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HammondCare Wahroonga

Combined Operational, Demolition, & Construction Waste Management Plan

State Significant Development, Application Number SSD-45121248

Prepared for HammondCare

November 10, 2022

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1 Introduction

This Waste Management Plan is submitted to the Department of Planning and Environment (DPE) in support of a State Significant Development Application (SSD-45121248) for the redevelopment of part of the site at 4-12 Neringah Avenue South, Wahroonga for the purposes of delivering additional community health services, seniors housing, as well as upgraded palliative care facilities that will contribute to the broader operation of 'Neringah Hospital.' The extent of the site is shown below.

Figure 1: Location Plan

Specifically, this SSDA seeks approval for the following:

- Site preparation works comprising:
  - Demolition of the Neringah Hospital building, kiosk, and existing at-grade carparks;
  - Clearing of nominated vegetation on the proposed development areas;
  - Bulk earthworks including basement excavation; and
  - Remediation works where necessary across the site.
- Construction and use of an integrated seniors housing and health services facility across two buildings ranging from 4-5 storeys above ground, comprising:
  - 2 basement levels containing minimum of 130 car parking spaces and service dock;
  - 12 residential aged care facility beds (extension to existing Stage 1 provision);
  - 18 palliative care hospice beds (Schedule 3 health services facility);
  - Community healthcare services, including outpatient palliative care, centre for positive aging and Hammond at Home;
  - 57 seniors housing dwellings;
  - On-site administration, amenities, and ancillary operations spaces.
- Ground level and on-building landscaping works, including the provision of a through site pedestrian link connecting Archdale Park and Balcombe Park;
- Public domain works, specifically, regrading of part of the pedestrian walkway known as 'Archdale Walk' to provide accessible connection; and
- Extension and augmentation of infrastructure and services as required including new site signage.

This report has been prepared to respond to the Secretary's Environmental Assessment Requirements (SEARs) for SSD-45121248 that were issued on 24 June 2022. A table referencing responses has been provided below.

Table 1: SEARs Requirements

Stage/Item	Description of Requirement	Report Section
Item 18. Waste	• Identify, quantify and classify the likely waste streams to be generated during construction and operation	Sections 4-5
	• Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste	Sections 4-5
	• Identify appropriate servicing arrangements for the site	Section 13
	• If buildings are proposed to be demolished or altered, provide a hazardous materials survey	See separate JK Environments report

2 Applicable Legislation, Standards & Guidelines

The following have been referred to in compiling this report:

- NSW *Protection of the Environment Operations (Waste) Regulation 2014, Part 11*
- NSW *Waste Avoidance and Resource Recovery Act 2001*
- NSW EPA *Waste Classification Guidelines* 2014
- NSW *Protection of the Environment (General) Operations Act 1998*
- NSW *Environmental Planning and Assessment Regulation 2021 (EP&A Regulation)*
- NSW DPIE *SCC Briefing Report*
- *Planning Secretary's Environmental Assessment Requirements - Seniors Housing*
- *HammondCare Sustainability Strategy 2018-2023*
- JK Environments *Hazardous Building Materials Survey October 2022*

3 Reference Documents & Reports

The following diagrams and documents have been consulted in compiling this report:

- DG-00-00_-_COVER_PAGE
- DG-00-01_-_CONTEXT_PLAN
- DG-01-01_-_EXISTING_SITE_PLAN_&_SITE_ANALYSIS
- DG-02-01_-_PROPOSED_SITE_PLAN
- DG-03-01_-_FLOOR_PLAN_-_BASEMENT_2
- DG-03-02_-_FLOOR_PLAN_-_BASEMENT_1
- DG-03-03_-_FLOOR_PLAN_-_LOWER_GROUND
- DG-03-04_-_FLOOR_PLAN_-_GROUND
- DG-03-05_-_FLOOR_PLAN_-_LEVEL_1
- DG-03-06_-_FLOOR_PLAN_-_LEVEL_2
- DG-03-07_-_FLOOR_PLAN_-_LEVEL_3
- DG-03-08_-_FLOOR_PLAN_-_LEVEL_4
- DG-03-09_-_FLOOR_PLAN_-_LEVEL_5
- DG-04-01_-_EXISTING_&_DEMOLITION_SITE_PLAN
- DG-20-00_-_SITE_ELEVATIONS
- DG-30-00_-_SITE_SECTIONS

4 Demolition & Construction Waste

4.1 Scope of Works

The demolition and construction components of the project will take place across several stages and sub-stages as summarised below and illustrated in the drawings in Appendix 7.

Table 2: Scope of Demolition & Construction Works

Stage	Proposed Work Relevant to this Report
Demolition	• Demolition of the Neringah Hospital building, kiosk, and existing at-grade carparks • Clearing of existing vegetation on the proposed development areas; • Bulk earthworks including basement excavation; and • Remediation works where necessary across the site.
Construction	• Construction and use of an integrated seniors housing and health services facility across two buildings ranging from 4-5 storeys above ground, comprising: - Basement level containing >90 car parking spaces and service dock; - 13 residential aged care facility beds extension to existing Stage 1; - 18 palliative care hospice beds (Schedule 3 health services facility); - Community healthcare services, including outpatient palliative care, centre for positive aging and Hammond at Home; - 57 seniors housing dwellings; - On-site administration, amenities, and ancillary operations spaces. • Ground level and on-building landscaping works, including the provision of a through site pedestrian link connecting Archdale Park and Balcombe Park; • Public domain works, specifically, regrading of part of the pedestrian walkway known as 'Archdale Walk' to provide accessible connection; and • Extension and augmentation of infrastructure and services as required. • Ground level and on-building landscaping works, including the provision of a through site pedestrian link connecting Archdale Park and Balcombe Park; • Public domain works, specifically, regrading of part of the pedestrian walkway known as 'Archdale Walk' to provide accessible connection; and • Extension and augmentation of infrastructure and services as required.
Operation	• Ongoing use and operation of the site and its facilities

4.2 Risk Management & Reporting

Demolition and construction contractors will be required to provide monthly reports to the Project Managers on waste reused, re-processed/ recycled, and sent to landfill.

All reports will include the following information:

- Date and time material removed
- Material type and amount (in kg and/or cubic metres)
- Processing facility material taken to
- Processing facility licensing information
- Vehicle registration and waste contractor's company details

4.3 Objectives & Targets

This Waste Management Plan will be implemented throughout the project's demolition and construction phases. The project's waste management objectives will include:

- Meeting all waste management standards while ensuring the health and safety of the workers on the project
- Maximising the quantities of materials diverted from landfill by reusing, recycling and reprocessing off-site
- Disposal of no more than 20% of residual waste materials to a licensed landfill in accordance with both regulatory and legal requirements
- The diversion from landfill of 80% of construction waste by weight, to meet the criteria of the NSW State Government's waste legislation, policy settings and regulatory regime

Management strategies and responsibilities for ensuring these objectives are achieved are detailed in Section 7.

4.4 Management Strategies

The following strategies will operate over the design, procurement, demolition, and construction (including fitout) stages of the project:

Table 3: Management Strategies

Management Strategies	Responsibilities
Design:	
Use of modular components in design	Architect & Engineer
Use of prefabricated components in design	Architect, Builder, Subcontractors
Design for materials to standard sizes	Architect, Subcontractors
Design for operational waste minimisation	Architect & Builder
Procurement:	
Select recycled and reprocessed materials	Architect, Engineer, Builder, Subcontractors
Select components that are reusable after deconstruction	Architect, Engineer & Builder
Pre-Demolition:	
Waste management plan to be reviewed and amended as required to address any changes in project scope	Project Manager, Builder
Hazardous materials survey to be undertaken prior to commencements of any demolition works	
Construction On-Site:	
Use the waste hierarchy principles of avoidance, reuse, reduction, and recycling	Builder & Waste Contractor
Minimisation of recurring packaging materials	Subcontractors
Returning packaging to the supplier	Builder & Subcontractors
Separation and recycling of materials off site	Waste Contractor
Monitor and audit correct usage of bins	Builder & Waste Contractor
Monitor and audit waste contractor(s)	Builder

4.5 Hazardous Materials

There are regulatory requirements under Clause 42 of the *Protection of the Environment Operations (Waste) Regulation 2005* that apply to the management of hazardous materials. A Hazardous Materials report has been produced by JK Environments (October 2022) addressing potentially hazardous materials identified in structures to be demolished.

4.6 Materials Volumes - Demolition Stage

Table 4 shows estimated quantities of demolition waste to be generated, and management strategies for each type of material, based on the structures to be demolished, vegetation removal, and the earthworks and excavation works to be undertaken.

As detailed in Section 4.5, hazardous materials will be addressed by a separate consultancy; remediation of these materials (if this is required) is not covered in the present report.

Specific disposal/recycling facilities for the materials listed in Table 4 have not been shown, as waste removal contractors have not yet been appointed at this stage of the project.

Table 4: Demolition Waste (Including Excavation) - Expected Materials

Type of Material	Estimated m^3	Destination/Treatment		
		Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Excavated Soil, Rock	**46,550**	Possible onsite reuse in landscaping works	Material to be taken to facility for processing for reuse at other sites	No disposal to landfill
Bricks	**300**	Separated on site and crushed for use in pavement and/or temporary access road construction	Acceptable quality bricks collected by contractor for reuse. Unusable bricks collected and recycled at recycling facility to be used in aggregate gravel products	No disposal to landfill
Trees & Vegetation	**120**	Possible onsite reuse	Material to be taken to organic waste facility for processing for reuse in landscaping works	No disposal to landfill
Roofing & Structural Metals	**100**	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
Concrete	**50**	Crush for use in pavement and/or temporary road construction	Separate onsite and take material to concrete recycling facility	No disposal to landfill
Floor Coverings	**50**	No on-site reuse	Collected in designated bin and sent for recycling if of sufficient quality; otherwise sent to landfill	Material that cannot be recycled will be sent to landfill
Structural Timber	**40**	Possible onsite reuse	Untreated timber collected and recycled at timber yard. Unrecyclable timber will be sent to landfill	Material that cannot be recycled will be sent to landfill
Plasterboard	**40**	No on-site reuse	Material to be separated onsite and collected by contractor for recycling for use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be sent to landfill
Bitumen	**30**	No on-site reuse	Collected by contractor for recycling at dedicated facility	No disposal to landfill
Glass	**20**	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill

Type of Material	Estimated m^3	Destination/Treatment		
		Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Wiring, Electrical Fittings	**20**	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
Plumbing, Fixtures	**20**	No on-site reuse		No disposal to landfill
Lighting Fixtures, Lamps (Non-Hazardous)	**20**	No on-site reuse or recycling	Collected by specialist contractor for recycling	No disposal to landfill
Ceiling Tiles	**10**	No on-site reuse or recycling	Collected by specialist contractor for recycling	No disposal to landfill
Bathroom & Kitchen Tiles	**10**	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
Hazardous Materials	**5**	No on-site reuse or recycling	Collected by specialist contractor for treatment and disposal	Disposal to licensed landfill
General Waste (All Materials Unsuitable for Reuse/Recycling)	**2,000**	No on-site reuse or recycling	Collected by waste contractors for disposal to landfill	Disposal to landfill
TOTAL MATERIALS GENERATED	**47,485**	The development's demolition stage will produce around **47,485 m^3** of materials, of which around **45,487 m^3** or **95.8%** of all materials can potentially be diverted from landfill and recovered for beneficial on-site and off-site reuse and/or reprocessing at specialised facilities.		
TOTAL MATERIALS RECOVERED	**45,487**			

4.7 Materials Volumes - Construction Stage

Table 5 shows expected volumes resulting from the construction process, including materials generated from deliveries, such as pallets, pallet wrap, cardboard packaging, and general waste and recyclables disposed of by contractor staff.

Specific disposal/recycling facilities have not been shown, as waste removal contractors have not yet been appointed at this stage of the project.

Table 5: Construction Waste - Expected Materials Streams

Type of Material	Estimated m^3	Destination		
		Onsite (Reuse/Recycle)	**Offsite (Reuse/Recycle)**	**Disposal (Landfill)**
Soft Plastics (e.g. pallet wrapping)	**39**	Possible onsite reuse	Collected by contractor and taken to recycling facility	No disposal to landfill
Used Pallets	**37**	Reuse on site for materials storage	Collected by contractor and taken to recycling facility	No disposal to landfill
Paper/Cardboard Recycling	**30**	Reuse cardboard boxes for storage where possible	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Metal Offcuts, Wiring, etc.	**26**	No on-site reuse	Collected by contractor for separation into different metal types for recycling	No disposal to landfill
General Waste	**25**	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by waste contractor for disposal	Disposal to landfill
Plasterboard Offcuts	**24**	No on-site reuse	Material to be separated onsite and collected by contractor for recycling for use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be sent to landfill
Floor Coverings	**22**	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be sent to landfill
Recyclable Glass, Metal, & Plastic Containers	**19**	No on-site reuse	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Timber Offcuts	**17**	Reuse for formwork where possible	Untreated recyclable timber will be collected and recycled at timber yard. Unrecyclable timber will be sent to landfill	Material that cannot be recycled will be sent to landfill
Concrete (Excess)	**15**	No on-site reuse	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Glass (Excess)	**12**	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
TOTAL MATERIALS GENERATED	**266 m^3**	The development's construction stage will produce around **266 m^3** of materials, of which around **241 m^3** or **90.7%** of all materials can potentially be diverted from landfill and recovered for beneficial on-site and off-site reuse and/or reprocessing at specialised facilities.		

5 Operational Stage

5.1 Materials Streams & Volumes

Table 6 shows volumes of materials being produced by the existing Hospital's operations based on data provided by SUEZ to HammondCare for the July 2021-June 2022 period:

Table 6: Materials Streams (Current Operations)

Material Stream	Annual Cubic Metres
General Waste	271.26
Cardboard & Paper Recycling	54.12
Commingled Recycling	12.72
Confidential Paper Recycling	0.48
Medical Waste	18.60
Sanitary Waste	3.63
Pharmaceutical Waste	1.44
Cytotoxic Waste	1.20

To calculate future materials volumes, we have used the existing Hospital's operational waste data shown in Table 6 as a baseline, and multiplied volumes of each material by an expansion factor of 2.5, reflecting the increase in the Hospital's size and operations.

We have assumed that the existing Hospital's materials streams will be carried over to the new site and also recommend implementing the additional recycling streams listed in Table 7 to reduce waste to landfill, maximise resource recovery, and fulfil HammondCare's sustainability commitments as detailed in the organisation's *Sustainability Strategy 2018-2023*.

Predicted future volumes of the additional recycling streams are based on data from previous projects, including waste audits conducted by Waste Audit & Consultancy Services.

Table 7: Materials Streams (Future Operations)

Material Stream	Annual Cubic Metres
General Waste	576.43
Cardboard & Paper Recycling	135.30
Commingled Recycling	63.60
Confidential Paper Recycling	1.20
Medical Waste	46.50
Sanitary Waste	9.08
Pharmaceutical Waste	3.60
Cytotoxic Waste	3.00
Food Organics Recycling	101.72
Cooking Oil Recycling	6.24
Polystyrene Recycling	10.40
E-Waste Recycling	0.52
Lamp Recycling	0.26

Organic garden waste will be removed by the development's maintenance contractor; accordingly, this material has not been included in calculations.

Tables 8 and 9 show expected weekly volumes of materials, bin and equipment sizes, and recommended collection frequencies, based on full occupancy of the development. Based on the relative sizes of Health Services and Seniors Housing, we estimate that 55% by volume of general waste and recyclables will be produced by Seniors Housing, and 45% by Health Services.

Seniors Housing is not expected to produce any clinical waste streams or additional recycling streams (cooking oil, polystyrene, e-waste, and lamp recycling).

Table 8: Equipment & Collection Frequencies - Health Services

Material Stream	Weekly Litres	Bin Size (Litres)	No.	Collections Per Week	m^2 Per Bin	Total m^2
General Waste	4,975	1100	2	3	1.60	3.20
Cardboard & Paper Recycling	1,168	1100	2	1	1.60	3.20
Commingled Recycling	549	240	3	1	0.51	1.53
Confidential Paper Recycling	23	240	1	On call	0.51	0.51
Medical Waste	892	240	3	1	0.51	1.53
Sanitary Waste	174	28	5	1	0.10	0.50
Pharmaceutical Waste	69	50	1	1	0.50	0.50
Cytotoxic Waste	58	50	1	1	0.50	0.50
Food Organics Recycling	878	120	8	7	0.31	2.48
Cooking Oil Recycling	120	500	1	Monthly	1.00	1.00
Polystyrene Recycling	200	1100	1	Monthly	1.60	1.60
E-Waste Recycling	10	660	1	On call	1.22	1.22
Lamp Recycling	5	660	1	On call	1.22	1.22
Circulation Space (+30% of bin footprint)	N/A					5.70
Total	**9,119**					**24.69**
Room Size (B1.25)						**33.60**

Table 9: Equipment & Collection Frequencies - Seniors Housing

Material Stream	Weekly Litres	Bin Size (Litres)	No.	Collections Per Week	m^2 Per Bin	Total m^2
General Waste	6,080	1100	9	1	1.60	14.40
Cardboard & Paper Recycling	1,427	1100	2	1	1.60	3.20
Commingled Recycling	671	240	4	1	0.51	2.04
Food Organics Recycling	1,073	120	6	1	0.31	1.86
Circulation Space (+30% of bin footprint)	N/A					6.45
Total	**9,251**					**27.95**
Room Size (B1.03 + B1.09)						**52.40**

5.2 Bulky Waste Items

A designated room located adjacent to the Loading Dock will be provided for storage of bulky waste items including furniture, mattresses, and broken or obsolete equipment, as shown in Appendix 7. These materials will be collected as required by the Hospital's private waste contractor. The room will be accessible only to authorised site staff. As it will not contain any putrescible waste streams, it will not be required to be mechanically ventilated or refrigerated.

Where possible, any items in reusable condition will be donated to charities.

6 Clinical Wastes

All clinical and related wastes must be:

- Handled by staff with access to appropriate Personal Protective Equipment (PPE)
- Packaged so that there is no risk of wastes escaping
- Transported and disposed of in accordance with EPA NSW legislation and guidelines and relevant Codes of Practice

In this regard the NSW Health *Clinical and Related Waste Management for Health Services* Policy, August 2017 provides clear guidance and detailed procedures for managing various types of clinical waste. These materials must be stored in uniquely identified receptacles located in separate rooms from all other wastes and recyclables, as per the colour-coding outlined in Appendix 2 and disposed of according to designated Clinical and Hazardous Waste Procedures.

Clinical wastes may include:

- Anatomical
- Laboratory
- Pharmaceutical
- Radioactive
- Sharps
- Cytotoxic
- Chemical

Anatomical, Laboratory, and Sharps wastes must be managed using the following protocols:

1. Community sharps accepted or collected at a public hospital or authorised outlet of the Needle and Syringe Program are classified as clinical sharps waste and must be managed in accordance with this Policy.
2. Genetically modified organisms (GMOs) must be disposed of in clinical waste, except if the GMOs also contain cytotoxic waste, in which case they must be disposed of as cytotoxic waste for incineration.
3. Incontinence pads and disposable nappies can be treated as general waste unless the material is locally judged to come from an infectious patient and (consistent with the *CEC Infection Prevention and Control Practice Handbook*), is visibly blood stained, or is disposed of in unusually large quantities, in which case it must be treated as clinical waste.
4. Sharps containers that are resistant to impact, penetration and leakage, are stable, have integrity of the handles/other carrying features and closure device, and have a capacity indicator (fill line) marked on the outside wall of the container must be used.
5. Reusable sharps containers must be emptied and cleaned before reuse.
6. Microbiological and pathological wastes must be decontaminated in accordance with *Australian and New Zealand Standard 2243.3: Safety in Laboratories* and shredded by the waste contractor prior to disposal.
7. Waste service providers require the application form for approval of a method to treat clinical waste if they collect, transport and treat clinical waste. Refer to the *Guideline for Approval of Method to Treat Clinical Waste*.
8. Reclassify waste in accordance with the EPA step-by-step waste classification process after treatment and before recycling or disposal.
9. For further clarification on requirements for disposal of infectious substances, refer to the most current *Australian and New Zealand Standard 2243.3: Safety in Laboratories*.

Cytotoxic, Pharmaceutical, and Radioactive wastes must be managed as follows:

1. Radioactive sharps must be placed in a clinical sharps bin and the bin must be labelled with a radioactive sticker while the waste is radioactive, the name of the substance, activity level and the date at which it is measured. When radioactivity decays to background, the sticker must be removed and waste disposed of as clinical waste.
2. For requirements on medication handling and recommended destruction of Schedule 8 Medications, refer to NSW Health Policy Directive *Medication Handling in NSW Public Health Facilities* (PD2013_043).
3. Refer to the RPS No.20 *Safety Guide for Classification of Radioactive Waste* for the classification of radioactive waste in consideration of long-term safety and disposal.
4. Refer to the EPA classification guidelines for the step-by-step procedure to classify and manage radioactive waste.
5. For guidance on safe handling, segregation and storage of radioactive waste, refer to Part A2 'Requirements for Radioactive Waste' of the Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (RPS14). The Radiation Management Plan document needs to address dose limit requirements for the public and occupationally exposed persons as provided in Schedule 5 of the Radiation Control Act 1990.
6. The policy and procedure for radioactive sharps waste management is to be determined locally, e.g. storage in a dedicated room.
7. Specific obligations are placed on the responsible person (including obtaining consent) and transporter by the *Code for the Safe Transport of Radioactive Material* (RPS2) which is mandated by the *Radiation Control Regulation* 2013.

Chemical wastes must be managed as follows:

Chemical waste is generated by the use of chemicals in medical, veterinary and laboratory procedures. Chemical waste is to be classified in accordance with the step-by-step process in the *Waste Classification Guidelines Part 1: Classifying Waste* and the ADG Code.

These wastes must be managed and disposed of as per the Safety Data Sheet (SDS) for the hazardous chemical and recommended handling precautions, PPE and disposal.

All containers containing chemical waste must have labelling as per the requirements in Part 3 of Schedule 9 Classification, packaging and labelling requirements of the *WHS Regulation 2017* and the *Labelling of Workplace Hazardous Chemicals Code of Practice*. This applies for a waste product that is reasonably likely to be a hazardous chemical. The waste is to be packed in a container with a label in English including the following for the hazardous chemical:

- Product identifier
- Name, and the Australian address and telephone number of the manufacturer or importer
- Hazard pictogram and hazard statement consistent with the classification of the chemical

A licence may be required for the disposal of high activity level radioactive substances classified as hazardous waste in accordance with the *Waste Classification Guidelines* Part 3: Waste Containing Radioactive Material.

7 General Waste & Recycling

7.1 General Waste

General waste is to be contained in clearly labelled white or opaque bags. General waste is any waste that is not clinical waste of any of the materials listed in Sections 7.2-7.7 and:

- Has not been in contact with infectious agents, hazardous chemicals or radioactive materials
- Does not pose a sharps hazard

This material will be managed as follows:

1. Hospital staff will dispose of material into correct bin within bin hubs
2. Cleaners will collect materials and transfer to the bins within storage room
3. Contractor will collect according to designated schedule

7.2 Cardboard and Paper Recycling

Most cardboard packaging will originate from deliveries of supplies and stationery. Paper materials such as non-confidential office paper, newspapers, magazines, etc. will be generated from offices, reception areas, and waiting rooms, and managed as follows:

1. Hospital staff will dispose of paper into correct bin within bin hubs
2. Hospital staff will flatten cardboard boxes and leave in designated area for collection
3. Cleaners will collect materials and transfer to the bins within storage room
4. Recycling contractor will collect from here according to designated schedule

7.3 Secure Document Destruction

These materials will be placed in 240-litre bins located in each office area and collected on an as-required basis by a specialist contractor. To avoid contractors using lifts for transporting these materials during busy times, the following system is recommended:

1. Hospital staff will dispose of secure documents into designated bin(s)
2. Hospital will arrange for cleaning contractor to collect bins and take to storage room
3. Secure document contractor will collect according to designated schedule

7.4 Commingled Recycling

Commingled recycling consists of all (non-hazardous) mixed plastic bottles and containers, glass bottles, and steel and aluminium cans. This material will have the following separation and collection processes:

1. Hospital staff will dispose of materials into correct bin within bin hubs
2. Cleaners will collect materials and transfer to the designated bins in storage room
3. Recycling contractor will collect according to designated schedule

7.5 Organic Recycling

There are significant opportunities for recycling food organics from the Hospital. The following process is recommended:

1. Hospital staff will dispose of materials into small bins for collection by cleaners
2. Cleaners take separated materials to organics bins in main Hospital bin storage area
3. Recycling contractor will collect according to designated schedule

7.6 Polystyrene Recycling

Variable quantities of polystyrene packaging will be generated from deliveries of medical supplies. An 1100-litre bin located in the main Hospital storage area will be used for these materials and collections will be done as required by the Hospital's recycling contractor.

1. Hospital staff will leave polystyrene boxes in designated area for collection
2. Cleaners will collect materials and transfer to the designated bin within storage room
3. Recycling contractor will collect as required

7.7 Specialised Recycling (E-Waste, Printer Cartridges, Lamps, Batteries)

Variable quantities of e-waste (discarded electrical and electronic items) will be generated from office areas and general hospital operations. A 660-litre bin is recommended for storage of these materials in the main Hospital bin area.

Used printer cartridges will be generated from office areas. The usual recycling system consists of a cardboard box supplied by the service provider (e.g. Planet Ark) that is located next to print facilities. The system will be managed by Facilities Maintenance staff, who will organize transfer of the full boxes to the main storage room.

Maintenance staff and electrical contractors are generally required to remove all lamps and globes generated through their activities for correct disposal offsite. Alternatively, a dedicated recycling box can be left in the main storage room for this purpose. The full box would be collected by a specialist contractor on request by the Hospital.

Used batteries would be stored and collected separately, or combined with the e-waste materials, depending on contract arrangements.

8 Operational Management Procedures

8.1 Labelling of Waste

All waste containers and bin liners are to be correctly colour coded and identified. The labelling, packing and transport of Division 6.2 Infectious Substances must comply with the ADG Code for dangerous goods. These requirements typically apply for waste classified as UN 2814 (Category A Infectious Substances) and UN 3291 (Category B Infectious Substances).

Portable and mobile bins must be marked, labelled and placarded as required by Chapters 5.2 and 5.3 of the ADG Code. Refer to the SafeWork NSW fact sheet *Packing and Transporting Clinical Waste*. Health service staff will need to liaise with the transporter to ensure they have a transport document describing what is being transported.

8.2 Mobile Garbage Bins (MGBs) & Trolleys

MGBs are re-usable rigid-walled containers used to contain and move clinical and related wastes. Trolleys are used to move clinical wastes contained in plastic bags or non-mobile rigid-walled containers.

MGBs and trolleys must be dedicated solely for collecting and transporting waste to decrease spills, eliminate direct contact with waste and minimise manual handling. MGBs and trolleys must be washable, with a lid that is lockable. 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 is to not be more than three quarters full (i.e., less than 55 kg). Waste collection rounds are to be performed as often as necessary to minimise housekeeping hazards.

The following procedures are recommended to be regularly completed by the hospital:

- Rinse with cold water then wash with warm water and a neutral detergent, or equivalent (e.g., chemical formulated for cold water use)
- Trolleys and MGBs are to be drained to sewer and left to dry
- Clean trolleys and bins are to be stored separately to soiled containers
- Appropriate personal protective equipment must be worn when cleaning MGBs

In addition, MGBs are to be readily inspected and cleaned after each use by the waste contractor. Defective containers must be repaired before use or taken out of service. Plastic bags/liners must have sufficient strength to safely contain waste and be suitable for the purpose if used for moist heat sterilization. Chemical waste containers must be suitable for the chemical contained within and labelled.

8.3 Handling of Bags/Bin Liners

It is best practice to minimise the handling of waste bags and to avoid decanting from one bin to another. When clinical waste bags must be handled, all bags are to be held away from the body by the closed top of the bag, and placed directly into a bin appropriate to the waste (see Table 1).

Gloves, apron and protective eyewear must be worn when closing the bags and placing them into the container. Gloves worn are to be appropriate for the type of waste being handled.

Waste bags must not be filled to more than two-thirds capacity and contents are to be secured within the bag when closing. Excess air is to be excluded without compaction, prior to closure at the point of generation. The bag is not to be secured with sharp protuberances, e.g. staples.

All clinical waste stream bags and receptacles stored pending collection are to be in a secure area with restricted access. Pathology specimens and associated materials must be double packaged. Anatomical waste must be packaged to minimise the risk of contents spilling or puncturing the bin liner before being placed into the anatomical waste bin. This includes triple bagging of body parts or amputated limbs that may have sharp bone edges and/or the use of wet bags. Sharps must never be placed in waste bags.

8.4 Spill Management

Spills will be managed according to standard procedures. The hospital will ensure that:

- Personnel involved in spill management are trained in emergency procedures and handling requirements, including use of spill kits. Spill kits are to 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 are restocked with the necessary components immediately after use, returned to their locations and regularly inspected for malfunctioning or missing components
- Spill kits are to be disposed of with the relevant waste stream

8.5 Internal Tracking

The hospital will comply with the record keeping requirements specified in the EPA clinical waste tracking exemption for clinical waste, cytotoxic waste, sharps waste, pharmaceuticals and poisons, and radioactive waste.

8.6 Auditing

Auditing is important to establish benchmarks and whether waste is appropriately managed. This includes reviewing contractor information and developing an agreed auditing process, including frequency and selection of samples. Audits will include:

- Checking waste streams are appropriately used and managed
- Checking that bags and MGBs/trolleys are not overfilled
- Reviews of WMP procedures
- Interviews with key staff
- Reviews of records

Auditing is to be conducted by the waste management contractor at a frequency determined by the contract upon negotiation with the contractor. The frequency of auditing should be at least quarterly to ensure correct management of all waste streams.

8.7 Movement Pathways

Please refer to Appendix 7 for diagrams and descriptions of all materials movement pathways and workflows.

9 Workplace Health & Safety

As detailed in the NSW Health *Clinical and Related Waste Management for Health Services* Policy, August 2017, the following procedures must be followed:

9.1 Notifying Incidents

Reporting serious injuries and illnesses is a requirement under WHS legislation. 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.

Depending on the nature of materials involved in incidents, there may be other legislative requirements regarding who must be informed if there is an incident.

9.2 Hygiene & Cleaning

The health service must provide hand hygiene facilities for workers and promote regular hygiene procedures that comply with the NSW Health Policy Directive *Infection Prevention and Control Policy* (PD2017_013)

In addition, the health service must:

- Designate specific areas for equipment cleaning (e.g. bunding or enclosed areas), maintenance and hygiene that are properly equipped with emergency showers and drainage to sewer. Locations of emergency showers and spills equipment are to be understood by relevant workers and identified on signage and evacuation diagrams
- Regularly clean and maintain equipment used to contain and transport waste
- Clean all contaminated items as soon as possible, using approved detergents and hospital grade disinfectants
- When cleaning contaminated items ensure staff wear appropriate Personal Protective Equipment (PPE), including face protection, use a scrubbing brush, and avoid splashing the water. If any item of PPE becomes contaminated or damaged, the item must be changed before continuing with the task

9.3 Personal Protective Equipment (PPE)

For tasks involving hazardous chemicals, ensure that the PPE recommended in the Safety Data Sheet (SDS) is provided and used. Staff must be trained in the proper selection, fitting (donning/doffing, or putting on/removing), storage and maintenance of PPE.

Health services must ensure all contractors, such as waste collectors, comply with all WHS and other legislative requirements, e.g. wearing appropriate PPE.

10 Storage & Loading Areas

Central waste and recycling storage facilities will be located in the loading dock with dedicated areas for storage of general waste and recycling, including a bin wash area, and space for bulky goods storage. All rooms will be locked and accessible by authorised staff only and will conform with standard practices and relevant Council specifications.

All waste and recycling containers will be clearly differentiated through appropriate signage and colour coding to reflect the materials contained, with each stream located in a designated area with colour-coded signage to assist in easy identification by users.

11 Internal Bins

11.1 Administrative Areas

These areas will be equipped with 4-stream bin hubs for:

- Paper/Cardboard Recycling
- Commingled Recycling
- Food Organics Recycling
- General Waste

Bins will be situated in areas which service a group of workstations and offices, as opposed to having bins under every desk; this improves cleaner efficiencies by reducing the number of bins that require collection and reduces the number of bin liners required. Offices with these types of systems typically achieve higher recycling rates than those with bins at desks or workstations.

Figure 2 shows examples of bin configurations commonly used in offices. Colour-coded translucent bin liners are recommended to assist cleaning staff to distinguish different materials streams and identify contamination prior to final disposal in the bins in the central storage room.

Figure 2: Four Stream Bin Configuration

11.2 Clinical Areas

Clinical areas will have receptacles for the following streams located in dirty utility rooms:

- Commingled Recycling
- General Waste
- Clinical Waste
- Sharps Waste

12 Staff & Contractor Education

An education program will be implemented for all Health Services and Seniors Housing staff, to ensure the highest possible standard of waste management and diversion resource recovery.

Tenancy leases will contain clauses outlining compliance with the development's systems, and a continuing tenant education program will be implemented on an ongoing basis throughout the development's operational phase for all tenancies. New tenants will receive detailed information on the waste management and recycling programs as part of their leasing documentation.

Specific waste management clauses will also be written into cleaning contract specifications, including requirements for cleaning staff to monitor contamination of recycling streams and condition of bins and compactor equipment, and provide HammondCare with feedback on the ongoing performance of the waste management and recycling programs.

13 Waste & Recycling Contractor Requirements

13.1 Transport & Disposal

Transport documents must describe the dangerous goods being transported, and appropriate emergency information for those goods. The ADG Code requirements commonly apply for the packing and transport of the following waste categories:

- UN 2814 (Category A Infectious Substances): Infectious substances affecting humans
- UN 3291 (Category B Infectious Substances): Infectious substances which do not meet the criteria for inclusion in Category A, which includes clinical wastes which are reasonably believed to have a low probability of containing infectious substances. (Refer to Chapter 2.6.3 of the ADG Code for further information on classification).

The SafeWork NSW factsheet *Packing and Transporting Clinical Waste* assists health services with the handling and transport of UN3291 clinical waste in accordance with Packing Instruction P62A of the ADG Code. UN 2814 waste may involve higher hazards and will need to comply with full packing and transport requirements of the ADG Code.

13.2 Servicing & Access

All collections will take place from the main Loading Dock as shown in Appendix 7. It is possible that differently sized collection vehicles may be used for collection of some additional streams; if so, the waste contractor will be responsible for notifying the Hospital in advance of any vehicles entering the site, to ensure specifications (heights and turning circles in particular) are consistent with access and height restrictions (3.5 m vertical clearance in the Loading Dock).

13.3 Further Requirements

To maintain best practice, the Hospital's waste and recycling contractor(s) will be required to demonstrate high service standards and comply with the following requirements:

- Reliable and efficient servicing, and meeting all agreed schedules
- Suitably sized collection vehicles to be able to access the loading dock
- Having collection vehicles fitted with suitable weighing technology
- Working with the Hospital to achieve improved resource recovery
- Maintaining accurate and comprehensive tracking systems for all materials collected, including hazardous and prescribed wastes
- Providing detailed monthly and annual reports on diversion and financial outcomes
- Maintaining current details of processing facilities used, and providing information on these if requested by the Hospital
- Providing detailed monthly reports on diversion and financial outcomes

These processes should be supported by an annual weight-based physical audit of all non-hazardous materials streams, to be conducted by a qualified independent third party

14 Operational Resource Recovery Targets

Specific targets for diversion of operational waste from landfill to resource recovery outcomes will form part of the contract between the development and its waste and recycling contractor(s). Using similar developments as a guide, we suggest the following targets:

Year 1: 50% diversion/resource recovery

Year 2: 55% diversion/resource recovery

Year 3: 60% diversion/resource recovery

To monitor progress towards these targets, ongoing reporting systems will be implemented as detailed in Section 15.

15 Ongoing Performance Reporting

Following implementation of the new systems, a monthly reporting system, based on the Better Buildings Partnership (BBP) *Operational Waste Guidelines*, will be instituted. This will ensure the accurate tracking of performance, continued improvement, and cost-effective waste removal.

Specific performance clauses and KPIs in waste and cleaning contracts will ensure that all parties actively participate in the resource recovery initiatives and meet regularly to resolve performance issues and identify new improvement opportunities for.

Contractors will be required to report actual volumes and tonnages by stream so that site management can monitor performance and feed this back to stakeholders.

Appendix 1: Glossary of Terms

Abbreviation/Term	Definition
Anatomical Waste	Limbs, organs, placenta, pathological specimens, biopsy specimens and body tissue taken during laboratory testing, surgery or autopsy and/or resulting from investigation or treatment of a patient.
Chemical Waste	Chemical waste generated by the use of chemicals in medical, veterinary and laboratory procedures.
Clinical Waste	(a) Human tissue waste (b) Discarded sharps (c) Laboratory waste (d) Animal waste
Commingled Recycling	Refers to a mixed container recycling stream. Typically this would include glass containers, aluminium cans, milk cartons, tins, and plastic containers. This stream does not strictly include any paper or cardboard materials however small portions of these materials are acceptable. Drinking glasses, ceramic mugs or plates, coffee cups or plastic bin liners are considered contaminants.
Contamination	Any item not designated under the contract as a recyclable.
Cytotoxic Waste	Material, which is, or may be, contaminated with a cytotoxic drug during the preparation, transport or administration of cytotoxic therapy.
General Waste	Assorted waste materials put into the recycling stream, usually characterised by being contained in plastic "garbage" bags. There may or may not be recyclable materials in the bag.
Hazardous Waste	Component of the waste stream which poses a danger to humans, the environment, equipment and physical structures.
Landfill	Land used for the burial of waste
Material Recovery Facility (MRF)	Plant and equipment for sorting and pre-processing materials from the waste stream for resource recovery.
MGB	Mobile Garbage Bin
Organic Waste	Component of the waste stream derived from living organisms.
Plastics:	
PET	Polyethylene Terephthalate. Clear, tough material that may come in different colours: used in soft drink bottles, as filling for pillows and sleeping bags and other textile fibres.
HDPE	High Density Polyethylene. Very common plastic usually white or coloured, used for milk and cream bottles, shampoo and cleaners, freezer bags and milk crates.
LDPE	A plastic material – Low Density Polyethylene, a soft flexible plastic that is made into the lids of icecream containers, garbage bags, garbage bins and black plastic sheet material.
PVC, UPVC, PPVC	Plastic materials in the polyvinyl chloride class. 1. UPVC is Unplasticised Polyvinyl Chloride which is usually made into clear cordial and juice bottles, blister packs and plumbing pipes and fittings. 2. PPVC is Plasticised Polyvinyl Chloride and is usually made up into items such as garden hose, shoe soles and blood bags and tubing.
PP	Polypropylene, a hard but flexible plastic that has many uses. Examples of uses are ice cream containers, potato crisp bags, drinking straws and hinged lunch boxes.
PS & EPS	Polystyrene 1. PS is a rigid brittle plastic that may appear clear and glassy. It is used for yoghurt containers, plastic cutlery and imitation "crystal" glassware. 2. EPS – expanded polystyrene is the white material that is made into hot drink cups, food containers, meat trays and fruit boxes.

Abbreviation/Term	Definition
Other Plastic	There is another category of plastic – Category 7 which includes all other plastics including acrylic and nylon.
Pharmaceutical Waste	Consists of pharmaceutical (drug, remedy/medicinal substance) or other chemical substance specified in the Poisons. Pharmaceutical waste, excluding cytotoxics, may arise from expired or discarded pharmaceuticals, those no longer required by patients, and waste materials/substances generated during the manufacture and administration of pharmaceuticals.
Recycled Materials	Materials recovered and manufactured into new products of the same general type (which may be manufactured from virgin recycled materials).
Recycling	Set of processes (including biological) for converting recovered materials that would otherwise be disposed of as wastes, into useful materials and or products.
Resource Recovery	Process that extracts material or energy for a useful purpose
Sharps Waste	Means any waste resulting from medical, nursing, dental, veterinary, pharmaceutical, skin penetration or other related clinical activity, and that contains instruments or devices: (a) That have sharp points or edges capable of cutting, piercing or penetrating the skin (e.g. needles, syringes with needles or surgical instruments), and (b)that are designed for such a purpose, and (c) that have the potential to cause injury or infection.
Waste	Materials and energy which have no further use and are released to the environment as a means of disposal.
Waste Generator	Any person or organisation that consumes goods and services resulting in addition to the waste stream.
Waste Management	Entire process of monitoring process of monitoring, collecting, sorting, storing and transporting for processing and reclamation of materials and energy resources and disposal of waste.

Appendix 2: Clinical Waste Stream Management

The following tables are taken from the NSW Health *Clinical and Related Waste Management for Health Services* Policy and details procedures for management of waste and recycling streams that may be generated by the development's tenants during the operational phase.

Stream	Anatomical Waste	Clinical Sharps Waste	Clinical Waste (Including Pathological Waste)
Definition	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	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	Clinical waste with the potential to cause injury, infection or offence: • 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 from an infectious patient) • Lab specimens, cultures or other waste from lab investigations • Waste from medical or veterinary research • Genetically Modified Organisms (GMOs)
Bin Colour	Yellow	Yellow	Yellow
Bin Lid Colour	Orange	Yellow	Yellow
Bin Liner	Orange	N/A	Yellow
Symbol			
Label (if GMOs present)		Contains GMOs	Contains GMOs
Specific Requirements	For incineration only	For incineration or autoclaving and shredding Sharps containers must be rigid-walled and meet the requirements specified in AS/NZS 4031 and AS/NZS 4261[4,5] Autoclave tape and bag indicators must be used to show autoclaving has been completed	For incineration or autoclaving [6] 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 All clinical waste once treated by a process acceptable to NSW Health[7] may be reclassified in accordance with the Waste Classification Guidelines[8] before recycling or disposal There are special precautions regarding disposal of waste related to cases of viral haemorrhagic fever

Stream	Anatomical Waste	Clinical Sharps Waste	Clinical Waste (Including Pathological Waste)
Relevant Act/ Regulation /Australian Standard	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers *Protection of the Environment Operations Act 1997* *Protection of the Environment Operations (Waste) Regulation 2014*	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers *Protection of the Environment Operations Act 1997* *Protection of the Environment Operations (Waste) Regulation 2014*
EPA licence requirements	No	No	No

Stream	Cytotoxic Waste	Pharmaceutical Waste	Radioactive Waste
Definition	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	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	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
Bin Colour	Purple	Red	Red
Bin Lid Colour	Purple	Red	Red
Bin Liner	Purple	N/A	Red
Labelling of Bins	Cytotoxic waste	Pharmaceutical waste	Radioactive waste plus specific requirements below
Symbol		None	
Label (if GMOs present)	Contains GMOs		

Stream	Cytotoxic Waste	Pharmaceutical Waste	Radioactive Waste
Specific Requirements	For incineration only 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 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* Pharmaceutical waste bins must be lockable	Radioactive material to be stored on- site in appropriate storage area until it decays to below the thresholds of a "radioactive substance" as defined under the Radiation Control Act and Regulation Waste is to be classified with reference to the Safety Guide for the Classification of Radioactive Waste[4] and in accordance with the EPA Waste Classification Guidelines[5] 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) Radioactive sharps When radioactive waste is to be transported, health services must comply with the Code of Practice for the Safe Transport of Radioactive Material (ARPANSA 2014)
Relevant Act & Regulation	AS/NZS 4123:2008 Mobile Waste Containers *Protection of the Environment Operations Act 1997* *Protection of the Environment Operations (Waste) Regulation 2014*	*Poisons and Therapeutic Goods Act 1966* *Poisons and Therapeutic Goods Regulation 2008*	AS/NZS 4123:2008 Mobile Waste Containers *Radiation Control Act 1990* *Radiation Control Regulation 2013*
EPA Licence Requirements	No	No	Yes - Waste Classification Guidelines Part 3: Waste containing radioactive material (EPA, 2014)

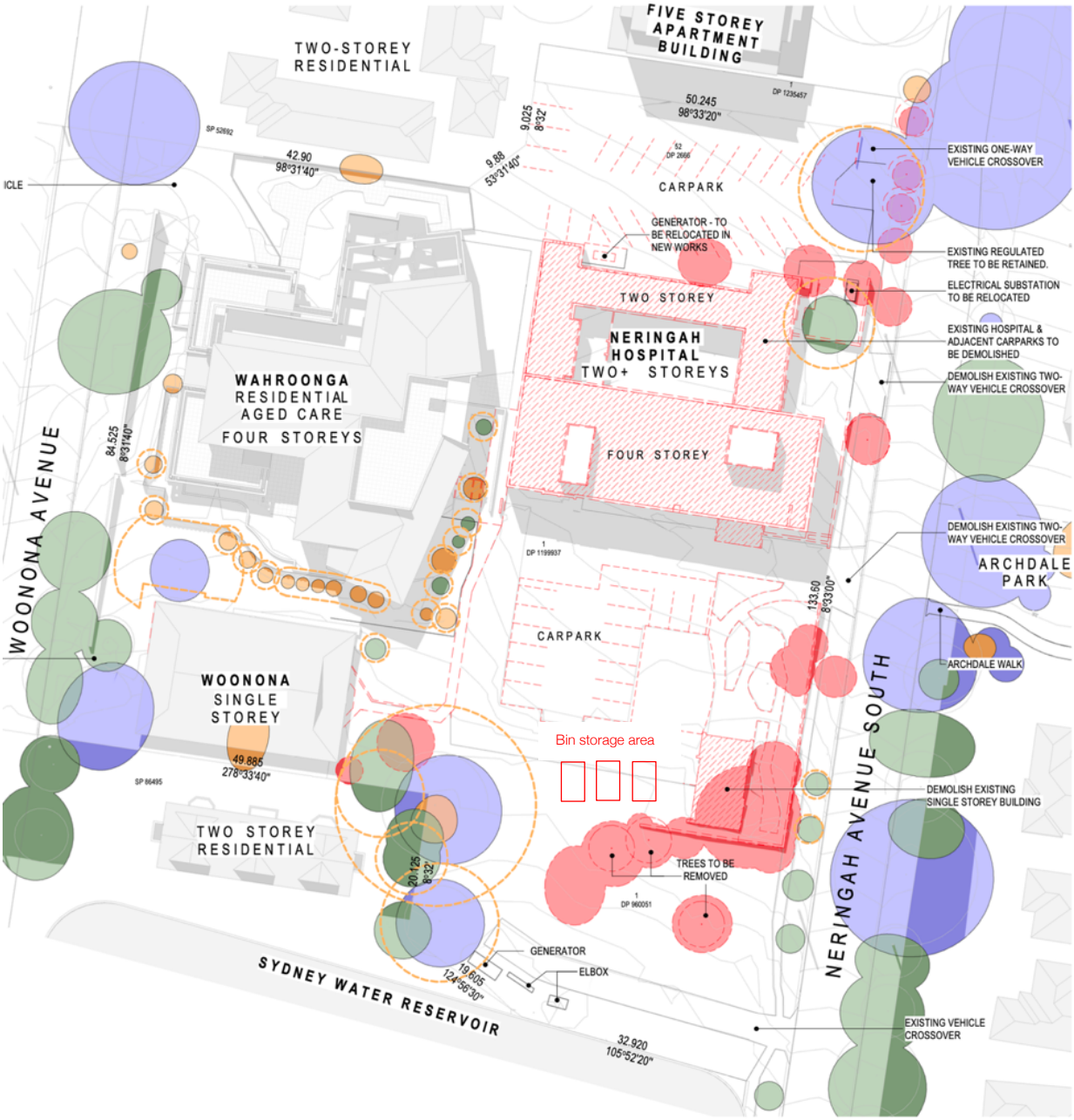
Appendix 3: Signage Examples - Hazardous Waste

The examples below are for illustration purposes only.

Appendix 4: Signage Examples - Internal & Loading Dock

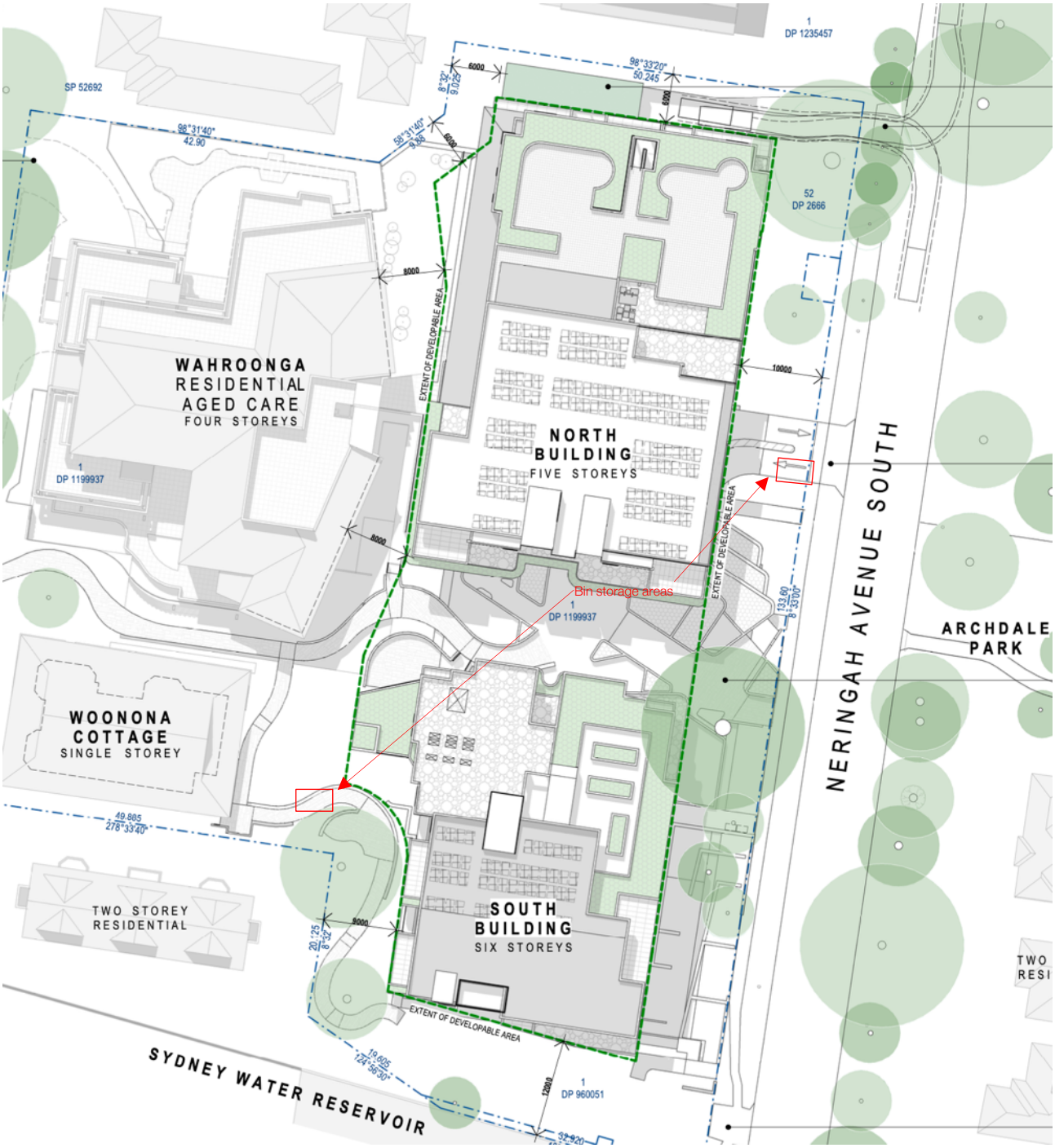
Appendix 5: Site Demolition Plans

The drawing below shows existing structures on site to be demolished. The proposed bin storage area for demolition waste is situated to the south of the existing carpark.



Appendix 6: Site Construction Plans

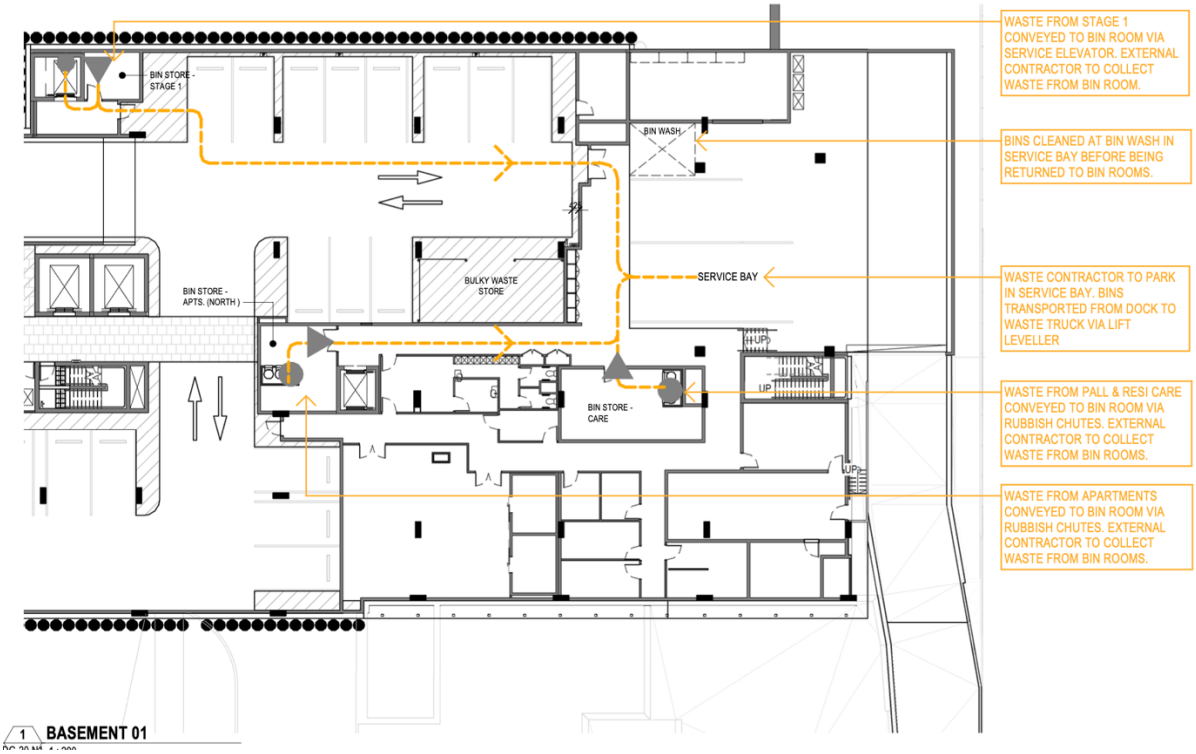
The drawing below shows the development's construction stage (North and South buildings, landscaping, and public domain works) and proposed bin storage areas.

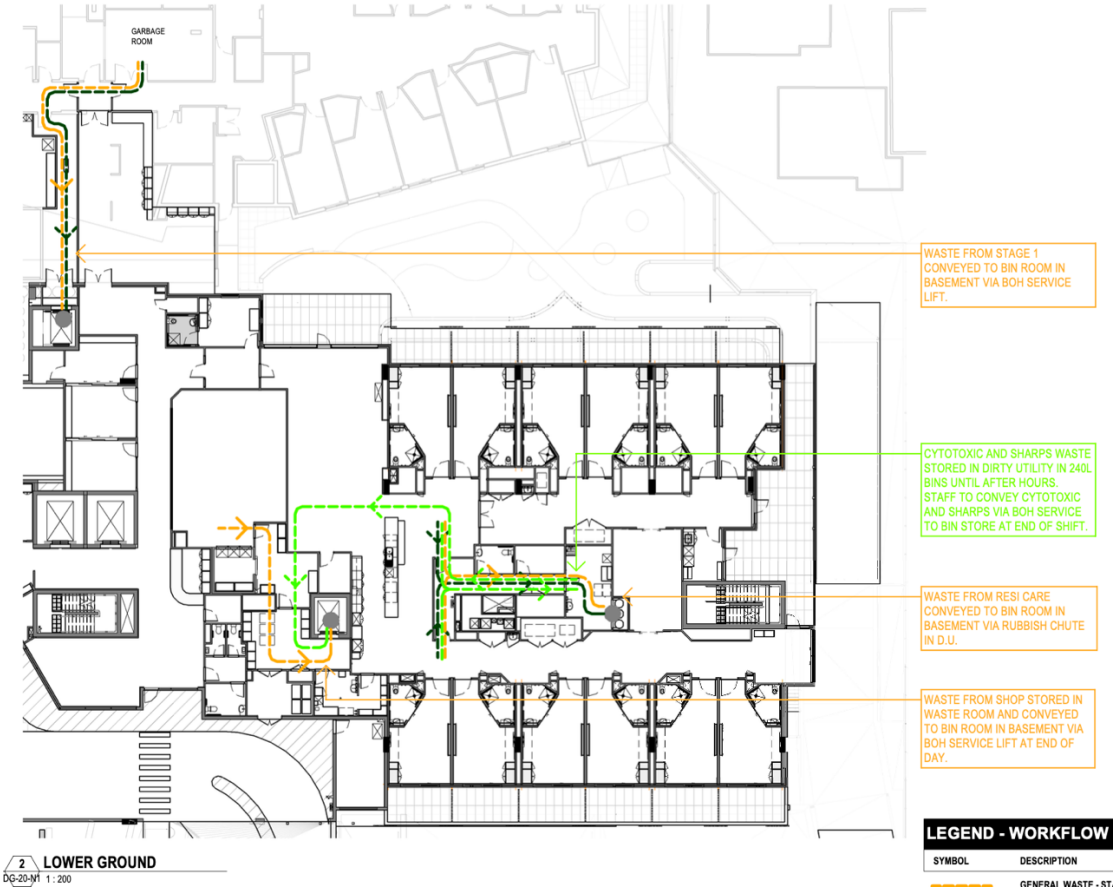


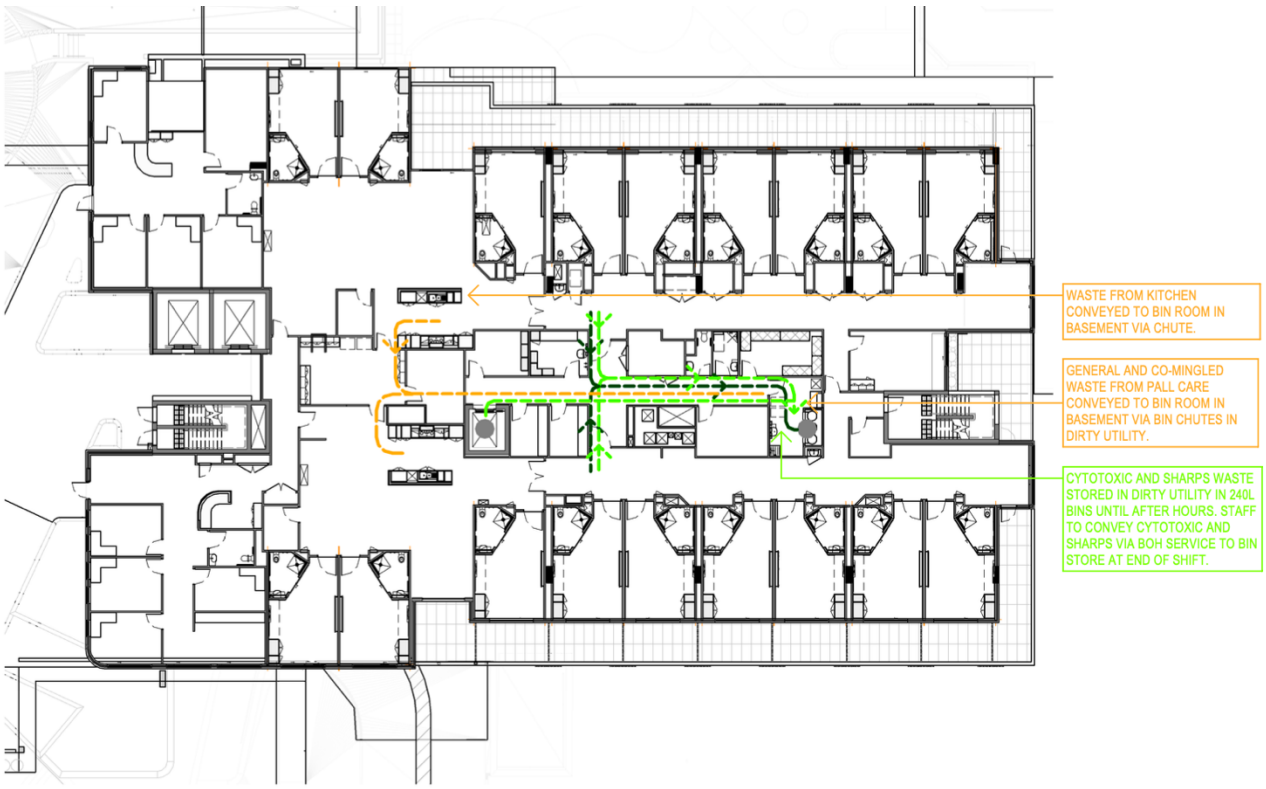
Appendix 7: Materials Movement, Storage, & Collection

The following diagrams show waste management workflows and storage areas for the development's North and South buildings respectively:

North Building



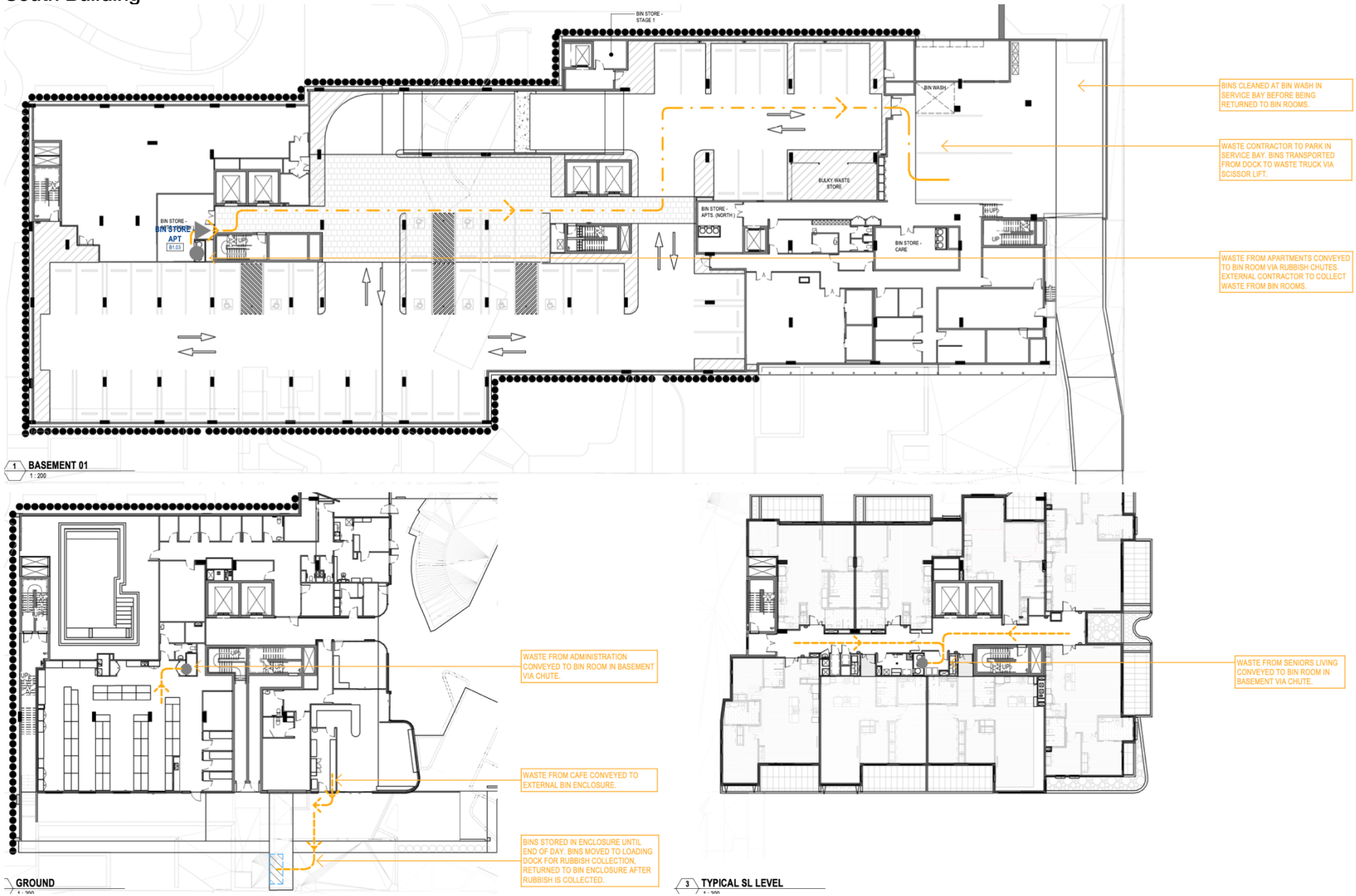




3 GROUND
XG-20-M1 1 : 200

4 TYPICAL SL LEVEL
1 : 200

South Building



Appendix 8: Council Waste Management Controls

The relevant sections of the Ku-ring-gai Development Control Plan (*Section C Part 23.7 Waste Management & Minimisation*) pertaining to the design of waste storage facilities and management of operational waste are reproduced below.

23.7 WASTE MANAGEMENT

Objectives

1 *To enable efficient, effective and sustainable waste management practices.*

2 *To ensure waste collection and storage within the site that does not affect the amenity of residents with regard to odour, visual appearance or noise disturbance.*

3 *To ensure waste and recycling storage areas are designed and constructed to meet the requirements of the building's use and its occupants.*

4 *To ensure design and management of waste and recycling facilities protect public health.*

Controls

General

1 All waste and recycling facilities must comply with the BCA and all relevant Australian Standards.

2 All waste and recycling storage containers must be stored within the boundary of the subject site.

3 All putrescible and non-putrescible waste materials stored in any waste and recycling room or at centralised collection points must be contained in approved rigid containers supplied by the Council.

4 During the design of the development, waste must be minimised by:

i) using recycled materials, selecting materials that reduce waste or do not require disposal, or can be reused or recycled in the future; and

ii) designing with minimal site disturbance by avoiding unnecessary excavation or fill.

5 No compaction equipment is to be used for any sized bin.

Storage Room

6 Sufficient space must be provided within the premises for the storage and manoeuvring of the number of bins required to store the volume of waste and recycling materials.

7 Sufficient space must be provided to adequately house any additional equipment to handle or manage the waste generated.

8 For buildings exceeding four (4) storeys which contain a residential component; where a chute system is proposed, a fully enclosed waste and recycling materials compartment must be provided within each storey of the building. The facility must be designed to contain the waste chute hopper and the number of recycling storage bins equivalent to 2 x 240 litre bins for every 4 units per storey.

Access to collection point

This section does not apply to residential developments of 4 dwellings or less, which do not have an internal collection point.

9 The location of the waste and recycling room must be conveniently accessible and have unimpeded access for both occupants and collection service operators. In the event that the proposed development is protected by a security system and/or locked gates, the waste and recycling room/s must have unimpeded access for the collection service providers. Where security gates are provided to the development, gates must be accessible by Council's master key.

10 The waste and recycling collection point must be located on a level surface away from gradients and vehicle ramps, with the path of travel being free from any floor obstructions such as steps to allow for the transfer of wheelie bins to and from the storage room to the collection vehicle.

23.7 WASTE MANAGEMENT (continued)

Controls

11 The vehicle access road leading to and from the collection point in a waste and recycling room must have a minimum finished floor to ceiling height of 2.6m for residential waste rooms and 4.5m for commercial waste rooms for the entire length of travel within the building. This clearance is to be kept free of any overhead conduits, ducting, services or other obstructions.

12 The Waste Management Plan (WMP) must describe how the waste management system is to be managed and who is responsible for each stage of the process. (Refer to Waste Management Plan, *23R.8 of this Part*)

Construction of waste and recycling rooms

13 The floor of any waste and recycling room must be:

i) constructed of either concrete which is at least 75mm thick; or other equivalent material; and

ii) graded and drained to a floor waste which is connected to the sewer.

14 The walls of any waste room, recycling room and waste service compartment are to be constructed of solid impervious material and shall be cement rendered internally to a smooth even surface coved at all intersections.

15 All waste and recycling rooms must be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock. This does not include waste and recycling service compartments located on residential floors of multi-occupancy dwellings.

Note: This control is to aid in cleaning of the area.

16 A close-fitting and self-closing door that can be opened from within the room must be fitted to all waste and recycling rooms.

17 In the event that Council permits the installation of a roller shutter door (under special circumstance only), a sign must be erected in a conspicuous position drawing attention to the fact the door must be kept closed at all times when not in use.

18 All waste and recycling rooms must be constructed to prevent the entry of vermin (eg. no gaps under access doors etc).

19 All waste and recycling rooms must be ventilated by either:

i) mechanical ventilation system exhausting at a rate of 5L/s per m^2 of floor area, with a minimum rate of 100L/s; or

ii) permanent, unobstructed natural ventilation openings direct to the building exterior, not less than one-twentieth (1/20th) of the floor area.

Controls

20 Meters and piping are not to be located in the waste and recycling room.

21 All waste and recycling rooms must be provided with artificial light controlled by switches located both outside and inside the rooms.

22 Clearly printed “NO STANDING” signs must be affixed to the external face of each waste and recycling room.

23 Clearly printed signage must be affixed in all communal waste collection and storage areas, specifying which materials are acceptable in the recycling system and identifying the location of waste and recycling storage areas, as well as waste and recycling service compartments.

24 Waste management systems must not be visible from outside the building. Where this is unavoidable and Council is in agreement, it must be designed to be consistent with the overall appearance of the development.

Mixed Use Buildings

45 In a mixed use development, the waste handling, storage and collection system from residential waste and commercial waste must be completely separate and self-contained.

46 There must be at least two separate centralised waste and recycling storage areas, one for residential waste and one for commercial. The WMP shall identify the collection points and management systems for both residential and commercial waste streams.

47 An area must be nominated on relevant plans for on-site composting and/or worm farm if the proposal has a residential component.

48 Where there is a residential component, any new dwellings must be designed so as to allow the internal accommodation of one receptacle to collect waste and another to collect recyclable materials, each with the capacity to store one day’s worth of materials.

49 Buildings must have a dedicated and enclosed waste and recycling room(s) which has adequate storage area to meet the generation rates (refer to *23R.10 of this Part*).

50 Centralised collection points are to be provided, directly accessible from the street/rear lane and/or the internal road. Collection points must be located a minimum of 12m from any openable window. One collection point is to serve a maximum of 6 units.

51 Where on site collection points are provided, the full path of travel to and from the collection points is to be designed to allow an appropriately sized rigid vehicle to enter and exit the development in a forward position. The design and location of the waste and recycling room must allow for adequate access for the relevant vehicle size, including manoeuvring and loading.

Note: Standard sizes include a 6m rigid vehicle, weighing GVM 7 tonnes and an 11m rigid vehicle, weighing GVM of 22 tonnes. The size will be dependent on the the intended usage and quantity of waste generated by the development type. Consultation with Council's waste section early in the design phase to ascertain the relevant vehicle size is strongly recommended.

52 A path shall be established for wheeling bins to the collection point; it must be level and free of steps or kerbs.

53 The size and design of the waste and recycling rooms must be based on the following criteria:

i) the proposed and potential land use of the building;

ii) the floor area of the building;

iii) the number of separate occupancies contained within the development;

iv) waste and recycling generation rates associated with the land use;

v) type and amount of waste/recycling to be produced;

vi) the number and sizes of bins required to contain waste/recycling materials likely to be generated during the period between collections; and

vii) the size and design of the waste/recycling storage is to allow for future changes of use.

55 For recycling materials, clinical, medical or liquid waste, the design must reflect the separate storage, operation and management of these waste materials within the development.

56 In the event of the generation of:

i) more than 1.5m^3 per day of food waste, other than unprocessed or uncooked fruit and vegetables; or

ii) organic veterinary or medical waste;

stored waste must be refrigerated unless collected daily.

57 Where refrigeration is required:

i) the temperature must be maintained at or below 5°C;

ii) all refrigeration equipment must be installed with sufficient space for cleaning both the equipment and the storage area;

iii) the floors walls and ceiling of the refrigerated waste room must be constructed of a smooth impervious material and coved at all intersections;

iv) the floor of the refrigerated waste room must be graded to the doorway and a floor waste, designed in accordance with Sydney Water guidelines, shall be located outside the room as close as practicable to the doorway; and

v) noise attenuation measures must be put in place to ensure that the noise generated by the refrigeration equipment associated with the waste and recycling room shall not give rise to "offensive noise" as defined under the *Protection of the Environment Operations Act 1997*.

58 In circumstances involving the use of baling equipment for paper and cardboard, sufficient area must be provided for the storage of a minimum of four (4) bales without impacting on the access and service conditions for collection materials for each day.

59 Where liquid wastes such as oils are generated by the business, a separate bunded storage area for these wastes must be provided with drainage directed to a grease trap. The bunded area is to be weather protected and have a capacity not less than 20% of the storage contents to contain any spill.

Note: Liquid waste from grease traps must only be removed by licensed waste contractors approved by Sydney Water Corporation and the NSW Environment Protection Authority.

60 Any construction for food premises must be in accordance with the 'National Code for the Construction and Fit-out of Food Premises'

Note: Contact Council for a copy of this Code and advice on the construction of food premises.

61 For retail premises, light industry, hospitals, residential care facilities, a waste service compartment must:

i) be provided on each storey of the building;

ii) have the capacity to store at least one day's volume of waste and recycling likely to be generated on that floor; and

iii) provide for the separation of paper and cardboard for recycling on each storey.

62 If more than $10m^3$ of waste and recycling is likely to be generated per day, then the central waste and recycling room must be separate from the goods receival dock.

63 Separate space and collection arrangements must be made for clinical/hazardous waste.

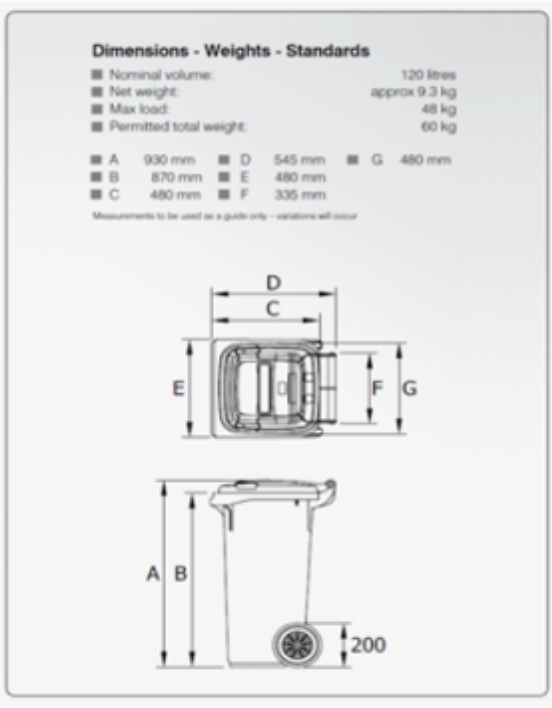
64 For offices, provision must be made on each floor and in the central waste and recycling storage area, for the separation and storage of all recyclable materials such as cardboard, paper and paper products likely to arise on the premises.

65 Easement waste collection must be in accordance with terms in 24R.8 of this DCP.

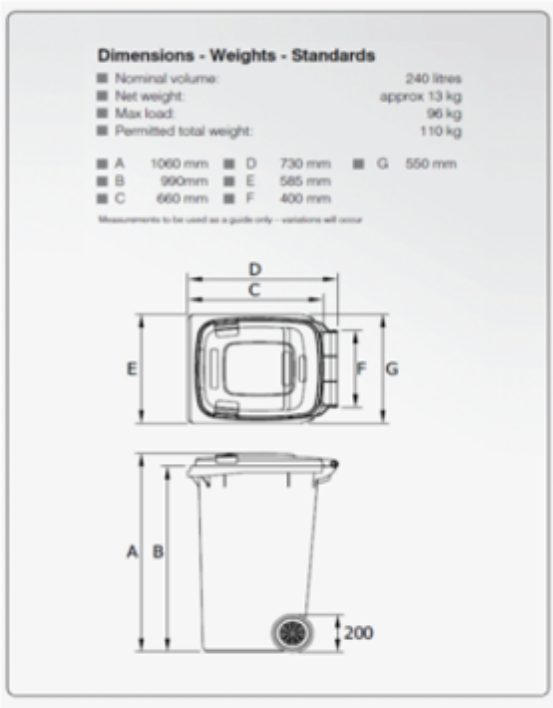
Appendix 9: Waste Management Bins & Equipment

The dimensions shown below are indicative only and may vary from those provided by the development's contractor.

120-litre MGB



240-litre MGB



660-litre MGB

1100-litre MGB

Bin Movers and Tugs

Waste Oil Recycling Equipment