Tallawong Station Precinct South

Site 1: 2-12 Conferta Ave., Rouse Hill, Lot 294 / DP1213279
Site 2: 1-15 Conferta Ave., Rouse Hill, Lot 293 / DP1213279

Mixed-Use Development

WASTE & RESOURCE RECOVERY PLAN

7/05/2020
Report No. SO531
Revision C

Client

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REVISION REFERENCE

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A	6/04/2020	W. Brunson	A. Armstrong	Draft
B	16/04/2020	W. Brunson	A. Armstrong	Final
C	07/05/2020	W. Brunson	A. Armstrong	Amendment

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1.0 INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) have been engaged to prepare the following Waste & Resource Recovery Plan (WRRP) for the mixed-use development located at:

Site 1: 2-12 Conferta Ave., Rouse Hill, Lot 294 / DP1213279
Site 2: 1-15 Conferta Ave., Rouse Hill, Lot 293 / DP1213279

This WRRP is designed to meet the criteria established in Schedule 2, Part B17 of the Development Consent provided by the NSW Department of Planning and Environment (Application Number SSD 9063).

A construction management plan (CMP) has been prepared by Barker Ryan Stewart, and an operational waste management plan (OWMP) has been prepared by EFRS. Please refer to these reports in conjunction with this document.

The purpose of the WRRP is to provide an overall vision and strategy for how waste and recycling can be managed in an integrated way across the development. This will incorporate both the construction and operational phases, and will include elements of the respective reports.

The WRRP also incorporates outcomes and guidance from the following:

1. NSW EPA *Better practice guide for resource recovery in residential developments 2019*
2. NSW Waste Avoidance and Resource Recovery Strategy 2014-2021

1.1 OBJECTIVES

The objectives for this WRRP are as follows:

- Identify the standard waste management principles to guide the effective recovery of resources and management of waste at this site,
- Review the typical waste streams generated by the construction and operational activities of the development and how waste will be managed,
- Prescribe all-inclusive waste management strategies to guide effective resource recovery,
- Outline monitoring and reporting methodologies for a sustainable waste management program,
- Advise training and education procedures to support the site WRRP.

1.2 DEVELOPMENT SUMMARY

The proposed development falls under the Local Government Area (LGA) of Blacktown Council, and is categorised as a mixed-use development with residential and commercial/retail components including:

- Residential development with 987 dwellings
- Commercial and retail tenancies of 9,000m2,
- Landscaping of the site including a private park (approximately 3,507m$_2$), and
- Road and pedestrian link.

The development will be completed in 2 stages. Stage 1 is comprised of mixed-use residential and commercial/retail activities and is located in the designated area north of Conferta Avenue. Stage 2 is comprised only of residential flat buildings and is located in the designated area south of Conferta Avenue.

1.3 SITE LOCATION

The site is located at 2-12 Conferta Ave. and 1-15 Conferta Ave., Rouse Hill NSW as shown in Figure 1. The development will have frontage to Schofields Road, Conferta Avenue, Themeda Avenue, and Cudgegong Road. Vehicle entryway is accessible via Conferta Avenue and Themeda Avenue.

Figure 1: Site Location

Source: nearmap.com/au

1.4 STAKEHOLDER ROLES & RESPONSIBILITIES

All stakeholders have a responsibility for their own environmental performance and compliance with all legislation.

For the construction phase, the Construction Contractor will be responsible for implementing the Construction Management Plan developed by Barker Ryan Stewart, although site staff have a responsibility to ensure their own compliance at all times. Where possible, an Environmental Management Representative (EMR) should also be appointed for the project to help ensure compliance.

With regards to the operational phase, it is the responsibility of building/strata management, residents, tenant managers, staff members, contracted cleaners, and waste collection contractors to be knowledgeable about the OWMP developed by EFRS, and carry out their nominated duties as stakeholders.

The following table outlines the primary roles and responsibilities of the construction and operational stakeholders involved in implementing the WRRP from the construction phase through to the operational phase.

Table 1: Stakeholder Roles & Responsibilities

Roles (Construction)	Responsibilities
Construction Site Management	• Meeting all waste objectives within the site area including monitoring, reporting and delegating tasks where required to ensure at least 95% of waste is to be diverted from landfill including: ○ Organising waste collections as required; ○ Organising replacement or maintenance requirements for bins; ○ Investigating and ensuring prompt clean-up of illegally dumped waste materials; ○ Notifying the Principal Certifying Authority (Council) of the appointment of waste removal, transport or disposal contractors for waste tracking purposes; ○ Ensuring waste related equipment is well maintained; ○ Accurate calculations ensuring only the required amount of materials are ordered; ○ Ensuring segregation of materials to maximise reuse and recycling; ○ Routine checking of waste sorting and storage areas for cleanliness, hygiene, contamination and OH&S issues; ○ Ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP; ○ Ensuring effective signage, communication and education is provided to site staff/contractors; ○ Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; ○ Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers.
Site Staff/Construction Personnel	• Characterising and maintaining daily waste to ensure waste objectives are being met including: ○ Ensuring adequate separation and disposal of waste streams in compliance with the WMP; ○ Abiding by all relevant WHS legislation, regulations, and guidelines; ○ Attending training and inductions as required; ○ Cleaning and transporting of bins as required; ○ Daily visual inspections of waste storage areas; ○ Organising, maintaining and cleaning the waste storage areas; ○ Being familiar with the waste strategy and any associated impacts.

Environmental Management Representative (EMR)	• Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical; • Establishing separate skips and recycling bins for effective waste segregation and recycling purposes; • Ensuring staff and contractors are aware of site requirements; • Provision of training of the requirements of the WMP and specific waste management strategies adopted for the development; • Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements; • Arranging assessment of suspicious potentially contaminated materials, hazardous materials and liquid waste; • Monitoring, inspection and reporting requirements.
Waste Collection Contractors	• Collecting and disposing of waste to recycling facilities or landfill including: ○ Provide a reliable and appropriate waste collection service; ○ Provide feedback to construction site management regarding contamination of waste streams; ○ Work with construction site management to customise waste systems where possible.
Roles (Operational)	**Responsibilities**
Building Manager	• Measuring and monitoring waste reduction and diversion targets. If required, adjusting operational waste management strategies to support achieving the targets. • Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights. • Manage any non-compliances/complaints reported through waste audits. • Establish that contracts with cleaners and private waste contractors detail their responsibilities in the implementation of the operational waste management plan. • Establish leases with building tenants that outline and ensure tenants' responsibilities in the operational waste management plan. • Educating stakeholders regarding waste management procedures. • Reviewing waste management data against the KPIs on an annual basis and implementing improvements to OWMP.
Nominated Staff/Waste Caretaker	• Ensuring that effective signage, communication and education is provided to tenants, staff, contractors and cleaners. • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities. • Ensuring site safety for staff, visitors and contractors. • Abiding by all relevant OH&S legislation, regulations, and guidelines. • Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers. • Preventing stormwater pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins). • Cleaning and transporting bins as required. • Organising, maintaining and cleaning the general and recycled waste holding area. • Organising general waste and recycling collections as needed. • Organising replacement or maintenance requirements for bins. • Organising bulky goods collection when required. • Investigating and ensuring prompt clean-up of illegally dumped waste materials. • Rectifying contamination issues.

Nominated Staff/Contracted Cleaners	• Disposing of all general waste and recycling in the allocated MGBs provided. • Ensure adequate separation of general waste and recycling waste streams. • Reporting on incidents of contamination or health and safety issues. • Adhere to all health and safety requirements.
Council or Private Waste Contractor	• Provide a reliable and appropriate waste collection service. • Adhere to all health as safety requirements. • Report all incidents of contamination. • Provide feedback to building manager in regard to contamination of recyclables. • Work with building manager to customise waste systems where possible. • Provide data regarding weights of waste streams to building manager.
Retail and Commercial Tenants	• Reporting on waste outcomes to the building management. • Educating staff as to their responsibilities to the operational waste management plan. • Separating waste into the required waste streams.
Staff	• Disposing of all general waste and recyclables in the allocated bins provided. • Ensuring adequate separation of general waste and recyclables. • Following any health and safety requirements.

2.0 WASTE MANAGEMENT PRINCIPLES

During construction and operational activities, effective waste management will be easier to achieve if stakeholders are made aware of basic waste management principles including waste avoidance, recovery, and reuse of discarded materials.

In addition, planning for effective waste management practices in new developments significantly improves environmental, social, and economic outcomes on both a local and regional scale. Managing waste and valuing the materials that are disposed of can help:

Support the economy by generating jobs in the recycling industry and saving money through resource recovery;

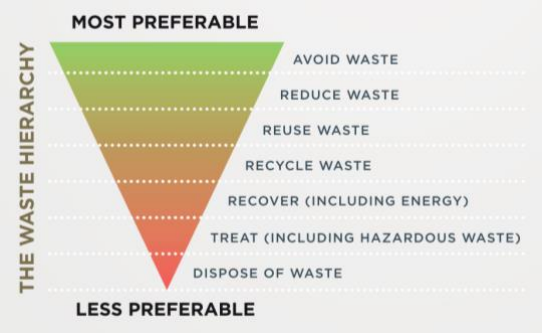
Reduce environmental impacts by controlling litter, illegal dumping, and other potential contaminants of land and water, and;

Protect the health of our communities by reducing odour, noise, dust, vermin, and exposure to toxic substances.[1]

2.1 CONCEPTS

Aiming to achieve the targets set by NSW is everyone's responsibility, and the waste hierarchy is a common reference to guide society in the most preferable to least preferable waste management practices. The figure below illustrates this concept.[2]

Figure 2: The Waste Hierarchy



The choices individuals make in purchasing, using, and disposing of products is central to improving the way waste is managed in Australia. By following the waste hierarchy, we can:

Avoid waste by purchasing products with excessive or unnecessary packaging;

Reduce waste by repairing or reusing items instead of discarding them;

Reuse items and choose to purchase products that can be used multiple times;

Recycle materials by sorting waste properly in recycling and compost bins and purchasing items that are easily recyclable and include recycled content.

In terms of waste disposal, operational facilities that manage general waste items will ideally recover energy from the waste first, before treating and disposing of the waste in a landfill.

1 NSW Environment Protection Authority. *NSW Waste Avoidance and Resource Recovery Strategy 2014-2*.

2 Australian Government, Department of the Environment and Energy. *National Waste Policy. Less Waste, More Resources. 2018*.

2.2 CATEGORISING WASTE

Understanding the different waste streams and the variety of materials that typically comprise each waste stream is an essential aspect of waste management. The three main waste streams are outlined below.[3]

Municipal Solid Waste (MSW)
MSW is primarily collected from households through kerbside waste and recycling services. This includes biodegradable material (e.g. food waste), recyclable materials (e.g. paper, bottles), and non-degradable material (e.g. paint, furniture).

Commercial and Industrial (C&I) Waste
C&I waste is produced by institutions and businesses such as schools, restaurants, offices, retail shops, and manufacturing industries. The C&I stream generally consists of the same materials as the MSW stream, however it may present a greater opportunity for resource recovery due to the larger quantities of homogenous waste (e.g. cardboard or food).

Construction and Demolition (C&D) Waste
C&D waste is produced by demolition and construction activities such as rail construction, road maintenance, and land excavation for new developments. Typical waste generated by these activities includes concrete, scrap metals, timber, plastics, and soil, to name a few.

2.3 WASTE MANAGEMENT TARGETS

To quantify and measure this sustainable approach to waste management, the NSW WARR Strategy 2014-2021 outlines specific targets in order to clarify the state's long-term goals and priorities. These targets were supported by industry, community, state, and local governments during the Strategy's consultation phase, and include:

- Increasing municipal solid waste recycling rates from 52% (in 2010-11) to 70% by 2021-22
- Increasing commercial recycling rates from 57% (in 2010-11) to 70% by 2021-22
- Increasing construction and demolition waste from 75% (in 2010-11) to 80% by 2021-22
- Increasing waste diverted from landfill from 63% (in 2010-11) to 75% by 2021-22
- Reducing litter by 40% compared to 2011-12 levels
- Reduce illegal dumping incidents by 30% compared to 2010-11 levels

NSW annually gathers information on resource recovery, recycling, and disposal rates, which is then compared to baseline data and reported every two years. Strategy targets are reviewed and updated as new best practice opportunities emerge.

It is intended that this site will aim to achieve the goal of diverting 70% municipal solid waste from landfill. Although there is a commitment to divert 70%, there is also an ongoing goal of striving for zero municipal solid waste to landfill.

In addition, the site also aims to achieve the goal of diverting 95% of construction demolition waste materials from landfill in line with the Green Star Communities rating tool.

3 Australian Government, Department of the Environment and Energy. *National Waste Reporting 2013: Overview – National Waste Stream Profiles.*

3.0 SITE WASTE & RESOURCE RECOVERY STRATEGY

It is important that this site adopt an all-inclusive strategy and vision for the recovery of resources from the construction phase through to the operational phase. This largely entails adopting the waste management principles outlined above in order to achieve the goals of 70% diversion of municipal solid waste from landfill, and 95% diversion of construction and demolition waste from landfill.

Aiming for zero waste to landfill is an aspirational target requiring that no materials are deposited into the waste stream designated for landfill or incineration. This would have to be accomplished by adhering to the waste hierarchy by rethinking materials purchasing, avoiding material consumption, repairing materials to extend their useful life, and reusing materials as many times as possible before sending them for recycling.

In addition, the site must also adopt the outcomes of the *NSW Better practice guide for resource recovery in new developments 2019*, which serves as a tool for architects, developers, urban designers, etc., to incorporate better practice in the design, establishment, operation for ongoing management of waste. While the objectives of this guide are largely addressed in the OWMP developed by EFRS, the strategies presented in the WRRP are in support of, and aligned with, the outcomes of the *Better practice guide*.

The following sections outline the anticipated waste stream from the construction and operational phases of the development and identify opportunities for resource recovery at each stage. Strategies for utilising the waste hierarchy are also discussed in order to increase waste diversion from landfill and ultimately aim towards zero waste.

3.1 ANTICIPATED WASTE STREAMS

There are many opportunities to reduce the volume of waste generated during the construction and operational phases of the development.

The sections below further outline the anticipated waste streams and their potential recovery.

3.11 CONSTRUCTION MATERIALS

Adaptive reuse of building materials should be encouraged, with significant consideration given to methods of reusing or recycling materials onsite as well as sourcing used or recycled materials from elsewhere to be used on site.

The table below is an adaptation of the CMP, and identifies the expected waste generated during construction.

Table 2: Stakeholder Roles & Responsibilities

	How Waste will be Managed			
Type of Material	**Reuse On-Site (m^3)**	**Recycle (m^3)**	**Landfill (m^3)**	**Comments**
Excavation Material	TBD	-	-	Excavated materials will be reused on site as fill.
Timber	50	65.7	-	Reused on site or transferred to waste & recycling facility.
Gyprock	55	63.7	-	Reused on site or transferred to waste & recycling facility.
Concrete	181.1	10.4	-	Excess concrete will be retained and used elsewhere or transferred to waste facility.
Masonry	44	55.5	-	Reused on site or transferred to waste & recycling facility.
Tiles	NA	NA	NA	No roof tiles will be reused in the development.
Metals	28	36	-	Reused on site or transferred to waste & recycling facility.
Fixtures	19.2	11.5	-	Any excess fixtures will be reused or transferred to waste & recycling facility.
Floor coverings	30	48.3	-	Reused on site or transferred to waste & recycling facility.
Packaging/pallets	90	57.4	9.5	Pallets will be reused and packaging wrap will be transferred to waste facility.
Garden organics	24.6	30	-	Excess will be returned to provider, reused on site, or transferred to waste facility.
Paper/cardboard	-	59.1	-	Transferred to waste and recycling facility.
Residual waste	-	157.5	44	Will be sorted and transferred to a waste and recycling facility.
Total Diversion of Waste from Landfill				**95.1%**

3.12 OPERATIONAL WASTE

When retail tenants and residents occupy the buildings, they will be able to segregate general waste from commingled recyclables, and/or paper cardboard at a minimum. There will also be opportunities for the segregation of unwanted textiles, electronic waste, and reusable furniture.

Waste streams likely to be generated during the operation of the site are identified in the table below. Based on the OWMP, the table also indicates how each waste stream will be managed, and where the materials are destined. Please refer to the OWMP by EFRS for more detail.

Table 3: Operational Waste Streams

Waste Stream	Description	Destination	Waste Stream Management
General Waste	The remaining portion of the waste stream that is not recovered for re-use, processing, or recycling. May include soft plastics, food scraps, polystyrene, etc.	Landfill	Residential waste is deposited in waste chutes, waste generated by tenancies is placed in allocated waste bin in commercial/retail waste rooms.
Commingled Recyclables	A mixture of items that can be commonly recycled, and is usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons).	Materials Recovery Facility (MRF)	Residential recyclables are deposited in 240L MGBs in chute rooms, recyclables generated by tenancies is placed in allocated recycling bin in commercial/retail waste rooms.
Recycling Paper and Cardboard	Cardboard and paper products are recyclable materials that can be re-processed into new products.	Paper and/or cardboard recycling facility	Bulky cardboard generated by residents will be stored in the allocated bulky waste room. Tenancies will transport their paper/cardboard to the commercial/retail waste room and place into the allocated paper/cardboard bin.
Secure Documents	Secure documents are printed paper materials that contain sensitive information.	Paper recycling facility	Secure documents generated by tenancies are placed in secure bins. Private contractor removes bins from site.
Organics	Organic waste consists of discarded materials that are easily compostable and biodegradable (e.g. food scraps, garden waste).	Landfill or Resource Recovery Facility	A private contractor will be engaged to recover green waste from landscaping activities. Food scraps will be disposed of as general waste, and may be collected by a private waste contractor in future.
E-Waste	Discarded electronic components and materials (e.g. computers, mobile phones, keyboards, etc.).	Resource Recovery Facility	Residents and tenancies liaise with building manager. Building manager arranges collection with appropriate recycling contractor when required.
Bulky Items	Items that are to too large to place into general rubbish collection. This includes disused or broken furniture.	Resource Recovery Facility or Landfill	Residents place bulky waste in allocated bulky waste storage room. Caretaker arranges with Council for collection. Tenancies arrange their own bulky waste collection, or else liaise with building management for assistance.

Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, light bulbs	Resource Recovery Facility	Building manager arranges residential collection by appropriate recycling services when required. Tenants can arrange for the collection of other discarded items for recycling by an appropriate contractor. Building management may assist.

3.2 WASTE DIVERSION OVERVIEW

To successfully meet the waste diversion targets for the site, building management must develop baseline data for the volume of waste and recyclables generated once the development becomes operational. As well, site contractors must maintain weight tickets of all construction and demolition materials sent to waste recovery facilities. These will then be calculated into a waste diversion rate, which will be monitored over time to detect changes, and inform management whether new strategies must be implemented to improve resource recovery. In sum:

1. Baseline data will be used to calculate the waste diversion rate, which is the key performance indicator (KPI) to assess the overall performance of waste management at the site.

2. When the baseline diversion rate is established and evaluated, other strategies can be implemented to help increase resource recovery and improve waste diversion.

3. Waste and recycling volumes will continue to be monitored, recorded, and reported on a regular basis, and evaluated regularly to determine any changes. Construction and demolition diversion rates should be calculated fortnightly, and operational diversion rates should be calculated quarterly.

The following sections further examine how each of these steps will be achieved.

3.21 DATA COLLECTION

Waste management data is used to benchmark the performance of waste management over the reporting period and track long-term trends in waste generation. It can also be used to enable management and cleaning staff to make more informed decisions on collection frequencies and waste management costs.

Waste and recycling data will be collected by nominated staff, cleaners, or waste contractors, and will be reported to the building manager. The building manager will be responsible for ensuring the data is completed and accurate.

This data will be recorded in the reporting as per *Table 6: Waste Management Reporting Schedule.*

In addition to the weights of each waste stream, the following sources of data may be useful when reviewing the waste management systems:

- Frequency of collections
- Capacity of bins when collected
- Cost of collection
- Waste Management incidents
- Contamination Incidents
- Feedback from cleaners, private contractors or other stakeholders.

WEIGHT OF WASTE STREAMS – BULK BIN METHOD

For the waste streams collected through bulk bins (general waste, commingled recycling and paper/cardboard recycling) the weight of each waste stream will be recorded by private waste contractors.

Waste contractors use scales on their waste collection vehicles to enable accurate weights to be determined for validate charges. This information will be made available to building management on a monthly basis. The building management will be responsible for recording and tracking waste volumes when provided by the private waste contractors.
To allow for data collection through this method:

- Scales on the collection vehicles must be calibrated and tested by the National Measurement Act.

- When setting up the contracts with the private contractor, the building manager must make sure that services are charged by weight. In addition, the contracts must stipulate that weight data is provided to the Building Management.

WEIGHT OF WASTE STREAMS – VOLUME AND DENSITY METHOD

For waste streams where weight data is not collected by a private contractor, weight can be estimated by the volume of bins, the approximate amount of waste in each bin, and the density of that waste stream. This may be most useful for estimating e-waste, bulky goods, batteries, toner cartridges, etc., although estimated any waste stream with this method is possible.

Nominated staff or contracted cleaners should be engaged to conduct a visual audit of the waste and recycling bins prior to collection.

Nominated staff or cleaning contractors should routinely monitor all waste bins prior to collection, maintain a record sheet of their observations, and make note of any bin contamination (e.g. recyclable materials have been disposed of in the general waste bin, or vice versa).

With this method two items of data are required:

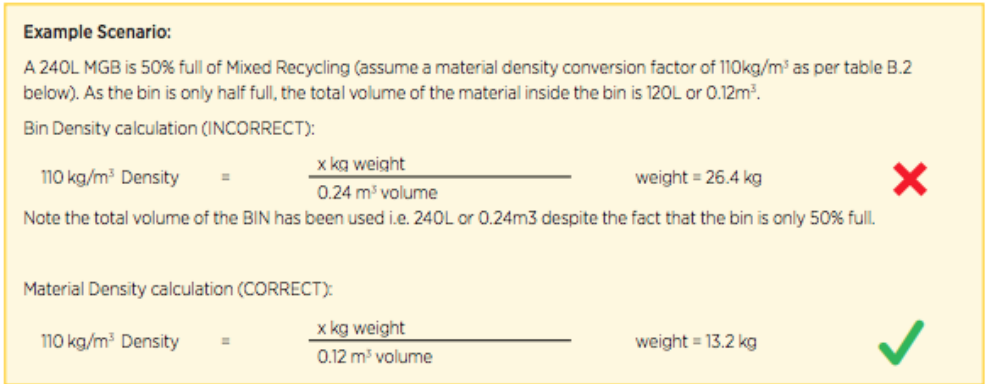
1. The volume of waste in that waste stream: This can be determined from the size of the bins & fullness of the bin.

2. The density of that waste stream. Where possible the actual weights or material density should be used to calculate the weight of these waste streams. However, if this information is not available, the industry standard densities provided in APPENDIX B.3 should suffice.

The formula to determine weight is as follows:

Weight (kg) = density factor (kg/m3) x volume of material (m3)

Figure 3: Example of Bin Density Method



3.22 CALCULATING DIVERSION RATES

The OWMP provided by EFRS includes estimated waste generation volumes for residents and anticipated commercial/retail tenancies. The table below from the OWMP will be used as an example to calculate the waste diversion rate from commercial/retail tenants in Block A. Note that the waste generation rates are estimated based on the rates provided in the NSW *Better practice guide for resource recovery in residential developments 2019*, and actual rates must be determined for calculating waste diversion once the building becomes operational.

Table 4: Estimated Waste Generation by Commercial/Retail – Block A Example

Tenancy Description	Area m_2	Waste Generation Rate (L/100m_2/Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m_2/Day)	Generated Recyclables (L/Week)
Non-food retail	1146.4	50	4012	100	7133
Restaurant	1146.4	400	32098	280	19972
Commercial office	1146.4	10	574	15	764
Totals	**3439.1**		**36684**		**27869**

FORMULA

The diversion rate will be calculated based on the following formula:

$$\frac{\text{Recyclables (kg)}}{\text{[Recyclables (kg) + General Waste (kg)]}} \times 100$$

SAMPLE CALCULATION

The following volumes will be used to demonstrate the diversion rate calculation. Please note that these volumes are estimates from Table 3, and actual operational volumes should be used based on the audits conducted by nominated staff, and/or information provided by private waste contractors.

Conversion rates for “General waste, uncompacted, Wet (including organics)” and “Mixed recycling (commingled)” have been applied as shown in APPENDIX B.1.

General waste estimate: 36684 L = 36.7m_3

$$\frac{115\text{kg}}{m_3} \times 36.7m_3 = \textbf{4221 kg/week}$$

Recycling estimate: 27869 L = 27.9m_3

$$\frac{110\text{kg}}{m_3} \times 27.9m_3 = \textbf{3069 kg/week}$$

Formula calculation:

$$\frac{3069}{4221 + 3069} \times 100 \approx \textbf{42.1\% diversion}$$

As demonstrated above—and based on estimated waste generation rates—it is estimated that approximately 42.1% of commercial/retail waste from Block A will be diverted from landfill.

3.3 WASTE MANAGEMENT INITIATIVES

To improve waste diversion rates during construction and operational activities on site and strive to meet the established targets, a range of waste management strategies can be implemented. These may include:

1. Education of construction contractors, site personnel, residents and visitors on proper waste segregation
2. Establishing behaviour change strategies
3. Segregating other streams from general waste for reprocessing/recycling (e.g. food waste)
4. Employing waste minimisation initiatives
5. Managing bin contamination

It is recommended that nominated staff implement the desired waste strategies on an ongoing basis and maintain records of their operation. Strategies for implementing waste minimisation initiatives and management of bin contamination are further described below.

3.31 CONSTRUCTION WASTE MINIMISATION INITIATIVES

The waste management principles of avoid, reduce, reuse and recycle should be adhered to as much as possible. For construction sites, waste and avoidance and reduction methods are as follows:

Avoid and/or Reduce:

- All fixtures and fittings will be made to measure wherever possible
- All materials will be ordered with a bill of quantities
- Recycled materials will be utilised on site or on nearby sites to reduce transport costs
- Salvage materials for recycling and reuse during the construction process

The site should also facilitate reuse and recycling by 'deconstruction', whereby various materials are carefully dismantled and sorted. Any unwanted reusable materials can be taken to a second-hand building centre, reducing waste disposal costs.

Materials that are individually wrapped should also be avoided where possible, with preference given for materials that can be delivered in returnable packaging such as timber pallets.

The table below gives examples of potential reuse and recycling options for the materials likely to be used/generated in construction and demolition at this development.

Table 5: Potential reuse/recycling options for construction materials

Material	Reuse/Recycling Potential
Asphalt	Hot in-place recycling or reprocessed into Reclaimed Asphalt Pavement (RAP).
Bricks	Cleaned and/or rendered for reuse, crushed for fill, sold or provided to a recycled materials yard
Cardboard Packaging	Recycled at a paper/cardboard recycling facility
Carpet	Cleaned and reused for the same purpose, reused in landscaping or garages/sheds, recycled at an appropriate processing facility
Concrete, Masonry, Spoil	Reused on-site as fill, levelling or crushed for road base
Doors, Windows, Fittings	Reused in new or existing buildings or sent to second-hand supplier

Glass	Recycled at a glass recycling facility, aggregate for concrete production, crushed for termite barrier, reused as glazing
Green Waste (Organics)	Mulched, composted for reuse, trees chipped for use in landscaping or removed carefully and reused onsite or sold
Hardwood Beams	Reused as floorboards, fencing, furniture or sent to second-hand timber supplier
Insulation Material	Reprocessed to remove impurities and reused for the same purpose or as off-cuts, compressed for ceiling tile manufacture
Metal, Steel/Copper Pipe	Recycled at a metal recycling facility, melted into secondary materials for structural steel, roofing, piping etc. copper sold for re-use
Other Timber	Reused in formwork, ground into mulch for garden or sent to second-hand timber supplier
Plasterboard	Crushed for reuse in manufacture of new plasterboard, returned to supplier or used in landscaping
Plastics	Reused as secondary materials for playgrounds, park benches etc.
Roof Tiles	Cleaned and reused, crushed for reuse for landscaping and driveways or sold or provided to a recycled materials yard
Soil	Stockpiled onsite for reuse as fill
Synthetic & Recycled Rubber	Reused for the same purpose or reprocessed for use in manufacture/construction of safety barriers, speed humps
Topsoil	Stockpiled onsite for reuse in landscaped areas

3.32 OPERATIONAL WASTE MINIMISATION INITIATIVES

Operational waste minimisation initiatives can be implemented by residents as well as by the retail and commercial tenancies to reduce waste generation from daily activities. The following outlines the primary goals of the waste hierarchy that can be implemented during the operational phase of the development.

Avoid and/or Reduce:

- Purchase items without packaging, or with limited packaging
- Buy in bulk where possible, and avoid single-serve containers
- Purchase items that can be reused several times
- Use digital media rather than printed media where possible
- Print documents double-sided (set photocopiers and printers to print on both sides by default)
- Distribute mail electronically
- Return unsolicited mail to sender

Reuse:

- Repair items rather than replacing them
- Donate usable items to charity
- Reuse envelopes for internal mail
- Use single-sided printed paper as note paper
- Reuse cardboard boxes for other packaging and transport needs
- Return cardboard cartons to suppliers for reuse

Recycle:

- Purchase products (or packaging) that can easily be recycled
- Segregate materials from packaging for recycling (e.g. paperboard & plastic packaging)
- Consider recycling programs for unusual items (oral care packaging, batteries)

In addition, a variety of programs available through Council and/or other service providers can be utilised by residents and/or commercial and retail tenancies. Some of these programs include:

1. **Green Money:** This is a rewards program that is offered to residents to earn rewards for recycling and other green challenges. When residents become members through Council's website, they can start earning points for recycling at home, and those points can be redeemed for movie tickets, coffee, food, and other use at other venues. This incentive program can help motivate residents source separate their waste and improve overall waste diversion from landfill.

2. **Earn and Return:** The NSW container deposit scheme, Return and Earn, is another incentive program that residents and commercial/retailers can participate in. By collecting eligible beverage containers and keeping them out of the general waste stream, participants can deposit their used beverage containers at various collection points and receive a 10-cent refund for each eligible container. Participating in this program can also reduce litter, while increasing waste diversion from landfill.

3. **Sustainable Living Workshops:** Council offers a range of workshops to residents throughout the year that include Bokashi composting, maintaining a kitchen garden, worm farming, ending plastic pollution, and finding the best reusable coffee cup. Each of these workshops provides a message to attendees about reducing their impact on the environment such as avoiding waste, managing food scraps, and participating in the circular economy. These workshops also tie into the operational waste minimisation and management on site by educating residents on diverting food waste from their waste streams by composting at home. The output of the compost bins, bokashi bins, and/or worm farms can be directly applied to the rooftop gardens to improve soil conditions and avoid using synthetic fertilisers. This helps maintain the "cradle-to-cradle" philosophy by closing the loop between resources and waste materials.

Once the site becomes operational, building management may also research opportunities to utilise other waste management equipment on site. This may include applying as a collection point for the Earn and Return program or partnering with charities to host a donation bin for reusable clothing and household items.

Since food waste is a large contributor to the general waste stream, an on-site food waste processor, macerator, or dehydrator will help to significantly reduce food waste going to landfill. This can be used by residents as well as commercial/retail operators to increase their overall waste diversion rate. Refer to Appendix B.3 for an example.

3.33 CONTAMINATION MANAGEMENT

Contamination occurs when general waste items are placed in the recycling streams. Depending on the level of contamination (e.g. 25% means a quarter of the recycling bin is general waste) a recycling bin may be rejected by the recycling facility, and sent to landfill as a result. Contamination may also lead to a breach of compliance with Section 143 of the Environment Operation Act for both the waste processing facility and the site as the original 'owner' of the waste.

The management of contamination should occur at two or more points in the collection and disposal process, normally on site by the site contractors or cleaners and off site at the waste processing facility.

The acceptable level of contamination in each waste stream will depend on the facility accepting and processing that waste stream. The private contractor should provide this information to the head contractor or building manager, who should communicate this to site personnel, office staff and contracted cleaners as part of their training. This will help staff identify and respond to incidents of contamination so they may be prevented in the future.

The following procedures should be followed to manage contamination:
Signage must be placed on each bin (or the wall above the bin) indicating which waste stream the bin is used for.

1. Nominated staff or contracted cleaners should visually inspect each bin before the contents are transported off-site or to a designated waste collection area.

2. If contamination occurs –one of the two courses of action should be followed:

    a) If the contamination is minimal and easy to remove without risk to personnel, the waste stream should be decontaminated.

    b) If contamination is significant or may cause risk to human or environmental health. The load must be rejected, and the contents should be treated as landfill waste.

3. If contamination is identified on site, the cleaner or waste contractor must note the waste stream, type of contamination and the originating location and the incident should be logged in the contamination log (see APPENDIX C.6). This information should be provided to management within 24hours of an incident occurring.

4. If the waste stream has left the site and had been rejected by the waste processing facility, the waste processing facility must note the type of contamination and provide feedback to the site manager through a contamination report within 24 hours. The report can be submitted by photo and email or via a more formal report. A rejection by the waste facility should be logged in the contamination log.

5. The contamination log should be used to identify any areas where contamination is occurring frequently. Measures should be put in place to help reduce contamination in that area such as better signage or re-educating staff.

3.4 MONITORING & REPORTING

The head contractor, site personnel, building management, and contracted cleaners should continue monitoring waste management during the designated phase of the building construction and operations. Reporting on waste management performance is valuable for monitoring costs, operation efficiency, and effectiveness waste management strategies.

3.41 CONSTRUCTION PHASE

It is recommended that the following measures be taken to improve demolition and construction waste management in future and to provide more reliable waste generation figures:

- Compare projected waste quantities with actual waste quantities produced.
- Conduct waste audits of current projects (where feasible).
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained. Additionally, dockets/receipts verifying recycling/disposal in accordance with the WMP must be kept and presented to Council or the EPA if and when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists/logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the Building Contractor to gauge the effectiveness and efficiency of waste segregation procedures and recycling/reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training should be undertaken and signage re-examined.

3.42 OPERATIONAL PHASE

After the desired waste management strategies have been implemented, it is recommended that nominated staff or cleaning contractors visually audit the waste and recycling bins (e.g. weekly before each collection). Visual auditing should include: approximate percentage of full waste and recycling bins, quantity and size of bins to be serviced, approximate percentage recyclables in waste bin, approximate percentage of waste in recycling bin.

All bin monitoring should be recorded on data sheets and submitted to building management for review. This will help determine approximate waste recovery rates, identify opportunities for waste recovery, and establish what additional training or education programs should be implemented. For more complete and accurate data regarding waste diversion, it is recommended that the site engage third-party auditors on a bi-annual basis. This will further assess waste diversion rates and if the site is on target to meet the goal outlined in the WARR Strategy.

It is also recommended that on an annual basis, the entire waste management system should be reviewed. The results of the review should be reported to all stakeholders. This will help maintain stakeholder engagement in implementing the waste management strategies and help encourage improvement in waste reduction and recycling efforts.

3.43 EXAMPLE REPORTING AND REVIEW PROCESS

Table 6: Waste Management Reporting Schedule

Reporting	Description	Review Frequency	Example of Reporting
Contractor details	Details of the cleaning contractor & waste contractor, including expiry dates of contracts.	At initial contact and as services or contractor information is updated.	
Current recycling streams	Records of the current waste streams managed on site, the contractor who collects the waste, the facility it is transported to (address and license number) and recovery rate.	At inception of waste management and annually thereafter (or as services or facility information is updated).	APPENDIX C.1 WASTE & RECYCLING TEMPLATE
Waste Stream Bins & Collection	• The type of waste stream • Location point for the bins • Size of bins • Number of bins • Stakeholder responsible for bins • Number of collections weekly	This should be reviewed on a 6 month basis to adjust bin numbers and collection frequency to suit the volumes of waste and recycling generated from the site. This should also be compared to collection cost to identify opportunities for cost savings.	APPENDIX C.2 WASTE EQUIPMENT & RECYCLING FREQUENCY
Monthly operational waste management	The weight of each waste stream collected in the previous month.	Waste stream data must be collated once a month. On annual basis the monthly data will analysed for the year as assessed against the KPIs	APPENDIX C.3 MONTHLY WASTE REPORT
Education and training	A log of the training and education each staff member and stakeholder has received in regard to the waste management strategy. This should include if the person demonstrates competency at understanding their responsibilities in the implementation of the waste management plan.	The log should be reviewed every 6 months to ensure all personnel are trained adequately.	APPENDIX C.4 EDUCATION & TRAINING LOG

Incident Management	A log of all health and safety incidents that occur regarding the management of waste.	Whenever an incident occurs.	APPENDIX C.5 WASTE INCIDENT MANAGEMENT LOG
Contamination Management	A log of contamination incidents, including the waste stream that was contaminated, the location of contamination, type of inspection, percentage of contamination, type of contamination, action taken and feedback.	Whenever a contamination incident occurs. The log should also be reviewed every 6 months to identify areas of improvement.	APPENDIX C.6 CONTAMINATION MANAGEMENT LOG
Facility Acceptance Criteria	The information regarding the level of contamination the waste processing facility will allow in a waste stream.	At instigation and whenever information changes.	
Annual waste management strategy review	A review of the waste management strategy as a whole. Including all of the reporting discussed above. This review should also take into account any feedback from stakeholders. Includes: • Assessment to waste data trends for the past year. • Review of KPIs. • Assessment of areas of improvement including educational plans, signage, unflustered and waste equipment, contracts with cleaners and waste collection contractors, and accuracy of data.	Annually	A review of the waste management plan for the year should be written as a report with specific commentary regarding waste generation, and waste diversion rates, and KPIs.

4.0 TRAINING & EDUCATION

In order to sustain effective waste management practices, all stakeholders must be appropriately trained and educated based on their roles. Training and education should occur on a regular basis and when there is a transition of site personnel, contractors, building management, and/or residents.

4.1 CONSTRUCTION PHASE

All staff employed during the demolition and construction stages of the development must undertake site-specific induction training regarding the procedures for waste management. Employees of the head contractor will undertake a specific induction outlining their duties and how they are to enforce the waste management procedures.

Induction training will include the following at a minimum:

- Legal obligations;
- Emergency response procedures on site;
- Waste storage locations and separation of waste;
- Litter management in transit and on site;
- The implications of poor waste management practices;
- Correct use of general-purpose spill kits;
- Responsibility and reporting (including identification of personnel responsible for waste management and individual responsibilities).

4.2 OPERATIONAL PHASE

Educational material encouraging correct separation of general waste and recycling items must be provided to all staff, cleaners, residents, tenants, and other stakeholders by building management. This should include the correct disposal process for each of the waste streams. It is recommended that the building caretaker provides information in multiple languages to support correct practice.

Appropriate training must be provided to all parties responsible for implementing the CMP and OWMP. Training will be conducted at least annually and as part of new employee inductions. Training should be recorded and validated to ensure that those responsible are competent and fully aware of their responsibilities.

Information on proper waste management should be included in new residents' welcome packs, and distributed periodically throughout the building via digital screens, email distributions, and the body corporate website if applicable.

5.0 CONTRACTS

Construction contractors, site personnel, cleaners, private waste contractors, residents and tenants are a vital part of the implementation of waste management strategies. The structure of waste service contracts is important to ensure that the building is effectively serviced.

Each contract should outline the responsibilities for waste management as well as monitoring and reporting procedures. It is the responsibility of the building manager to arrange contracts to best suit the desired management of the building. Example clauses and further information regarding the setup of waste contracts can be found at:

- Better Buildings Partnerships (2015) *Operational Waste Guidelines: Procurement, Management and Reporting.* http://cdn.sydneybetterbuildings.com.au/assets/2016/05/BBP-Operational-Waste-Guidelines.pdf

- NSW EPA. (2012) *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*. http://www.epa.nsw.gov.au/-/media/A5EB094C4C744A62A0499EC335A088D9.ashx

6.0 HEALTH AND SAFETY

The measures outlined in Table 4 should be implemented to prevent potential risk of injury or illness associated with the management, collection and disposal of waste. The collection methods and systems used for waste management in commercial buildings must comply with the *Work Health and Safety Act 2011* and any associated regulations.

The health and safety measures outlined in the table below provide general information. A complete risk and hazards analysis should be undertaken by a certified health and safety professional.

Table 7: Health & Safety Measures

Risk	Control Measures
Hygiene Issues and Vermin	• Bins must be washed a minimum of once a month. • The waste room must be washed down and cleaned a minimum of once a month. • Avoid overfilling bins. • Clean up any waste spillage as per the waste spill protocols.
Manual Handling injury form moving bins	• Ensure adequate storage space is available for easy manoeuvring of bins to and from the storage area and collection point. • Moving bins or large waste items from the offices to the waste room should be aided with a bin moving device or trolley. • Bins should be maintained in good condition. Any damaged, split or incomplete bins should be repaired or disposed of. • The correct size and type of bins and equipment should be used, and only for the purposes in which they were designed or intended. • Mobile garbage bins and wheelie bins are designed for mechanical lifting, and must not be lifted by hand. • Ensure there is sufficient space for manoeuvring bins, and that they are of sufficient capacity to receive daily waste and recyclables. Bins must not become overloaded or overcrowded. Collection frequency of bins should be modified if they are regularly overloaded or overflowing. • Bin carting routes should be free from steps and inappropriate grades.
Cut and lacerations, or contact with unknown hazardous substances	• Maintain waste areas so that all general waste and recycling is contained within appropriate bins. • Personal protective equipment (PPE), such as gloves, must be provided to all people handling waste or bins. • Educational programs must address the safe and appropriate disposal of general waste and recyclables. • Avoid carrying bagged waste long distances. Bagged waste should be placed immediately into another appropriate container when removed from bins.
Incident during waste collection	• Ensure vehicle access and turning areas are free from obstacles that may impair driver visibility. • Collection point must be free from obstacles and traffic hazards.

Injury arising from motor vehicle use	• The risks associated with the use of tow motors, forklifts and other mobile equipment by cleaners and facility managers should be assessed. • Undertake appropriate training for the use of motor vehicles and implement suitable controls as well as risk mitigation measures.
Injury from using stored bins and equipment	• Waste and recycling bins must be stored securely and safely when not in use. • Only authorised personal (such as cleaners and building manager) will be allowed to enter the waste room. • Damaged or faulty bins, especially for public use, should be removed and repaired/replaced.
Injury from using bags	• Do not use plastic bags where safer options are available. • Bags should be used as bin liners only and not for transporting waste. • Once removed from bins, bags should be placed directly into a wheeled bin, trolley or other container for transport.

6.1 INCIDENTS

Health and safety incidents include injury to personnel due to waste management procedures, spillage of waste materials, or exposure to hazardous waste in the waste streams.

Any incident or injury should be recorded in an incident log and immediately reported to the building manager or principal safety officer (see APPENDIX C.5). Photographic evidence should be obtained where possible and applicable.

6.2 WASTE SPILL PROTOCOLS

The following protocols should be followed when a waste spill occurs.

Table 8: Waste Spill Protocols

Waste Spill Within Site Perimeter	Waste Spill After Waste Leaves The Site
1. Prevent the spill from escaping into the surrounding environment – bund spills to prevent flowing into storm water drains or on to land; enclose/cover bins to prevent windblown litter. 2. Take action to stop further spilling/leakage if safe to do so. Use Appropriate PPE if required to handle waste or waste equipment. 3. Notify building manager or principal safety officer immediately. 4. Ensure area is secured to prevent access by the public. 5. Await further direction by senior site personnel.	1. Contractor should follow their spill procedure to limit environmental impacts. 2. Comply with any corporate reporting/response procedures. 3. Comply with any regulatory reporting procedures. 4. Notify principal, in writing with 24 hours of the spill occurring.

7.0 SUMMARY

To effectively manage waste across the entire site from construction to operational phases, it has been demonstrated that utilising the key waste management principles will reduce overall waste generation and waste volumes going to landfill. As outlined in this document, not only will a proactive and preventative approach to waste management help meet waste diversion targets identified in the WARR Strategy 2014-2021, it also aligns with the direction provided by the NSW *Better practice guide for resource recovery in residential developments 2019.*

It must also be recognised that a successful waste management program depends largely on the behaviours exhibited by all stakeholders, so the implementation of a consistent education and training program throughout each of the development phases is integral and should be reviewed regularly. Monitoring and reporting waste collection data will help gauge the success of the program, which must be re-evaluated routinely to inform how waste avoidance, waste reduction, reuse, and recycling programs and strategies can continually be improved.

APPENDIX A: TEMPLATES

APPENDIX A.1 WASTE & RECYCLING TEMPLATE

Stream category	In place	Managed by	Covered by current contract	Interim facility / address / license	Destination facility / address / license	Recovery rate
Mixed recycling	*Yes*	*Cleaning contractor*	*Yes*	*eg. Bailey Tip, 123 George Street, Sydney NSW 2000, License No. 12345*	*eg. Bailey Tip, 123 George Street, Sydney NSW 2000, License No. 12345*	*eg. 90%*
Organic						
Paper						
Secure paper						
Cardboard						
Liquid						
Other						
Mixed residue						
General waste						

APPENDIX A.2 WASTE & RECYCLING FREQUENCY

Dock	Stream	System in place	How many?	Management protocols	Collection frequency
eg. 1	*General waste*	*240 L MGB*	*6*	*Cleaners transport bagged waste from tenancies to bins in docks*	*Mon to Fri*
	Mixed	*1.1 m³*			
	Choose	Choose			

Source: Better Buildings Partnerships (2015) *Operational Waste Guidelines: Procurement, Management and Reporting.* http://cdn.sydneybetterbuildings.com.au/assets/2016/05/BBP-Operational-Waste-Guidelines.pdf

APPENDIX A.3 MONTHLY WASTE REPORT

Site address			
State		**Month/year**	
Person completing		**Company**	
Contact number		**Email**	
Email completed form to			

Material	Weight or volume	Data type	Weight	Facility name	Link to evidence (see C12)	Facility recovery Rate	Adjusted recovery weight
Organics							
Food waste	25	AW		eg. Darling Harbour Organics Facility		70%	17.5
Other organics (fish, meat, etc.)							
Rubber							
Wood							
Other							
Fluoroscent tubes/light globes							
Toner cartridges							
e-waste							
Batteries							
Textiles							

Source: Better Buildings Partnerships (2015) *Operational Waste Guidelines: Procurement, Management and Reporting.* http://cdn.sydneybetterbuildings.com.au/assets/2016/05/BBP-Operational-Waste-Guidelines.pdf

APPENDIX A.4 EDUCATION & TRAINING LOG

Staff name	Role	Training 1 – date	Training 1 – competence assessment	Training 2 – date	Training 2 – competence assessment
			PASS		PASS

APPENDIX A.5 WASTE INCIDENT MANAGEMENT LOG

Incident	Location	Volume of spill	Specific type of waste	Action taken	By whom	Date	Link to photo-graphic evidence	Reported to	Regulatory reporting require-ment?
Injury									
Hazardous waste									

APPENDIX A.6 CONTAMINATION MANAGEMENT LOG

Date	Stream	Cleaner/ collector name	Building level/ location (if known)	Type of inspection	Contam-ination %	Contam-ination type	Bin action taken	Notification action / feedback
	Mixed		Tenancy level 3	Visual	5%	Coffee cups	Decontam inated	Tenants advised
	Paper		Dock 1	Visual	10%	Hazard-ous waste	Rejected	Property Manager advised. Incident report completed
	Organic		Facility	Visual	17%	Paper	Rejected	Property Manager advised

Source: Better Buildings Partnerships (2015) *Operational Waste Guidelines: Procurement, Management and Reporting.* http://cdn.sydneybetterbuildings.com.au/assets/2016/05/BBP-Operational-Waste-Guidelines.pdf

APPENDIX B: ADDITIONAL RESOURCES

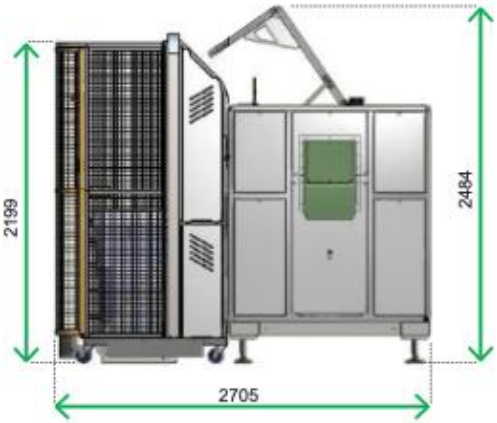
APPENDIX B.1 WASTE CONVERSION FACTORS

Stream	Sub-category	Specific Material	Material Conversion density factor kg/m³)
Mixed recycling	Mixed recycling (commingled)	Paper and containers (eg. paper, plastic, glass, metals)	110
		Containers (eg. plastic, glass, metals)	60
	Aluminium/metals	Aluminium cans	65
		Non-ferrous metals	140
		Tin cans	85
	Glass	Glass	200
	Plastics	Soft (eg. film)	35
		Hard	170
		Polystyrene	20
		Containers	45
Fibre	Paper	Paper	115
		Secure paper (eg. collected for secure document destruction)	300
	Cardboard	Loose	55
		Compacted	130
Organic	Food waste	Food waste	350
		Other food organics (eg. fish, meat, etc)	Varies
	Other organics	Rubber	200
		Wood (wood, crates, etc.)	185
Liquid	Cooking oil	Cooking oil	n/a
Other	Fluorescent tubes/ light globes	Fluorescent tubes/light globes	230
	Toner cartridges	Toner cartridges	190
	E-waste	Appliances and electrical goods	230
		Computers and office equipment	265
	Batteries	Batteries	Varies
	Textiles	Textiles	90
AWT mixed residue	Mixed residue	Dry (excluding organics)	70
		Wet (including organics)	115
General waste for landfill	General waste, uncompacted	Dry (excluding organics)	70
		Wet (including organics)	115

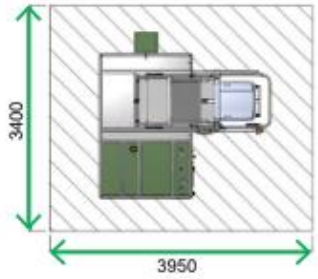
Source: Better Buildings Partnerships (2015) *Operational Waste Guidelines: Procurement, Management and Reporting.* http://cdn.sydneybetterbuildings.com.au/assets/2016/05/BBP-Operational-Waste-Guidelines.pdf

APPENDIX B.2 FOOD WASTE PROCESSOR EXAMPLE

Front View Hatch fully opened and bin lifter presented



Side View Hatch fully opened



Plan View of required working area

Dimensions (L, W, H)	2500 x 2705 x 2484	mm
Working Area	3400 x 3950	mm
Machine Weight	2200	kgs
Maximum Drum Capacity	550	kgs
Total Loaded Weight	2750	kgs
Minimum Operating Area Requirement	3400 x 3950	mm
Power Supply	3-Phase 400 V +/- 10% @ 32 amps 5 pin plug – 3 phase plus neutral earth	
IP Rating	54	
Noise Level	<85	dBA
Air Outlet	100mm ID	mm
Comms Requirement	3G SIM Network (optional)	

Machine Specifications

Specifications, appearance and equipment are subject to change without notice by reason of improvement. Hazard prevention measures have been removed from the photos featured in this document.

To ensure safe operation, please consult the operator's manual before use.

This is an example of the WasteMaster400 food dehydrator. Refer to supplier's information and specification.