by proposing the following:

- Demolition of 5 residential dwellings;
- Excavation of 6 levels of basement, which includes:
  - 4 basement levels for carparking under the proposed Western Wing Building;
  - 1 basement level for radiation oncology under the proposed Western Wing Building;
- Construction of a 12-storey Western Wing Building, which includes:
  - stores;
  - hospital support areas;
  - inpatient units (IPUs);
  - ICU bays
  - emergency department;
  - substation and plantroom;
  - operating theatres;
  - oncology department;
  - medical techniques; and
- Refurbishment of the existing Wollongong Private Hospital, which includes:
  - Carpark extension and connection;
  - Café extension;
  - ICU and OT extension.
  - Alterations to the loading dock area to provide efficient access from Urunga Parade.
- Retention of 2 existing Heritage Buildings

This WMP has been prepared to inform building design and operation in relation to the delivery of best practice waste management, while also promoting sustainable outcomes across the development. The WMP will be submitted as part of the SSDA submission to the NSW Department of Planning and Environment (DPIE).

## 1.1 Waste Management Context

The site is governed by the project Secretary's Environmental Assessment Requirements (SEARs) SSD-84096206. Additionally, the site is subject to the *Wollongong Local Environment Plan* (WLEP) 2009 and therefore relevant sections of the *Wollongong Development Control Plan* (WDCP) 2009 apply to this WMP. The WDCP, Chapter E07 – *Waste Management* (2009) outlines the following waste management objectives and guiding principles, which have been considered through the preparation of this WMP:

- a) To minimise the volume of waste generated during the demolition and construction phases of development, through reuse and recycling and the efficient selection and use of resources;

- b) To minimise demolition waste by promoting adaptability in building design and focusing upon end-of-life deconstruction;
- c) To encourage development which facilitates waste minimisation and complements waste services offered by Council or private contractors;
- d) To reduce the demand for waste disposal;
- e) To maximise reuse and recycling of building materials and household, industrial and commercial waste;
- f) To provide appropriately located, sized and accessible waste storage facilities;
- g) To assist applicants in planning for sustainable waste management, through the preparation of a site waste minimisation and management plan at the Development Application stage;
- h) To provide guidance with regard to the minimum storage requirements, amenity and management facilities;
- i) To ensure waste management systems are compatible with collection services;
- j) To support the principles of Ecologically Sustainable Development (ESD); and
- k) To avoid illegal dumping of waste.

The following supplementary documents have also been directly relied upon in the preparation of this WMP:

- Better Practice Guidelines for Waste Management in Commercial and Industrial Developments (NSW EPA, 2012);
- Clinical and Related Waste Management for Health Services Policy Statement (NSW Ministry of Health, 2017);
- Generic Hospital Waste Management Plan (NSW Ministry of Health, 1999); and
- Waste Classification Guidelines (NSW EPA, 2014):
  - *Part 1: Classification of Waste.*

This WMP has been developed to comply with all relevant Council's codes and with other statutory requirements.

## 1.2 Legislative Context

The following legislation, policies and guidelines apply to the appropriate functioning and management of waste generated from hospitals. These documents have been utilised in the preparation of this WMP.

### State:

- Work Health and Safety (WHS) Act 2011;
- WHS Regulation 2017;
- Protection of the Environment Operations (POEO) Act 1997;
- POEO Waste Regulation 2014;
- POEO Amendment (Scheduled Activities and Waste) Regulation 2008;
- Notice of exemption under clause 16C Number 2001 E01, POEO Waste Regulation 2005;
- Radiation Control Act 1990;
- Radiation Control Regulation 2013;
- Gene Technology Act 2003;
- Dangerous Goods (Road and Rail Transport) Act 2008;
- Dangerous Goods (Road and Rail Transport) Regulation 2014;

- Poisons and Therapeutic Goods Act 1966; and
- Poisons and Therapeutic Goods Regulation 2008.

**Federal:**

- Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code) 2020 (given force in NSW via the NSW Dangerous Goods legislation)
- Gene Technology Act 2000; and
- Gene Technology Regulations 2001.

**Policies and guidelines relevant to clinical and related waste include the following:**

- AS/NZS 4031:1992 (Non-reusable containers for the collection of sharp medical items used in health care areas);
- AS/NZS 4261:1994 (Reusable containers for the collection of sharp items used in human and animal medical applications);
- AS/NZS 3816:1998 (Management of clinical and related waste);
- AS/NZS 2161.10 Parts 1-3:2005 (Occupational protective gloves);
- AS/NZS 4123 Parts 1-7:2008 (Mobile waste containers);
- AS/NZS 2243 Part 3:2010 (Safety in Laboratories);
- RPS G-4 Guide for Classification of Radioactive Waste (ARPANSA, 2020);
- Code for the Safe Transport of Radioactive Material (ARPANSA, 2019);
- Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (RPS14) (ARPANSA, 2008);
- Industry Code of Practice for the Management of Biohazardous Waste (including Clinical & Related Wastes) (WMAA, 2020);
- The Australian Council on Healthcare Standards (ACHS) EQUIPNational;
- Guidelines Standard 15 (ACHS, 2017) NSW whole of government guidelines and policies
- Waste Classification Guidelines. Part 1: Classifying waste (EPA, 2014);
- Waste Classification Guidelines. Part 3: Waste containing radioactive material CLINICAL AND RELATED WASTE MANAGEMENT FOR HEALTH SERVICES PROCEDURES PD2017\_026 Issue date: August-2017 Page 4 of 19 (EPA, 2014);
- Labelling of workplace hazardous chemicals Code of Practice (SafeWork NSW, 2019);
- Code of Practice: Hazardous manual tasks (SafeWork NSW, 2019) NSW Health guidelines and policies;
- PD2008\_004 Community Sharps Disposal by Area Health Services;
- PD2013\_043 Medication Handling in NSW Public Health Facilities;
- Guideline for Approval of Method to Treat Clinical Waste;
- PD2017\_013 Infection Prevention and Control Policy;
- PD2017\_010 HIV, Hepatitis B and Hepatitis C - Management of Health Care Workers Potentially Exposed;
- GL2018\_013 Work Health and Safety – Blood and Body Substances Occupational Exposure Prevention;
- PD2020\_022 Cleaning of the Healthcare Environment;
- PD2007\_052 Sharps Injuries - Prevention in the NSW Public Health System;

- PD2012\_061 Environmental Cleaning Policy;
- Infection prevention and control practice handbook. Principles for NSW public health organisations (CEC, 2020);
- Environmental Cleaning Standard Operating Procedures. Module 3.4 Environment (CEC-HAI, 2012); and
- Environmental Cleaning Standard Operating Procedures. Module 6 Cleaning Agents (CEC-HAI, 2012).

### 1.3 Objectives

Waste management for the Site considers better practice, necessary equipment, and integration with other guidance documents, including the NSW Waste and Sustainable Materials Strategy 2041 (NSW DPIE, 2021) and National Waste Policy: Less Waste, More Resources (DE&E, 2018). The key policy aims that are considered are:

- Avoidance (to prevent the generation of waste);
- Reduce the amount of waste (including hazardous waste) for disposal;
- Manage waste as a resource;
- Ensure that waste treatment, disposal, recovery and reuse are undertaken in a safe, scientific and environmentally sound manner; and
- Operational efficiency and financial outcome.

### 1.4 Assumptions

This report is a Waste Management Plan, forming part of the design documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the current design set for the development plan from the project architect, HPI Architecture, dated 26/09/25;
- The waste streams and volumes expected to be generated during regular activities based on the following proposed additions, proposed as part of the extension and refurbishment works:
  - Demolition of 5 residential dwellings;
  - Excavation of 6 levels of basement, which includes:
    - 4 basement levels for carparking under the proposed Western Wing Building;
    - 1 basement level for radiation oncology under the proposed Western Wing Building;
  - Construction of a 12-storey Western Wing Building, which includes:
    - stores;
    - hospital support areas;
    - inpatient units (IPUs);
    - ICU bays
    - emergency department;
    - substation and plantroom;
    - operating theatres;
    - oncology department;
    - medical techniques; and
  - Refurbishment of the existing Wollongong Private Hospital, which includes:
    - Carpark extension and connection;

- Café extension;
- ICU and OT extension.
- Alterations to the loading dock area to provide efficient access from Urunga Parade.
- Waste generation volumes are based on actual data derived from existing hospital operations, with like-for-like comparison of existing uses. Waste management equipment and infrastructure recommendations have been made according to estimated waste generation for the Site and guidance from supporting regulatory documents outlined above; and
- This WMP is a living document and, therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology.

## 2 Construction and Demolition Waste Management

Demolition, excavation and construction activities related to the proposed development will generate a range of construction and demolition (C&D) wastes. The north-west part of the site is occupied by five dwellings along Urunga Parade that are proposed to be demolished:

- D/-/DP402234 – 15 Urunga Parade - single-storey brick cottage;
- CP/-/SP73256 – 17 Urunga Parade - two-storey multi-unit dwelling with ground floor parking;
- A/-/DP343680 – 19 Urunga Parade - single-storey residential brick dwellings;
- 47/1/DP5507 – 21 Urunga Parade – two-storey brick cottage;
- 46/1/DP5507 – 23 Urunga Parade – single-storey brick cottage;
- B/-/DP343680 & 9/1/DP5507

All are proposed to be demolished or deconstructed prior to the commencement of any redevelopment works. Minor works at the existing Wollongong Private Hospital are also part of the activities of this proposal to accommodate the expansion of the café and ICU. Although part of the great development, the 366 & 368 Crown Street buildings will not undergo any demolition or construction works and are therefore excluded from this section and application.

Throughout the development process, all materials will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or otherwise unsuitable for reuse or recycling.

Waste storage during demolition, excavation, and construction works involves the stockpiling of excavated and reusable materials, as well as the placement of skip bins for the separation of demolished and excess building materials for recycling. A skip bin (or bins) for residual waste and/or contaminated material will also be made available at the site for disposal where necessary. Skip bins may require alternative placement across C&D operations to facilitate the safe and efficient storage of materials and will be retained within property boundaries to avoid illegal dumping.

The quantities, densities and bulking factors for waste and recyclables have been determined based on current practices. A waste storage area shall be designated by the demolition and construction contractor and shall be sufficient to store the various waste streams expected to be generated during operations. Waste storage areas will be kept clear to maintain vehicular access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons.

Waste management principles, management measures and facilities in use on the site shall be included as part of the site induction for all personnel working on the site.

## 2.1 Demolition Works

Demolition works at the site will involve the demolition of the five buildings listed above, as well as some internal structures and walls within the existing Private Hospital building. Table 1 below outlines waste streams and material quantities expected through the demolition phase, including potential reuse and recycling opportunities, and anticipated material diversion percentage.

**Table 1: Demolition Waste Generation Estimates**

| Type of waste generated      | Quantity              | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal                                                                                                                                                                 |
|------------------------------|-----------------------|-------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete                     | 200-250m <sup>3</sup> | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: crushing and recycling for recovered products (aggregates).                                                    |
| Asphalt                      | N/a m <sup>3</sup>    | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: crushing and recycling for recovered products (aggregates).                                                    |
| Bricks/ pavers               | 100-130m <sup>3</sup> | ✓     | ✓         | -        | On site: cleaned and separated wherever possible for reuse or to enhance resource recovery.<br>C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products. |
| Timber (treated & untreated) | 40m <sup>3</sup>      | -     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: recovery and recycling for recovered product (e.g. mulch) or organics processing.                              |

| Type of waste generated | Quantity            | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal                                                                                                                 |
|-------------------------|---------------------|-------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Metal (ferrous)         | 5-20m <sup>3</sup>  | -     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: metals recovery and recycling.                                 |
| Metal (non-ferrous)     | 5-10m <sup>3</sup>  | -     | ✓         | -        | Onsite: to be separated wherever possible to enhance resource recovery.<br>C&D processor: metals recovery and recycling.                                  |
| Glass                   | 30m <sup>3</sup>    | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>Glass recycler: recovery and recycling.                                       |
| Fixtures and fittings   | 10-15m <sup>3</sup> | ✓     | ✓         | -        | On site: reuse wherever possible or return to manufacturer.<br>C&D processor: recovery and recycling.                                                     |
| Plasterboard            | 15-25m <sup>3</sup> | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor or plasterboard processor: for recovered plasterboard products. |
| Floor coverings         | 20-30m <sup>3</sup> | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D Processor: recovery and recycling.                                        |

| Type of waste generated                                       | Quantity            | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal                                                                                                                                                                                                                                 |
|---------------------------------------------------------------|---------------------|-------|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Garden organics (Vegetation)                                  | <10m <sup>3</sup>   | ✓     | ✓         | -        | Removal or vegetation to make way for construction. Total to be determined by a qualified arborist.<br>Organics processor: storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment. |
| Residual waste (general refuse)                               | 20-30m <sup>3</sup> | -     | -         | ✓        | Separate recyclables where possible and disposal at principal licensed waste facility.                                                                                                                                                                                    |
| Hazardous/special waste (e.g. spills and contaminated wastes) | Unknown             | -     | -         | ✓        | Management by a licensed asbestos and site hygienist should hazardous or special waste be found to exist at the site.                                                                                                                                                     |

## 2.2 Excavation & Construction

Construction works associated with the proposed development include:

- Excavation of 6 levels of basement, which includes:
  - 4 basement levels for carparking under the proposed Western Wing Building;
  - 1 basement level for radiation oncology under the proposed Western Wing Building;
- Construction of a 12-storey Western Wing Building, which includes:
  - stores;
  - hospital support areas;
  - inpatient units (IPUs);
  - ICU bays
  - emergency department;
  - substation and plantroom;
  - operating theatres;
  - oncology department;
  - medical techniques; and
- Refurbishment of the existing Wollongong Private Hospital, which includes:
  - Carpark extension and connection;
  - Café extension;
  - ICU and OT extension.
  - Alterations to the loading dock area to provide efficient access from Urunga Parade.

Construction waste estimates provide a range for construction waste for new developments (WDCP). Low-end figures from the below ranges have been applied to estimated waste generation during construction, as best practice material ordering and use is proposed to be employed:

- Timber 5-7% of material ordered
- Plasterboard 5-20% of material ordered
- Concrete 3-5% of material ordered
- Bricks 5-10% of material ordered
- Tiles 2-5% of material ordered

Table 2 outlines the expected quantities of excavation and construction waste to be generated at the site, along with the appropriate management methods for each type of material. The information below presents multiple options for materials reuse, recycling, and disposal, where applicable (e.g., returning to the manufacturer, being recycled at a construction and demolition (C&D) processor, or being disposed of in a landfill if contaminated).

**Table 2: Construction waste generation estimates**

| Type of waste generated |                | Quantity                      | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal                                                                                                                                                                 |
|-------------------------|----------------|-------------------------------|-------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Excavation material     |                | 50,000 – 80,000m <sup>3</sup> | ✓     | -         | -        | On site: testing (if necessary) for contamination and stockpiling of material for reuse as fill material.<br>C&D processor: reuse/recycling of VENM and ENM Landfill if contaminated.                     |
| Concrete                |                | 60-120m <sup>3</sup>          | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: crushing and recycling for recovered products (aggregates).                                                    |
| Bricks/pavers           |                | Minor                         | ✓     | ✓         | -        | On site: cleaned and separated wherever possible for reuse or to enhance resource recovery.<br>C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products. |
| Tiles                   | Roof           | N/A                           | ✓     | ✓         | -        | On site: cleaned and separated wherever possible for reuse or to enhance resource recovery.                                                                                                               |
|                         | Floor and wall | Minor                         | ✓     | ✓         | -        | C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.                                                                                                |
| Timber                  |                | Minor                         | -     | ✓         | -        | Onsite: to be separated wherever possible to enhance resource recovery.<br>C&D processor: recovery and recycling for recovered product (e.g. mulch) or organics processing.                               |

| Type of waste generated | Quantity            | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal                                                                                                                                                                    |
|-------------------------|---------------------|-------|-----------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Metals                  | Minor               | -     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: metals recovery and recycling.                                                                                    |
| Plasterboard            | Minor               | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse.                                                           |
| Glass                   | Minor               | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.<br>Glass recycler: recovery and recycling. |
| Fixtures and fittings   | Minor               | ✓     | ✓         | -        | On site: reuse wherever possible or return to manufacturer.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.<br>C&D processor: recovery and recycling.               |
| Floor coverings         | 10-20m <sup>3</sup> | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.<br>C&D processor: recovery and recycling.  |

| Type of waste generated                                       | Quantity              | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal                                                                                                                                                                            |
|---------------------------------------------------------------|-----------------------|-------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Packaging (used pallets, pallet wrap)                         | 100-200m <sup>3</sup> | ✓     | ✓         | -        | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: recycling of timbers and plastic.                                                                                         |
| Garden organics (Vegetation)                                  | <10m <sup>3</sup>     | ✓     | ✓         | -        | Minimal garden organic waste from landscaping.<br>Organics processor: storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment. |
| Paper/cardboard                                               | 50-100m <sup>3</sup>  | -     | ✓         | -        | Commercial contractor: segregation of paper, cardboard or other streams.                                                                                                                                             |
| Residual waste (general refuse)                               | 40-50m <sup>3</sup>   | -     | -         | ✓        | Separate recyclables where possible and disposal at principal licensed waste facility.                                                                                                                               |
| Hazardous/special waste (e.g. spills and contaminated wastes) | Unknown               | -     | -         | ✓        | Management by a licensed asbestos and site hygienist should hazardous or special waste be found at the site.                                                                                                         |

## 2.3 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 3).

**Table 3: Waste service contractors and facilities**

| Role                                    | Details                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended Waste Collection Contractor | <p>The following are local skip bin operators for consideration in the management of C&amp;D waste for the site:</p> <ul style="list-style-type: none"> <li>• Rapid Skips;</li> <li>• ACE Skips and Waste;</li> <li>• Tiny Tins Skips Bins, Illawarra; and</li> </ul> <p>Or otherwise elected by the building contractor.</p> |
| Principal Off-Site Recycler             | <p>The following are local facilities capable of recycling C&amp;D waste generated at the site:</p> <ul style="list-style-type: none"> <li>• Benedict Recycling, Unanderra; and</li> <li>• Bingo Recycling Centre, Kembla Grange.</li> </ul> <p>Or other appropriate facility elected by the waste management contractor.</p> |
| Principal Licensed Landfill Site        | <ul style="list-style-type: none"> <li>• Whytes Gully Waste and Resource Recovery Centre, Kembla Grange.</li> </ul> <p>Or other appropriate facility elected by the waste management contractor.</p>                                                                                                                          |

## 2.4 Site Documentation

This WMP will be retained on-site during the excavation and construction phases of the development, along with other waste management documentation (e.g. contracts with waste service provider). Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or building manager.

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date of waste collections;
- Description of waste type and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name of the collection contractor.

Waste management documentation, including the logbook, associated dockets, and receipts, must be made available for inspection by an authorised Council Officer at any time during site works.

## 3 Operational Waste Management Planning

### 3.1 Waste Classification

The NSW EPA *Waste Classification Guidelines* (2014) define several types of waste, as outlined in Schedule 1 of the Protection of the Environment Operations (PoEO) Act 1997. Part 1: Classifying waste outlines the following waste types:

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible).

From the above-mentioned waste classifications, Table 4 below details the specific waste types expected to be generated under each of the classifications.

**Table 4: Waste classification of hospital waste**

| Waste Classification | Waste Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Additional Details                                                                                                                                                                                                                                                                                  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Special              | <p>Clinical and related waste:</p> <ul style="list-style-type: none"> <li>• Clinical, including:               <ul style="list-style-type: none"> <li>o human tissue (other than hair, teeth and nails),</li> <li>o bulk body fluids or blood,</li> <li>o visibly blood-stained body fluids, materials or equipment,</li> <li>o laboratory specimens or cultures, and</li> <li>o animal tissue, carcasses or other waste from animals used for medical research.</li> </ul> </li> <li>• Cytotoxic;</li> <li>• Pharmaceutical, drug or medicine (defined under Section 8 of the <i>Poisons and Therapeutic Goods Act 1966 (NSW Ministry of Health)</i>; and</li> <li>• Sharps, being those things that:               <ul style="list-style-type: none"> <li>o Have sharp points or edges capable of cutting, piercing or penetrating the skin (such as needles, syringes with needles or surgical instruments),</li> <li>o Are designed for the purpose of cutting, piercing or penetrating the skin, and</li> <li>o Have the potential to cause injury or infection.</li> </ul> </li> </ul> | <p>An exception to this classification occurs when special waste is mixed with restricted solid or hazardous waste. In these circumstances, the waste must be classified as special waste and restricted solid or hazardous waste (as applicable) and managed as both of those classifications.</p> |

| Waste Classification            | Waste Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Additional Details                                                                                                                                                                                                                                                                           |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Liquid                          | <p>Liquid waste means any waste (other than special waste) that:</p> <ul style="list-style-type: none"> <li>• Has an angle of repose of less than 5 degrees above horizontal;</li> <li>• Becomes free-flowing at or below 60 degrees Celsius or when it is transported;</li> <li>• Is generally not capable of being picked up with a spade or shovel; and</li> <li>• Is classified as a liquid waste under an EPA gazettal notice.</li> </ul>                                                                                                                                                                                                                                                                                                           | <p>If the waste meets the criteria outlined, it is classified as liquid waste, and no further assessment for classification is required.</p>                                                                                                                                                 |
| Hazardous                       | <p>The following waste types (other than special waste or liquid waste) have been pre-classified by the EPA as 'hazardous waste', being containers, having previously contained a substance of Class 1, 3, 4, 5 or 8 within the meaning of the Transport of Dangerous Goods Code, or a substance to which Division 6.1 of the Transport of Dangerous Goods Code applies, from which residues have not been removed by washing or vacuuming. Classes are defined as follows:</p> <ul style="list-style-type: none"> <li>• Class 1 – Explosives;</li> <li>• Class 3 – Flammable liquids;</li> <li>• Class 4 – Flammable solids;</li> <li>• Class 5 – Oxidising substances and organic peroxides; and</li> <li>• Class 8 – Corrosive substances.</li> </ul> | <p>The Transport of Dangerous Goods Code refers to the document known as the Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition), approved by the Ministerial Council for Road Transport and published by the Commonwealth Government from time to time.</p> |
| Restricted Solid                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | N/A                                                                                                                                                                                                                                                                                          |
| General Solid (Putrescible)     | <p>The following wastes (other than special waste, liquid waste, hazardous waste or restricted solid waste) have been pre-classified by the EPA as 'general solid waste (putrescible)':</p> <ul style="list-style-type: none"> <li>• Disposable nappies, incontinence pads or sanitary napkins;</li> <li>• Food waste; and</li> <li>• Any mixture of waste referred to above.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                 | <p>Food waste refers to waste generated during the manufacture, preparation, sale, or consumption of food, but does not include grease-trap waste.</p>                                                                                                                                       |
| General Solid (Non-Putrescible) | <p>The following wastes (other than special waste, liquid waste, hazardous waste, restricted solid waste or general solid waste (putrescible)) are pre-classified as 'general solid waste (non-putrescible)':</p> <ul style="list-style-type: none"> <li>• Glass, plastic, rubber, plasterboard, ceramics, bricks, concrete or metal;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Any mixture of waste containing both putrescible and non-putrescible general solid waste is considered to be putrescible.</p>                                                                                                                                                             |

| Waste Classification            | Waste Material                                                                                                                                                                                                                                        | Additional Details                                                                                                                                                                                                                                                        |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 | <ul style="list-style-type: none"> <li>Paper or cardboard;</li> <li>Containers, previously containing dangerous goods, from which residues have been removed by washing or vacuuming; and</li> <li>Any mixture of waste referred to above.</li> </ul> |                                                                                                                                                                                                                                                                           |
| Containing Radioactive Material | Wastes containing any natural or artificial substance that emits ionising radiation.                                                                                                                                                                  | Any waste of this nature must be classified on the basis of both its radioactive and other characteristics, according to the step-by-step procedure outlined in the <i>Waste classification guidelines Part 3: Waste containing radioactive material</i> (NSW EPA, 2014). |

Source: NSW EPA, 2014.

### 3.2 Medical Waste

For this WMP, all clinical, cytotoxic, pharmaceutical, chemical and radioactive wastes are considered to be 'medical' related waste. Medical waste is classified as hazardous waste under the Waste Regulation. Table 5 section describes in detail the different medical wastes expected to be generated by the proposed hospital during operation and how they should be managed appropriately.

**Table 5: Detailed description of medical waste streams**

| Waste Stream                              | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Clinical Waste (incl. Pathological Waste) | <p>Clinical waste with the potential to cause injury, infection or offence:</p> <ul style="list-style-type: none"> <li>Unrecognisable human tissue (excluding hair, teeth, nails and anatomical waste);</li> <li>Bulk blood or other body fluids (or body substances);</li> <li>Material and equipment visibly stained by blood or body fluids (includes incontinence pads and disposable nappies that come from an infectious patient);</li> <li>Lab specimens, cultures or other waste from lab investigations;</li> <li>Waste from medical or veterinary research; and</li> <li>Genetically Modified Organisms (GMOs).</li> </ul> |
| Cytotoxic Waste                           | <p>Material contaminated with residues or preparations containing materials toxic or otherwise harmful to cells. This includes any residual cytotoxic drug or laboratory chemical, as well as any discarded material or clinical waste associated with the preparation, administration, or excretion of cytotoxic drugs. It May Also include Genetically Modified Organisms (GMOs) or tissues containing GMOs.</p>                                                                                                                                                                                                                   |

| Waste Stream                              | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Anatomical Waste                          | Identifiable human body parts, such as limbs, organs, and recognisable or large pathological specimens resulting from the investigation or treatment of a patient. It does not include deceased bodies.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Clinical Sharps Waste                     | Any clinical object capable of inflicting a penetrating injury, which may or may not be contaminated with blood and or body substance. This includes needles, ampoules and any other sharp objects or instruments designed to perform penetrating procedures. May contain clinical material or Genetically Modified Organism (GMO) waste.                                                                                                                                                                                                                                                                                                        |
| Pharmaceutical Waste                      | Pharmaceuticals or other chemical substances specified as regulated goods in the Poisons and Therapeutic Goods Act 2008. Includes any substance specified in a Schedule of the Poisons List under the Act, as well as any therapeutic good which is unscheduled. Includes expired or discarded pharmaceuticals, filters or other material contaminated by pharmaceutical products.                                                                                                                                                                                                                                                               |
| Radioactive Waste                         | Any waste of this nature must be classified on the basis of both its radioactive and other characteristics, according to the step-by-step procedure outlined in the <i>Waste classification guidelines Part 3: Waste containing radioactive material</i> (NSW EPA, 2014).                                                                                                                                                                                                                                                                                                                                                                        |
| Clinical Waste (incl. Pathological Waste) | <p>Clinical waste with the potential to cause injury, infection or offence:</p> <ul style="list-style-type: none"> <li>• Unrecognisable human tissue (excluding hair, teeth, nails and anatomical waste);</li> <li>• Bulk blood or other body fluids (or body substances);</li> <li>• Material and equipment visibly stained by blood or body fluids (includes incontinence pads and disposable nappies that come from an infectious patient);</li> <li>• Lab specimens, cultures or other waste from lab investigations;</li> <li>• Waste from medical or veterinary research; and</li> <li>• Genetically Modified Organisms (GMOs).</li> </ul> |
| Cytotoxic Waste                           | Material contaminated with residues or preparations containing materials toxic or otherwise harmful to cells. This includes any residual cytotoxic drugs or laboratory chemicals, as well as any discarded materials or clinical waste associated with the preparation, administration, or excretion of cytotoxic drugs. It May Also include Genetically Modified Organisms (GMOs) or tissues containing GMOs.                                                                                                                                                                                                                                   |
| Anatomical Waste                          | Identifiable human body parts such as limbs, organs, placenta and recognisable or large pathological specimens resulting from the investigation or treatment of a patient. It does not include deceased bodies.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Clinical Sharps Waste                     | Any clinical object capable of inflicting a penetrating injury, which may or may not be contaminated with blood and or body substance. This includes needles, ampoules and any other sharp objects or instruments designed to perform penetrating procedures. May contain clinical material or Genetically Modified Organism (GMO) waste.                                                                                                                                                                                                                                                                                                        |

| Waste Stream         | Definition                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pharmaceutical Waste | Pharmaceuticals or other chemical substances specified as regulated goods in the Poisons and Therapeutic Goods Act 2008. Includes any substance specified in a Schedule of the Poisons List under the Act, as well as any therapeutic good which is unscheduled. Includes expired or discarded pharmaceuticals, filters or other material contaminated by pharmaceutical products. |
| Radioactive Waste    | Any waste of this nature must be classified on the basis of both its radioactive and other characteristics, according to the step-by-step procedure outlined in the <i>Waste classification guidelines Part 3: Waste containing radioactive material</i> (NSW EPA, 2014).                                                                                                          |

Source: NSW Ministry of Health, 2017.

Mobile bins, trolleys and waste bags will be utilised in conjunction with sharps containers to manage medical-related waste as defined in Table 5. Detailed management requirements under relevant regulations and standards (refer Appendix B). All clinical waste stream bags and storage receptacles should be in a staff-only area to avoid access by the general public.

### 3.3 Existing Hospital Waste Management

The site maintains existing waste management methods, which will be incorporated into the expanded management system of the proposed expansion. It is expected that existing waste management systems can be adapted by increasing the number or size of bins, and/or increasing the frequency of collection to accommodate the additional waste generated by the proposed hospital expansion.

The current operation of the hospital makes use of the following waste management contractors and services:

- Current waste contractor(s) for various waste types
- Cleanaway Daniels
  - Clinical waste
  - Battery recycling
  - PVC recycling
  - Grease trap collection
  - Aluminium bottle recycling
- Flagstaff
  - Cardboard
  - Security shredding
- Close the Loop
  - Printer cartridge recycling
  - cardboard collection bins
- Suez
  - Comingled recycling
  - Compactor
  - Organic waste

The type and number of waste infrastructure retained at the site currently, including the frequency of collections per week, are outlined as follows:

- General waste
  - General Waste compactor – Tue/Fri
  - 30 x 240L General Waste bins (internal use)
  - 4 x 660L General waste bins (internal use)
- Food organics
  - 4 x 240L bins – Tue/Thurs

- 8 x 120L bins - Tue/Thurs
- Comingled recycling
  - Comingled Recycling (20x 240L bins) – Thu (c/o Remondis)
- Paper & Cardboard
  - Paper/cardboard bales – Mon & Thu (c/o Flagstaff) as per bales – usually 3-4
  - Flagstaff – Red security shredding 11 x 120L bins
  - 8 x 240L bins
- Problem wastes:
  - Grease trap – on-call service
  - Aluminium bottle recycling 2 x 120L bins – on call service
  - Battery Recycling bin 1 x 120L bin – on call service
  - PVC recycling 2 x 120L bins – on call service 2 x 120L bin minimum
- Clinical wastes
- Existing Auger Compactor and Bin Lifter:
  - Integrated Auger Compactor with Bin Lifter
  - Compaction rate of 1.2:1

### 3.4 Operational Waste Forecast

#### 3.4.1 Assumptions

The following assumptions have been adopted for operational waste generation for the proposed development:

- The waste generation streams/rates of the departments in the development will be similar to those of the existing departments in the existing hospital;
- The waste volumes are assumed to be proportional to the clinical services capacity, i.e. treatment spaces/bed numbers, seating capacity, spatial capacity (area), etc, and
- Waste generation rate assumptions for the proposed additional uses are outlined in Table 6, derived from existing waste management data, council and state environmental guidelines and MRA experience with similar uses.

#### 3.4.2 Waste generation by use

The table below refers to the estimation of generated waste from the proposed site as a whole (Table 6). It is proposed that the waste generated from the expanded café and the emergency department on the ground floor, as well as the ICU and operating theatres on the 1st floor, will be stored for pick-up at the existing waste storage and recycling area (WSRA) in the main building. Then the waste generated from other areas of this proposed development will be stored at a new WSRA located on the lower ground floor/basement 1 of the proposed West Wing building.

To organise the estimation of waste storage requirements, the WMP has been split into two sub-sections.

**Table 6: Estimated total additional waste generation due to the proposed development**

| Use type             | Additional area/beds | Waste Stream  | Waste generation rate     | Weekly waste generation |
|----------------------|----------------------|---------------|---------------------------|-------------------------|
| <b>Expanded Café</b> | 147m <sup>2</sup>    | General Waste | 5L/1.5m <sup>2</sup> /day | 3,430                   |
|                      |                      | Recycling     | 2L/1.5m <sup>2</sup> /day | 1,372                   |
|                      |                      | Food Waste*   | 5L/1.5m <sup>2</sup> /day | 3,430                   |

| Use type                                 | Additional area/beds | Waste Stream    | Waste generation rate       | Weekly waste generation |
|------------------------------------------|----------------------|-----------------|-----------------------------|-------------------------|
| <b>Support / Administration</b>          | 1,224m <sup>2</sup>  | General waste   | 10L/100m <sup>2</sup> /day  | 856.8                   |
|                                          |                      | Recycling       | 2.5L/100m <sup>2</sup> /day | 214.2                   |
|                                          |                      | Paper/cardboard | 5L/100m <sup>2</sup> /day   | 428.4                   |
|                                          |                      | Secure document | 2.5L/100m <sup>2</sup> /day | 214.2                   |
| <b>Medical Tenancy</b>                   | 7,161m <sup>2</sup>  | General waste   | 10L/100m <sup>2</sup> /day  | 5,012.7                 |
|                                          |                      | Recycling       | 5L/100m <sup>2</sup> /day   | 2,506.35                |
|                                          |                      | Clinical waste  | 10L/100m <sup>2</sup> /day  | 5,012.7                 |
|                                          |                      | Secure document | 5L/100m <sup>2</sup> /day   | 2,506.35                |
| <b>Patient Beds</b>                      | 129 beds             | General waste   | 2L/bed/day                  | 1,806                   |
|                                          |                      | Recycling       | 2L/bed/day                  | 1,806                   |
|                                          |                      | Food waste      | 2L/bed/day                  | 1,806                   |
|                                          |                      | Clinical Waste  | 2L/bed/day                  | 1,806                   |
| <b>Operating Theatres &amp; Recovery</b> | 4 theatres           | General waste   | 100L/theatre/day            | 2,800                   |
|                                          |                      | Recycling       | 50L/theatre/day             | 1,400                   |
|                                          |                      | Paper/Cardboard | 50L/theatre/day             | 1,400                   |
|                                          |                      | Secure document | 5L/theatre/day              | 140                     |
|                                          |                      | Clinical waste  | 100L/theatre/day            | 2,800                   |
| <b>Emergency</b>                         | 16 bays              | General waste   | 40L/bay/day                 | 4,480                   |
|                                          |                      | Clinical waste  | 15L/bay/day                 | 1,680                   |
|                                          |                      | Secure document | 5L/bay/day                  | 560                     |
| <b>Store</b>                             | 293 m <sup>2</sup>   | General Waste   | 80L/100m <sup>2</sup> /day  | 1,080.80                |
|                                          |                      | Recycling       | 80L/100m <sup>2</sup> /day  | 1,080.80                |

*Note: additional waste management expectations highlighted above are derived from existing waste management data, council and state environmental guidelines and MRA experience with similar uses.*

*\*Food waste for the waste area has been derived at a 1:2 ratio from general waste*

### 3.4.2.1 Existing waste generation, Estimated additional waste generation, and Additional requirements in the Main Building

Table 7 shows the current weekly waste generation rate of the main hospital based on the existing waste infrastructure (i.e. bins, collection frequency, etc) from Section 3.3. The waste generated from the expanded café and the emergency department on the ground floor, as well as the ICU and operating theatres on the 1st floor, will be stored for pick-up at the existing waste storage and recycling area (WSRA) in the main building. The estimated additional weekly waste generated by the proposed development for the WSRA in the main building, along with the proposed additional waste infrastructure, is shown in Table 8.

**Table 7. Current Waste Generation of the Main Hospital**

| Waste Stream                  | Weekly Waste Generation | Collection Frequency |
|-------------------------------|-------------------------|----------------------|
| <b>General Waste</b>          | 19,680L                 | Twice a week         |
| <b>Recycling (commingled)</b> | 4,800L                  | Once a week          |
| <b>Paper/Cardboard</b>        | 6,480L                  | Twice a week         |
| <b>Food Waste</b>             | 3,840L                  | Twice a week         |
| <b>Problem Waste</b>          | -                       | On-call Service      |
| <b>Clinical Waste</b>         | -                       | On-call Service      |

**Table 8. Estimated additional weekly waste generated due to the proposed development and additional requirements**

| Waste Stream                  | Total additional waste volume                  | Additional waste management requirements                                                                  |
|-------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>General Waste</b>          | 10,820.60L<br>(9,017.5L with 1.2:1 compaction) | 1 x additional compactor collection per week*<br>(can be increased if needed once operational)            |
| <b>Recycling (commingled)</b> | 2,800L                                         | 12 x 240L bins, or increase collection frequency to twice per week                                        |
| <b>Food Waste</b>             | 3,430L                                         | 8 x 240L bins                                                                                             |
| <b>Paper/Cardboard</b>        | 1,500L                                         | 2-3 additional bales per week (collected according to the existing collection schedule of twice per week) |
| <b>Secure Document</b>        | 728L                                           | Addition of 6 x 120L bins across the areas                                                                |

| Waste Stream          | Total additional waste volume | Additional waste management requirements                                                                     |
|-----------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Clinical Waste</b> | 4,480L                        | Increased collection frequency and additional clinical waste bins (incl. sharps, anatomical, cytotoxic, etc) |

*\*Note: No additional bins are required to accommodate the expansion in the hospital main building. The existing compactor can contain the general waste generated, provided additional collections per week are made.*

### 3.4.2.2 Estimated Waste Generation in the Proposed West Wing Building

The other parts of the development in the West Wing Building will be serviced by a dedicated waste storage and recycling area located within the proposed building. Specifically, these areas include the medical tenancies, patient beds located at levels 9 to 11, stores, and support/administration offices. The estimated weekly waste generation of these areas is shown in Table 9 below.

**Table 9. Estimated waste generation of the West Wing Building and WSRA space requirements**

| Waste Stream                      | Weekly Generation (L) | Collection Rate | Bin Allocation | Minimum Approximate Space Required (m <sup>2</sup> )* |
|-----------------------------------|-----------------------|-----------------|----------------|-------------------------------------------------------|
| <b>General Waste</b>              | 8,646                 | Twice a week    | 4 x 660L bins  | 9.28                                                  |
| <b>Recycling (commingled)</b>     | 5,580                 | Once a week     | 23 x 240L bins | 19.78                                                 |
| <b>Food Waste</b>                 | 1,806                 | Twice a week    | 4 x 240L bins  | 3.44                                                  |
| <b>Paper/Cardboard</b>            | 374                   | Twice a week    | 1 x 240L bins  | 0.86                                                  |
| <b>Secure Document</b>            | 2,693                 | Twice a week    | 12 x 120L bins | 6.24                                                  |
| <b>Aluminium Bottle Recycling</b> | -                     | On-call Service | 2 x 120L bins  | 1.04                                                  |
| <b>Battery Recycling</b>          | -                     | On-call Service | 1 x 120L bin   | 0.52                                                  |
| <b>PVC Recycling</b>              | -                     | On-call Service | 2 x 120L bins  | 1.04                                                  |
| <b>Clinical Waste</b>             | 6,819                 | On-call Service | As required    | -                                                     |
| <b>Total Space Requirement</b>    |                       |                 |                | <b>42.2m<sup>2</sup></b>                              |

*\*includes handling and manoeuvring space of bin footprints m<sup>2</sup> x 2.*

Based on the above additional waste generation rates, the following additional waste services may be applicable to the site once operational, in accordance with the proposed expansion. The proposed West Wing Building WSRA is 87 m<sup>2</sup> with a 163 m<sup>2</sup> loading dock adjacent to it. While the estimated waste generation rate requires only 42.2 m<sup>2</sup>, it is recommended to maintain the spare space for unexpected growth in waste generation or to augment the WSRA located in the main building. It is expected that the proposed expansion of the waste management area and increased rate of servicing and collection will suitably handle the increased waste management demand at the site.

### 3.5 Waste Handling Equipment

Waste bags should be used where applicable for the interim storage of general waste and clinical waste prior to disposal in MGBs stored in disposal rooms for transfer and servicing from the main building and BOH area for servicing. The following methods should be applied when handling waste bags, especially when in relation to clinical waste:

- Waste bags must not be filled to more than two-thirds their total capacity;
- Contents are to be secured within the bag when closing;
- Excess air should be excluded without compaction (except for cytotoxic or related wastes, which may result in the expulsion of hazardous aerosols), prior to closure at the point of waste generation;
- Handling should be kept to a minimum to avoid unnecessary risk of spillage, contamination or injury;
- When handling, all bags should be held away from the body by the closed top and placed directly into a bin appropriate to the waste type;
- Clinical waste bins should be handled with appropriate PPE, which includes the following:
  - Puncture-resistant (rubber) gloves;
  - Apron; and
  - Protective eyewear.
- Pathology specimens and associated materials must be double packaged;
- Anatomical waste must be packaged to minimise the risk of spillage or puncturing; and
- Sharps or sharp objects that may cause punctures in waste bags must never be placed in waste bags.

MGBs are reusable rigid-walled containers that vary in size and are used to contain and transport general and clinical wastes. Similarly, trolleys are used to collect and transfer waste contained in waste bags or non-mobile containers.

MGBs and trolleys must be dedicated solely for collecting and transporting waste to decrease spills, minimise collector contact with garbage and minimise manual handling. MGBs and trolleys must be washable and have a lockable lid. MGBs must be securely closed during movement, but not necessarily locked, unless the MGB is a pharmaceutical waste bin.

MGBs and trolleys must never be overfilled, and the load should not be more than three-quarters full (i.e. less than 55 kg). Waste collection rounds should be performed as often as necessary to minimise housekeeping hazards.

All MGBs are to be colour-coded according to the intended waste stream to be handled/stored. Table 10 below identifies MGB specifications, which are used to determine space calculations of the WSA.

**Table 10: Mobile garbage bin specifications**

| Bin Capacity                | 120L | 240L | 360L | 660L | 1,100L |
|-----------------------------|------|------|------|------|--------|
| Height (mm)                 | 930  | 1080 | 1100 | 1250 | 1470   |
| Depth (mm)                  | 540  | 735  | 885  | 850  | 1245   |
| Width (mm)                  | 480  | 580  | 600  | 1370 | 1370   |
| Footprint (m <sup>2</sup> ) | 0.26 | 0.43 | 0.53 | 1.16 | 1.71   |

Source: NSW EPA Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities.

Detailed MGB sizes and specifications are presented in Appendix C for reference.

### 3.6 Disposal Rooms and Waste Storage Area

Interim disposal rooms are strategically located across floors for the disposal of waste from each department and the hospital as a whole. Interim disposal rooms will be used to store waste prior to its transfer to the main waste storage and loading area, located on the ground with access from Urunga Parade.

The consolidated waste storage area is located on the ground floor of the development, divided into two sections to facilitate efficient collection and safe handling. Both waste rooms are capable of storing the required waste management and have a total area of 87m<sup>2</sup>. A 163m<sup>2</sup> loading dock has been provided to enable safe and efficient waste collection.

### 3.7 Summary of Waste Handling Workflow

In general, the flow of waste management at the site is as follows:

- Generation by department
- Storage of general waste and recyclables in under-desk bins and deposited in the disposal room available on each level.
- Disposal room bins are monitored by site cleaning and maintenance services and removed to the main waste disposal room on the ground floor, near the services loading dock.
- Once bins are emptied by the collection contractor or decanted into larger bins for collection at the BOH loading dock, bins are to be returned to the relevant Disposal Room on each floor of the development.
- Bin washing and maintenance to occur within the provided area of the ground floor waste disposal room.

Based on the anticipated waste generation rates for the development, the appointed contractors or waste service provider (WSP) will be required to collect waste generated from the proposed BOH Waste Loading Area. The waste handling and process in the Loading Dock are outlined in further detail in Section 4.

## 4 Waste Management Systems

### 4.1 Site Waste Management

#### 4.1.1 Waste Management Systems

The Site waste management systems are defined by the strategies, methodologies and responsibilities in place to effectively manage all waste streams generated by ongoing operation of the development. The following section outlines a range of proposed site waste management systems, including:

- High level strategic waste management goals derived from State and Federal government waste strategy and policy.
- Defines roles and responsibilities across various Hospital personnel, departments and management sectors;
- Identifies methodologies for reducing the generation of waste for the site;
- General practice for the effective and safe management of waste at the site including necessary signage, training, provision of information, management of hazards and maintenance of storage areas; and
- Process of reviewing the goals and strategies set out in the WMP on an ongoing basis to ensure its contents remain relevant and provide suitable guidance for further improvement in site waste management and recycling.

#### 4.1.2 Roles & Responsibilities

Hospital management and cleaning/maintenance services will be responsible for the monitoring of site waste management systems and ensuring resource recovery and contamination reduction methods are employed. Should any issues impacting on the operational efficiency, safety and suitability of waste management be identified, site cleaning staff should inform hospital management and/or the WMC for appropriate actions to be taken.

Hospital management is responsible for:

- Using contracts to define the allocation of responsibilities for waste management contractors; and
- Holding a valid and current contract with licensed collector(s) for waste and recycling collection.
- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information to users outlining:
  - Waste management system and use/location of associated equipment,
  - Sorting methods for recycled waste, awareness of waste management procedures for waste minimisation, maximising recovery and reducing contamination of recyclables,
  - Improving facility management results (lessen equipment damage, reduce littering, and achieve cleanliness).
- Making information available to users, site staff and visitors about waste management procedures;
- Ensuring correct signage is installed and maintained in waste storage and service areas;
- Encouraging waste avoidance and achievement of resource recovery targets; and
- Providing operational management for delivery of waste objectives.

Cleaning and maintenance services' duties include:

- Organising waste collections by elected contractor(s) for the Site.
- Ensuring contractors use loading areas correctly;

- Ensuring timing of waste collections does not clash with other deliveries or collections that may require use of the loading dock;
- Ensuring correct signage is installed and maintained in waste storage and service areas;
- Organising, maintaining and cleaning the waste storage and service areas;
- Arranging access to waste collection areas and bins on collection days;
- Cleaning and exchanging all bins;
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry; and
- Monitoring, cleaning of and arranging maintenance waste management equipment and related infrastructure (such as bin tug / trailer).

Individual departments are responsible for:

- Allocating space for a dedicated and enclosed waste and recycling storage area for intermediate storage before disposal to designated waste storage areas;
- Separating and storing recyclables;
- Separating and appropriately disposing medical waste;
- Reusing materials where possible;
- Storage and management of liquid wastes (including fit-out i.e. bunding and grease trap, containers and appropriate collection); and
- Refrigerating waste prior to disposal if it may present an odour nuisance, so that storage of potential odorous waste is limited (where relevant, if at all).

#### 4.1.3 Sustainable Procurement

Where the use of disposable products is unavoidable, their environmental impact should be assessed. In addition to infection control, occupational health & safety, and value for money, environmental concerns will also be taken into consideration when evaluating purchasing of products. Existing research and evaluation information from other hospitals will also be considered.

Preference shall be given to products and packaging (where possible and practicable) which are:

- Manufactured from recycled raw materials (provided they are cost/performance competitive);
- Manufactured from renewable resources;
- Reusable (particularly nonclinical products); and
- Totally or partially recyclable or with recyclable components.

Where appropriate, tender documents shall require manufacturers, suppliers and distributors to:

- Correctly specify the materials used, their origin, the recommended method of disposal/reuse/recycling, and the likely impact on the environment;
- Avoid the use of materials known to be toxic to the environment including chlorofluorocarbon products and/or by-products, phosphates and heavy metals;
- Keep packaging to the minimum necessary for the safe transport and delivery of the product;
- Specify whether packaging is recycled, recyclable, reusable or biodegradable;
- Accept return of used packaging;
- Clearly specify the energy rating on appropriate appliances and fittings; and
- As part of tender evaluation via weighting.

Where appropriate and cost effective, reusable items should be purchased in preference to non-reusable items. Items which are intended for reuse should be able to withstand the appropriate cleaning, disinfection or sterilisation process.

Products should be supplied with detailed manuals outlining cleaning procedures. When comparing reusable items with non-reusable items, a life cycle analysis should be conducted and should include (but not be limited to):

- Product cost;
- Product lifecycle analysis;
- Labour;
- Transport;
- Cleaning;
- Energy (gas, electricity, etc);
- Water;
- Disposal; and
- Maintenance.

## 4.2 Information and Training

Management is responsible under the WHS legislation for providing appropriate information, training, instruction, and supervision to ensure that safe systems of work are developed and maintained, thereby minimising the risk of injury associated with waste handling and facilitating efficient waste management.

All workers need to know how to handle waste safely and notify incidents, including casual staff, contractors and volunteers. It is the responsibility of each health service to identify all workers who require training and ensure that the training is undertaken to the standards required by this policy. This includes providing a waste management education module as part of the orientation for all new relevant staff.

The Health Education and Training Institute NSW (HETI) offer online learning and training modules on waste processes through My Health Learning. Specific training in relevant procedures associated with the implementation of the WMP should be provided to:

- Waste generators;
- Handlers, collectors;
- Transporters; and
- Key management staff.

The current waste contractor and/or an independent qualified waste consultant can also be engaged to provide advice and training with regard to site waste management procedures and strategic goals. Hospital management and hospital cleaning/maintenance services may benefit from training by the waste contractor or an independent waste consultant to guide training programs for broader hospital departments and staff.

Training programs by the health service should aim to prevent injury and disease by ensuring the health services include:

- Infection control and hand hygiene procedures;
- Approved work practices, including specific waste handling and disposal, spill management, spill kit locations, etc;
- Regulatory requirements and methods of compliance;
- The provision and use of required PPE;

- WHS and public health information relating to the equipment and chemicals/drugs used in the health service, e.g. Hazardous chemicals, handling of hazardous goods, hazardous manual tasks, operating manuals for clinical devices, sharps injury prevention, etc;
- First aid and treatment for needle stick and blood and body fluid (or body substance) exposure;
- Emergency response procedures and facilities (e.g. Emergency showers, etc.); and
- Details of workplace vaccination program, post-incident counselling services with rights to privacy, etc.

Training programs must be revised as new equipment and work processes are introduced, or as technological change occurs, to ensure they do not introduce any new hazards.

Training and responsibility should also be provided around notifying incidents relevant to serious injury or illness. If a serious injury or illness, a death or a dangerous incident occurs, processes must be in place to ensure it is reported to SafeWork NSW immediately and the workers compensation insurer is notified within 48 hours. Staff must be made aware of and trained in processes for notifying incidents.

### 4.3 Signage

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia 1994).

Signage will be designed to consider language and non-English speaking backgrounds, vision impairment and accessibility (see Appendix D). Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in each waste storage area indicating:

- Garbage is to be bagged and placed into waste bins;
- Details regarding acceptable recyclables and the location of their respective receptacles;
- Commingled recyclables are to be disposed of loose (not bagged);
- No standing and danger warnings applying to the area surrounding waste storage and collection areas;
- Contact details for arranging the disposal of bulky items; and
- Information on keeping the areas tidy.

### 4.4 Spill Management

Daily operation of the development, including management of general waste and potentially hazardous or contaminated materials (chemicals, contaminated clinical waste such as blood) may result in spills that require clean-up. Health services must manage waste spills as they occur in the facility, ensuring that:

- The WMP specifies procedures for waste spills;
- Personnel involved in spill management are trained in emergency procedures and handling requirements, including use of spill kits. Spill kits should be readily accessible throughout the health service and clearly labelled and mapped;
- Health services have personal protective equipment and emergency spill kits that are appropriate to the waste streams handled, so staff can safely and effectively clean spills and dispose of the waste;
- Spill kits should be disposed of with the relevant waste stream; and
- Spill kits are restocked with the necessary components immediately after use, returned to their locations and regularly inspected for malfunctioning or missing components.

#### 4.5 Prevention of Pollution and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), the operator shall be responsible for the following:

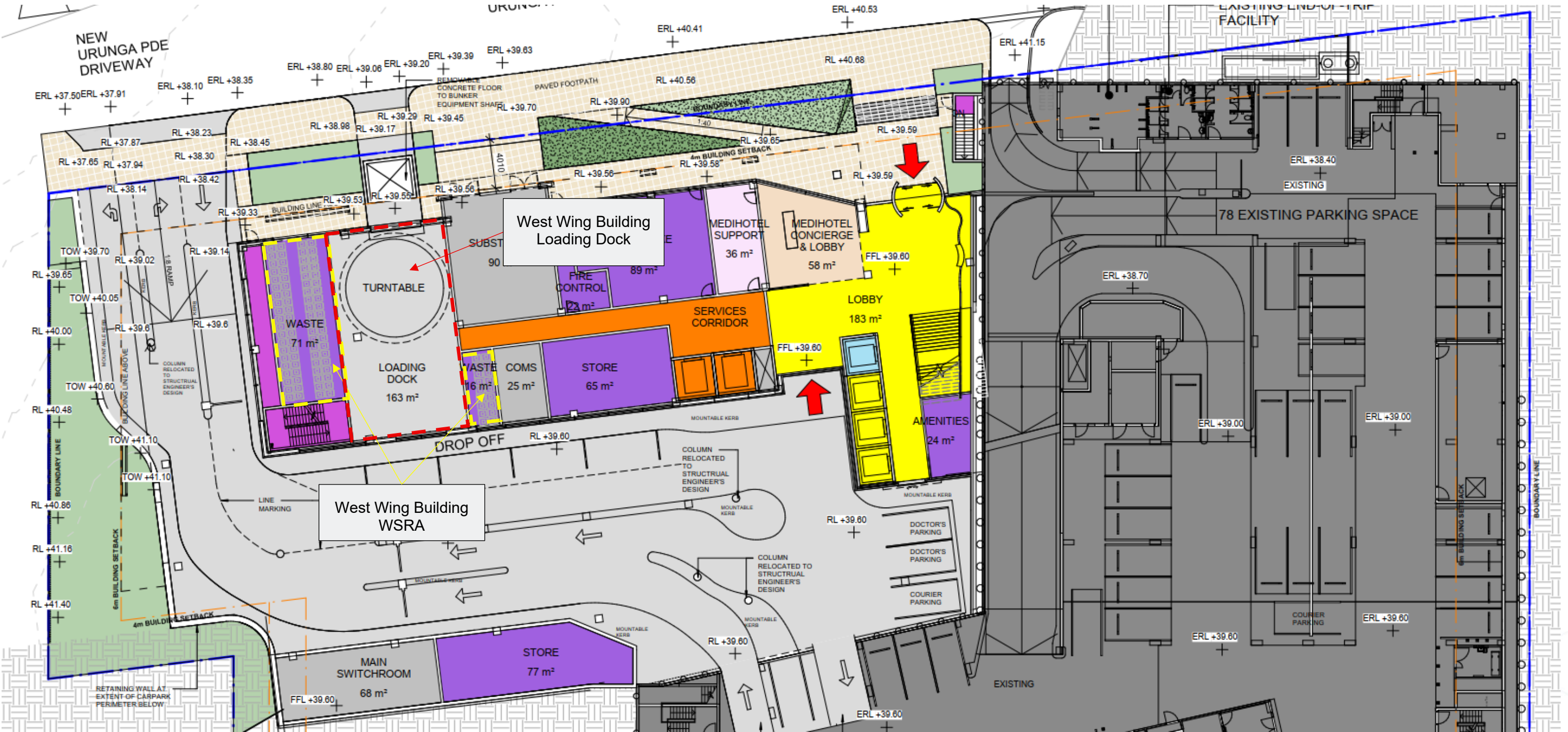
- Maintenance of open and common site areas;
- Ensuring waste storage areas are well-maintained and kept clean, including:
  - Prevention of overflow,
  - Keeping lids closed, and
  - Checking for bung leaks and damage to bins.
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, fluorescent tubes, smoke detectors);
- Acting to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

The above will minimise the dispersion of site litter, reduce stormwater pollution and thus reduce the risk of impact to local amenity and the environment.

## 5 References

- Department of Agriculture, Water and the Environment (2018) *National Waste Policy: Less Waste, More Resources*. Available at: <http://www.environment.gov.au/system/files/resources/d523f4e9-d958-466b-9fd1-3b7d6283f006/files/national-waste-policy-2018.pdf>
- Goonan S, Miroso M & Spence H 2014, 'Getting a Taste for Food Waste: A Mixed Methods Ethnographic Study into Hospital Food Waste before Patient Consumption Conducted at Three New Zealand Foodservice Facilities', *Journal Of The Academy Of Nutrition And Dietetics*, Vol. 14, No. 1 pp. 63-70.
- Metropolitan Waste and Resource Recovery Group (2017), *Recycling hospital food waste: Department of Health and Human Services*, Victorian State Government.
- NSW Audit Office (2002) Performance Reports – Managing Hospital Waste.
- NSW EPA (2012) NSW Better Practice Guideline for Waste Management in Commercial and Industrial Facilities, Australian Standards and Statutory Requirements.
- NSW EPA (2014) *Waste Classification Guidelines*.
- NSW EPA (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*.
- NSW EPA (2016) *Recycling Signs, Posters and Symbols*. Available at: <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.
- NSW Health (Environmental Health) (2020) *Clinical and Related Waste Management for Health Services*.
- NSW Ministry of Health (1999) *Generic Hospital Waste Management Plan*
- Standards Australia (1994) *AS 1319: Safety signs for the occupational environment*, Homebush, NSW: Standards Australia.
- Standards Australia (2008) *AS 4123 Mobile waste containers*.
- Wollongong Development Control Plan 2009.
- Wollongong Local Environment Plan 2009.
- WorkCover (2011) *Managing Work Environment Facilities Code of Practice*

# Appendix A Proposed Site Plans



Source: HPI Architecture, 08/04/25.

## Appendix B Management Requirements of Medical Waste Streams

Table 11: Management Requirements of medical waste streams

| Waste Stream                | Anatomical waste                                                                  | Clinical sharps waste                                                                                                                                                                                                                                 | Clinical waste (incl. Pathological Waste)                                                                                                                                                                                                                                                                                                                                                                                                               | Cytotoxic waste                                                                                                         | Pharmaceutical waste                                                                                                                                                                                                                                                                                                                                                                 | Radioactive waste                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bin colour                  | Yellow                                                                            | Yellow                                                                                                                                                                                                                                                | Yellow                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Purple                                                                                                                  | Red                                                                                                                                                                                                                                                                                                                                                                                  | Red                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Lid colour of bin           | Orange                                                                            | Yellow                                                                                                                                                                                                                                                | Yellow                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Purple                                                                                                                  | N/A                                                                                                                                                                                                                                                                                                                                                                                  | Red                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Plastic bin liners          | Orange                                                                            | N/A                                                                                                                                                                                                                                                   | Yellow                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Purple                                                                                                                  | N/A                                                                                                                                                                                                                                                                                                                                                                                  | Red                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Labelling of bin and liners | Anatomical waste                                                                  | Clinical sharps                                                                                                                                                                                                                                       | Clinical waste                                                                                                                                                                                                                                                                                                                                                                                                                                          | Cytotoxic waste                                                                                                         | Pharmaceutical waste                                                                                                                                                                                                                                                                                                                                                                 | Radioactive waste plus specific requirements below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Symbol                      |  |                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                      |                                      | Nil                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Symbol (description)        | Black biological hazard                                                           | Black biological hazard                                                                                                                                                                                                                               | Black biological hazard                                                                                                                                                                                                                                                                                                                                                                                                                                 | White telophase                                                                                                         | Nil                                                                                                                                                                                                                                                                                                                                                                                  | Yellow background with distinctive 'trefoil' symbol in black and the lettering 'CAUTION RADIATION' in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Label (PC1 or PC2 GMOs)     | N/A                                                                               | Contains GMOs                                                                                                                                                                                                                                         | Contains GMOs                                                                                                                                                                                                                                                                                                                                                                                                                                           | Contains GMOs                                                                                                           | N/A                                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Specific requirements       | For incineration only                                                             | For incineration or autoclaving and shredding<br>Sharps containers must be rigid-walled and meet the requirements specified in AS/NZS 4031 and AS/NZS 4261.<br>Autoclave tape and bag indicators must be used to show autoclaving has been completed. | For incineration or autoclaving and shredding. Autoclave tape and bag indicators must be used to show autoclaving has been completed. Fluid may be able to be discharged into sewer depending on Liquid Trade Agreement between the health service and water utility.<br>All clinical waste once treated by a process acceptable to NSW Health may be reclassified in accordance with the Waste Classification Guidelines before recycling or disposal. | For incineration only<br>Collection, transport and handling only by licensed and registered waste management companies. | Storage, destruction and disposal methods must comply with PD2013_043 Medication Handling in NSW Public Health Facilities.<br>Pharmaceutical waste must be incinerated at a licensed controlled waste facility. Certain pharmaceuticals may only be destroyed by authorised persons under the Poisons and Therapeutic Goods Act 1966.<br>Pharmaceutical waste bins must be lockable. | Radioactive material to be stored onsite in appropriate storage area until it decays to below the thresholds of a "radioactive substance" as defined under the Radiation Control Act and Regulation<br>Waste is to be classified with reference to the Safety Guide for the Classification of Radioactive Waste and in accordance with the EPA Waste Classification Guidelines.<br>Radioactive waste must be labelled with the substance, activity level and the date at which it is measured Handling and storage to comply with a Radiation Management Plan in accordance with the Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (ARPANSA 2008).<br>When radioactive waste is to be transported, health services must comply with the Code of |

| Waste Stream                | Anatomical waste                                                                                        | Clinical sharps waste                                                                                                                                                                                                              | Clinical waste (incl. Pathological Waste)                                                                                                                                                                                          | Cytotoxic waste                                                                                                                                                      | Pharmaceutical waste                                                                      | Radioactive waste                                                                                              |
|-----------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|                             |                                                                                                         |                                                                                                                                                                                                                                    | There are special precautions regarding disposal of waste related to cases of viral haemorrhagic fever.                                                                                                                            |                                                                                                                                                                      |                                                                                           | Practice for the Safe Transport of Radioactive Material (ARPANSA 2014).                                        |
| Relevant Act and Regulation | AS/NZS 3816:1998 Management of clinical and related waste.<br>AS/NZS 4123:2008 Mobile Waste Containers. | AS/NZS 3816:1998 Management of clinical and related waste.<br>AS/NZS 4123:2008 Mobile Waste Containers.<br>Protection of the Environment Operations Act 1997.<br>Protection of the Environment Operations (Waste) Regulation 2014. | AS/NZS 3816:1998 Management of clinical and related waste.<br>AS/NZS 4123:2008 Mobile Waste Containers.<br>Protection of the Environment Operations Act 1997.<br>Protection of the Environment Operations (Waste) Regulation 2014. | AS/NZS 4123:2008 Mobile Waste Containers.<br>Protection of the Environment Operations Act 1997.<br>Protection of the Environment Operations (Waste) Regulation 2014. | Poisons and Therapeutic Goods Act 1966.<br>Poisons and Therapeutic Goods Regulation 2008. | AS/NZS 4123:2008 Mobile Waste Containers.<br>Radiation Control Act 1990.<br>Radiation Control Regulation 2013. |
| EPA licence requirements    | No                                                                                                      | No                                                                                                                                                                                                                                 | No                                                                                                                                                                                                                                 | No                                                                                                                                                                   | No                                                                                        | Yes – Waste Classification Guidelines: Waste containing radioactive material (EPA, 2014)                       |

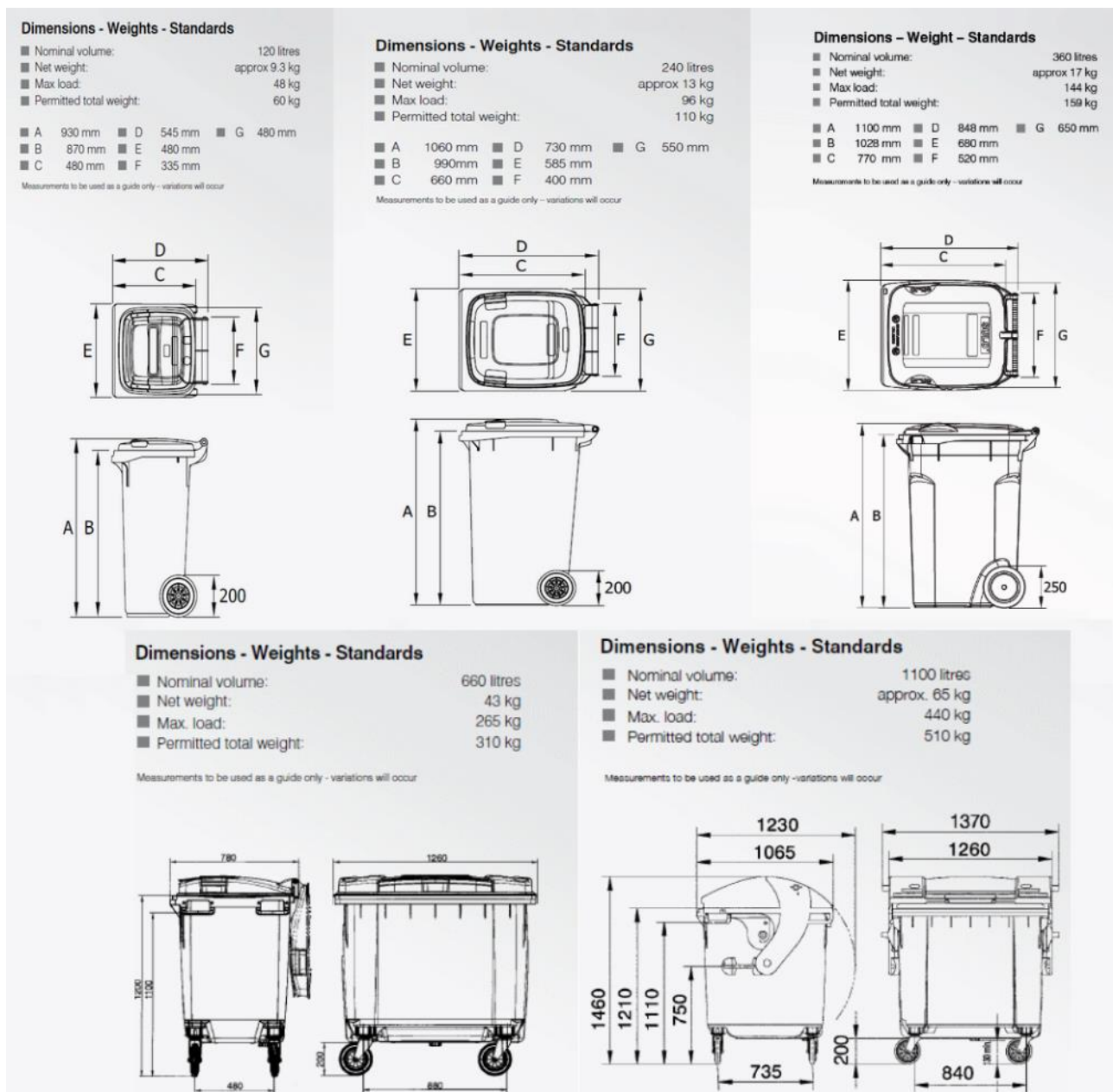
Source: NSW Ministry of Health, 2017.

## Appendix C Waste handling Equipment Specs

This WMP proposes the use of MGBs (rear-lift) and/or bulk (front-lift) bins. Each bin type is specific to each store as the bin size will impact on the vehicle access requirements. This section outlines the dimensions of each bin type. Some bin types below are not in the recommended bin types throughout the WMP, but may be useful for planning purposes should other options be preferred.

Rear-lift wheelie bins are ideal for sites with limited restrictions like specialty retail and small offices. Lightweight and easy to manoeuvre, these small-sized containers are easy to use and can be secured with lockable lids.

**Figure 1: Rear-lift mobile bins (120L, 240L, 360L, 660L & 1,100L)\***



\*Sizes may vary with manufacturer or supplier.

## Appendix D Standard Signage

### Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW Office of Environment and Heritage (NSW OEH 2008b). Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

Figure 2: Examples of standard signage for bin uses



### Safety Signs

The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.

Figure 3: Example and layout of safety signage



(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS

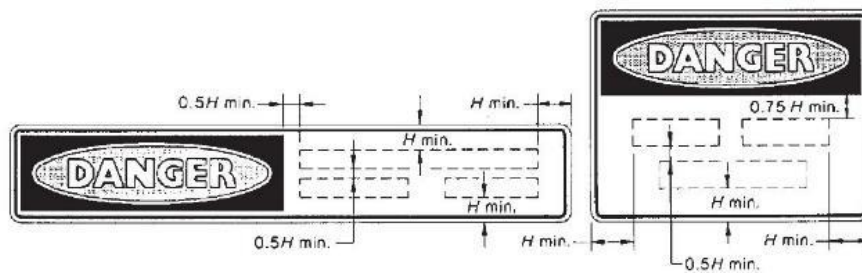


Figure 4: Example of additional recycling information signage for common and staff areas



Source: Planet Ark.

## MRA Consulting Group

Suite 408 Henry Lawson Building  
19 Roseby Street  
Drummoyne NSW 2047

+61 2 8541 6169  
[info@mraconsulting.com.au](mailto:info@mraconsulting.com.au)  
[mraconsulting.com.au](http://mraconsulting.com.au)

