

10

Walsh Bay Arts Precinct Operational Plan of Management



Create NSW
Arts, Screen & Culture



Waste management

Version control

Version	Issue date	Content contributors	Nature of change(s)
1.0	28/07/2020	PB	Append ARUP Waste Management Plan for consultation
1.1	18/09/2020	MD	Revised by ARUP to address comments from Create, tenants and INSW. STC management plan included.

1 WASTE MANAGEMENT

Introduction

This Waste management plan has been prepared by ARUP to detail waste and associated environmental management controls. Sydney Theatre Company has prepared the operational waste management plan applicable to their tenancy.

CreateNSW
Walsh Bay Arts Precinct
Operational Waste Management Plan

Final | 27 July 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 248794-15

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Document verification

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1 Introduction

1.1 Overview

The Walsh Bay Arts Precinct (WBAP) is a State Significant Development (SSD), providing performance, rehearsal and production facilities for music, dance and theatre companies. The site comprises Pier 2/3, Wharf 4/5, and Wharf 4/5 Shore Sheds. The site has a street frontage to Hickson Road as shown in Figure 1.

WBAP is located adjacent to Sydney Harbour within the suburb of Dawes Point. This area is to the north of Sydney's CBD in the vicinity of major tourist destinations including the Sydney Harbour Bridge, the historic areas of Millers Point and The Rocks, Circular Quay and the Sydney Opera House.

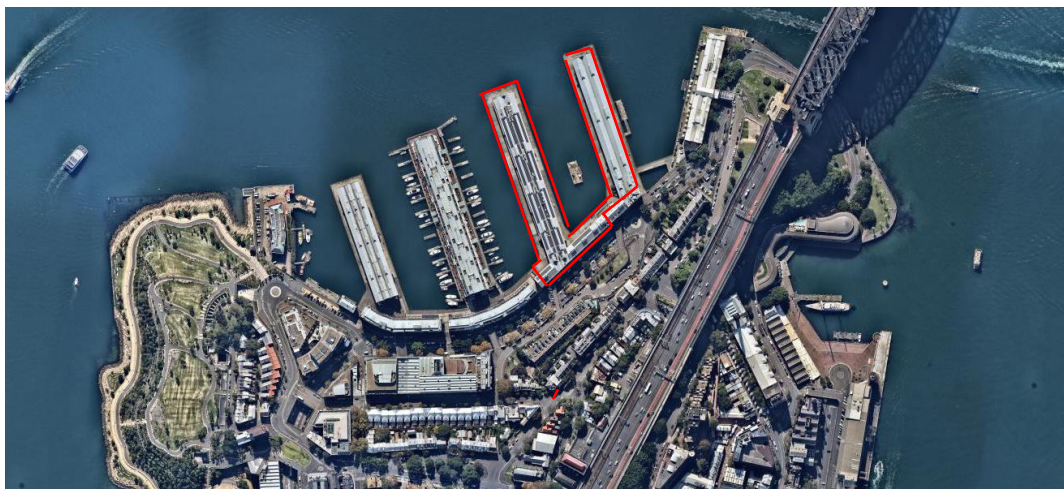


Figure 1 The site

The WBAP redevelopment will house various performing arts tenants, who have been involved in the design of the precinct to suit their needs. It also includes several commercial tenancies. Commercial tenants have not been confirmed at this stage, but the design of leasable spaces and provisions in this waste management plan allow for food and beverage tenancies such as cafes, restaurants and functions venues, to complement the character of the precinct as a performing arts and cultural hub. These commercial tenancies are identified in Figure 2. Both performing arts and commercial tenancies within the precinct are identified summarised in Table 1.

1.2 Pier 2/3

- The adaptive re-use providing for new arts facilities including performance venues for the Australian Chamber Orchestra, Bell Shakespeare and Australian Theatre for Young People;
- Retaining a large heritage commercial events/art space for events such as Sydney Writers Festival, Biennale of Sydney and a wide range of commercial and artistic events;

- A series of stairs, external lift and balconies designed as a contemporary interpretation of the original gantries reflecting the precinct's former industrial heritage
- Modifications to the roof

1.3 Wharf 4/5 and Shore Sheds

- Refurbishment of the ground floor arts facilities and its associated Shore Sheds for Bangarra Dance Theatre, Sydney Dance Company, Sydney Philharmonia, Gondwana and Song Company;
- New commercial retail opportunities; and
- A series of stairs, external lifts and balconies designed as a contemporary interpretation of the original gantries reflecting the precinct's former industrial heritage
- Modifications to the roof

Table 1: Summary of tenancies within the Walsh Bay Arts Precinct

Performing arts tenants	Commercial tenancies
Wharf 4/5	
Sydney Theatre Company (STC) Bangarra Dance Theatre (Ground floor and mezzanine) Sydney Dance Company (SDC) (Ground floor and mezzanine) – subject to separate SSD Choirs	n/a
Shore sheds	
Sydney Theatre Company – subject to separate SSD	Commercial 2 – potential café Commercial 3 – potential restaurant or bar Commercial 4 – potential restaurant or bar Commercial 5 - existing offices, not in scope of precinct redevelopment SSD.
Pier 2/3	
Australian Theatre for Young People (ATYP) Australian Chamber Orchestra (ACO), including function space. Bell Shakespeare Bar and event space on level 1 – shared space for use by performing arts tenants.	Commercial 1 – potential function venue

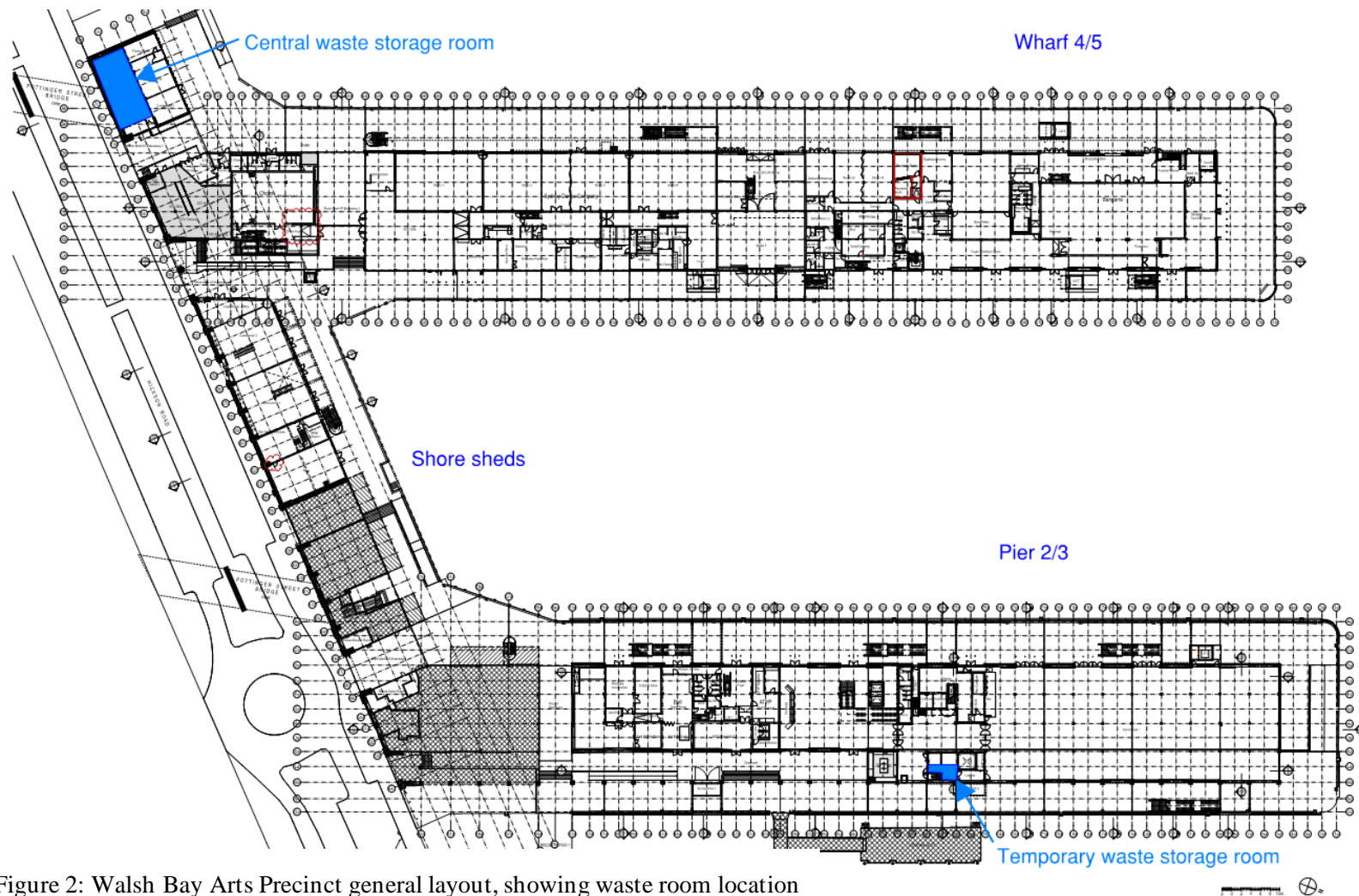


Figure 2: Walsh Bay Arts Precinct general layout, showing waste room location

1.4 Purpose

This updated waste management plan fulfils condition D11 – Waste Management Plan with respect to SSD 8671 development consent. It provides detailed and up-to-date documentation of the operational waste management system for all tenancies other than the Sydney Theatre Company.

Condition D11 of SSD8671 states:

“Prior to the commencement of use, an updated Waste Management Plan (WMP) prepared by a suitably qualified person shall be submitted to the Certifying Authority. The WMP must be prepared in consultation with Council and the EPA.

The WMP must outline all measures that would be implemented to ensure the effective management of operational waste associated with the development. The WMP must outline how waste would be minimised, handled, stored and disposed of in accordance with the relevant guidelines and legislation.

Prior to the commencement of use, a copy of the WMP must be submitted to Council, the EPA and the Secretary.”

Consent conditions relating to waste management for Sydney Theatre Company under SSD7561 are addressed in a separate waste management plan, which has been reviewed and aligns to the waste management system presented in this report.

1.5 Project history

Arup prepared a waste management plan for the precinct in 2017. This was prepared in response to the SEARs requirements and submitted in support of the Environmental Impact Statement for the Walsh Bay Arts Precinct. This preliminary waste management plan focused on sizing of the central waste storage room, which has informed subsequent detailed design. It also included agreed arrangements for waste management for the Sydney Theatre Company (STC), with food waste and general (wet) waste from the STC tenancy kitchen being stored within the central waste storage facility and collected as part of the precinct waste management servicing contract. STC retain separate storage of other waste materials within their Level 1 tenancy in the Wharf 4/5 Shore Sheds. STC manages a separate collection contract for these materials using the Pottinger Bridge access to their tenancy.

The Walsh Bay Precinct was approved for development in 2018. Two separate development approvals were issued. SSD7561 relates to the Sydney Theatre Company premises, whilst SSD 8671 relates to all other parts of the precinct. Both development consents include a condition to update the Waste Management Plan prior to commencement of use, to include more detailed consideration of items such as collection vehicle access and access to the waste storage room for

approval by City of Sydney, and reflecting any changes to the precinct design which may have occurred during the detailed design and construction period.

As of 2020, construction is underway and the precinct is undertaking operational readiness work, including preparation of an operational waste management plan. The primary purpose of this plan is to offer a greater level of detail about WMP elements such as collection vehicle assess and high-level site logistics for waste management and roles and responsibilities for precinct operation. The operational waste management plan will be submitted to the City of Sydney for approval.

It is noted that the City of Sydney released new waste management guidelines in 2018, including updated usage types for commercial spaces and increased guideline waste generation rates. However, under the SSD process, the approved preliminary waste management plan has formed part of the basis of design since SSD approval was granted and waste generation rates from the approved 2017 plan should be retained. Significant variations to an approved proposal under the SSD process, including major changes to floor areas or waste generation, would trigger a modification process and incur significant project delays, which is not appropriate in this instance. It is acknowledged that SSD projects typically have significant delivery timeframes and updates to guidelines or environmental standards may occur during this time. However, the approval of the 2017 WMP under the SSD pathway remains valid and provides certainty for the project to progress. Consultation with CoS is an important step to explore how the approved 2017 WMP continues to provide adequate waste storage and flexibility for future changes, without undertaking a full update to the 2018 CoS Guidelines.

The approved 2017 WMP is attached for reference.

1.6 Site constraints

The buildings within the Walsh Bay Precinct are heritage listed and all redevelopment modifications are constrained by the need to respect the heritage character and structural features of the site.

The waste rooms have been sized and constructed based on the 2017 waste management plan and there is not scope for modification of this space.

The precinct does not have a single body-corporate entity responsible for waste management and cleaning services. Tenants are responsible for contracting cleaning services, including waste management within their tenancies and collection for some irregular waste generation such as performance sets, while Create NSW is responsible for the management of the central waste storage room and regular waste collection contract.

2 Guidelines and objectives

The overarching objective of this waste management plan is to ensure that the Walsh Bay Arts and Cultural Precinct has a waste management system which is compliant with development consent conditions and local government

requirements and meets all expectations of precinct tenants, visitors and contractors with respect to:

- Amenity, preventing unacceptable odours, noise, vermin nuisance or visual impacts
- Safety for waste handling staff, visitors and building tenants
- Effective and practical waste management service
- Clear roles and responsibilities.

2.1 Local government requirements

The City of Sydney (CoS) Guidelines for Waste Management in New Developments were updated in 2018, after the approval of the WBAP WMP under the SSD process. The approved WMP remains the basis of design and guiding document for the development of this updated plan. However, wherever possible this waste management plan was developed having regard to:

- Section A: General Requirements
- Section D: Non-residential developments
- Reference C: Design requirements for collection vehicle access
- Reference D: Waste and recycling storage area construction

Reference A: Waste generation rates (2018 updates provide new usage categories and separate food waste generation rates) was not adopted as this would be a significant change compared to the 2017 WMP approved under the SSD process.

3 Waste management system

3.1 Waste streams

Table 2 identifies the waste streams which will be generated during operation of the proposed development for Pier 2/3 and Wharf 4/5:

Table 2: Operational waste streams

Operational Area	Waste Streams
Performing arts tenancies, including offices, workshops, rehearsal spaces, performance venues and tenant' function spaces	General waste
	Paper and cardboard
	Co-mingled recyclables
	Timber
	Beverage containers (CDS-eligible)
	Hard waste or bulky items (eg. construction waste from workshops, furniture)
	Electronic waste

Operational Area	Waste Streams
Commercial event spaces and catering kitchens	Liquid waste including paints, solvents, dyes etc
	Sanitary waste
	General waste
	Food organics
	Beverage containers (CDS-eligible)
	Paper and cardboard
	Co-mingled
	Hard waste or bulky items
	Cooking oil
	Electronic waste
	Sanitary waste
Tenants' shared foyers and amenities	General waste
	Co-mingled
	Paper and cardboard
	Hard rubbish or bulky items
	Sanitary waste
	Bathroom waste

3.2 Generation

The estimation methodology and resulting waste storage requirements have been retained from the 2017 WMP approved through the SSD process. This methodology uses a hybrid approach to provide the best fit for performing arts tenancies and commercial spaces.

Waste generation rates for performing arts tenancies are retained as estimated in 2017. These are based on waste data and visitor data from pre-existing SDC, STC and Bangara operations, which has been scaled based on predicted visitor numbers for the completed development.

Waste generation in commercial tenancies were estimated by applying the 2014 CoS Guideline waste generation rates, based on the expected usage of the space and floor areas.

The STC waste allocation in the central waste storage room was adopted from the STC waste management plan and is based on STC operation experience. Only food and general (i.e. wet) waste from the STC kitchen will be stored in the central waste storage room.

3.2.1 Performing arts waste generation

Due to the industry-specific nature of the performing arts tenancies, the standard waste generation categories in the 2014 and 2018 CoS Guidelines do not apply well to many spaces in the precinct, such as workshops, rehearsal studios and

costume stores. Waste generation data within the performing arts tenancies is estimated based on actual waste data from SDC, Bangara and STC operations prior to the site redevelopment, collected and analysed by Arup in 2016/17. This data has been used to develop per-visitor waste generation estimate for the performing arts tenancies, which was then applied to projected visitor numbers for the completed WBAP precinct.

Estimated daily visitors for the completed WBAP precinct are based on the WBACP Modelling Scenarios (as provided to Arup on 4 September 2017). It is important that waste storage space can accommodate probably peak waste generation while preserving amenity for all visitors and staff. Consequently, the waste modelling adopts *Scenario 1: Peak Population*. This includes all visitors and staff expected to attend the precinct within a day. It represents the maximum number of concurrent events expected to occur within the precinct. The scenario considered utilisation patterns for each tenancy across the day and differing weekend and weekday profiles. It also considered seasonal utilisation patterns, and applied normalisation factors to account for significant periods without performances.

This means that *Scenario 1: Peak Population* does not reflect concurrent use of all spaces at maximum capacity. Rather, this scenario represents the most probable upper limit of total visitors that could occur at any one time, as seen below in Table 2.

In comparison, visitor numbers in the *Everyday Population* scenario are approximately 50% of *Peak Population*, reflecting different scheduling days and times for performances in the different tenancies, periods without ticketed events and events which do not attract maximum-capacity crowds.

Table 2: Applicable daily visitor numbers to performing arts tenancies under Peak scenario

Operational Area	Peak daily population
Australian Chamber Orchestra ¹	1,288
Australian Theatre for Young People	264
Bell Shakespeare	372
Bangara Dance Theatre	1,049
Sydney Dance Company	528
Choirs	126

Existing waste data from the performing arts tenancies has been used to generate the per visitor rates, and applied to the *Peak Population* visitor estimates to estimate overall waste generation from the WBAP development. Resulting daily waste generation is summarised in Table 3.

In addition, in their final operational waste management plan, Sydney Theatre Company has requested that food waste and general (wet) waste from the STC kitchen in Wharf 4/5 be stored in the central waste storage room. A daily storage

¹ Includes visitor and staff numbers associated with events

allowance of 3 x 240L general waste bins and 1 x 240L food waste bin was nominated by STC based on their operational experience of this existing space.

Table 3: Summary of visitor-based waste generation estimates for performing arts tenancies

Area/ Tenancy	Waste generation basis	General waste (L/day)	Paper & card (L/day)	Co-mingled (L/day)	Food organics (L/day)
Wharf 4/5					
Wharf 4/5 performing arts	2017 estimation uses tenancy data and visitor projections				
- Bangara					
- SDC					
- Choirs		3,817	1,059	1,857	0 ²
STC kitchen - food organics and general (wet) waste only	Based on STC operations experience and WMP	720	n/a	n/a	240
Pier 2/3					
Performing arts tenancies	2017 estimation uses tenancy data and visitor projections	4,312	1,197	2,098	n/a (no kitchens)

3.2.2 Commercial waste

For all commercial tenants throughout WBACP, 2014 CoS guideline waste generation rates based on total gross floor area (GFA) have been used to calculate weekly waste volumes.

Table 4 identifies the appropriate generation rates for areas within WBACP. It is assumed that the commercial tenants' cleaning staff will manage the adjacent foyers, public spaces and amenities.

Table 4: Waste generation rates for areas within WBACP

Commercial tenants	Room use ³	Applicable 2014 CoS space use	General waste rate (L/100m ² /day)	Recycling rate (L/100m ² /day)
Commercial 1 function space	Multi-purpose hall	Showroom	10	25
Commercial 1 kitchen and BoH	Kitchen	Restaurants	190	190
Commercial retail 2-4	Shop	Cafes	215	130

² No food waste separation in place, resulting in no food waste estimate in the approved 2017 WMP based on the data-driven waste generation estimate.

Commercial tenants	Room use ³	Applicable 2014 CoS space use	General waste rate (L/100m ² /day)	Recycling rate (L/100m ² /day)
Public foyers	Multi-purpose hall	Showroom	10	25
Back of house/ support spaces	Store	Showroom	10	25
Amenities	Amenities	Showroom	10	25

Table 5 provides an overview of gross leasable areas (GLA) within the proposed development (as provided to Arup on 4 September 2017) that contribute to operational waste generation for commercial tenancies.

Table 5: GLA per operational area

Operational Area	Pier	GLA (m ²)
Commercial 1 function space	2/3	1,730.3
Commercial 1 amenities	2/3	53.6
Commercial 1 kitchen and BoH	2/3	155.4
Commercial retail 2	4/5	45.3
Commercial retail 3	4/5	389.5
Commercial retail 4	4/5	331.7
Tenants' shared foyers ⁴	2/3	1687.7
Tenants' shared amenities	4/5	302.8
Tenants' shared foyers ⁵	4/5	8.5
Total		4,704.8

Table 6: Floor-area based daily waste generation estimates for commercial spaces and tenants' shared foyers and amenities.

Area/ Tenancy	General waste (L/day)	Paper & card (L/day)	Co-mingled (L/day)	Food organics (L/day) ⁶
Wharf 4/5 and shore sheds				
Commercial 2, 3 and 4	1,648	888	108	588
Public foyers	18	10	1	0
Pier 2/3				

⁴Area calculation includes foyer bars, amenities and shared services on all levels

⁵Area calculation includes foyer bars, amenities, shared services on all levels

⁶ 2014 CoS Guidelines did not include food waste generation rates. However, separate food waste generation was estimated for food retail tenancies by applying typical capture rates for source separated material and standard waste composition data based on a 2012 study into commercial and industrial (C&I) waste and recycling in Australia by industry division, publicly available here: <https://www.environment.gov.au/system/files/resources/91b2180c-b805-44c5-adf7-adbf27a2847e/files/commercial-industrial-waste.pdf>

Area/ Tenancy	General waste (L/day)	Paper & card (L/day)	Co-mingled (L/day)	Food organics (L/day) ⁶
Commercial 1	474	661	322	0
Public foyers	169	376	46	0
Total				
Total for commercial spaces and public foyers	2,309	1,935	477	588

3.2.3 Overall waste generation

Table 7 presents the total daily waste generation to be accommodated in the central waste storage room, bringing together:

- Waste generation from the performing arts tenancies, based on tenant data and projected visitor numbers for performing arts tenancies. This is unchanged from the approved 2017 WMP.
- Waste generation from the STC kitchen, as nominated by STC in their 2020 WMP, based on their operational experience.
- Waste generation from commercial tenancies and public foyers based on the 2014 CoS Guidelines waste generation rates and floor areas. This is unchanged from the approved 2017 WMP.
- Hard waste storage allowance refined using 2018 CoS Guidelines. This replaces a generic allowance in 2017 WMP, as no guidance was available at the time and application of the 2018 CoS Guidelines to the precinct floor areas allows a reduction in hard waste storage area.

Table 7: Expected waste generation directed to central waste storage room (L/day).

Area/ Tenancy	2014 CoS classification	General waste (L/day)	Paper & card (L/day)	Co-mingled (L/day)	Food organics (L/day)
Wharf 4/5					
Wharf 4/5 performing arts	n/a				
- Bangara	2017 estimation				
- SDC	uses tenancy data				
- Choirs	and visitor projections	3,817	1,059	1,857	0
STC kitchen (food organics and general (wet) waste only)	n/a	720	n/a	n/a	240
	Based on STC operations experience and WMP				
Public foyers	Showroom	18	10	1	0
Shore sheds					

Area/ Tenancy	2014 CoS classification	General waste (L/day)	Paper & card (L/day)	Co-mingled (L/day)	Food organics (L/day)
Commercial 2, 3 and 4 (41.3m ² , 397 m ² and 284.9m ² respectively)	Food service - cafes	1648	888	108	588
Pier 2/3					
Performing arts tenancies	n/a				
- ACO	2017 estimation				
- Bell Shakespeare	uses tenancy data				
- ATYP	and visitor projections	4,312	1,197	2,098	n/a (no kitchens)
Commercial 1 (1889 m ²)	Multi-purpose hall - showroom	474	661	322	0
Public foyers (367m ²)	Showroom	169	376	46	0
Total in central waste storage room (L/day)		11,158	4,191	4,432	828

3.2.4 Hard waste

Hard waste includes bulky items such as furniture and set elements which are potentially recyclable but require storage space. It also includes problematic items such as batteries and e-waste what can be harmful to the environment if not separated from general waste and disposed correctly.

The 2017 WMP allocates 24m² for hard waste storage. No prescriptive guidance on hard waste storage was available from the City of Sydney at that time, and 12m² per pier was adopted as a typical allowance. The hard waste allowance has been refined in this updated WMP on the basis that:

- Prescriptive guidance on hard waste storage is now available in the CoS Guidelines 2018 and can be applied to refine the hard waste allowance.
- Agreements with performing arts tenants will clearly allocate responsibility for direct collection/disposal of some bulky elements such as sets, without reliance on the central waste storage space and CreateNSW collection contracts.

Section D (item 1.1) of the CoS Guidelines 2018 requires the following provision for storing bulky and problem waste:

- 4m² for developments between 100m² and 2,000m²
- An additional 4m² is required for each retail, accommodation or entertainment development over 2,000 m² and for every 20,000 m² of office space.

Sydney Theatre Company will manage their own bulky waste via the Pottinger Street bridge entrance and will not require storage space in the central waste storage room.

Under these guidelines, at least 15.5m² of storage space is required in the central waste storage room for bulky and problem waste.

3.3 Storage

Waste storage requirements were the focus of the 2017 WMP, to ensure adequate space was allocated during subsequent detailed design. A minimum of 137m² was requested in the 2017 WMP, including a bin scaling factor of 2 to allow for manoeuvrability and accessibility. The collection frequency was assumed to be every day (i.e. seven times a week) for general waste and organic waste, and every two days (i.e. four times a week) for comingled recycling and paper/card recycling.

However, at most 110m² is available in the as-constructed waste storage room, and there is some conflict with services pipework installed at the southern end of the room. As a result, the room is more highly constrained. This waste management plan retains the waste generation rates in the approved 2017 WMP, but assumes daily collection of paper and card and comingled recycling. This reduces the storage space required in the central waste storage room and enables additional inclusion of an on-site bin-wash and enables some operational flexibility to accommodate greater source separation of organics than allowed in the 2017 WMP.

Waste storage area requirements are calculated from daily waste generation estimates, assumed daily collection frequency, and Australian Standard mobile garbage bin sizes.

The recommended waste storage room requirements are outlined Table 8 and illustrated in Figure 3.

Table 8: Storage and equipment requirements within the central waste storage room to accommodate peak waste generation, based on daily collections.

Waste stream	Requirements
General Waste	16 x 660L MGB 3 x 240L MGB for STC use
Organic Waste	4 x 240L MGB
Cooking Oil	1x waste cooking oil vat or 2 x 20L drum within the bunded area.
Other liquid waste (paint, solvent, cleaning products etc)	1 x shelving within the bunded area
Comingled recycling (including dedicated bin for CDS)	4 x 660L comingled MGB 4 x 660L CDS MGB
Paper/Card	7 x 660L MGB
E-waste	Small receptacle within hard waste area

Waste stream	Requirements
Bulky items and oversized waste	15.5m ²
Bin washdown	Suitable for 660L MGB Requires water and sewerage connection

The central waste storage room is located in Shore Shed 4/5, with access via a ramp from Shore Shed 4/5 Breezeway 2.

This WMP presents an indicative viable layout for the central waste storage room. CreateNSW will have operational control of the waste storage room and has operational flexibility to:

- Adapt the proportion of different bin types based on operational experience of waste generation at the precinct and changes over time. For example, the precinct could implement source separation for food waste in all kitchens, reduce the number of general waste bins and replace them with organics bins containing the separated food waste stream.
- Rearrange bins to a different layout based on staff preference and operational experience
- Undertake bin-washing as an external contracted service, increasing operational costs but reducing floorspace requirements and staff time for bin washing in the central waste storage room.

In the indicative layout, oil storage and cleaning products are located within the same bunded area. The bin wash should be provided with a water and sewer connection, and should be relocated when the location of this connection within the room is confirmed.

The hard waste area will be visually delineated (i.e. painted lines on floor), but not physically separated. Prompt transfer of hard waste for recycling or disposal will make this space available to assist with manoeuvring in the central waste storage room during normal operations.

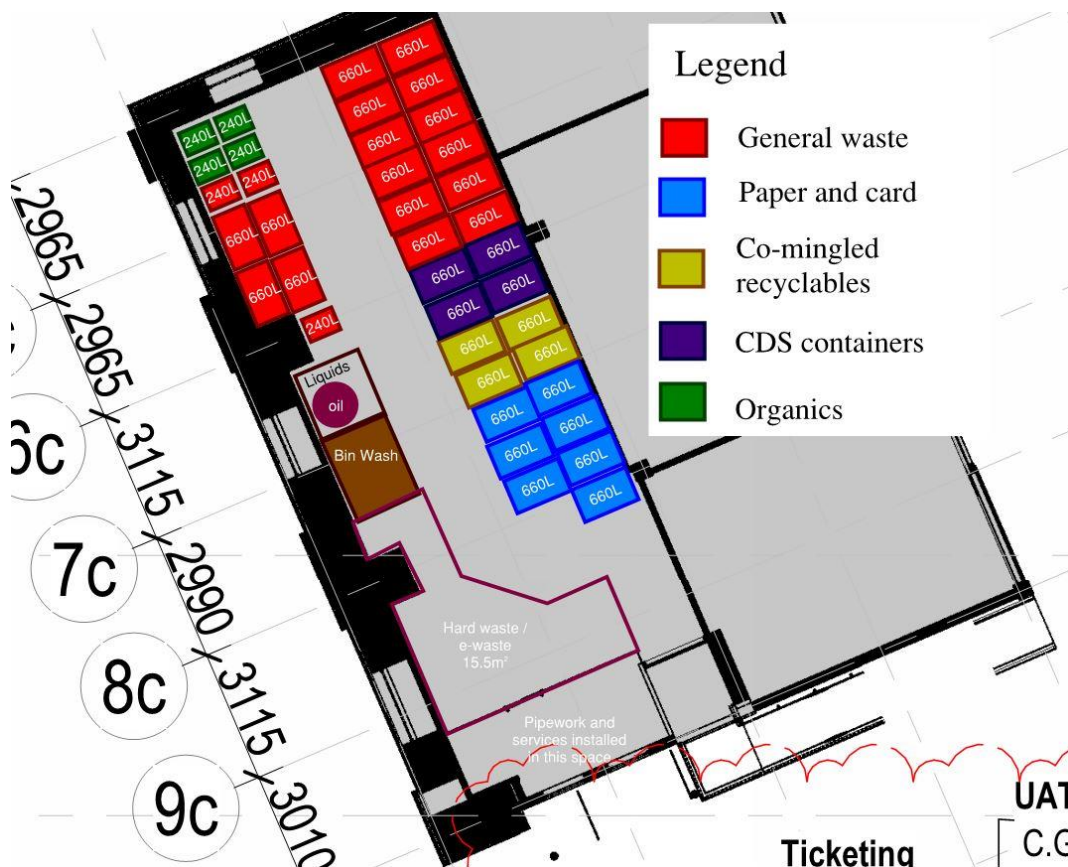


Figure 3: Indicative central waste room layout. Shown on drawing STC_A_1100

3.4 Trends towards source separation

The waste generation rates used in this WMP are retained from the 2017 WMP approved through the SSD process. However, it is acknowledged that there is a preference for transition towards greater source separation of materials for high-quality recycling, as reflected in 2018 changes to the CoS Guidelines. WBAP has operational flexibility to accommodate increasing source separation within the central waste storage room.

The indicative bin layout shows that part of the comingled recycling bin allocation could be designated specifically for CDS-eligible containers (total number of bins remains unchanged). Similarly, the number of food waste bins shown in the indicative waste room layout reflects the food waste separation allowed in the approved 2017 WMP. Food waste separation was not required or commonly practiced when the 2017 WMP was developed and was allowed for Commercial 2, Commercial 3 and Commercial 4 tenancies only (cafes/bars). However, there are additional kitchens in the precinct which will be used either by performing arts tenants (SDC and Bangara) or commercial tenants (Commercial 1 and Commercial 6) to cater for functions. If food waste separation is implemented in additional kitchen spaces, the number of general waste bins could be reduced and this allocation within the central waste storage room could instead be used for 240L organics bins to store the diverted food waste.

3.5 Temporary waste storage

A temporary storage space is provided within Pier 2/3, with access via the BoH lift 4 and scissor hoist 2 to the wharf apron. This will be used primarily to discretely contain excess waste generated during events. A detailed waste management and logistic plans and provision for waste storage within the fit-out of function venues will also be required but does not form part of this base-build waste management plan.

The temporary waste storage room not be used for general waste consolidation throughout the day as tenants will move waste directly from bins within their tenancies to the central waste storage room, using the electrified materials handling devices.

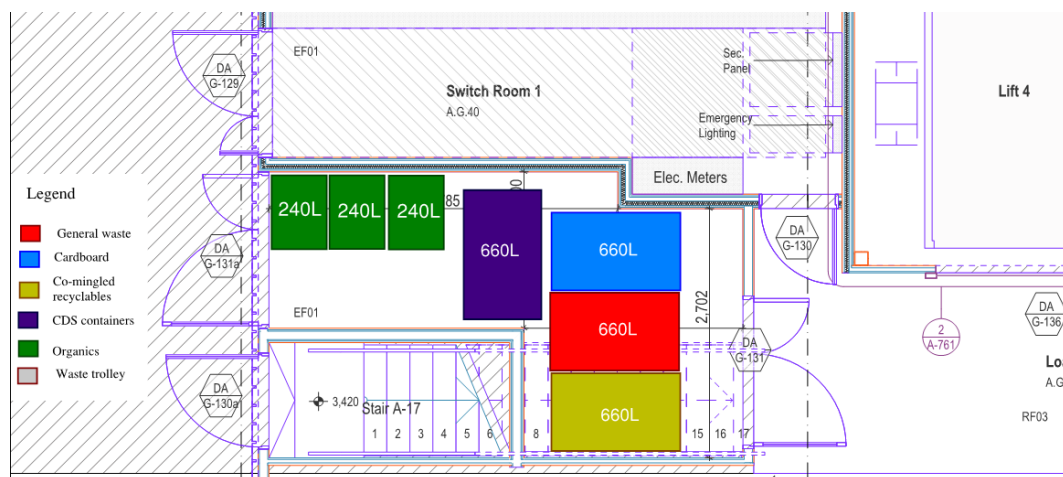


Figure 4: Temporary storage room in Pier 2/3 indicative layout.

3.6 Construction of storage area

The 2018 CoS Guidelines provide the following advice on construction of waste storage areas to preserve security, amenity and practical operation for all users (Reference D). As these provisions relate to fit-out rather than structural design and no conflicting requirements were specified in the 2017 WMP, it is appropriate to use the 2018 CoS Guideline advice. Waste storage areas should include the following practical features:

- The floors, walls and ceilings of waste and recycling storage areas and chute room(s) are to be finished with a rigid, smooth-faced impermeable material capable of being easily cleaned.
- The floors of waste and recycling storage areas are to be graded and drained to a Sydney Water approved drainage fitting. The floor is to be provided with a ramp to the doorway where necessary.
- A close-fitting and self-closing door or gate operable from within the room is to be fitted to all waste and recycling storage areas.

- All doors/gates to the waste and recycling storage rooms are to provide a minimum clearance width of 900 mm.
- At least one door or gate to the waste and recycling storage area is to have sufficient dimensions to allow the entry and exit of waste containers of a capacity nominated for the development, in this case 1.2m width to accommodate 660L bins. Adequate ramp width is also required to accommodate 660L bins.
- Lightweight roller shutter-type doors or grilles should be considered for access to waste and recycling storage areas, as these do not impact on the available storage space. If these types of doors or grilles are used, the requirement for a close-fitting and self-closing door remains, so that waste collectors can access the waste and recycling storage area other than through the roller door or grille.
- The design shall restrict the entry of trespassers, vermin or other animals into the area.
- The waste and recycling storage area is to be provided with an adequate supply of water for cleaning purposes with a hose cock.
- The waste and recycling storage area is to be adequately ventilated by either:
 - o Natural ventilation openings to external air. The dimension of the openings are not to be less than 5 per cent of the bin bay or bin room floor area
 - o A mechanical exhaust ventilation system in accordance with relevant Australian standards.
- Waste and recycling areas are to be provided with artificial light controlled by switches located both outside and inside the storage area.
- Any compactors or mechanical devices, if permitted for the mechanical handling and storage of waste and recycling, are to be fitted with safety operating and cut-off systems.
- Any facet of the waste and recycling management system that is visible from outside the building is to be in keeping with the dominant design of the remainder of the development.

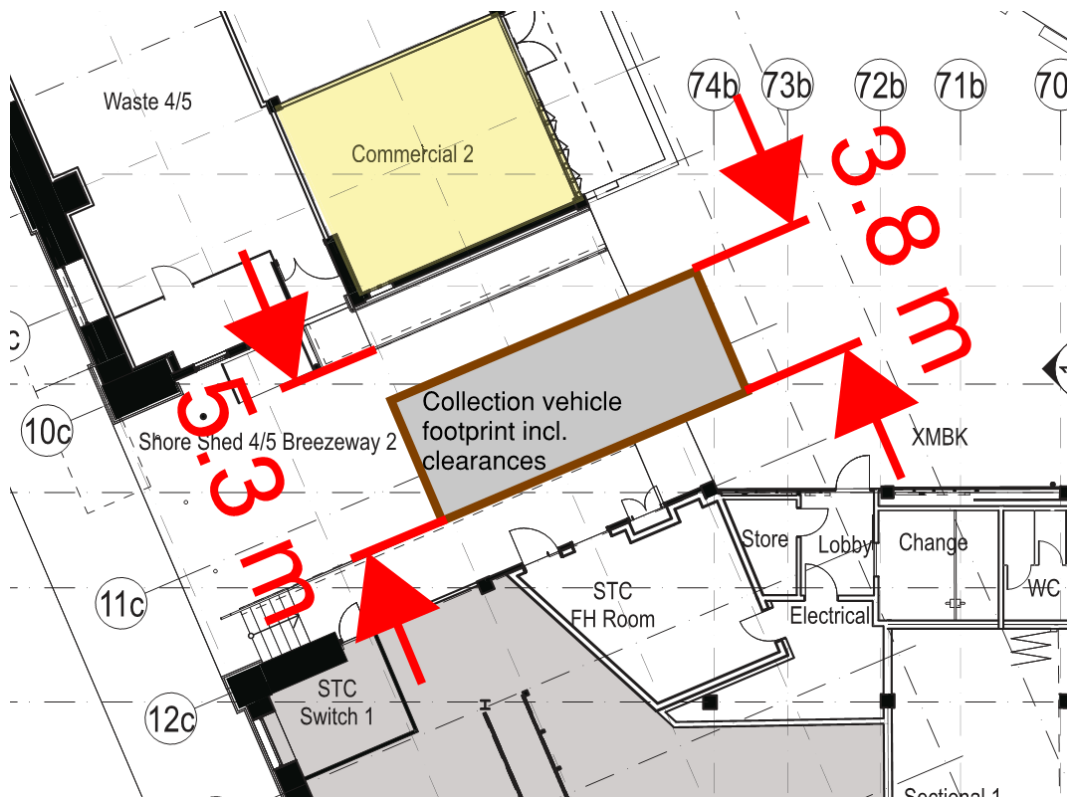
No refrigerated storage areas are provided as food waste will be collected daily.

3.7 Collection

Waste will be collected daily from the central waste storage room.

Vehicle access to the site is provided from Hickson Rd to Shore Shed 4/5 Breezeway 2. The waste collection point is within Shore Shed 4/5 Breezeway 2, immediately adjacent to the central waste storage room.

The collection vehicle will enter the breezeway in a forward direction and complete a three-point turn manoeuvre on the wharf apron to exit in a forward direction upon completion of collection. This has also been outlined in the Walsh Bay Arts Precinct Operational Transport Plan 25 May 2020, developed by JMT.



| Final | 27 July 2020 | Arup

\\GLOBAL.ARUP.COM\\AUSTRALASIA\\SYD\\PROJECTS\\248000\\248794-00 WALSH BAY ARTS\\WORK\\INTERNAL\\DESIGN\\WASTE\\2020 VARIATION\\WORK\\REPORT\\WASTE MANAGEMENT PLAN ISSUE 2020727.DOCX



Figure 6: Location of collection point in Wharf 4/5 Breezeway 2. Drawing A-205 Shore sheds – Sth Elevation + Breezeway - Proposed. For coordination 21/2/2019

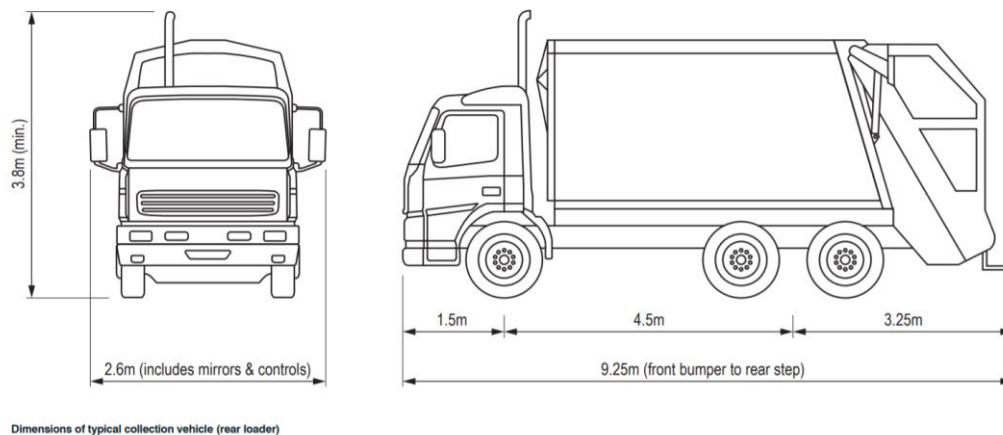


Figure 7: Dimensions of typical rear-load collection vehicle. CoS Guidelines 2018 page 36. An additional 600mm clearance is required on either side of the vehicle.

3.8 Roles and responsibilities

During the development of this waste management plan, Arup has consulted with performing arts and future commercial tenants, and incorporated their feedback into the final plan, to ensure that the waste management system is practical and meets the needs of all precinct stakeholders.

Table 9 below outlines responsibilities and duties for each stakeholder in the waste management system. Figure 10 illustrates the flow of materials for different waste streams and handover of responsibility from tenants' cleaning staff to Create NSW.

Table 9: WBAP roles and responsibilities

Task	Frequency	Responsibility	Additional Comments
Separating waste and depositing it into the correct on-floor bins or back-of-house bins.	Continuously	All tenants, visitors, staff	On floor bins provided for general waste and comingled recycling throughout the precinct. 660L cardboard bins provided in back-of-house areas and workshops. Bins for food waste and CDS containers provided in kitchens and bars.
Emptying of bins within tenancies, consolidation into 240L bins.	Daily	Tenants' cleaning staff	Full bin liners typically collected from on-floor bins by cleaners using a hand-trolley, or a 660L MGB.
Transport of waste from tenancies to the central waste room	Daily	Tenants' cleaning staff	Waste is transported primarily in 660L bins, with the exception of organics, which are transported in 240L bins to avoid excessive weight. The distance from the Pier 2/3 temporary storage room and some tenancies in both Pier 2/3 and Wharf 4/5 to the central storage room is over 100m. An electrified materials handling device will be available for the transportation of bins to reduce manual handling effort and minimise OHS risks.
Processing and reporting of precinct waste data	Quarterly	Create NSW	Waste collections service provider will provide data monthly to Create NSW. This used to provide general feedback to tenants.

Task	Frequency	Responsibility	Additional Comments
Movement of 660L bins from the central waste storage room to the collection point	Daily	Create NSW	<p>Manual handling of bins to the collection point. Use of a hand-guided motorised tug is recommended to assist with movement on the ramp.</p> <p>Door width must be at least 1.5m to accommodate 660L bins.</p> <p>The ramp for wheeling bins between from the waste storage room to the collection point is not to exceed a grade of 1:14 at any point and must be wide enough to accommodate 660L bins.</p> <p>Ramp will be constructed to meet these requirements.</p>
Collection of bulky waste	As required	Create NSW	Agreements with performing arts tenants will clearly allocate responsibility for collection/disposal of some bulky elements such as sets.
Collection of waste oil	As required	Tenants' cleaning staff & Create NSW	Tenants to transfer to collection point and Create NSW to facilitate collection.
Collection of liquid wastes (paints, solvents etc)	As required	Tenants' cleaning staff & Create NSW	Tenants to transfer to collection point and Create NSW to facilitate collection.
Cleaning of the central waste storage room	Weekly	Create NSW	Bin wash for 660L bins allocated in central waste storage room.
Cleaning of Pier 2/3 temporary waste storage room.	Weekly, or after high-usage events	Create NSW	

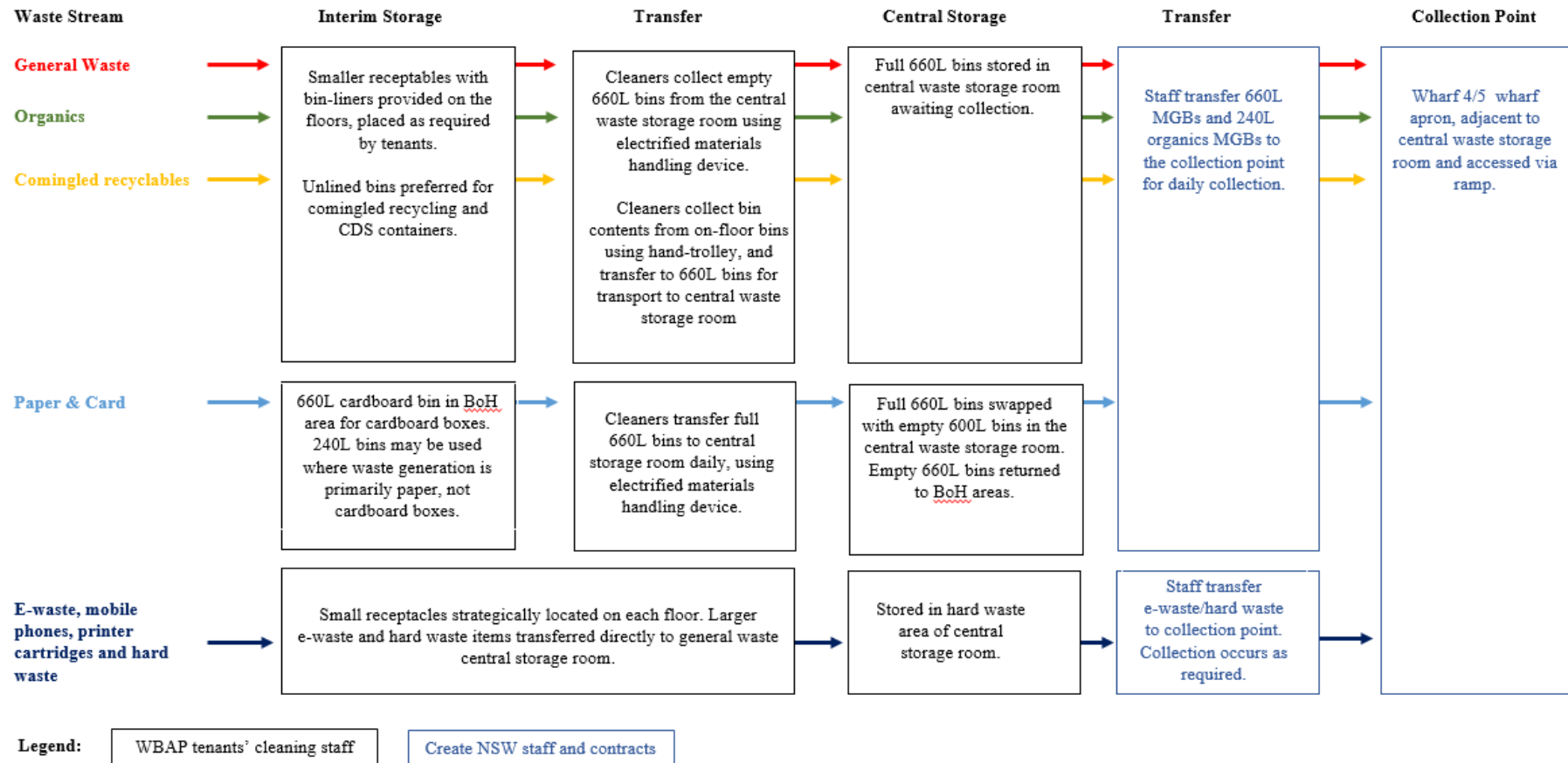


Figure 8: Waste management flows and responsibilities

3.9 Waste carting apparatus

Due to configuration constraints within the precinct, waste carting distances are significant. To maintain the operational efficiency of the waste system and to address OHS requirements, the use of electrified materials handling devices will be required.

There are various electrified materials handling equipment options on the market that would suit the requirements of the development, offering different towing configurations and attachments. Examples of several suitable devices this purpose is shown below in Figure 9 below. It is recommended that a multi-purpose towing unit be selected, with attachments suitable both for moving several 240L organics bins and 660L bins for other waste streams. Charging and storage space will be needed for the device. A hand-guided option could be accommodated in the central waste storage room, whereas a ride-on device would be unable to enter the central waste storage room due to manoeuvring constraints on the entry ramp, and an alternative secure parking location would be needed.

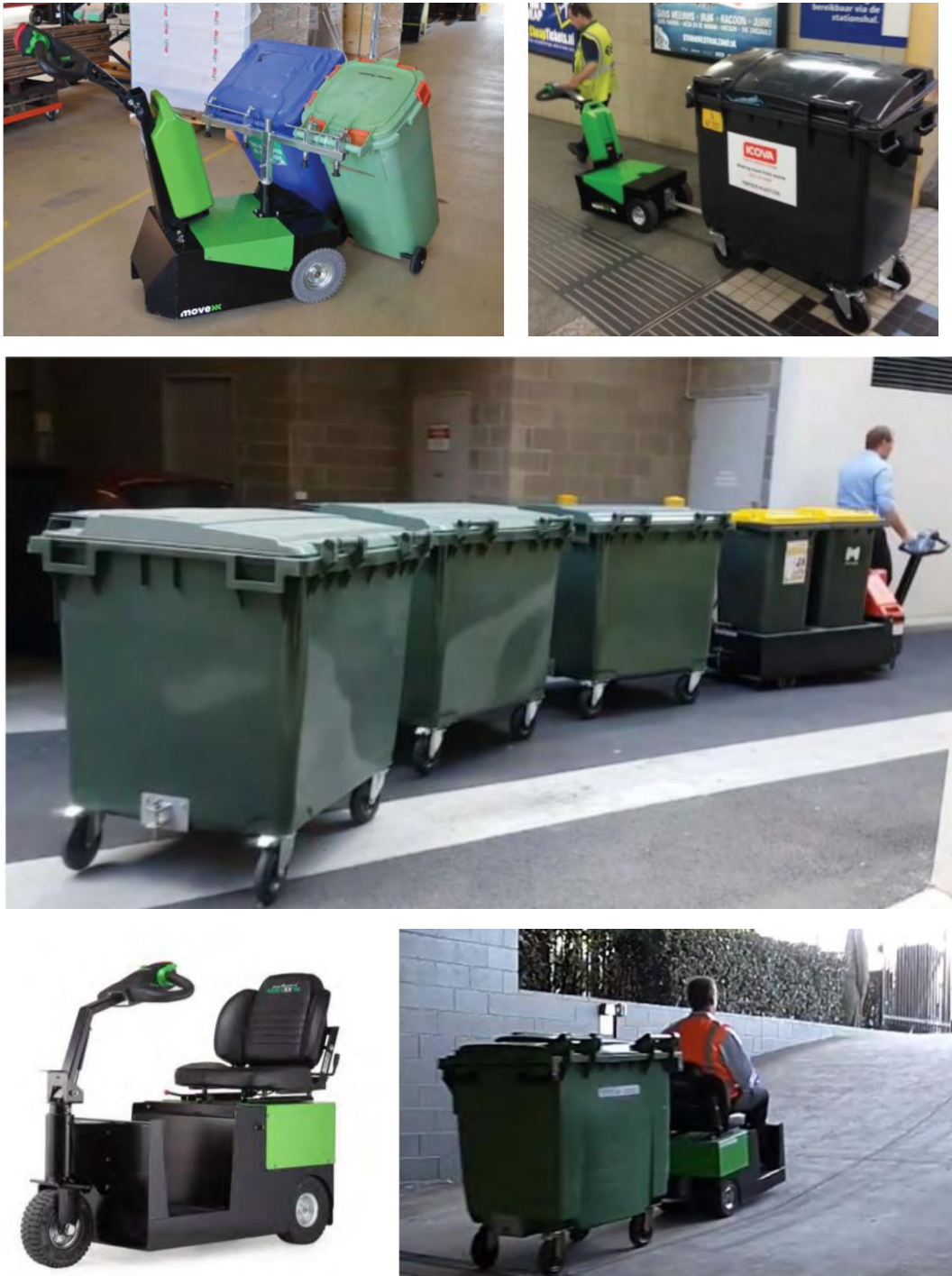


Figure 9: Examples of electrified towing devices with attachments for multiple bin types.
7

⁷ <https://www.sitecraft.net.au/wp-content/uploads/2018/08/Sitecraft-Battery-Electric-Wheelie-Bin-Movers-NP-1.pdf>

4 Further opportunities

The provisions for waste separation and clarification of roles and responsibilities within this waste management plan are sufficient to ensure safety and amenity at the Walsh Bay Precinct and provide flexibility to accommodate operational changes and increasing source separation.

In their 2018 guidelines, CoS has set an ambitious target of 90% waste diversion by 2030, which currently represents exemplary practice. Additional commitment from Create NSW and tenants and resources will be needed to progress towards this target. In future, the precinct stakeholders may wish to consider some or all of the following changes:

- Set design and back of house construction reuse and recycling programs, with a focus on tailored approaches for the specialist performing arts waste streams. Funding support for this could be obtained through the NSW EPA Bin Trim program.
- To reduce paper waste, printing facilities can be limited to one central location on each floor. Creating digital spaces which enable advanced technology, such as communal screens for sharing information and viewing documents, will also reduce paper waste from printing activities.
- Commitment to eliminate single use plastics from catering and function spaces within the precinct. This could involve transition to reusable crockery items, and onsite washing and storage. Alternatively, it could involve transition to compostable alternatives which are compatible with the food waste collection system.
- On-site bin weighing to allow tenant-level feedback on waste generation and waste avoidance. On-site bin-weighing is now preferred by CoS, but was not allowed for in the 2017 approved WMP and has not been adopted at this stage in order to keep the system as simple as possible for tenants within the constrained storage space.
- Visual inspection of bins delivered to central waste storage room by Create NSW staff and ongoing engagement and education with tenants to improve waste separation for resource recovery. This approach is used as part of the best-practice waste management system at Barangaroo, in combination with tenant level bin-weighing, to provide regular and useful feedback to tenants which supports continual improvement and identification of emerging issues.
- Diversion of residual waste to energy recovery facilities, when available in the Sydney area.

4.1 Educational programs

Arup recommends clear signage and colour coding on the bins in these areas to help educate and support correct segregation. In addition to this, bold and informative posters in the main that illustrate correct recycling practices will increase the volume of recyclables being diverted from the general waste bins.

Waste education will also be integral for the precinct to achieve its waste targets. The precinct should promote waste as a resource to be captured, rather than rubbish being sent to landfill. To do this, Arup recommends the following waste education strategies:

- Public place recycling and awareness programs for visitors
- Bold signage in all common areas that clearly illustrate correct recycling
- Educational and awareness initiatives at special events to educate visitors, commercial / retail tenants about the importance of waste minimisation.
- Sustainable procurement workshop to educate tenants on sustainable procurement practices

Feedback from waste collection services provider can be used to provide insight on current performance and help identify key areas for improvement. Tenants' involvement will be invaluable in driving sustainable waste management.

5 Enacting this plan

This waste management plan details a practical and compliant system for waste management within the Walsh Bay Arts and Cultural Precinct. Prior to commencing operations, Infrastructure NSW and Create NSW must take the following steps to enact this plan:

- Submit this Waste Management Plan to the City of Sydney for approval, following the process outlines in the Guidelines for Waste management in New Developments.
- Submit a copy of the plan to the NSW EPA and the Secretary, complying with Development Consent Condition D11 – Waste Management Plan.
- Put in place a collection contract for waste and recycling materials, complying with Development Consent Condition D24 – Waste and Recycling Collection. Collection times for recycled glass must also respect Development Consent Condition E25 – Storage and Handling of Waste.
- Lease or purchase bins and other equipment required for waste storage and handling.

6 Conclusion

This Waste management Plan presents a practical approach to waste management within the Walsh Bay Arts Precinct which satisfies legislative requirements, local government guidelines and tenant expectations. Sufficient space has been allocated to separate materials for recycling and enable the Walsh Bay precinct to contribute to City of Sydney targets and NSW legislative requirements and policies for resource recovery and landfill diversion.

The WMP satisfies Create NSW obligations with respect to condition D11 – Waste Management Plan of SSD 8671. It will be submitted to the City of Sydney, NSW EPA and the Secretary.

OPERATIONAL WASTE MANAGEMENT PLAN

FINAL July 2020

Overview and Purpose

- To satisfy condition E6 of consent for SSD 7561 and prior to the commencement of use, Sydney Theatre Company has drafted this Waste Management Plan (WMP)
- The WMP works in conjunction with the Walsh Bay Arts Precinct Operational Plan of Management
- The WMP outlines all measures that will be implemented to ensure the effective management of operational waste associated with the precinct.
- This WMP outlines how waste will be handled, stored and disposed of in accordance with the relevant guidelines and legislation.
- Sydney Theatre Company will use our move back to the Wharf to restart our successful Greening strategy Greening the Wharf.

Legislation and Guidelines References

- NSW Environment Protection Agency – Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities
- NSW Waste Avoidance and Recovery Strategy
- Waste Avoidance and Resource Recovery Act 2001
- City of Sydney – Guidelines for Waste Management in New Developments

Location

- Sydney Theatre Company – Wharf 4/5, 15 Hickson Road, Walsh Bay



Waste Streams

- General Waste
- Paper and Cardboard
- Timber
- Mixed Recycling – Plastic, Glass & Aluminium
- Secure Destruction
- Food/Organic
- Metal
- Soft Plastics
- Polystyrene
- E-waste
- Fluro tubes and light bulbs
- Batteries

Waste Storage Locations

Main waste store @ Pottinger Bridge

- 1 x 1100L general
- 1 x 1100L general-timber
- 1 x 1100L paper
- 1 x 1100L comingled
- 2 x 240L glass
- 2 x 240L comingled

Disposal methodology

Waste will be collected at below listed waste disposal locations (excluding Kitchen) by cleaning contracts and moved via the back of house corridor, through the workshop, outside onto the Pottinger St Bridge and into the externally accessed bin store. (Please refer to Red path of travel on below “Areas of Disposal” Maps)

Kitchen waste room adjacent to Lift 8

- 4 x 240L general
- 2 x 240L comingled
- 1 x glass crusher
- 1 x 240L glass
- 1 x 240L paper
- 1 x 240L organic

STC allocation of waste per day in precinct waste room;

- 3 x 240L general waste bin
- 1 x 240L organic waste bin

Disposal methodology

- General and Organic Waste will be collected from kitchen bin store on level 1, loaded into lift 8 and taken down to ground level. Waste will then move along the apron towards hickson road and arrive at precinct waste room in shore shed. (Please refer to Purple path of travel on below “Areas of Disposal” map)
- Recyclable waste will be collected from kitchen bin store, moved via back of house corridor, through workshop and outside onto Pottinger street bring into the Main waste store.

Waste Disposal Locations

Back of House

- Workshops
- Kitchen
- Offices
- Lunch Rooms/ Green Rooms
- Rehearsal Rooms
- Dressing Rooms
- Back of House

Front of House

- Theatres
- Foyers
- Function Areas

Disposal Groups

BLUE

- Offices

GREEN

- Lunch Rooms and Green Rooms

PINK

- Foyers
- Function Areas

PURPLE

- Kitchen

YELLOW

- Back of House
- Dressing rooms
- Theatres

ORANGE

- Workshops

Waste Streams per Disposal Group

BLUE

- General Waste
- Cardboard and Paper
- Mixed Recycling – Plastic, Glass & Aluminium
- Secure Destruction

GREEN

- General Waste
- Cardboard and paper
- Mixed Recycling – Plastic, Glass & Aluminium
- Food/Organic

PINK

- General Waste
- Cardboard and Paper
- Mixed Recycling – Plastic, Glass & Aluminium

PURPLE

- General Waste
- Cardboard and Paper
- Mixed Recycling – Plastic, Glass & Aluminium
- Food/Organic

YELLOW

- General Waste
- Cardboard and Paper
- Mixed Recycling – Plastic, Glass & Aluminium

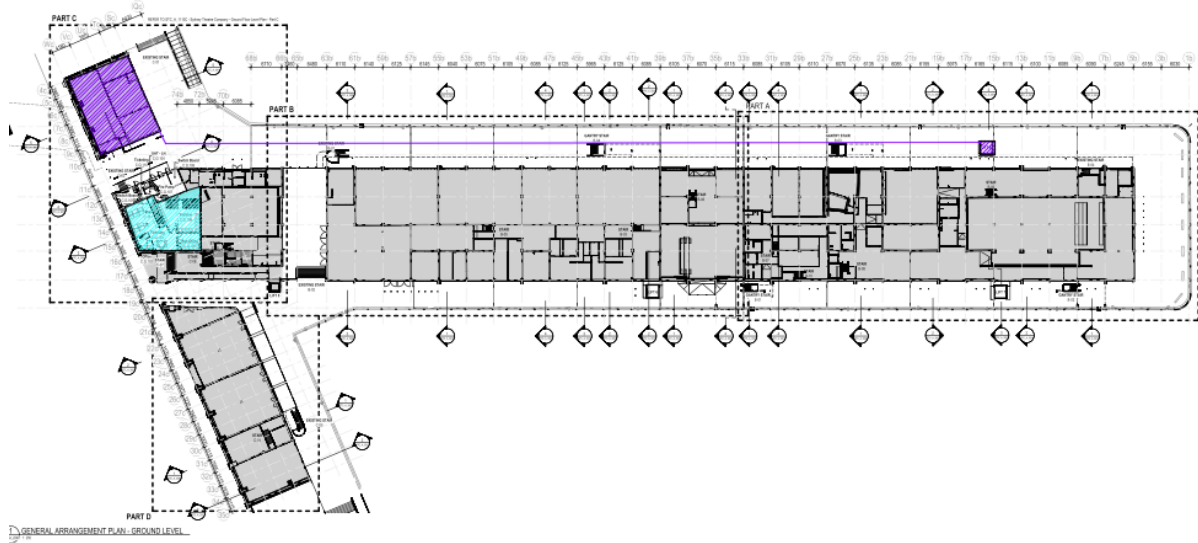
ORANGE

- General Waste
- Cardboard and Paper
- Mixed Recycling – Plastic, Glass & Aluminium
- Timber

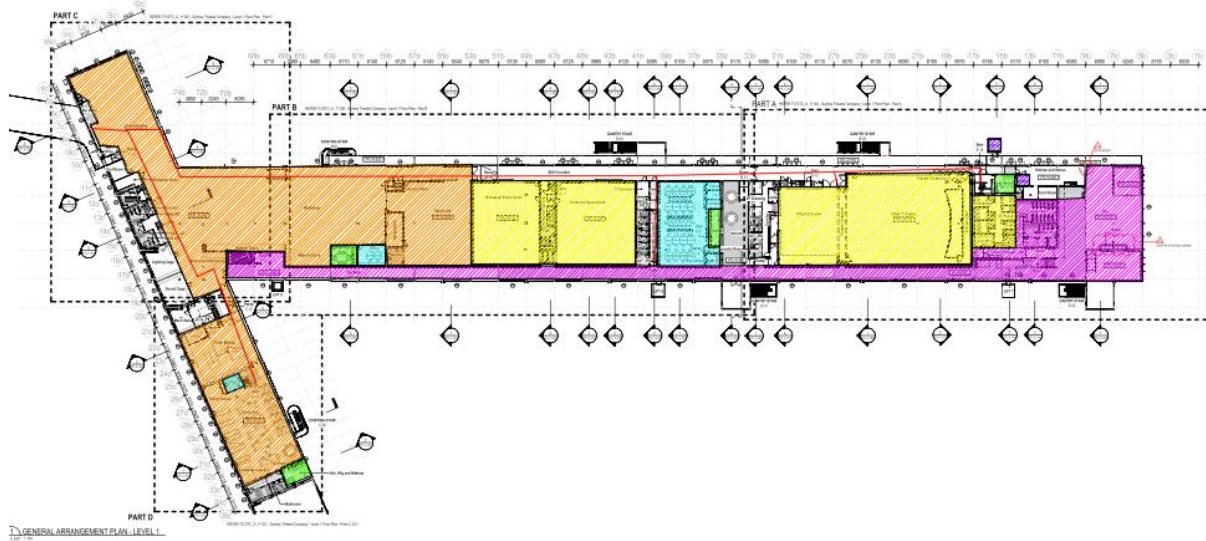
- Metal
- Soft Plastics
- Polystyrene
- E-waste
- Fluro tubes and light bulbs
- Batteries

Areas by Disposal Group

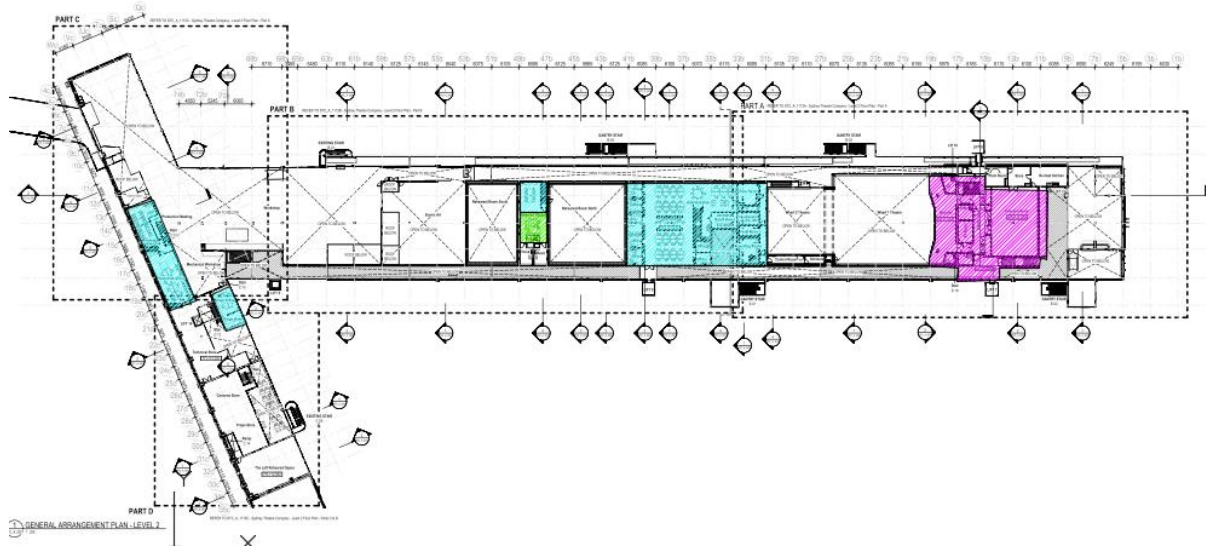
Ground



Level 1



Level 2



Collection Schedules

TBC w/ Waste Contractor

Waste Stream	Responsible for Disposal	Collection Location	Number of Bins	Size of Bins	Frequency
General Waste	Waste Contractor	Pottinger St Bin Store	TBC	TBC	Daily
Paper and cardboard	Waste Contractor	Pottinger St Bin Store	TBC	TBC	Daily
Mixed Recycling – Plastic, Glass & Aluminium	Waste Contractor	Pottinger St Bin Store	TBC	TBC	Daily
Timber	Waste Contractor	Workshop	TBC	TBC	As scheduled by Workshop Manager
Secure Destruction	Waste Contractor	Administration	TBC	TBC	As scheduled by Receptionist
Food/Organic	Waste Contractor	Pottinger St Bin Store	TBC	TBC	Daily
Metal	Waste Contractor	Workshop	TBC	TBC	As scheduled by Workshop Manager
Soft Plastics	Logistics Team	Workshop	TBC	TBC	As scheduled by Workshop Manager
Polystyrene	Logistics Team	Workshop	TBC	TBC	As scheduled by Workshop Manager
E-waste	Waste Contractor	Workshop	TBC	TBC	As scheduled by Technical Manager or IT Manager
Fluro tubes and Light Bulbs	Waste Contractor	Workshop	TBC	TBC	As scheduled by Technical Manager
Batteries	Waste Contractor	Workshop	TBC	TBC	As scheduled by Technical Manager

Communication of Waste Strategy

- Signage
- Education and training
- Targets

Company Initiatives for Waste minimisation

- No personal bins
- More waste streams
- Disposal efficiencies
- Ozone cabinet

Monitoring in consultation with Waste Contractor

- Measuring
- Documentation
- Reporting
- Incidents
- Contamination

Reference from Waste stats prior to Renewal



Congratulations, your results for December 2016

By diverting waste from an average Australian landfill* through materials, organics and energy recovery Sydney Theatre Company has avoided the release of **8.70** tonnes of CO₂-e into the atmosphere.

This is equivalent to :

- 32.46 trees(s) planted.
- 1.98 m3 of landfill saved,
- saving 11.41 employee(s) a flight Sydney to Hong-Kong.
- 1.93 car(s) removed from the road for one year.
- 8967.03 kWh of electricity saved,
- 3223.71 litres of diesel oil saved

