

Northside West Clinic, Stage 2: Waste Management Plan

A Submission to Erilyan Pty Ltd

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Glossary

Terminology	Definition
AS	Australian Standard
C&D	Construction and Demolition
CC	Cumberland Council
HDCP	Holroyd Development Control Plan 2013
HLEP	Holroyd Local Environmental Plan 2013
DCP	Development Control Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
LGA	Local Government Area
MGB	Mobile Garbage Bin
MSW	Municipal Solid Waste
VENM	Virgin Excavated Natural Material
WMP	Waste Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

1 Introduction

MRA Consulting Group (MRA) has been engaged by Erilyan Pty Ltd to prepare a Waste Management Plan (WMP) for the proposed Stage 2 of the Northside West Clinic located at 23-27 Lytton Street, Wentworthville, NSW 2145. The proposed development is a mental health clinic with a ground floor café. The lot is situated in the Cumberland Council (Council) Local Government Area (LGA).

MRA understands this WMP will be submitted as a part of the State Significant Development Application (SSDA). This WMP addresses the requirements of the Consent Authority (DPIE) and conforms to the following reference documents:

- *Holroyd Local Environmental Plan (HLEP) 2013;*
- *Holroyd Development Control Plan (HDCP) 2013, amended in 2017; and*
- *Clinical and Related Waste Management for Health Services (NSW Health, 2020).*

Consideration has also been given to the following supplementary documents in the preparation of this WMP:

- *Better practice guide for Resource Recovery in Residential Developments (NSW EPA, 2019).*

This WMP has been prepared to inform the development design and assist in the delivery of better practice waste management, promoting sustainable outcomes at the demolition, construction, and operational phases for the development. The WMP addresses waste generation and storage associated to the excavation, construction and ongoing occupation of the proposed development.

The *HDCP (2013)* outlines the following waste management objectives which include:

1. To meet the objectives of the Waste Avoidance and Resource Recovery Act 2001.
2. To control the management of waste by all proposals for demolition.
3. To control the management of waste by all development (including alterations and additions) requiring consent under Holroyd Local Environmental Plan (HLEP) 2013 and the EP&A Act1979, including but not limited to:
 - i. Dwelling houses;
 - ii. Medium density housing (including dual occupancy, integrated housing and residential flat buildings);
 - iii. Professional Consulting Rooms and Child Care Centres;
 - iv. Commercial development (including fit outs);
 - v. Residential development within or adjacent to commercial areas;
 - vi. Industrial development (including fit outs);
 - vii. Any other application involving construction or fitting out of a premise.
4. To reduce the demand for waste disposal.
5. To maximise reuse and recycling of building/construction materials, household generated waste and industrial/commercial waste;
6. To require source separation and other design and location standards which complement waste collection and management services offered by Council and private providers;
7. To encourage building designs and construction techniques which will minimise waste generation;
8. To minimise the overall environmental impacts of waste;
9. To provide advice to intending applicants on how to prepare Site Waste Minimisation and Management Plans (SWMMP), detailing actions to minimise waste generation and disposal;

10. To provide advice to applicants on matters to be considered when assessing the waste implications of the variety of applications made under the Environmental Planning and Assessment Act;
11. To ensure that waste storage facilities are located appropriately and do not impact negatively on the streetscape;
12. To provide advice to intending applicants on how to reduce and handle waste during the demolition and construction phase; and
13. To assist in achieving Federal and State Government waste minimisation targets.

2 Background

2.1 Description of Proposed Development

The proposed development site for the Stage 2 of the Northside West Clinic is identified as Lot 1 of DP787784. The lot will feature:

- Stage 2 of the new three storey ward with 95 ward rooms and 9 consult rooms on three levels, new west car parking, gym, additional support rooms and a new cafe on the ground floor.

2.2 Location

The proposed development site for the Stage 2 of the Northside West Clinic is located at 23-27 Lytton Street, Wentworthville, NSW 2145. The site will be accessed through Lytton Street for public clinic access, ambulance access and unloading, deliveries, and access to the basement parking levels.

The site is approximately 750m from Wentworthville Train Station and is located in close proximity to the Ernie Quinn Village Green.

Figure 1: Aerial image of site and surrounds



Source: Six Maps, 2021

2.3 Zoning and Use

The site is zoned as *R4 - High Density Residential* in the HLEP and is defined by the following objectives:

- To provide for the housing needs of the community within a high-density residential environment.
- To provide a variety of housing types within a high-density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

Currently, the site is occupied by a two-storey clinic, a car park and landscaped area, a part of which is to be refurbished for the construction of the proposed development.

Zones surrounding the site include RE1 - Public Recreation (Lytton Street Park) and R2 - Low Density Residential (Residences on Haig Street).

2.4 Assumptions

This report is a WMP, forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the final reference/indicative design set for the development plan from the project architect, TEAM2 Architects (11th February 2021);
- The Holroyd Development Control Plan (2013) outlines waste generation rates and services available for new developments which have been considered in the preparation of this report; 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.

3 Construction and Demolition

Demolition and construction activities at the site will generate a range of construction and demolition (C&D) wastes. 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 unsuitable for reuse or recycling processes.

Waste storage during construction operations will involve some stockpiling of reusable material, as well as placement of skip bins for the separation of construction materials for recycling. A skip bin for residual waste or contaminated material will also be made available at the site for disposal where necessary. Skip bins may require alternative placement across construction operations to facilitate the safe and efficient storage of materials and will be retained within property boundaries to avoid illegal dumping.

A waste storage area (Appendix A) shall be designated by the demolition and construction contractor and shall be sufficient to store the various waste streams expected 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.

3.1 Demolition Waste

This section details the demolition waste materials expected for the proposed development, including their quantities and management options, and was designed with consideration of the requirements in the HDCP 2013. The information below presents options for materials reuse, recycling and disposal where applicable (e.g. excavation material may be reused as a construction fill or disposed to landfill if contaminated). All materials are intended to be sent to a suitable, licensed landfill or resource recovery facility.

Table 1 below describes the expected demolition material quantities and appropriate management methods for the proposed development, related to the demolition or deconstruction of:

- A roofed courtyard;
- A fibro shed, an astroturf and portions of a concrete path and paved areas;
- A concrete retain wall;
- Ancillary structures; and
- Removal of some vegetation and trees.

Table 1: Estimation of demolition materials for reuse, recycling and landfill

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Concrete	700m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: on-site for filling or under gravel carpark. C&D Processor: crushing and recycling for recovered products.
Bricks/Pavers	100m ³	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D Processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Roof Tiles	40m ³	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Timber	<10m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D Processor: recovery and recycling for recovered product (e.g. mulch) or organics processing.
Insulation material	50m ³	✓	-	-	Reuse: returned to supplier or manufacturer for reuse.
Metal (ferrous and non-ferrous)	5m ³	-	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D Processor: metals recovery and recycling.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Plasterboard	<10m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible or replacement for gypsum in landscaping.
Glass	<5m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. Aggregate for concrete production. Glass recycler: recovery and recycling.
Fixtures and Fittings	5m ³	✓	✓	-	Reuse: second hand building materials. C&D Processor: recovery and recycling.
Floor Coverings	15m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D Processor: recovery and recycling.
Garden Organics	<20m ³	✓	✓	-	Garden organics resulting from the removal of vegetation and trees. Onsite: Woodchipped for use in landscaping. Organics Processor: storage on-site (from minor excavations) processing for recovered product.
Mixed Recyclables	<2m ³	-	✓	-	Commercial contractor: recycling of paper, cardboard and mixed material containers (plastic, metal, glass).

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Residual Waste	15m ³	-	-	✓	Separate recyclables where possible and disposal at principal licensed waste facility.
Hazardous/Special Waste (e.g. spills and contaminated wastes)	Unknown	-	-	✓	<p>It is possible that asbestos bearing material may be disturbed or removed during demolition works.</p> <p>Appropriate management methods specified by a licensed asbestos and site hygienist should hazardous be found at the site.</p>

3.2 Construction Waste

Construction works would include the following:

- New Three Storey Ward Stage 2 with
 - 41 ward rooms and 9 consult rooms on Level 1,
 - 30 ward rooms on Level 2, and
 - 24 ward rooms on Level 3.
- New West Car Parking;
- New gym, new loading bay, new office, new lobby, new wellness and refurbished staff changing rooms on the lower ground level;
- New art room, new lobby, new interview, new breakout room, expanded ECT recovery and a new cafe on the ground floor; and
- Landscaping.

Table 2 outlines the expected construction waste quantities to be generated at the site, in addition to the appropriate management methods for each material type.

The information below presents multiple options for materials reuse, recycling and disposal where applicable (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to 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		800m ³	✓	-	-	On site: testing (if necessary) for contamination and stockpiling of material for reuse as fill material. C&D processor: reuse/recycling of VENM and ENM Landfill if contaminated.
Concrete		50-100m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D processor: crushing and recycling for recovered products (aggregates).
Bricks/pavers		5-10m ³	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. 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.
	Interior	<3m ³	✓	✓	-	C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Timber (engineered/treated)		<5m ³	-	✓	-	On site: to be separated wherever possible to enhance resource recovery.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
					<p>Reuse: surplus and offcut material returned to manufacturer for reuse.</p> <p>C&D processor: recovery and recycling for recovered product (e.g. mulch) or organics processing.</p>
Metals (ferrous and non-ferrous)	<5m ³	-	✓	-	<p>Onsite: to be separated wherever possible to enhance resource recovery.</p> <p>C&D processor: metals recovery and recycling.</p>
Plasterboard	<10m ³	✓	✓	-	<p>On site: to be separated wherever possible to enhance resource recovery.</p> <p>Reuse: surplus and offcut material returned to manufacturer for reuse.</p>
Glass	<1m ³	✓	✓	-	<p>On site: to be separated wherever possible to enhance resource recovery.</p> <p>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.</p> <p>Glass recycler: recovery and recycling.</p>
Fixtures and fittings	<2m ³	✓	✓	-	<p>On site: reuse wherever possible or return to manufacturer.</p> <p>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.</p> <p>C&D processor: recovery and recycling.</p>

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Floor coverings	<5m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Packaging (used pallets, pallet wrap)	20-40m ³	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D processor: recycling of timbers and plastic.
Garden organics (Vegetation)	<10m ³	✓	✓	-	Minimal garden organic waste from landscaping. Organics processor: storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment.
Containers (cans, plastic, glass)	<5m ³	-	✓	-	Commercial contractor: recycling.
Paper/cardboard	5m ³	-	✓	-	Commercial contractor: segregation of paper, cardboard or other streams.
Residual waste (general refuse)	20m ³	-	-	✓	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.

3.3 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 excavation and construction waste for the site:</p> <ul style="list-style-type: none"> • Ron's Rubbish Removal; • Phillips Skip Bins; • Bingo; and • Best Price Skip Bins. <p>Or another supplier as elected by the building contractor.</p>
Principal Off-Site Recycler	<p>The following are local C&D processing facilities for consideration in the management of C&D waste generated at the site:</p> <ul style="list-style-type: none"> • Universal Recycling; • Concrete Recyclers; • Sydney Recycling Services; and • Bingo Recycling Centre – Auburn. <p>Or another appropriate facility as elected by the waste management contractor.</p>
Principal Licensed Landfill Site	<p>Bingo – Eastern Creek, or other appropriate facility as elected by the waste management contractor.</p>

3.4 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 providers).

Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder.

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

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

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

4 Ongoing Waste Management

Waste management strategies related to site operations have been established according to the documents outlined in the HDCP.

The site is a new three storey building with amenities including a three levels of clinic beds, a new parking area, café and gym. Stage 1 of the Northside West Clinic includes a contaminated waste storage room on the lower ground level, which is approximately 3.2m² in area.

The waste generation for each site use is addressed separately below (Section 4.1 for café and Section 4.2 for clinic). The bin allocation and space requirements for the basement level bin room is addressed in Section 4.3 below. Site waste management responsibilities have been outlined in Section 5.5.

It is noted that landscaping at the site will be maintained by an external contractor who will remove all vegetation waste from ongoing maintenance activities.

The following space calculations are based off the bin dimensions sourced from NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019) (Table 4).

Table 4: MGB capacity and footprint

Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m ²)
120	940	530	485	0.33
240	1,080	735	580	0.43
660	1,250	850	1,370	1.16
1,100	1,470	1,245	1,370	1.74

4.1 Café Waste Management

4.1.1 Café Waste Generation

The café is located on the ground floor and is approximately 20m² in area. It is expected that waste generated at the ground floor café will be consolidated with the waste generated from other uses onsite.

The following waste generation rates have been derived from Appendix F of the NSW EPA *Better Practice Guidelines for Resource Recovery in Residential Developments*.

Table 5: Cafe Waste Generation

Waste Stream	Waste Generation Rate	Generation per Day	Generation per Week
General Waste	100L/100 m ² bar area/day	20L	140L
Recycling	120L/100 m ² bar area/day	24L	168L

The café has been assumed to operate 7 days per week.

4.1.2 Bin Requirements

In total, the cafe will generate 140L of general waste and 168L of recycling per week.

Table 6 below outlines the required bin infrastructure to manage the expected waste generation.

Table 6: Cafe Bin Requirements

Waste Stream	Bin	Space Required	Collection Frequency
General Waste	1 x 240L Bin	0.65m ²	Once a week
Recycling	1 x 240L Bin	0.65m ²	

Further source separation of waste is recommended to improve landfill diversion in accordance with the NSW WARR Strategy target of 70% recovery of commercial and industrial waste by 2021-22.

4.2 Clinic Waste Management

4.2.1 Medical Waste

For the purposes of this WMP, all clinical, cytotoxic, pharmaceutical, chemical and radioactive wastes are considered to be 'medical' related waste. Medical wastes are classified as hazardous wastes under the Waste Regulation. The clinic will be required to obtain the relevant licencing as required by the Waste Regulation. Table 7 below describes in detail the different medical wastes expected to be generated by the proposed clinic during operation and how they should be appropriately managed. Additional details with regards to specific management methods are outlined in Sections 2 and 3.

Table 7: Detailed description of medical waste streams

Waste Stream	Definition	Bin Colour	Bin Lid Colour	Specific Requirements
Clinical Waste (incl. Pathological Waste)	<p>Clinical waste with the potential to cause injury, infection or offence:</p> <ul style="list-style-type: none"> • Unrecognisable human tissue (excluding hair, teeth, nails and anatomical waste); • Bulk blood or other body fluids (or body substances); • Material and equipment visibly stained by blood or body fluids (includes incontinence pads and disposable nappies that come from an infectious patient); • Lab specimens, cultures or other waste from lab investigations; • Waste from medical or veterinary research; and • Genetically Modified Organisms (GMOs). 	Yellow	Yellow	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.
Cytotoxic Waste	Material contaminated with residues or preparations containing materials toxic or otherwise harmful to cells. This includes any residual cytotoxic drug or laboratory chemical and any discarded material or clinical waste associated with the preparation or administration or excretion of cytotoxic drugs. May include Genetically Modified Organisms (GMOs) or tissues containing GMOs.	Purple	Purple	For incineration only. Collection, transport and handling only by licensed and registered waste management companies
Anatomical Waste	Identifiable human body parts such as limbs, organs, placenta and recognisable or large pathological specimens resulting from investigation or treatment of a patient. It does not include deceased bodies.	Yellow	Orange	For incineration only.
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	Yellow	Yellow	For incineration or autoclaving and shredding Sharps containers must be rigid-walled and meet the requirements

Waste Stream	Definition	Bin Colour	Bin Lid Colour	Specific Requirements
	sharp objects or instruments designed to perform penetrating procedures. May contain clinical material or Genetically Modified Organism (GMO) waste.			specified in AS/NZS 4031 and AS/NZS 4261. Autoclave tape and bag indicators must be used to show autoclaving has been completed
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.	Yellow	Orange	Storage, destruction and disposal methods must comply with PD2013_043 Medication Handling in NSW Public Health Facilities.
Radioactive Waste	Waste material, including sharps and clinical waste contaminated with a radioisotope which arises from the medical or research use of radionuclides, e.g. during nuclear medicine, radioimmunoassay and bacteriological procedures, and may be in solid, liquid or gaseous form, and which emits a level of radiation above the level set by regulatory authorities	Red	Red	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. 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).

Source: NSW Ministry of Health, 2017.

4.2.1.1 Handling of Medical Waste

Mobile bins, trolleys and waste bags will be utilised in conjunction with sharps containers to manage medical related waste.

All the medical waste generated will be safely stored and removed by an approved medical waste transporter holding a valid licence to transport medical waste as issued by the Department of Environment and Conservation. All used sharps must be stored in purpose designed containers to prevent needle stick injury.

All the medical waste generated shall be removed from the premises on regular intervals. Council and the NSW Environment Protection Authority may be contacted for seeking advice on specific matters.

4.2.2 Waste Generation

The clinic will feature 95 ward rooms and 9 consult rooms over nine floors of the development.

The HDCP does not provide waste generation rates for clinic or medical uses. The following waste generation has been derived using prior MRA experience with healthcare institutions and assumes maximum occupancy.

Table 8: Clinic Waste Generation

Site Use	#	Waste Stream	Waste Generation Rate based on prior projects	Generation per Day (L)	Generation per Week (L)
Consult Rooms	9	General Waste	30	270	1,890
		Recycling	40	360	2,520
		Medical	45	405	2,835
Ward Rooms	95	General Waste	5	475	3,325
		Recycling	5	475	3,325
		Medical	7	665	4,655

The clinic portion of the site is expected to generate approximately:

- General Waste: 5,215L per week
- Recycling: 5,845L per week
- Medical Waste: 7,490L per week

4.2.3 Other Waste Streams

Bulk Waste

Space should be allocated for the temporary storage and consolidation of bulk wastes unsuitable for general waste and recycling bins. Items such as pallets, crates and broken furniture are typical bulk wastes and, given appropriate management of the space, can be stored in a small area prior to being collected. The facilities management or site waste caretaker will be responsible for access to the bulk waste cage and will monitor and schedule collections for this waste stream. A private waste service provider will be engaged for the collection of bulk wastes.

Specialist Waste

A range of specialist wastes unsuitable for disposal in general waste bins will likely be generated as a result of typical operation of this development. Materials such as paints, cleaning chemicals, batteries, e-waste, and lightbulbs will be stored temporarily before appropriate disposal by a suitably qualified waste

contractor. The site waste caretaker will be responsible for the management of specialist wastes and the scheduling of collections.

4.2.4 Bin Requirements

1,100L MGB's are recommended for storage of general waste, comingled recycling and medical waste, based on the waste generation rates and available size of the waste storage area. 1,100L bins provide increased capacity in comparison to smaller MGB varieties, therefore reducing the required collection frequency and number of bins required to be retained on-site.

All clinical waste stream bags and storage receptacles should be in staff-only area to avoid access by general public. Table 9 outlines the bin requirements for the clinical aspect of the proposed development, according to several variations of collection schedule for each waste stream.

Table 9: Clinic Bin Retention Requirements

Waste Stream	Weekly Waste Generation	1,100L Bins (collected weekly)	1,100L Bins (collected 2 x week)	Floorspace Required (m ²)
General Waste	5,215	5	3	8
Recycling	5,845	5-6	3	8
Medical	7,490	7	4	10.5

Bin numbers are reduced as collection frequency increases. Considering the scale of the proposed development and the number of bins required to manage waste, a twice weekly collection is proposed as a minimum for servicing the above waste streams. Additional bins or increased servicing frequency may be applicable upon commencement of operations.

Hazardous waste such as pharmaceutical waste or radioactive waste will not be handled by general cleaning staff nor will it be stored in the basement level bin room. These wastes will be retained in the same area it is generated in and will be collected from these areas directly by the specialist waste contractors.

4.3 Waste Storage Areas

Temporary Waste Storage

Each use of the site will retain smaller bins for temporary storage and consolidation of waste. These bins will be sized to capture one days' waste generated. The clinic wards use will likely retain a small waste bin in each room, with larger bins available in the café. The clinic site use will retain temporary waste storage bins at central locations on each level, as well as in consult and staff rooms. All clinical waste stream bags and storage receptacles should be in staff-only area to avoid access by general public.

Waste will be transferred between temporary storage areas and the bin room by site cleaning staff, likely using a janitorial cart or similar. Transport will occur using the clinic goods lift.

Site Bin Room

The waste storage room is located on the ground floor, adjacent to the main parking area and is part of works related to Stage 1 of the development. The storage area will contain the following equipment (Table 10):

Table 10: Minimum Waste Storage Requirements

Site Use	Equipment	Minimum Area	Total Minimum Space Required
Clinic	General Waste Bin (2 x 1,100L bins)	8m ²	34m ²
	Recycling Bin (3 x 1,100L bins)	8m ²	
	Medical Waste (4 x 1,100L bins)	10.5m ²	
Café	General Waste (1 x 240L bins)	1m ²	
	Recycling (1 x 240L bins)	1m ²	
General	Bulky Waste Storage	4m ²	
	Specialist Waste	1m ²	

The space allocation for the bin room is 34m², which is suitable to accommodate the required waste infrastructure to service the proposed development.

4.4 Collection Scheduling

All clinic waste will be collected twice a week while the café waste will be collected once a week. Bulk waste and specialist waste will be collected on an as needs basis.

All waste will be collected by a private waste contractor. All wastes will be transported for treatment or disposal at a facility suitably licensed to receive, process, or dispose of that particular waste type.

5 Equipment and Waste Management Systems

5.1 Collection Method and Loading Areas

A private waste contractor will be the waste service provider for the site and will utilise a rear or side loading waste collection vehicle. The collection point for the waste service provider (WSP) and areas for handling and loading are as follows:

- Collection and loading will occur in the loading areas within the site;
- Clear, safe, accessible and convenient space for handling of MGBs and equipment and loading of collection vehicles; and
- Identifiable areas where pedestrians, visitors and site staff can recognise and avoid any risk associated with moving vehicles, and bin moving and handling.

The site will be accessed from Lytton Street by waste collection vehicles. Vehicles will access the B1 loading dock through the truck lift.

5.2 Bin Storage Areas and Amenity

Cleaning staff will have access to the basement level waste room which will house general waste, recycling and clinical waste bins, bulky waste and specialist waste storage. Bin storage areas will be constructed with the following considerations to safety and amenity:

- Hose tap connected to a water supply;
- Inaccessible to the general public and secured with a lockable door;
- Graded and drained to floor waste connected to sewer;
- Sufficiently ventilated and well-lit;
- Proofed against vermin and other pests;
- Designed to allow for segregation of waste into correct streams;
- Signage for safety and waste bin identification where necessary;
- Floors constructed of concrete or other approved solid, impervious material that can be cleaned easily; and
- Doorway ramp (if not level).

5.3 Additional Waste Streams

Site management may like to elect further separation of the following waste streams and services:

5.3.1 Container Deposit Scheme (CDS) eligible materials

Recyclable containers eligible for the NSW EPA's "Return and Earn" container deposit scheme can be collected separately to commingled recycling. Reverse Vending Machines (RVMs) accept these containers and issue refunds through retail vouchers (to spend or swap for cash), online into a PayPal account, or donated to a selected charity. Management may like to install a Reverse Vending Machine for customers and residents to utilise. Collected CDS materials are collected from the RVM by Cleanaway trucks.

5.3.2 E-Waste collection

This can be either an on-call service or scheduled collection depending on the need. On call collections generally take 1-2 weeks until collection. The bins supplied are standard blue 660L bins with an education sticker and phone number. Collection is completed via a Pantech and the bins are swapped at time of collection.

5.3.3 Harvest - Polystyrene, soft plastic, and bulk cardboard collection

Collections for the Harvest service are scheduled weekly. The bulk cardboard bins supplied are 1,100L in volume with an education message. The cages have 400L capacity and are supplied with an education message and 400L bins to collect the polystyrene and loose plastic. Collection is completed by a standard rear loader.

5.3.4 Food Organics Collection

Food waste going to landfill is a source of damaging greenhouse gases. Many facilities exist in and around Sydney that process food organics waste, producing compost and in some cases electricity (via biogas) while also diverting food waste from landfill. This service would be scheduled at minimum three times a week.

An alternative to food organics collection is onsite food waste processing. Examples of food waste processing machinery is available in Appendix B.

5.4 Waste Disposal and Recycling Method

The flow of general waste and recycling goes from generation to collection through several steps:

1. Waste is temporarily stored at its point of generation in an appropriately sized receptacle, clearly marked for type of waste;
2. Janitorial staff collect and consolidate waste at each point of generation using split-receptacle janitorial trolleys or similar;
3. Consolidated waste is transferred to the respective waste storage room for appropriate disposal into the respective bin;
4. Site management are responsible for maintenance of bins and the waste storage room, ensuring bins are clean and in working order. Site management are also responsible for switching out full bins and monitoring bin fullness;
5. Waste collection with a private waste contractor is managed by site management, who also ensure appropriate collection scheduling and access is organised to minimise noise, odour, vermin, and visual amenity impacts to staff, visitors and the public.

Clinical and hazardous waste is managed directly with an appropriate specialised waste contractor, and under no circumstances will enter general waste and recycling bins for disposal.

5.5 Management System and Responsibilities

The site manager will be responsible for the management of waste at the site. Should there be any issues that impact on the operational efficiency, safety and suitability of waste management, management will be responsible for making any necessary changes, responsibilities include:

- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information on sorting methods for recycled waste, awareness of waste management procedures for waste minimisation and resource recovery;
- Maintaining a valid and current contract with a licensed waste service provider for waste and recycling collection and disposal; and
- Making information available to residents and visitors about waste management procedures.
- Organising, maintaining and cleaning bins as part of a regular maintenance schedule;
- Manoeuvring bins to specified onsite collection point prior to and following scheduled collection of waste bins;
- Organising bulky waste collections as required;
- Ensuring bin allocation and waste/recycling collection frequency is adequate. Requesting additional infrastructure or services where necessary; and

- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry.

5.6 Signage and Education

Signage that promotes resource recovery, waste minimisation, safety and amenity follow the Australian Standard for safety signs for the occupational environment (Figure 3 and Figure 4).

Signage is designed to consider language and accessibility (i.e. to be understood as clearly as possible by those with different abilities of vision, knowledge of the English language, intellectual ability and with other conditions). Signage is to be prominently posted on each bin and relevant waste service area indicating:

- Detail on acceptable recyclables;
- Recyclables are to be decanted loose (not bagged);
- Contact details for arranging the disposal of bulky items; and
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix B).

5.7 Prevention of Pollution, Illegal Dumping and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), site management will also be responsible for:

- Maintenance of communal areas and bin storage areas;
- Securing the waste storage areas from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);
- 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.

6 References

Australian Building Codes Board (2016) National Construction Code (NCC).

Blue Environment (2016) Australian National Waste Report.

Department of Environment and Climate Change (2008) NSW Model Waste Not DCP Chapter.

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Department of the Environment (2016) Working together to reduce food waste in Australia, Australian Government.

Environment Protection and Heritage Council (2009) National Waste Policy: Less Waste, More Resources. Available at: <http://www.nepc.gov.au/system/files/resources/906a04da-bad6-c554-1d0d-45216011370d/files/wastemgt-rpt-national-waste-policy-framework-less-waste-more-resources-print-ver-200911.pdf>

NSW EPA (2016) Recycling Signs, Posters and Symbols. Available at: <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.

NSW OEH (2008) NSW Better Practice Guide for Waste Management in Multi-Unit Dwellings, Australian Standards and Statutory Requirements.

Holroyd Local Environmental Plan (HLEP) 2013.

Holroyd Development Control Plan (HDCP) 2013, amended in 2017.

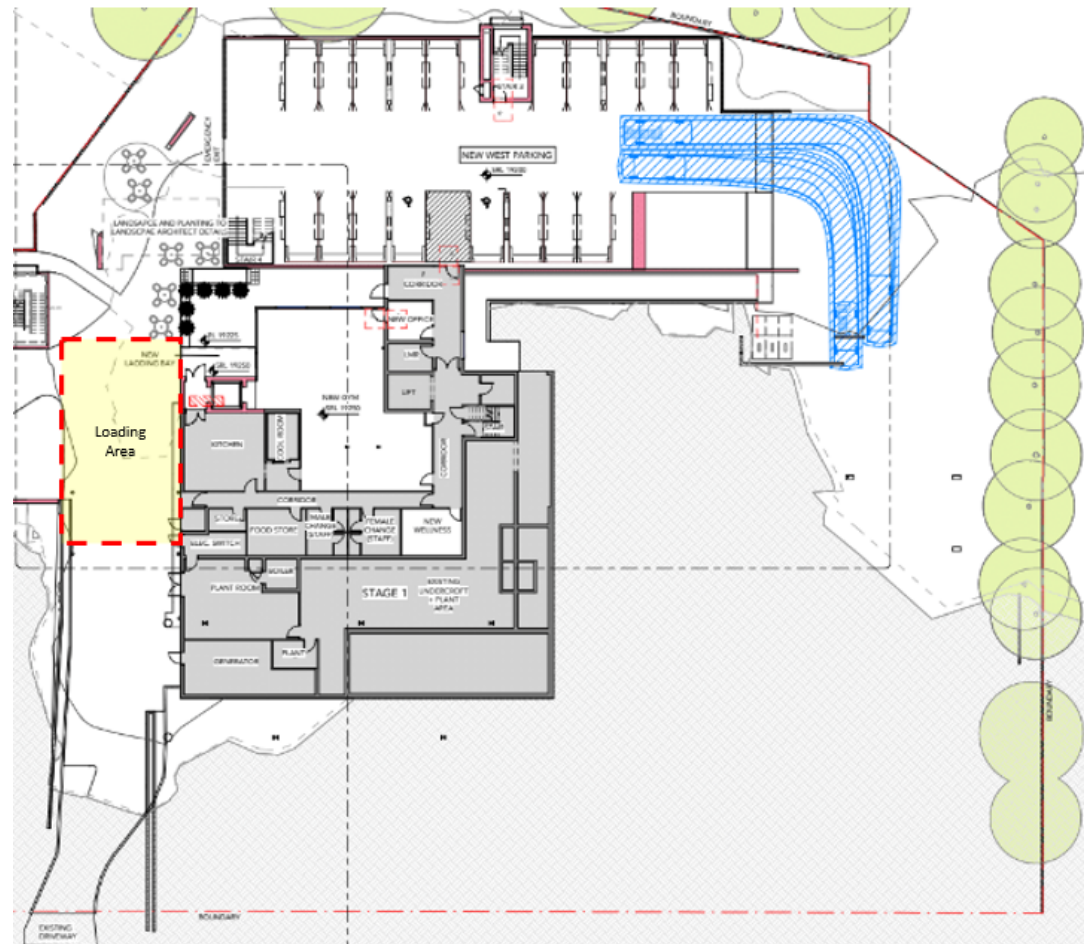
Standards Australia (1994) AS 1319: Safety signs for the occupational environment, Homebush, NSW: Standards Australia.

Standards Australia (2008) AS 4123 Mobile waste containers.

WorkCover (2011) Managing Work Environment Facilities Code of Practice.

Appendix A Site Plans

Figure 2: Ground Floor Plans



Appendix B Organics Processing Equipment

Dehydrators

Dehydrators reduce the volume of food and garden organic waste by removing the majority of water held by the waste. The products from dehydrators include extracted water which can be re-used, as well as dehydrated organic material which can be used as a soil amendment or fuel. Dehydrators differ from composters as they only dehydrate waste and do not produce compost.

Typical materials

- ☒ Food organics

Specifications

- **Loading:** Manual, Semi-Automatic (pump/hopper)
- **Unloading:** Manual
- **Consumables:** N/A
- **Working Life:** 10-20 Years
- **Power:** 415V
- Sewage/waste water hookup may be required to operate a dehydrator. This may require additional Council approval.
- Lateral and Overhead clearances need to be considered in some cases, and are variable.

Please note: Dehydrators will only be approved for a rebate when the outputs are sent to a commercial composting service or licensed facility or if the equipment has a resource recovery exemption.

Relevant standards

AS 4024.1 2006 Series: Safety of Machinery by Third Party Independent verification

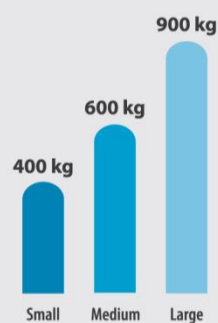


Price (\$AUD)



Dehydrator size

Machinery weight (kg)



Dehydrator size

Processing (kg/week)



Dehydrator size

Pre-Digestion with disposal to sewer

Biologically converts solid food waste into liquid. System uses microorganisms to decompose food waste into a liquid that can be disposed to sewer.

Typical materials

- ☒ Food organics
- ☒ NOT large bones and oils
- ☒ NOT fibrous material
e.g. corn husks

Specifications

- **Loading:** Manual
- **Consumables:** Microbes need to be replaced yearly
- **Working Life:** 15 Years
- **Power:** 208V, 3 Phase Power
- Cold water hook up required
- Sewer connection required (must have approval from a water authority to hook up to sewer)
- Lateral and Overhead clearances need to be considered in some cases, and are variable
- Can be linked with a grinder to manage bones and fibrous materials.

Cost:

\$55,000 – \$75,000

Machinery weight:

1300 lbs (small unit)

Processing (per hour):

300 lbs (small unit)

1000 lbs
(medium unit)

1500 lbs (large unit)

Relevant standards

AS 4024.1 2006 Series: Safety
of Machinery by Third Party
Independent verification



Macerators

Macerators reduce the volume of food waste by turning the solid food waste into pulp. The pulp slurry is pumped to an exterior holding tank for collection by a licensed contractor. Macerators are usually a leased piece of equipment. Leased equipment is not eligible under the Bin Trim Rebate Program.

Typical materials

- ☑ Food organics
- ☑ NOT oyster and mussel shells
- NOT fibrous material
e.g. corn husks

Cost:

\$50,000 – \$60,000

Machinery weight:

140 kg

Processing:

2000 kg per hour

Specifications

- **Loading:** Manual
- **Unloading:** Semi-Automated
- **Consumables:** N/A
- **Working Life:** 15 Years
- **Power:** 415V
- Cold water hook up required
- Lateral and Overhead clearances need to be considered in some cases, and are variable.

Please note: Macerators will only be approved for a rebate when used in conjunction with a commercial collection service to a licensed organic recycling facility or a Resource Recovery Exemption compliant land application system.



Relevant standards

AS 4024.1 2006 Series: Safety of Machinery by Third Party Independent verification

Appendix C 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.

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 2016b), 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 3: Examples of standard signage for bin uses



Safety Signs

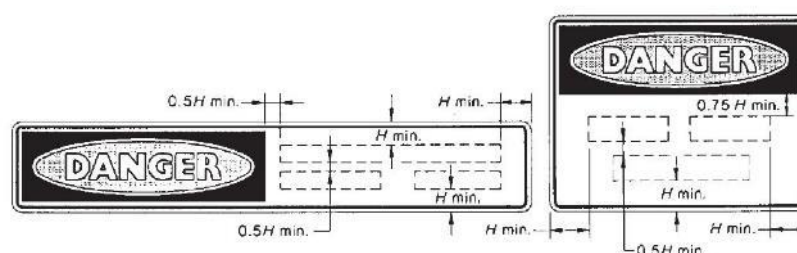
The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. 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 4: Example and layout of safety signage



(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



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