Western Plot (Darling Drive) Building W1

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Operational Waste Management Plan for SSDA 12

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1. Introduction

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

The Application (referred to as SSDA 12) follows the approval of a staged SSD DA (SSDA 2) in December 2013. SSDA 2 sets out a Concept Proposal for a new mixed use residential neighbourhood at Haymarket referred to as "Darling Square", previously known as "The Haymarket". Darling Square 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 Darling Square 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 Darling Square together with associated public domain works. The Darling Square 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 within the approved Concept Proposal.

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 provision of a new urban courtyard space between student accommodation buildings W1 and W2; and
- Extension and augmentation of physical infrastructure / utilities as required.

3. Background

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of SICEEP.

Following an extensive and rigorous Expressions of Interest and Request for Proposals process, a consortium comprising AEG Ogden, Lend Lease, Capella Capital and Spotless was announced by the NSW Government in December 2012 as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Master Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
  - Up to 40,000m^2 exhibition space;
  - Over 8,000m^2 of meeting rooms space, across 40 rooms;
  - Overall convention space capacity for more than 12,000 people;
  - A ballroom capable of accommodating 2,000 people; and
  - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing a hotel complex at the northern end of the precinct.
- A vibrant and authentic new neighbourhood at the southern end of the precinct, now called 'Darling Square', including apartments, student accommodation, shops, cafes and restaurants.
- Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park; and
- Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pyrmont and the City.

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 (now) Department of Planning and Environment. The key components of these proposals are outlined below.

3.1 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. SSDA1 was approved on 22 August 2013.

3.2 Concept Proposal (SSD 13_5878)

The 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 Darling Square Site. SSDA2 was approved on 5 December 2013. The Stage 1 Concept Proposal approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots, development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
- A maximum total gross floor area (non-residential and residential GFA);
- Above ground car parking including public car parking;
- Residential car parking rates;
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

In addition to the approval of SSDA2, the following approvals have been granted for various stages of the Darling Square site:

- Darling Drive (part) development plot (SSDA3) for the construction and use of a residential building/W2 (student accommodation) and the provision of associated public domain works approved on 7 May 2014;
- North-West development plot (SSDA4) for the construction and use of a mixed use commercial development and public car park building and associated public domain works approved on 7 May 2014; and
- South-West development plot (SSDA5) – construction and use of a mixed use residential development and associated public domain works approved on 21 May 2014.
- North-East development plot (SSDA7) – construction and use of a mixed use residential development and associated public domain works approved on 16 April 2014.

Approval was also granted on 15 June 2014 for SSDA6 which includes the construction and use of the International Convention Centre (ICC) Hotel and provision of public domain works.

This report has been prepared to support a detailed Stage 2 SSD DA for a residential building/W1 (student accommodation) and associated public domain works within Darling Square (SSDA 12), consistent with the Concept Proposal (SSDA 2).

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 Darling Square 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 Darling Square 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 northern portion of the Western Plot and surrounds as detailed within the architectural and landscape plans submitted in support of the DA.

Figure 2 – Concept Proposal Development Plots

5. Waste Steams, Generation and Systems

The following sections detail the estimated waste generation and recommended systems for the W1 building within the Western Plot (Darling Drive) which is comprised of a student housing facility (with a catering facility and associated dining room). This WMP has been developed in accordance with the City of Sydney's Policy for Waste Minimisation in New Developments.

The plot is comprised of one residential building for student housing purposes. Each level of the building will be serviced by a dual chute system which will terminate at in the waste storage room located on the Ground Level – this also includes the catering facility/dining room which will also utlise the same dual chute system (except for the management of organics which will be by the use of 120 litre MGB).

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 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 approximately 30% more space to allow for bin movement.

It is estimated that the development will generate a total of **5,696 kilograms** or **36,533 litres** of waste and recyclables per week (this is total).

5.1 Waste Streams

Based on the development profile, the following waste streams would be expected:

- Cardboard/Paper/Commingled recycling;
- Food organics recycling; and
- General waste.

The Cardboard/Paper/Commingled recycling will be deposited into the one type of container for collection and recycling.

Other wastes may be generated, but these would be in small volumes and irregular in terms of when generated.

Table 1 – Waste generation estimate

	kg/week	L/week
Cardboard/Paper/Commingled	1,458	7,933
Food organics	1,638	7,800
General waste	2,600	20,800
Total	**5,696**	**36,533**

Notes:

- Calculations are based on the activity levels as advised
- The level of activity may decline during "non-peak" periods (ie., non-teaching periods), and increase during the other parts of the year - calculations are averages
- The weights and volumes are based on correct segregation of waste and recyclables
- The calculations allow for the commercial collection of food organics.

Based on the estimated waste volumes, the following table provides the footprint for bins to service the volumes based on a 5 day week collection schedule.

Table 2 – Waste Systems (five/week clearance)

Waste Stream	Bin Type (MGB)	No. of Bins	Clearance Frequency	Capacity - Litres (daily)	Estimated volume / daily (litres)	Footprint per bin (m2)	Total Footprint
Cardboard/Paper/Commingled	1100	3	**5**	**3,300**	12,600	1.04	3.12
Organics	120	5	**5**	**600**	547	0.28	0.84
General Waste	1100	4	**5**	**4,400**	4,160	1.04	4.16
TOTAL		**12**		**8,300**	**7,307**		**8.12**

Notes:

- Calculations are based on the weekly generation rates with a 5 times/week collection schedule
- 2 x 120 litre MGB will be located within the kitchen – so this has reduced the actual required footprint in the storage area by 0.56 m2 (even though the actual number of bins is 5)

Based on the estimates of waste generation and the number of bins required (with a five times/week collection schedule), as well as allowing 30% space for bin movement, the minimum size of this storage facility should be approximately 12.0m^2. With an area allocated for bulky goods, this would be 20m^2.

The carousel to service the chute would require approximately 11m^2. Note though that this includes bins located on it, so the footprint of the bins would be deducted (approximately 2 x 1100 litre MGB on the carousel). A diagram of the chute system and carousel is attached in Appendix A.

This equates to a total estimated waste storage space requirement of 28m^2.

5.2 Chute System

Chute access will be provided for the disposal of general waste and commingled recyclables on each floor. The dual chute system allows general waste and recycling to be deposited into two separate chutes, which deposit the materials into the appropriate waste or recycling bins located in the waste storage room.

Note that the chute system will also be used for disposal of materials from the catering facility as well (except for organics).

Residents and staff will be briefed on the proper use of the dual 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 and staff will be encouraged to maximise the separation of general waste and commingled recyclables within their apartments/levels to aid the proper disposal of all materials.

In addition to the chute access on all floors, there will be bin hubs in communal areas for the disposal of general waste and commingled recyclables. The following photographs illustrate the types of bins that could be used in these hubs – so as to clearly identify the disposal pathway for materials.

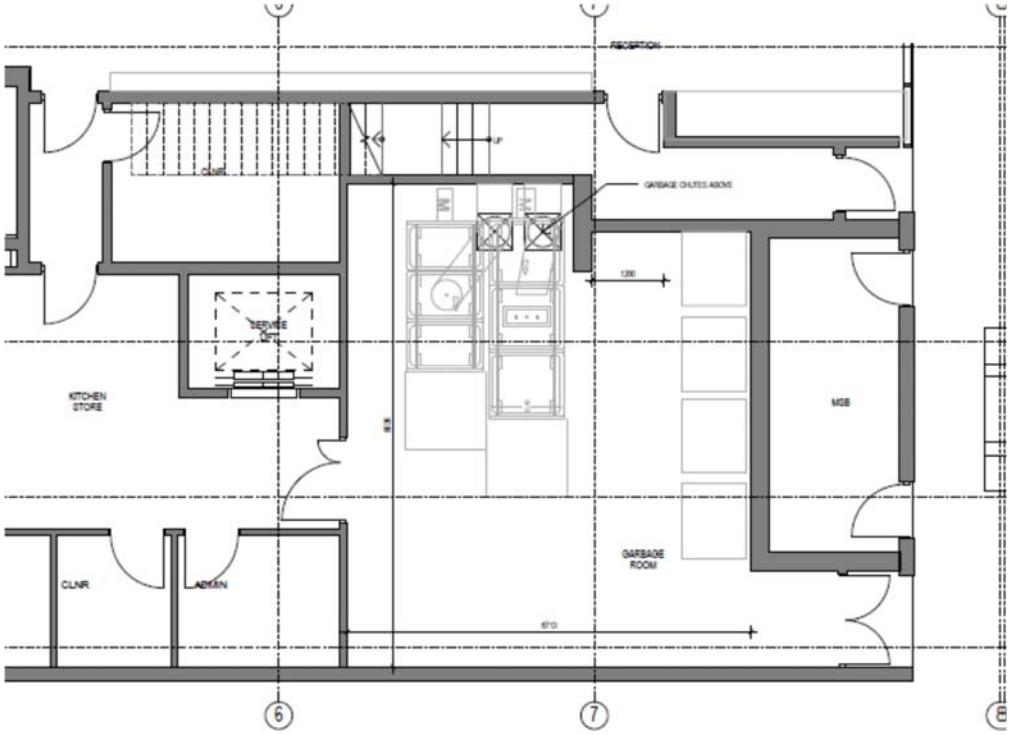
Cleaning staff will periodically clear bagged waste using a cleaner's trolley and then transfer this material to the waste storage room for disposal in the 1100L bins.

6. Storage

The garbage room will contain the following to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- waste room floor to be sealed with a two pack epoxy;
- waste room walls and floor surface is flat and even;
- all corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- a water facility with hose cock must be provided for washing the bins;
- any waste water discharge from bin washing must be drained to sewer in accordance with the relevant water board;
- tap height of 1.6m;
- storm water access preventatives (grate);
- all walls painted with light colour and washable paint;
- equipment electric outlets to be installed 1700mm above floor levels;
- the room must be mechanically ventilated;
- light switch installed at height of 1.6m;
- waste rooms must be well lit (sensor lighting recommended);
- optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;
- all personnel doors are hinged and self-closing;
- waste collection area must hold all bins – bin movements should be with ease of access;
- conform to the Building Code of Australia, Australian Standards and local laws; and
- childproofing and public/operator safety shall be assessed and ensured.

The following diagram illustrates the waste storage area that is located on the Ground Level.



The detailed design of the waste storage room will be similar to that which is currently being developed for the W2 Building adjacent. It will contain an Elephant's Foot compaction system and carousel to ensure maximum use of the waste bins.

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

There will be a need to ensure that there is sufficient space to allow for bin movement. As a general rule, it is recommended that an additional 30% of the estimated footprint for bins be allocated to this and this has been factored into the waste storage area space calculations.

The waste areas will be accessed by the staff and/or cleaning staff only.

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by those with authorised access.

The photographs over the page illustrate examples of colour coding that could be used.

Photographs 1 & 2 - Examples of waste room colour coding

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.

7. Waste Management Systems

7.1 Systems

The following summarises the recommended waste and recycling systems that will be implemented. These recommendations are based on requirements and systems implemented for similar developments.

All staff will be briefed on the proper use of waste management system and the recycling streams 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 contractor collection protocols. Staff and residents will be encouraged to maximise the separation of general waste and mixed recyclables to aid the proper disposal of all materials.

Waste and recycling collection services will be provided by a commercial waste contractor (TBA). Utilising a commercial waste contractor affords the development greater flexibility regarding collection schedules and the appropriate collection frequencies will be determined in consultation with the waste contractor once appointed – at present, this is planned to be five times per week– however once operational, collection schedules may need to be adjusted accordingly depending on actual waste generation.

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 room to where the bins will be emptied into the collection vehicle 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 the area located between both residential buildings. 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 approximately 30 minutes for each stream.

Signage will be a crucial element of the waste management system. Appendix B contains examples of signage. These are the type of signs that should be used throughout the facility and waste storage area. Other signs can be accessed from the NSW EPA website at: http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm.

7.2 Organics

Organic waste will be deposited directly into 120 litre MGB at the “point of generation” within the commercial kitchen. These MGB will then be transported to the storage room. This is to avoid odour generation.

8. Waste Stream Acceptance Criteria

8.1 Acceptance Criteria

General Waste:

General waste bins will be 1100 MGB's. The lids and signage should be colour-coded red. The general waste stream does not include hazardous material (such as batteries, fluorescent light tubes, light bulbs and/or toner cartridges), recyclable material or electronic equipment such as computers, TVs and mobile phones.

Paper/Cardboard/Comingled (Mixed Recycling):

The comingled recycling system will be 1100 MGB's and should accept all recyclable plastic containers, aluminium containers, glass bottles and steel cans in. Comingled recycling bin lids and signage should be colour-coded yellow.

Organics Recycling:

All paper and cardboard (excluding waxed cardboard) will be deposited into 120L MGB's which have a burgundy body and bin lid and signage

8.2 Bin Requirements

Containers located within the development for waste and recycling should be consistent. The following table outlines the colour coding that has been developed by Standards Australia.

Table 5 – Standards Australia waste/recycling container colour coding

Waste Stream	Bin Body Colour	Lid Colour
Cardboard/Paper/Commingled Recycling[1]	Blue	Blue
Food Organics	Burgundy	Burgundy
General Waste	Green	Red

[1] Note that a specific colour for this stream has not been designated by Australian Standards as yet. However, based on discussions with the waste management industry this is the accepted colour for the body of the containers.

9. Resident and Staff Education

The ongoing waste program should include regular updates to residents and staff regarding current recycling performance as well as tenant education and awareness programs. It is recommended that the education and awareness program be conducted by building management to ensure that residents and staff 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.

All waste receptacles will be appropriately signed and additional room signage is usually provided from most waste contractors during implementation of the waste contract. Examples of signage is included in Appendix B.

It is recommended that all signs should;

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.
- As part of the staff induction process, a waste and recycling toolkit will be provided. This toolkit will include the details of each of the systems in place; acceptance criteria for each stream and how each stream is managed.

On a monthly basis waste and recycling performance reports will be reported back to residents and staff so that they are aware of their performance and areas for improvement. An active waste monitoring program will be employed. The waste and cleaning contracts will ensure that contractors actively participate in the waste reduction program for the site and meet monthly to identify performance and new opportunities for diversion and avoidance.

10. Other Systems

In addition to the diversion system that will be implemented, other waste diversion and minimisation practices may also be implemented.

Fluorescent Light Tubes

A fluorescent light tube recycling stream may be required depending on the contractual arrangements for replacing light tubes. Recycling of used fluorescent light tubes could be a contractual requirement of the electrician responsible for servicing the lights. Alternatively if lights are services using in-house staff a fluorescent light tube recycling receptacle should be located in the recycling area.

Toner Cartridges

A toner cartridge recycling bin/box should be placed in key printing areas to capture used cartridges. These can be recycled on an as-needed basis.

E-Waste

Electronic equipment should be recycled on an as-needed basis.

Mobile Phones

Mobile phones can be collected in secure receptacles at centralised collection points. Alternatively, boxes containing postage satchels can be placed in centralised areas for use as needed.

11. Ongoing Management

Having suitable systems in place is only one element of an effective waste management system. Compliance by all stakeholders is essential.

Cleaners are a key element in the effectiveness of the systems in place. Prior to acceptance of the cleaning contract, the contractor will be required to demonstrate how the management of waste and recycling will be carried out so as to ensure that segregated materials are placed in the correct systems. This process will be agreed and a training program implemented by the cleaning contractor to ensure full understanding by all cleaners. Monitoring of the system will be carried out by the cleaning supervisor and site management throughout the term of the contract.

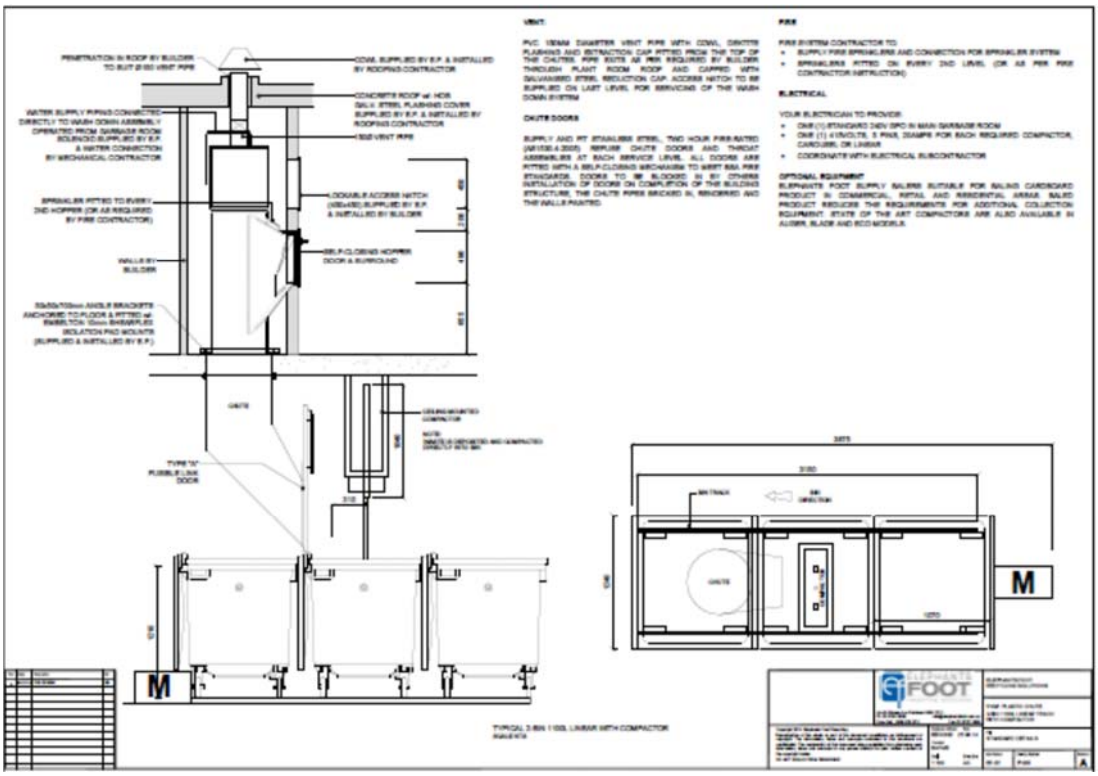
In addition, cleaners will be required to feed back to site management any non-compliance issues they observe during their cleaning activities. This may include contamination of recycling; non-participation in the recycling system, or missing or damaged bins. In this way issues can be promptly dealt with by management.

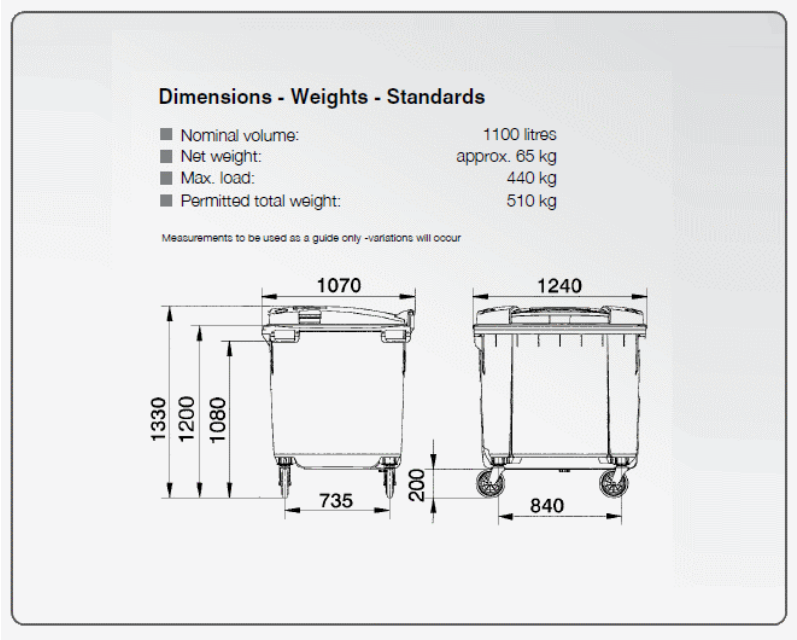
Waste and recycling contractors will be required to report actual volumes collected by stream so that site management can monitor performance and feed this back to stakeholders.

It is highly recommended that a basic reporting program be set up at the site which would include bin tally sheets that detail the number of bins collected and how full they are at the time of collection, in addition to communication procedures to allow waste contractors to provide feedback regarding contamination and leakage.

All staff should be educated and made aware of any changes to the existing waste systems.

Appendix A – Indicative Chute Design and Bin Dimensions





Appendix B – Example Signage

Example wall posters

Example bin lid stickers