Waste Management Plan

November 2009

The University of Sydney -
Centre for Obesity, Diabetes and Cardiovascular Disease (CODCD)

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1. Introduction

The University of Sydney (UoS) proposes to construct a new purpose built Centre for Obesity, Diabetes and Cardiovascular Disease (CODCD) at their Camperdown Campus. This Waste Management Plan (WMP) will address the operational phase of the CODCD. The construction waste management plan will be developed by the building contractor at the construction phase of the development.

This WMP was developed in accordance with the *Council of the City of Sydney's Policy for Waste Minimisation in new developments*. Also due to the fact that the CODCD is a medical research facility all waste management should comply with AS/NS 3816:1998, *Management of Clinical and Related Wastes*. The University of Sydney's Design Brief Version 2 was also referenced throughout the WMP.

The proposed development consists of the construction of a new seven storey CODCD containing:

- A new purpose built medical laboratory and research facility, office and administration, areas, lecture theatre and classrooms and animal storage and handling area;
- The Centre will have a gross floor area of approximately 44,737 sqm and accommodate a population 1,075 researchers, students and support staff; and
- Basement level loading dock.

The design methodology used for the development of the waste management system by Hassell and Visy Recycling under instruction from UoS has involved three key elements: risk avoidance, operational efficiency and waste minimisation for design with flexibility designed in to the system for future demands.

The purpose of the WMP is to provide advice of measures that should be taken to achieve the following objectives:

- To avoid unnecessary waste generation;
- To ensure efficient management of waste and recyclable material;
- To ensure waste systems are easy to use and waste and recycling is able to removed safely and easily; and
- To ensure that the waste management procedures comply with any development codes or policies and health and safety and environmental requirements.

This WMP is aimed at assisting in the achievement of the NSW Government's WARR 2007 waste minimisation targets of an increase in the recovery and use of materials from the commercial and industrial waste, from 28% (in 2000) to 63% by 2014. The location of the waste and recycling storage areas next to the loading bay area of the building are appropriately situated and do not impact negatively on the occupants of the CODCD. Through the provision of 7 days a week access to the waste and recycling providers and a well maintained and continually updated schedule and runsheet for collections the waste and recycling streams will be effectively collected and managed.

The following set of items will ensure the on-going management of the waste and recycling within the CODCD:

1. Installation of an easily accessible and easy to use waste and recycling bins which have highly visible labelling.
2. The lease conditions of tenants and contracts with cleaners and building managers will stipulate that they have to actively encourage staff participation in recycling programs. The 63% recovery and use material rate by 2014 will be benchmarked for each year and targets set. Incentives will be included in the contracts to further encourage effective recycling behaviour.
3. The foundation of a Waste Minimisation Committee will provide strategy and management guidance for the Waste Manager, cleaners, office and laboratory occupants and waste contractors.
4. Education programs will be initially completed on occupancy and then targeted education programs completed after the analysis of auditing data.
5. Random auditing of waste and recycling streams will be completed on a quarterly basis. The auditing plan will be completed by waste and recycling contractors in partnership with cleaners and building management. The achieved performances will be relayed to each tenant, cleaners, and building manager with new targets being set after consultation.

Each waste stream of the CODCD will be examined individually within this WMP; however the waste management process involves effective coordination between streams, locations and users. It is likely that due to the nature of the CODCD there will be wide range of different waste streams with varying requirements. Therefore the WMP will reflect the CODCD's complex nature.

All data and calculations are based on information provide by The University of Sydney, Hassell Architects and industry standards. Calculations have been made using the advice from The University of Sydney and where available using the typical waste generation rate information provided by the Council of the City of Sydney.

All waste management facilities and equipment are to be designed and constructed in compliance with Council of the City of Sydney's Policy for Waste Minimisation in new developments, BCA, Australian Standards and Statutory requirements.

It is recommended that a waste management review should be undertaken when the CODCD is operating at reasonable level of occupancy. This is to ensure that bins are located in correct locations, the bin capacities are allowing for effective transport, storage and collection and the cleaners, laboratory staff and waste contractors are able to work within the parameters outlined within this WMP.

2. Waste Streams

The identification of waste streams is based on information provided by The University of Sydney. However, it must also be recognised that the waste and recycling generation will be influenced by the CODCD waste management procedures and attitudes of occupants. Therefore, the management of waste needs to be able to accommodate for variations to the expected waste streams and generation rates.

There are three different operational areas that will be to divide the CODCD into manageable sections these are:

1. Research Areas
2. Teaching Areas
3. Support Areas

There have been a number of different waste and recycling streams identified within the CODCD, it has been identified that there will be normal office generated general waste and recycling, but also a wide range of hazardous and non-hazardous waste from the laboratories. The likely waste streams include:

- General Waste (Recyclable material (glass, plastic and metal) apart from paper and cardboard is to be placed in the general waste bins in the CODCD and separated from general waste offsite);
- Recyclable waste (only paper and cardboard);
- Confidential waste;
- Hazardous waste;
- Chemical waste;
- Clinical and related waste
    - General clinical waste
    - Recognisable human tissue
    - Cytotoxic waste
    - Animal carcasses
    - Bedding waste
- Radioactive waste
- Sharps waste
- Compressed gas cylinders waste

The specific details for each waste stream will be covered in Section 4: Waste Generation Rates, Flows and Collection.

3. Waste Generation Areas, Equipment and Waste Storage Areas

There are several well defined operational areas within the CODCD and depending on their operational activities they will generate one or more of the waste streams in the previous section. The waste generation area, equipment and storage areas for each waste stream are indicated below in Table 1.

The cleaners will not clean laboratories without supervision. The cleaners will under take general cleaning, which is emptying of general waste and recyclable waste bins. Laboratory staff will be required to transfer and dispose or contaminated and toxic waste. The waste storage areas will all be located within close proximity to CODCD Loading Dock Area. View Hassell's drawings for reference.

Table 1: Waste Streams from CODCD

Waste Stream	Equipment / Bin Colour	Waste Generation Area/s	Storage Area
General Waste	Varying sized bins throughout the facility. Some bins will remain in place with waste transferred to another larger bin for transport to storage area. There will also be a bin exchange system for restrooms and larger bins. **Clear or Dark Green Bags. Dark Green or Black Bin Body with Red Lid.**	1. Research areas. 2. Teaching Areas 3. Support Areas	General Waste Collection Area by cleaners
Recyclable Waste (Paper and Cardboard)	Paper and cardboard can be placed directly into 240L bins located strategically around office or there maybe the utilisation of floor / desk boxes with the transfer of material to larger bins by cleaners. **Dark Green or Black Bin Body with Blue Lid.**	1. Research areas. 2. Teaching Areas 3. Support Areas	Recyclable Waste Collection Point by cleaners
Confidential Waste	Documents are either placed in confidential waste (document destruction) 240L bins or shredded by UoS. Bins will have a lock system installed. **Blue Bin Body with Blue Lid**	Bins will be located in areas that generate confidential documents. 1. Research areas. 2. Teaching Areas 3. Support Areas	Collected by contractor from point of generation

Waste Stream	Equipment / Bin Colour	Waste Generation Area/s	Storage Area
Hazardous Waste	Hazardous Waste will operate on an exchange system. The type of system will depend on Class and Division. **It will be collected in approved dangerous good drums available from UoC OH&S.**	1. Research areas. 2. Teaching Areas 3. Support Areas	Appropriate collection point in the Central Waste Collection Area by laboratory staff.
]Chemical Waste	Research staff will transfer hazardous chemical waste.	1. Research areas. 2. Teaching Areas 3. Support Areas	Central Chemical Waste Collection Room by laboratory staff.
General Clinical Waste	Autoclaved. Transport of clinical and biological waste is to be in accordance with UoS OH&S policy. Waste to be bagged. There will be storage space for 80 General Clinical Waste Bins of 120L capacity – 40 empty and 40 full at anyone time. **Yellow Bags.** **Yellow Bin Body with Yellow Lid**	1. Research areas. 2. Teaching Areas 3. Support Areas	Clinical Waste Collection Room by laboratory staff.
Recognisable Human Tissue (Anatomical Clinical Waste)	Autoclaved. There will be storage space for 14 Anatomical Clinical Waste Bins of 120L capacity – 7 empty and 7 full at anyone time. **Yellow Bags.** **Yellow Bin Body with Orange Lid**	1. Research areas. 2. Teaching Areas	Clinical Waste Collection Room by laboratory staff.
Cytotoxic Waste	Placed in purple cytotoxic bags or sharps bins before purple Cytotoxic bins. Researchers to move bins just before notified date of contractor removal. There will be storage space for 14 Anatomical Clinical Waste Bins of 120L capacity – 7 empty and 7 full at anyone	1. Research areas. 2. Teaching Areas	Clinical Waste Disposal Room (segregated area for Cytotoxic Waste) by laboratory staff.

Waste Stream	Equipment / Bin Colour	Waste Generation Area/s	Storage Area
Cytotoxic Waste cont.	time. **Purple Bin Body with Purple Lid**		
Animal Carcasses	Placed in Anatomical Clinical Waste Bins. **Yellow Bin Body with Orange Lid**	1. Research areas. 2. Teaching Areas	1. Either transported to Vet Science incinerator or 2. Stored in chest freezer in cold room of Central Waste Collection Area until incineration. Both by laboratory staff.
Bedding Waste	Non infectious material double bagged in black bags and then placed in General Waste Bins. Potentially Infectious material autoclaved. **Dark Green or Black Bin Body with Red Lid.**	1. Research areas. 2. Teaching Areas	Non infectious Bedding Waste held in General Waste Collection Area Potentially infectious Bedding Waste held Bedding Waste Holding Room by laboratory staff.
Radioactive Waste	Only radioactive waste lower than 100 Becquerals per gram to be disposed of from CODCD. Liquid and Solid waste to be packaged in accordance with UoS OH&S policy and placed in approved dangerous goods containers. **Red Bin Body with Red Lid**	1. Research areas. 2. Teaching Areas	Solid and Liquid waste under 100 Becquerels per gram to be disposed of in Chemical Waste Collection Room by laboratory staff. Waste of more than 100 Becquerels per gram to be held in Radioactive Holding Room pending decay
Sharps	A. Biological contaminated sharps placed in **Yellow Sharps Container** and then **Yellow Lidded Clinical Waste Bin.** B. Chemically contaminated sharps placed in **Yellow Sharps Container** and then disposed of as chemical waste. C. Cytotoxic Contaminated	1. Research areas. 2. Teaching Areas 3. Support Areas	A. Clinical Waste Collection Room B. Central Chemical Waste Collection Room C. Clinical Waste Disposal Room (segregated area for Cytotoxic Waste) D. Solid and Liquid waste under 100

Waste Stream	Equipment / Bin Colour	Waste Generation Area/s	Storage Area
Sharps cont.	sharps placed in **Purple Cytotoxic Sharps Container** and then **Purple Cytotoxic Clinical Waste Bin** D. Radioactive contaminated sharps to be place in **Yellow Sharps Container** and then disposed of as radioactive waste.		Becquerels per gram to be disposed of in Chemical Waste Collection Room by laboratory staff.. Waste of more than 100 Becquerels per gram to be held in Radioactive Holding Room pending decay
Compressed Gas Cylinder Waste	Empty Gas Cylinders transported to Gas Cylinder Collection Room	1. Research areas. 2. Teaching Areas 3. Support Areas	Gas Cylinder Collection Room by laboratory staff.

Several documents were used to compile this table, these include: CODCD Design Brief and *AS4123.7 – 2006 Mobile Waste Containers. Part 7: Colours, markings, and designation requirements.* It is also recommended that the CODCD occupants ensure that all waste generated onsite is classified by using the NSW DECCW's *Waste Classification Guidelines. Part 1: Classifying Waste.*

Additional Waste Streams that have not been identified by the University of Sydney but are likely to be generated in the CODCD are shown in table 2.

Table 2: Additional Waste from CODCD

Waste Stream	Equipment / Bin Colour	Waste Generation Area/s	Storage Area
Feminine Hygiene waste	Bins supplied by contractor	Female Toilets	Contractor will collect from point of generation
Printer Toner Cartridges	Bins supplied by contractor	Office and Administration Areas	Contractor will collect from point of generation

The Waste Generation Flows, Rates and Collection will be outlined in the following section.

4. Waste Generation Flows, Rates and Collection

4.1 Waste Flows

The following information outlines the flow of each waste stream from generation to transfer to storage and then collection & disposal. The information has been taken from the University of Sydney's *Design Brief Vol 2 – Operational Control Requirements: Section 11 Waste Handling*.

General Waste

General Waste will be generated in offices, labs, teaching rooms, kitchens & cafes, store & plant rooms and public places spaces. It must be noted that the University of Sydney does not provide a separate collection for recyclable commingled containers (Glass, Plastic and Metal containers). This material is to be placed in the General Waste stream and will be separated off-site by the waste contractor.

It is suggested that shared bins are located in areas accessible by suitable walking distance to as many occupants as possible. Depending on the location the bins, sizes may include: 30L, 60L, 120L or 240L. These bins will be bagged. The cleaners will empty the smaller bins into either a 120L or 240L bin for transported to the General Waste Collection Area. The General Waste and Collection Area will contain either 660L or 1100L bins which the 120L or 240L bins will then be emptied into because of storage requirements.

Recyclable Waste

Recyclable Waste (Paper and Cardboard) will be generated in offices, labs, teaching rooms, kitchens & cafes and store & plant rooms. It is suggested that shared bins are located in areas accessible by suitable walking distance to as many occupants as possible. Depending on the location the bins, sizes may include: 30L, 60L, 120L or 240L. The cleaners will empty the smaller bins into either a 120L or 240L bin for transported to the Recyclable Waste Collection Point. The Recyclable Waste Collection Point will contain either 660L or 1100L bins which the 120L or 240L bins will then be emptied into because of storage requirements.

Hazardous Waste

Hazardous Waste will operate on an exchange system, whereby lab staff transport full waste bins of a particular type to the appropriate collection point in the Central Collection Area, deposit the full bins as directed, then collect an empty bin of the same type to return to their laboratory. The empty bin area needs to be separated by distance from the full bin area.

Collection of hazardous waste from the CODCD will be managed by the University's OHS and Injury Management Office in conjunction with the CODCD Waste Manager. Disposal protocols for various types of hazardous waste are detailed in the following sections.

Chemical Waste

Non-hazardous liquid material can be discarded directly from labs into a sewer. Research staff will transfer hazardous chemical waste to a central Chemical Waste Collection Room, located adjacent to

the Dangerous Goods Storage Area. The Chemical Waste Collection Room will be managed by the Waste Manager.

The Chemical Waste Collection Room will be bunded and explosion-proof. It shall also allow for separation of waste streams, using cabinets to isolate different classes of chemicals in accordance with AS/NZS 2243.10:2004 Safety in laboratories - Storage of chemicals. It is recommended that the design team involve an explosives consultant in the design of the Chemical Waste Collection Room. The Chemical Waste Collection Room will be secured using the CODCD's electronic access card system. Hazardous waste will be collected in approved dangerous goods drums available from UoS OH&S6, or as supplied in its original packaging. UoS's chemical waste contractor will collect the waste from the chemical waste collection room and remove to an off-site location for disposal.

Clinical and Related Waste

There will be an internal Clinical Waste Collection Room with direct access to a central decontamination area to perform pressure steam sterilisation. The collection room shall allow for physical separation of different types of waste in accordance with AS/NZS 3816:1998 Management of clinical and related wastes. The Clinical Waste Collection Room will be secured using the CODCD's electronic access card system.

When transporting clinical and biological waste to centralised decontamination areas, the waste shall be contained in accordance with UoS OH&S policy. Circulation routes between the point at which the waste is generated and the point at which it is decontaminated and disposed of must be as discreet and direct as possible.

A Clinical waste store, segregated into several types of clinical waste in accordance with Vol 2 Operational Requirements, and also containing a Clinical waste -4ºC Cold Room, which in turn contains a -20ºC freezer.

General Clinical Waste

Unidentifiable human tissue shall be steam sterilised, then bagged and placed in yellow-lid Clinical Waste bins provided by UoS OH&S. Laboratory waste potentially containing live micro-organisms must also be sterilised. Solid contaminated waste shall be sterilised by pressure steam sterilisation in the central decontamination area, bagged, then disposed of in general waste bins. Liquid contaminated waste shall be treated with a chemical disinfectant, then disposed to sewer. If proposed volumes of sterilised liquid waste is large or ongoing (e.g. more than 20 litres per week, per laboratory), approval must be sought from Sydney Water prior to commencing the proposed process and an internal sump will be required to allow separation before entry to sewer. The collection room will require storage space for 80 general Clinical Waste bins of 120 litres capacity – 40 empty, and 40 full.

Recognisable human tissue (Anatomical Clinical Waste)

Identifiable human tissue shall be sterilised by pressure steam sterilisation in the central decontamination area before being bagged and placed in orange lid Anatomical Clinical Waste bins provided by UoS OH&S. The collection room will require storage space for 14 Anatomical Clinical Waste bins of 120 litres capacity – 7 empty, and 7 full.

Cytotoxic Waste

Cytotoxic waste, including prion waste and animal waste/bedding that may have come into contact with cytotoxic materials, shall be disposed of in purple cytotoxic bags/sharps bins before being disposed of in purple Cytotoxic Waste bins. Prions shall be steam sterilised before being disposed of in a cytotoxic bin. Cytotoxic Waste bins will be contained in the laboratories until immediately before the notified date of contractor removal, to limit the duration of centralised holding. Researchers generating the waste will transport the cytotoxic waste bins to the Clinical Waste Disposal Room, and deposit them in the segregated area for cytotoxic waste. The collection room will require storage space for 14 Cytotoxic Waste bins of 120 litres capacity – 7 empty, and 7 full.

Animal Carcasses

Animal carcasses not contaminated with micro-organisms are transported to the Vet Science incinerator by laboratory staff, in orange-lid Anatomical Clinical Waste bins provided by UoS OH&S. Small animals must be placed in black plastic bags. Large animals may be placed directly in the bin. Animal carcasses contaminated with micro-organisms shall be sterilised in the central decontamination area, before being bagged, placed in orange-lid Anatomical Clinical Waste bins provided by UoS OH&S and transported to the Vet Science incinerator. Genetically modified biological material must be similarly autoclaved and incinerated. All animal carcasses that cannot be incinerated in a timely manner will be placed inside the chest freezer in the cold room of the Central Waste Collection area. Alternative operational policies for handling of animal carcasses (and bedding waste – see below) will need to be developed should further stages of the Life Sciences Research Precinct result in the decommissioning of the Vet Science incinerator.

Animal Bedding

Animal bedding materials that pose no significant disease risk to humans or animals may be placed into general waste bins provided they are double bagged in strong black plastic bags. Potentially infectious animal bedding materials will be autoclaved in the BSU, double-bagged in strong black plastic bags, and stored in the Bedding Waste Holding Room, from where it will be transported to the Vet Science incinerator.

Radioactive Waste

Radioactive waste will only be accepted for disposal if the specific activity of the waste is certified as being less than 100 Becquerels per gram. The University's policy is that waste exceeding 100 Becquerels per gram must be stored locally pending decay. Radioactive waste of less than 100 Becquerels per gram will be disposed of as follows:

- Liquid waste: packaged in accordance with UoS OH&S policy and disposed of in approved dangerous goods drums in the Chemical Waste Collection Room.
- Solid waste: packaged in accordance with UoS OH&S policy and disposed of in approved dangerous goods containers in the ChemicalWaste Collection Room.

The CODCD will uphold a policy that risk assessments are to be conducted before every experiment. In the context of experiments involving radioactive materials, the assessment will determine whether there is any feasible alternative that avoids or minimises the use of radioactive material. Thus, it is anticipated that most CODCD researchers will adjust their experiments to comply with the radioactive waste disposal limit. However, a small Radioactive Waste Holding room for waste of more than 100

Becquerels per gram will be provided as a contingency. The Radioactive Waste Holding room will be suitable shielded and large enough to accommodate a standard chest freezer to hold radioactive animal carcasses for periods of up to 3 years. The Radioactive Waste Holding Room will only be accessible to authorised personnel via electronic access card.

Sharps Waste

Sharps shall be collected in an appropriately identified sharps container. Full containers shall be sealed and dealt with as follows:

- Biologically contaminated sharps must be placed in a yellow Sharps Container. When full, the sharps container must be sealed and placed in a yellow-lid Clinical Waste Bin for disposal. Decontamination is not required.
- Chemically contaminated sharps must be placed in a yellow Sharps Container and disposed of as chemical waste.
- Sharps contaminated with cytotoxic materials must be placed into a Purple Cytotoxic Sharps Container. When full, the Sharps Container must be sealed and placed into a purple Cytotoxic Clinical Waste Bin for disposal.
- Sharps containers contaminated with radioactive materials shall be placed in yellow Sharps Containers and disposed of as radioactive waste.

Compressed Gas Cylinder Waste

Used compressed gas cylinders shall be transported by CODCD laboratory staff to a Gas Cylinder Collection Room adjacent to the delivery dock, from where they will be collected by the gas manufacturer. The Gas Cylinder Collection Room will be secured using the CODCD's electronic access card system. Toxic and flammable gas cylinders, even if considered empty, shall be transported to the Gas Cylinder Collection Room via the dangerous goods hoist.

4.2 Waste Generation Rates

The waste streams shown above will require storage until collection occurs. Therefore it is important to define the expected waste generation rates so that the storage requirements can be calculated and factored into design. Visy Recycling has been instructed that there will be two cafes located within the CODCD, which take up 370m^2. The CODCD has been divided into three areas for easy of calculations, these include:

1. Research, which are
    a. 10,982 m^2 Wet Research laboratories
    b. 5,658 m^2 Dry Research space
    c. 7,456 m^2 Tertiary research spaces
2. Teaching
    a. 1,218 m^{2}Dry Teaching space
    b. 3,100 m^2 Teaching Laboratories
3. Support Areas
    a. Café Ground 50m 2 kitchen 200m2 seating
    b. Café Level 7 20m2 kitchen 100m2 seating

For general waste and recyclable waste the expected generation rates outlined by the *Council of the City of Sydney's Policy for Waste Minimisation in new developments* was be used. The expected generation rates were calculated using the Office - Type of Premises. For the other waste streams the information provided by the University of Sydney's in their *Design Brief Vol 2 – Operational Control Requirements: Section 11 Waste Handling* will be used. Table 3 outlines the expected generation rates, collection frequency and equipment quantities required to manage waste. Because only the paper and cardboard of the expected recyclable stream will be separated at source, the expected commingled containers (Plastic, Glass and Metal) daily waste generation will be added to the General Waste. The NSW DECC Office Recycling Survey (Sydney Central Business District October – November 2006) has been used to define the expected commingled containers percentage of the recyclable stream. This has identified it as 5% commingled containers for office areas. Using industry standards it has been identified that approximately 50% of the recyclable waste stream for cafes is commingled containers.

Table 3: Waste Generation Rate, Removal Frequency and Storage Equipment

Waste Type	Daily Waste Generation (L)	Removal Frequency	Storage Equipment Quantities
General Waste	4,478L	Daily	5 x 1100L bins
Large and Bulky Waste	Variable	Ad Hoc	Skip or Truck in Dock
Recyclable Waste	3,170L	Daily	5 x 1100L bins
Confidential Waste	Variable	Ad Hoc	240L bins where required
Hazardous Waste	Variable	Ad Hoc	Dependent on particular type
Chemical Waste	Variable	Ad Hoc	Dependent on particular type
General Clinical Waste	Variable	Daily	80 x 120L bins – 40 full and 40 empty
Recognisable Human Tissue (Anatomical Clinical Waste)	Variable	Daily	14 x 120L bins – 7 full and 7 empty
Cytotoxic Waste	Variable	Daily	14 x 120L bins – 7 full and 7 empty
Animal Carcasses	Variable	Daily	Disposed of with Anatomical Clinical Waste
Bedding Waste	Variable	Daily	2 x 1100L General Waste Bins 3 x 660L Bins in Bedding Waste Holding Room
Radioactive Waste	Variable	Ad Hoc	Approved dangerous goods drums

Waste Type	Daily Waste Generation (L)	Removal Frequency	Storage Equipment Quantities
Sharps Waste	Variable	Daily	Either disposed of with General Clinical Waste, Chemical Waste, Cytotoxic or Radioactive Waste
Compressed Gas Cylinders Waste	Variable	Ad Hoc	N/A
Feminine Hygiene waste	1 bin in each Female Toilet Cubicle	Fortnightly	N/A
Printer Toner Cartridges	As required	Ad Hoc	Printer Cartridge Recycling Box or Bin

4.3 Collection

The collection of waste material will occur at the CODCD Loading Dock and this will be managed by the Waste Manager. Waste removal vehicles will access the loading dock via Ross Street Gate entrance off Parramatta Road. The Waste Manager will be responsible for the coordination and efficient management of waste collection, storage and dock space utilisation. All waste should be transferred to the CODCD Loading Dock for removal. The CODCD Loading Dock area should be kept clear to allow for reversing waste collection vehicles.

5. Waste Management Recommendations

This section involves future waste management recommendations that will ensure the effective management of waste during the operational phase of the CODCD. These include:

1. Hygiene and Health Management
2. Staff and Cleaner Education Programme
3. Waste Signs and Labelling for Bins
4. Waste Manager's Role
5. Waste Management Review

5.1 Hygiene and Health Management

To ensure that there are no adverse health effects from the handling and disposal of the different waste streams it is recommended that all waste management should comply with AS/NS 3816:1998, *Management of Clinical and Related Wastes*. All waste material should be effectively contained within the assigned bins and storage areas. All cleaners and staff members handling waste should be given access to bathroom facilities to wash up after handling and disposal.

Vermin Control should be undertaken throughout the waste storage areas. There should be bin and storage area cleaning facilities provided for waste bins and storage areas that don't require speciality cleaning. The bins and storage areas that require speciality cleaning should be cleaned by a waste bin and storage area cleaning contractor.

All bin storage areas should have effective ventilation, drainage and fire detection, warning and fighting equipment. Rooms that are only accessible to authorised personnel via electronic access card should be strictly managed.

5.2 Staff and Cleaner Education Programme

The management of waste and recyclable streams requires the implementation of an effective education programme. This education programme should outline all waste and recycling streams and the staff and cleaners that are responsible for its handling, transfer and disposal of these waste streams. The on-going monitoring of the waste management system will allow for improvements to be made when required.

5.3 Waste Signs and Labelling for Bins

The use of the correct signage for the waste and recycling streams will assist staff, cleaners and visitors to firstly dispose of the waste and recycling at the point of generation. Secondly, it will allow for the correct handling, transfer and disposal of the waste and recycling. The signage shown in figure 1 should be placed on the General Waste and Recyclable Waste Bins. The signage shown in figure 2 should be used for identification of hazardous and clinical waste. The items were sourced from *Council of the City of Sydney's Policy for Waste Minimisation in new developments* and AS/NS 3816:1998, *Management of Clinical and Related Wastes* respectively.

Figure 1: Signage General Waste and Recyclable Waste

TABLE 1
IDENTIFICATION OF CONTAINERS

Waste category	Colour code for container	Marking	Sign	Transport labelling in accordance with AS 1216
Clinical	Yellow	Black biological hazard		Class 6.2, if appropriate
Cytotoxic	Purple	White telophase		(Not specified)
Radioactive	Red	Black ionizing radiation		Class 7
All other wastes	(Not specified)	(Not specified)	As specified by relevant regulations	(Not specified)

Figure 2: Signage for Hazardous and Clinical Waste

5.4 Waste Manager's Role

The Waste Manager's role is to supervise the daily operation of the CODCD's waste management system. This involves liaising with cleaners, laboratory staff, building manager, waste contractors and waste management committee.

5.5 Waste Management Review

It is recommended that the CODCD conducts an initial six month or when the CODCD is operating at reasonable level of occupancy review of the waste management system. This will ensure it is functioning as planned and if not actions can be taken to remedy the issues or update the waste

management plan. The review will then be conducted throughout the life of the CODCD by the Waste Minimisation Committee. The initial focus should be to ensure that the clinical and hazardous wastes are being handled, stored, transported and disposed of in accordance with *AS/NZS 3816:1998 Management of clinical and related wastes.*

If waste minimisation is truly given priority by the CODCD the next focus area should be to divert organic material generated by the two cafes from the general waste stream.