Sydney International Convention, Exhibition & Entertainment Precinct (SICEEP)
Darling Drive Plot

Operational Waste Management Plan for Stage 2 SSDA3

15 MAY 2013
REV: 05

WASTE AUDIT AND CONSULTANCY SERVICES
PO Box 1667
ROZELLE NSW 2039

Telephone (02) 9818 8267
Facsimile (02) 9818 8271
www.wasteaudit.com.au

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1. Introduction

This report supports a State Significant Development (SSD) Development Application (DA) submitted to the Minister for Planning and Infrastructure pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Application (referred to as SSDA 3) follows the submission of a staged SSD DA (SSDA 2) submitted in March 2013 to the Department of Planning and Infrastructure that set out a Concept Proposal for a new mixed use neighbourhood at Darling Harbour known as 'The Haymarket'. The Haymarket forms part of the Sydney international convention, exhibition and entertainment precinct (SICEEP) Project, which will deliver Australia's global city with new world class convention, exhibition and entertainment facilities and support the NSW Government's goal to "make NSW number one again".

More specifically this subsequent DA seeks approval for a residential building (student accommodation) within the Western development plot (Darling Drive) of The Haymarket and associated public domain works. The DA has been prepared and structured to be consistent with the Concept Proposal DA.

2. Overview of Proposed Development

The proposal relates to a detailed ('Stage 2') DA for a residential building (student accommodation) in the Darling Drive Plot of The Haymarket together with associated public domain works. The Haymarket Site is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and open space. The Darling Drive Plot is one of six development plots identified in the Concept Proposal DA.

More specifically, this SSD DA seeks approval for the following components of the development:

- Demolition of existing site improvements;
- Associated tree removal and planting;
- Construction and use of one residential building within the Darling Drive Plot, to be used for student accommodation purposes;
- Public domain improvements, including:
  - Realignment and upgrade of Darling Drive (part); and
  - provision of a new urban square (known as Macarthur Place) located at the termination of The Goods Line.
- Extension, realignment and augmentation of physical infrastructure / utilities as required.

3. Background

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the Department of Planning and Infrastructure. The key components of these proposals are outlined below.

Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades.

The Haymarket Concept Proposal (SSD 13_5878)

The Haymarket Concept Proposal SSD DA (SSDA 2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Haymarket Site.

More specifically the Stage 1 Concept Proposal seeks approval for the following key components and development parameters:

- Staged demolition of existing site improvements, including the existing Sydney Entertainment Centre (SEC), Entertainment Centre Car Park, and part of the pedestrian footbridge connected to the Entertainment car park and associated tree removal;
- A network of streets, lanes, open space areas and through-site links generally as shown on the Public Domain Concept Proposal, to facilitate reintegration of the site into the wider urban context and connection with the broader SICEEP Site;
- Street layouts;
- Development plot sizes, development plot separation, building envelopes (maximum height in RLs), building separation, building depths, building alignments and a benchmark for natural ventilation and solar provision for the precinct;
- Land uses across the site, including residential and non-residential uses;
- A maximum total gross floor area (GFA) across The Haymarket Site of 197,236m^2 for the mixed use development (excluding ancillary above ground car parking), comprising of:
  - A maximum of 49,545m^2 non-residential GFA; and
  - A maximum of 147,691m^2 residential GFA;
- Above ground parking including public car parking;
- Residential car parking rates to be utilised in the subsequent detailed (Stage 2) Development Applications, being:
  - Zero (0) spaces per studio apartment;
  - Maximum one (1) space per two (2) one bedroom apartments;
  - Maximum one (1) space per one bedroom + study apartment, plus one (1) additional space per five (5) apartments;
  - Maximum one (1) space per two bedroom apartment, plus one (1) additional space per five (5) apartments; and
  - Maximum two (2) spaces per 3+ bedroom apartment.
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

This report has been prepared to support a detailed Stage 2 SSD DA for a residential building (student accommodation) and associated public domain works within The Haymarket (SSDA 3), consistent with the Concept Proposal SSD DA

4. Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the Light Rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (refer to **Figure 1**).

The Haymarket Site is:

- located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket;
- bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and
- irregular in shape and occupies an area of approximately 43,807m^2.

Figure 1 – Aerial photograph of the SICEEP Site

The Concept Proposal DA provides for six (6) separate development plots across the Haymarket Site (refer to **Figure 2**):

1. North Plot;
2. North East Plot;
3. South East Plot;
4. South West Plot;
5. North West Plot; and
6. Western Plot (Darling Drive).

The Application Site area relates to the South West Plot and surrounds as detailed within the architectural and landscape plans submitted in support of the DA.

Figure 2 – Concept Proposal Development Plots

5. Planning Approval Strategy

The SICEEP Project will result in the lodgement of numerous SSD DAs for the various components of the redevelopment project. SSD DAs have already been lodged for the PPP component of the SICEEP Project (comprising the convention centre, exhibition centre, entertainment facility and ancillary commercial premises and associated public domain upgrades), and the Stage 1 Concept Proposal for The Haymarket. Separate 'Stage 2' SSD DAs for the development of the South West Plot and the North West Plot and associated public domain works will be lodged concurrently with this application. Future applications will be lodged for the Hotel complex, and the remaining development plots of The Haymarket Site.

6. Waste Streams, Generation and Systems

The following sections detail the estimated waste generation and recommended systems for the W2 building within the Western Plot (Darling Drive) which is comprised of a student housing facility. This WMP has been developed in accordance with City of Sydney's Policy for Waste Minimisation in New Developments and with guidance from the Northrop Sustainability Plan and the Lend Lease Haymarket Site Wide Sustainability Plan. The estimted waste generation rates are based on the following guidelines from the Policy for Waste Minimisation in New Developments:

Table 1 – Waste generation guidelines

	Waste kg/occupant/week	Recycling kg/occupant/week	Waste Litres/occupant/week	Recycling Litres/occupant/week
City of Sydney	3.2	1.0	40	20

The W2 DD plot is comprised of one residential building for student housing purposes. Each level of the building will be serviced by a split chute system which will terminate at dock level on the ground floor within the waste room. The split chute provides for the disposal of general waste and mixed recycling from each residential level.

A commercial waste contractor will be engaged to collect and dispose of all waste and recycling streams.

Tables 2 and 3 show the waste generation estimates for the common waste and recycling streams and the recommended systems for their disposal in the waste storage room.

It should be noted that all footprints provided below refer only to actual bin footprints. As a guide, waste storage rooms should provide between 2-3 times the total area occupied by the bin footprint.

Table 2 – W2 DD Plot Student Housing waste generation

Waste Type	Est. Waste/wk (based on 635 beds)	
	kg	L
General Waste	2,032	25,400
Mixed Recycling	635	12,700
TOTAL	**2,667**	**38,100**

Table 3 – W2 DD Plot Student Housing waste systems

W2	Bin Type	No. of Bins	Weekly Clearance Frequency	Capacity (weekly)	Estimated volume / week	Footprint per bin (m2)	Total Footprint (m2)
General Waste	1100L MGB	4	6	26,400	25,400	1.32	5.3
Mixed recycling	1100L MGB	3	5	16,500	12,700	1.32	4.0
TOTAL		**7**		**42,900**	**38,100**		**9.3**

As per the requirements of the Man-17 Criteria under the Custom Green Star tool applicable to theis development, in addition to the "common" waste and recycling streams (general waste and mixed recycling), the following waste streams have also been identified to be recycled:

Oversized items for re-use/recycling

A storage cage has been provided for tenants in the waste storage room on ground floor for the storage of oversized items such as furniture and whitegoods. See section 8.1 below for internal management/collection protocols.

E-waste recycling

A dedicated bin will be provided for the disposal of e-waste items within the oversized items storage cage in the waste room on ground floor. See section 8.1 below for internal management/collection protocols.

Battery Recycling

Dedicated recycling boxes will be provided in common areas specifically for the collection and recycling of batteries. See section 8.1 below for internal management/collection protocols.

7. Waste and Recycling Storage Area

The waste and recycling storage area located on the ground floor will have the following features:

- → Wash bay facilities
- → Ventilation: The bin storage rooms will be mechanically exhausted as required by AS 1668.2
- → Vermin Prevention:
  - The bin storage rooms will feature tightly fitted doors
  - Opening will be vermin proof
  - Building management is to ensure that as part of the cleaning and/or waste contract, that the waste area and equipment is cleaned on a regular basis
  - Cleaners are to ensure that bin lids are closed when not in use i.e. under the chute
- → Noise:
  - Noise will not be an issue due to the location of the waste storage room on ground floor.

Occupational Health and Safety issues such as slippery floors in waste rooms and the weight of the waste and recycling receptacles will need to be monitored. Cleaners will monitor the bin storage area and all spills will be attended to immediately by cleaners.

The materials and finishes for the waste/recycling storage areas are as follows:

Floor	Structural concrete slab with smooth epoxy topping finish with coved wall and floor junctions. Graded drains to approved sewer connections subject to final design.
Walls	Masonry walls
Ceiling	Structural concrete slab over
Lighting	Base building lighting
Water Supply	Hose cocks and hose connections which supply warm water

The split chute system will terminate in the waste room and 1100L MGBs will be located under each chute to capture the general waste and recyclables (bin numbers as per table 3 above).

In addition to the general waste and mixed recycling 1100L MGBs, a dedicated storage cage will be established within the waste room in a central location within the ground floor loading area adjacent to the wash-bay facilities (refer to appendix 12.3). The storage cage will be available for building management to store bulky, ad-hoc items such as furniture and whitegoods etc.

In keeping with best practice sustainability programs, all waste areas; reuse areas and waste and recycling bins will be clearly differentiated through appropriate signage and colour coding to Australia Standards to reflect the materials contained.

7.1 Colour-Coding

In order to encourage proper use of the waste facilities, the waste and recycling systems in the bin storage rooms should be set up in a user friendly fashion. For example, bins for all waste and recycling streams should be easily accessible without having to wheel / manoeuvre bins.

It is highly recommended that the bin storage room be colour-coded to ensure bins are stored in the correct area and to reinforce the colour-coding systems used throughout the building. This can be done by painting borders on the floor indicating where bins should be stored. The colour of the paint should be consistent with the waste stream e.g. yellow paint for comingled recycling, red paint for general waste. The waste room walls can also be painted.

Photograph 1 – Examples of appropriate colour-coding

7.2 Signage

All waste and recycling streams should be differentiated with clear signage on all bins and on walls within the waste storage room. Each chute access point and waste/recycling hubs in common areas should be clearly signed too. Below are examples of appropriate signage incorporating textual information, pictures and colour-coding to communicate the message.


GENERAL WASTE
Plastic Bags
Ceramics
Polystyrene
Window glass, mirror & pyrex
Office stationary
Chip packets & wrappers
NO RECYCLABLES
NO OIL & PAINT
NO BUILDING MATERIALS


PAPER & CARDBOARD
Newspaper, junk mail & magazines
Office, computer paper & envelopes
Cereal & food boxes
Telephone books
Cardboard
NO WAXED CARDBOARD
NO PLASTIC FILM
Please cut oversized boxes into smaller pieces before placed in the recycling bin


MIXED RECYCLING
Aluminium cans
Plastic milk & Juice containers
Plastic soft drink & water bottles
Glass bottles & jars
Steel cans
NO COFFEE CUPS
NO PLASTIC BAGS
NO POLYSTYRENE

8. Internal Management and Collection Practices

8.1 Internal Management

General waste

Chute access will be provided for the disposal of general waste on each floor. The split chute system allows general waste and recycling to be deposited in the one chute – residents must select which stream they are depositing and the diverter at the base of the chute will direct the material into the appropriate bin in the waste storage room at the base of the chute (refer to appendix 12.5 and 12.6 for chute information).

Residents will be briefed on the proper use of the split chute system and any contamination of the recycling stream will be monitored and reported by cleaners/building management as it is imperative that the recycling stream remain free of contamination to ensure compliance with waste contractor tolerances. Residents will be encouraged to maximise the separation of general waste and mixed recyclables within their apartments to aid the proper disposal of all materials.

In addition to the chute access on all floors, there will be bin hubs in communal spaces/kitchen/dining areas for the disposal of general waste and mixed recyclables (refer to appendix 12.8 for examples). Cleaning staff will periodically clear bagged waste using a cleaners trolley (refer to appendix 12.9 for example) and then transfer this waste to the waste storage room for disposal in the 1100L bins.

Mixed Recycling

The mixed recycling stream will be disposed down the split chute which can be accessed from each floor. All common recyclables such as paper, cardboard, glass, aluminum/steel cans and mixed plastics can be disposed in this stream. In the instance where bulky cardboard boxes require recycling, tenants will be requested to dispose of this directly into the mixed recycling bins in the waste storage room on the ground floor to ensure no blockages occur within the chute from such items.

In addition to the chute access on all floors, there will be bin hubs in communal spaces/kitchen/dining areas for the disposal of general waste and mixed recyclables (refer to appendix 12.8 for examples). Cleaning staff will periodically clear bagged waste using a cleaners trolley (refer to appendix 12.9 for example) and then transfer this waste to the waste storage room for disposal in the 1100L bins.

Oversized Items for Reuse/Recycling

A storage cage of approximately $3m^3$ will be located within the ground floor waste storage room. The cage will be available to all tenants for the collection of any unwanted items such as furniture, whitegoods etc. Access to the cage will be arranged through building management who will keep a register of all items stored within the cage – this register will be communicated to all tenants via intranet and public notice boards to give tenants the opportunity to claim and reuse any items deposited.

Building management will schedule periodic collections throughout the year (or as required) for all items within the cage. This collection will be provided by the commercial waste contractor as an ad-hoc service and wherever possible, all items will be taken to an appropriate recycling facility.

E-waste Recycling

A 240L MGB will be stored within the oversized items storage cage for the disposal of all e-waste items. This bin will be available for all tenants to use as required. Building management will monitor this stream and schedule collections as required. Additionally, it is recommended that a yearly collection be scheduled and communicated to all tenants in an effort to promote the service and ensure tenants are given ample opportunity to properly dispose and recycle this specialty stream.

The commercial waste contractor engaged for the common waste streams may provide a dedicated e-waste recycling service utilising a licensed e-waste recycling facility upon request. Alternatively, if this stream is not offered by the waste contractor, there are a number of specialty e-waste recyclers that can be engaged on an ad-hoc basis as required by building management such as:

http://renewablerecyclers.org.au/

http://www.reverseewaste.com.au/

http://www.pentaq.com.au/

http://www.simsmm.com/

Battery Recycling

A dedicated battery recycling box will be located in the recption area on ground floor and in the common area on level 1. Tenants will be notified about their availability and they will be free to use for all tenants to recycle all types of consumer batteries i.e. alkaline, lithium etc. Cleaners/building management will monitor this stream and will schedule a collection as required. As above for e-waste, the waste contractor engaged for common services may provide a dedicated battery recycling service, however if not there are a number of specialty battery recyclers (as above) that can be engaged on an ad-hoc basis as required by building management – some offer a free service.

8.2 Collection Practices

Waste and recycling collections will be conducted by a commercial waste contractor. Collections for general waste and mixed recycling will take place at the frequencies suggested in table 3 above. It should be noted that these frequencies are based on estimated waste generation rates and should be used as a guide – once operational, collection frequencies should be monitored and adjusted according to actual waste generation rates.

All waste and recycling streams will be collected by a rear-lift truck (refer to appendix 12.7 for indicative truck specifications). Collections will take place from a designated kerbside location on Darling Drive (refer to appendix 12.2 for indicative location).

The waste contractor will be engaged to retrieve the bins from the waste storage room and transfer them to the loading zone for collection and return them to the waste storage room after collection. Access from the waste rooms to the central loading zone is level and free of kerbs ensuring all bins can be manoeuvred with ease and without mechanical assistance.

Collection times will be scheduled to minimise disruption to roads and shared spaces. It is likely that collections will occur in early AM hours – this will be confirmed between the waste contractor and building management once operational. Due to the relatively small number of bins for each stream collections are likely to be completed within 15 minutes for each stream.

9. Tenant Education

The ongoing waste program should include regular updates to tenants regarding current recycling performance as well as tenant education and awareness programs.

It is recommended that the tenant education and awareness program be conducted by building management to ensure that tenants are aware of their responsibilities in relation to segregation of recyclables, and to ensure they are following the building protocols. The program should be tailored to the requirements of the building and will detail the waste and recycling systems in place, what materials are appropriate for each stream, the procedures involved in effective waste and recycling management, recommendations on how to minimise waste generation and instruction on how to operate the machinery safely.

10. Procurement

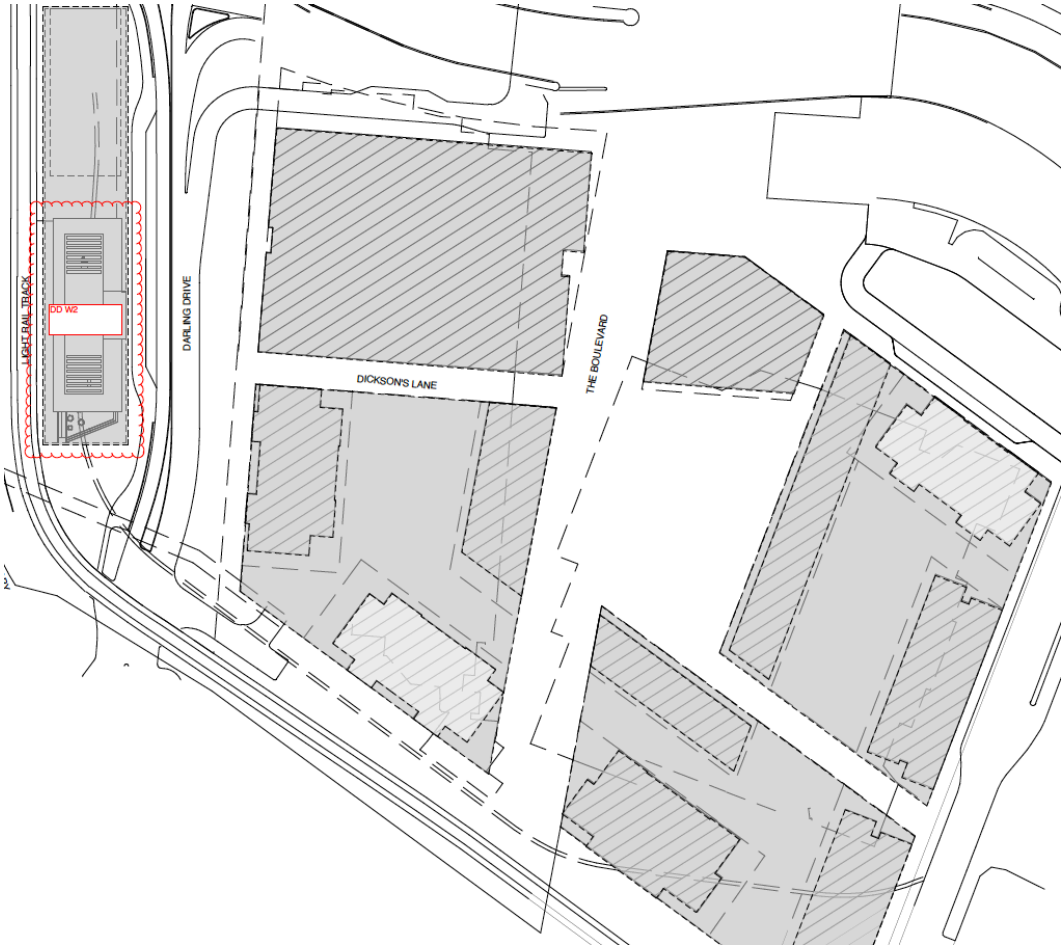
Building management and cleaning contractors will be required to adhere to a procurement policy that prioritises waste minimisation by specifying all purchased materials required for the ongoing operation of the building avoid the need for, or minimise the use of packaging wherever possible i.e. bulk deliveries delivered on pallets or in crates and unpacked onsite so that pallet/crate can be returned with supplier.

Where packagaing cannot be avoided, it should be specified that all packaging materials must be compatible for recycling through the recycling streams provided for onsite. Additionally, guidelines for packaging should specify the following features:

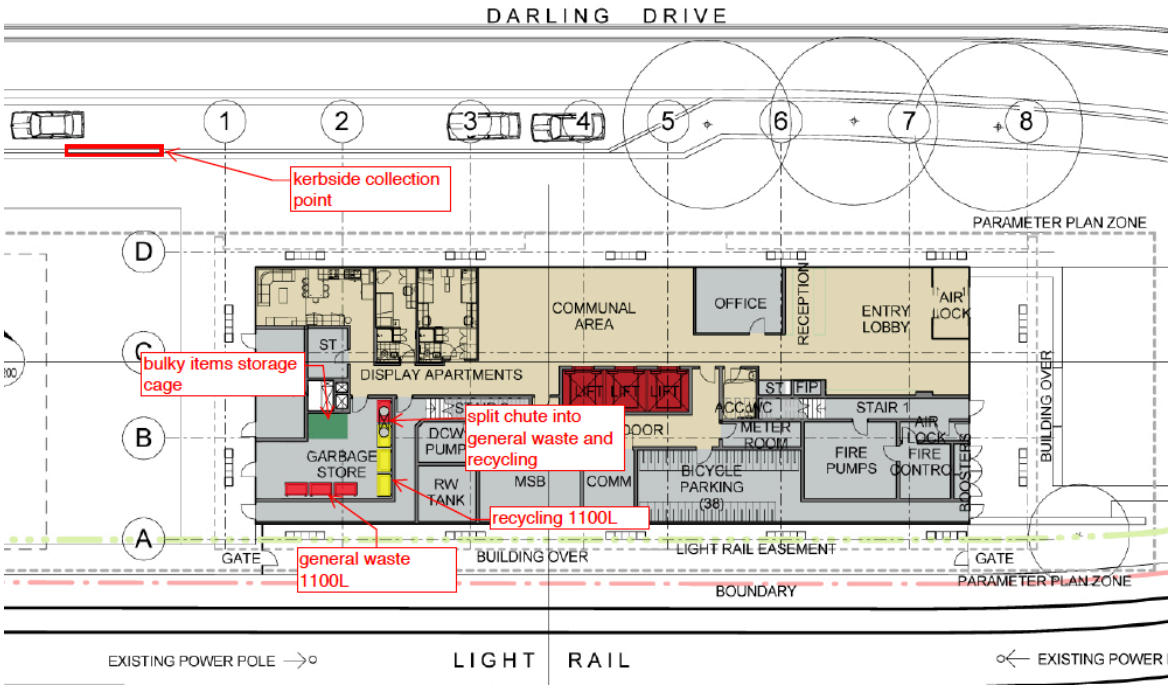
- Re-usable
- Recyclable
- Made from recycled materials
- Utilise renewable raw resources
- Supplier take-back programs, and
- Packaging minimisation

11. Appendix

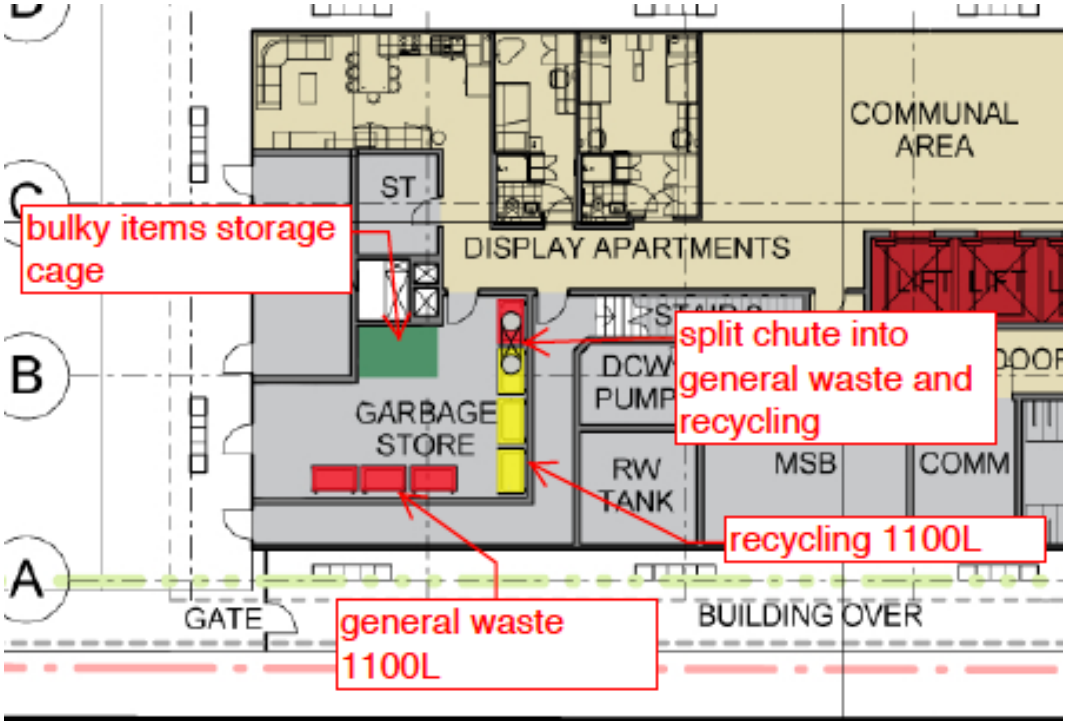
12.1 Illustrative DD site plan



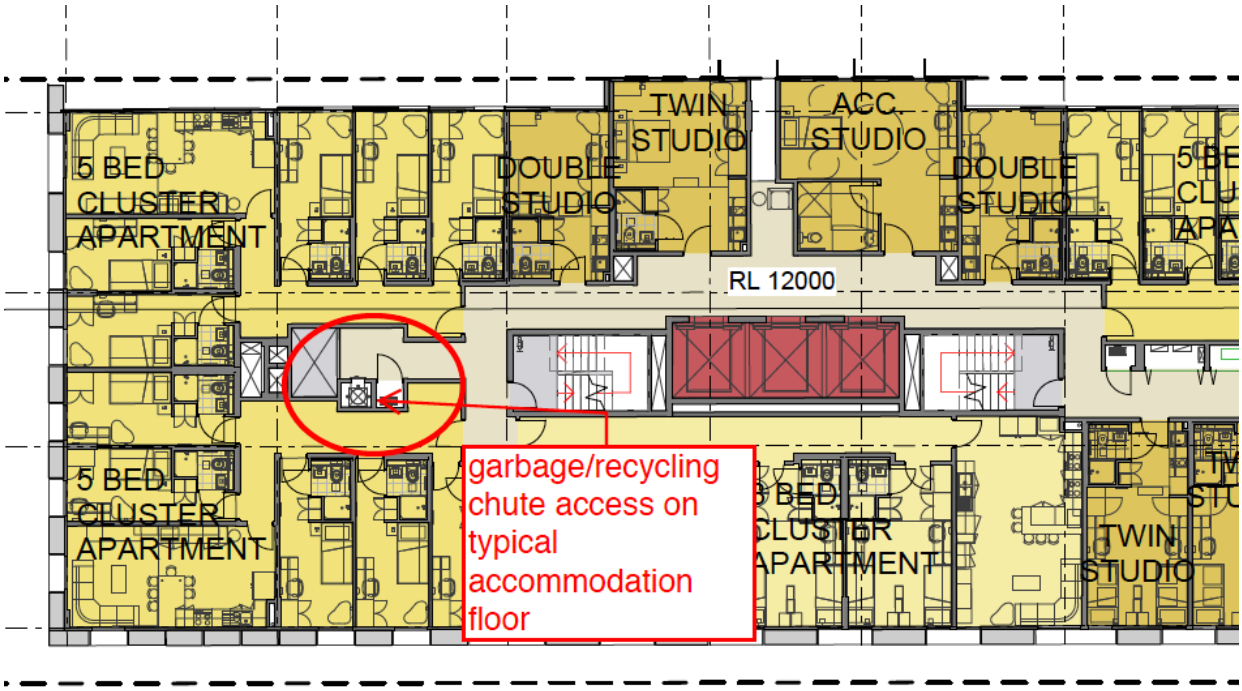
12.2 Ground floor layout



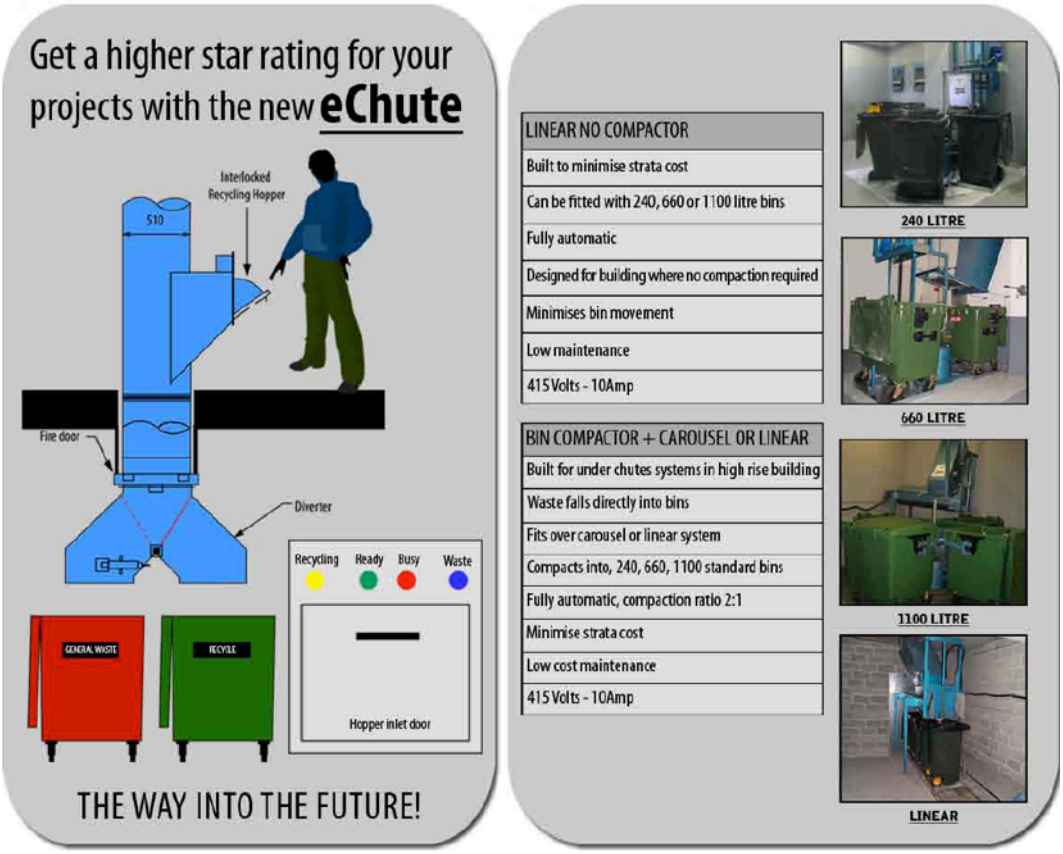
12.3 Ground floor waste room detail



12.4 Typical garabage chute access on residential floor



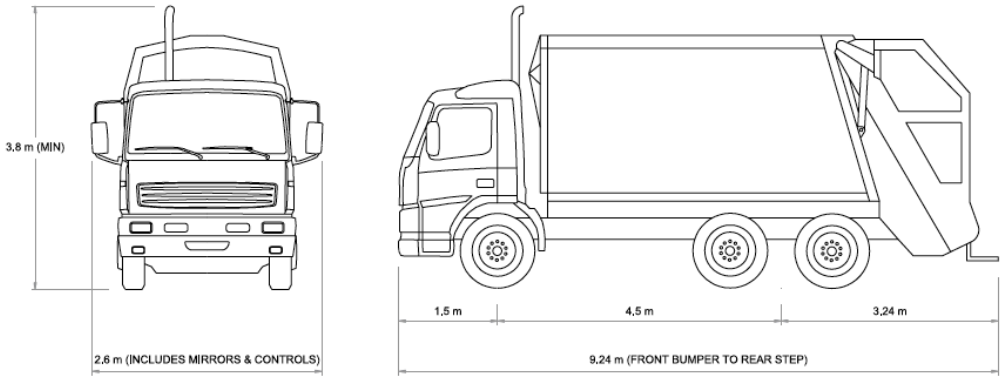
12.5 Indicative chute design – note split chute for general waste and mixed recycling



12.6 Chute access door on residential levels

Note selection for general waste on the left and recycling on the right

12.7 Indicative rear-lift truck specifications



Rear loading collection vehicle for MGBs	
Length overall	9.54 m
Width overall	2.6 m
Operational height	4 m
Travel height	3.8 m
Weight (payload)	26 tonnes

12.8 Multi-sort waste/recycling hub

Examples of waste/recycling hubs recommended for common/kitchen areas – these examples are a guide only, in practicewaste streams will be specific for this application i.e. general waste, mixed recycling, organics.

Alternative internal bin system within drawers for common/kitchen areas.

12.9 Cleaner trolley with separate bags for different streams