



PROPOSED MIXED USE DEVELOPMENT

488-492 OLD SOUTH HEAD ROAD & 30
ALBEMARLE AVE, ROSE BAY.

WASTE MANAGEMENT PLAN

PROPOSED MIXED USE DEVELOPMENT, 488-492 OLD SOUTH HEAD ROAD & 30 ALBEMARLE AVE, ROSE BAY.

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EXECUTIVE SUMMARY

SALT has been engaged by Woolworths Group to prepare a Waste Management Plan (WMP) for a proposed mixed-use development located at 488-492 Old South Head Road & 30 Albemarle Ave, Rose Bay.

SALT understands that the proposal involves the development of 17 residential dwellings consisting of 1 one-bedroom dwelling, 7 two-bedroom dwellings and 9 three-bedroom dwellings as well as a 2,224m² supermarket.

Residential waste would be stored on-site in the residential bin room located at ground level.

Residential waste would be collected by a private contractor as follows:

- 2 x 1,100L garbage bins collected once per week;
- 2 x 1,100L commingled recycling bins collected once per week;
- 3 x 240L organics bins collected once per week; and
- 1m² of hard waste collected as required.

Commercial waste would be stored on-site in the commercial bin room located at ground level. Commercial waste will be stored separately from residential waste.

Commercial waste would be collected by private contractor as follows:

- 4 x 1,100L garbage bins collected three times per week;
- 2 x cardboard bales collected once per week;
- 3 x 240L organics bins collected twice per week; and
- 3 x 1,100L soft plastic bins collected once per week.

Waste vehicles would prop safely within the loading dock. Vehicle operators would ferry waste bins from the bin rooms to the collection vehicle and return upon emptying.

In the opinion of SALT, the enclosed Waste Management Plan would provide efficient waste management for the proposed development. This report must be read in detail prior to implementation of the waste management strategy.

CONTENTS

TABLE OF CONTENTS

| | | |
|-----------|---|-----------|
| 1 | INTRODUCTION | 1 |
| 2 | INCLUDED IN THIS REPORT | 1 |
| 3 | LAND USE | 1 |
| 4 | DEMOLITION AND CONSTRUCTION WASTE RESPONSIBILITIES | 2 |
| 5 | DEMOLITION WASTE MANAGEMENT PLAN | 2 |
| 5.1 | ASBESTOS AND OTHER HAZARDOUS WASTE..... | 2 |
| 5.2 | DEMOLITION WASTE GENERATION..... | 2 |
| 5.3 | DEMOLITION WASTE STORAGE AND COLLECTION..... | 5 |
| 6 | CONSTRUCTION WASTE MANAGEMENT PLAN | 6 |
| 6.1 | CONSTRUCTION WASTE GENERATION..... | 6 |
| 6.2 | CONSTRUCTION WASTE STORAGE AND COLLECTION..... | 7 |
| 7 | ONGOING RESIDENTIAL WASTE MANAGEMENT PLAN | 8 |
| 7.1 | WASTE GENERATION..... | 8 |
| 7.2 | WASTE SYSTEMS..... | 9 |
| 7.2.1 | DUAL CHUTE..... | 9 |
| 7.2.2 | GARBAGE (GENERAL WASTE)..... | 9 |
| 7.2.3 | COMMINGLED RECYCLING..... | 9 |
| 7.2.4 | LARGE CARDBOARD WASTE..... | 9 |
| 7.2.5 | FOOD ORGANICS..... | 9 |
| 7.2.6 | HARD WASTE..... | 10 |
| 7.2.7 | E-WASTE AND CHARITY..... | 10 |
| 7.2.8 | SOFT PLASTICS..... | 10 |
| 7.3 | BIN QUANTITY, SIZE AND COLLECTION FREQUENCY..... | 11 |
| 7.4 | BIN COLOUR AND SUPPLIER..... | 11 |
| 7.5 | WASTE STORAGE AREA..... | 11 |
| 8 | COMMERCIAL WASTE MANAGEMENT PLAN | 12 |
| 8.1 | WASTE GENERATION..... | 12 |
| 8.2 | WASTE SYSTEMS..... | 12 |
| 8.2.1 | GARBAGE (GENERAL WASTE)..... | 12 |
| 8.2.2 | CARDBOARD..... | 12 |
| 8.2.3 | FOOD ORGANICS..... | 13 |
| 8.2.4 | SOFT PLASTICS..... | 13 |
| 8.3 | BIN QUANTITY, SIZE AND COLLECTION FREQUENCY..... | 13 |
| 8.4 | BIN COLOUR AND SUPPLIER..... | 13 |
| 8.5 | WASTE STORAGE AREA..... | 14 |
| 8.6 | WASTE COLLECTION..... | 14 |
| 9 | RESPONSIBILITIES | 15 |
| 10 | SIGNAGE | 15 |
| 11 | SUSTAINABILITY ACTION PLAN AND INITIATIVES | 15 |
| 12 | WASTE AREA DESIGN REQUIREMENTS | 16 |
| 12.1 | VENTILATION..... | 16 |
| 12.2 | LITTER MANAGEMENT, WASHING AND STORMWATER POLLUTION PREVENTION..... | 16 |
| 12.3 | NOISE REDUCTION..... | 17 |

| | | |
|-------------------|--|-----------|
| 124 | DDA COMPLIANCE..... | 17 |
| 13 | RISK AND HAZARD ANALYSIS..... | 17 |
| 14 | SUPPLIER CONTACT INFORMATION..... | 19 |
| 14.1 | EQUIPMENT SUPPLIERS..... | 19 |
| 14.1.1 | DUAL CHUTE SYSTEM..... | 19 |
| 14.1.2 | BIN SUPPLIER..... | 19 |
| 14.1.3 | ORGANICS BIN BIO-FILTER..... | 19 |
| 14.2 | DEMOLITION AND CONSTRUCTION WASTE COLLECTORS..... | 19 |
| 14.3 | ON-GOING WASTE COLLECTORS..... | 19 |
| 14.3.1 | GARBAGE, RECYCLING AND ORGANICS..... | 19 |
| 14.3.2 | HARD WASTE..... | 20 |
| 14.4 | BIN WASHING SERVICES..... | 20 |
| 15 | PURPOSE AND LIMITATIONS..... | 20 |
| APPENDIX 1 | DESIGN DRAWINGS..... | 21 |
| APPENDIX 2 | DUAL CHUTE SPECIFICATIONS (RECOMMENDED)..... | 22 |
| APPENDIX 3 | BALER SPECIFICATIONS (RECOMMENDED)..... | 23 |
| APPENDIX 4 | SWEPT PATH ANALYSIS (PREPARED BY OTHERS)..... | 24 |

LIST OF FIGURES

| | | |
|----------|--|----|
| FIGURE 1 | PROPOSED DEMOLITION SITES..... | 3 |
| FIGURE 2 | PROPOSED DEMOLITION WASTE STORAGE AREAS..... | 6 |
| FIGURE 3 | AUSTRALIAN STANDARD COMPOSTABLE LOGO..... | 10 |
| FIGURE 4 | GUIDE TO RECYCLABLE SOFT PLASTICS..... | 10 |
| FIGURE 5 | NSW EPA SIGNAGE..... | 15 |
| FIGURE 6 | WASTE HIERARCHY..... | 16 |

LIST OF TABLES

| | | |
|----------|---|----|
| TABLE 1 | WASTE GENERATION RATES FOR DEMOLITION MATERIALS..... | 3 |
| TABLE 2 | ESTIMATED DEMOLITION WASTE GENERATION VOLUMES AND MANAGEMENT OPTIONS..... | 4 |
| TABLE 3 | ESTIMATE WASTE GENERATION RATES FOR CONSTRUCTION MATERIALS..... | 6 |
| TABLE 4 | ESTIMATED CONSTRUCTION WASTE GENERATION VOLUMES AND MANAGEMENT OPTIONS..... | 7 |
| TABLE 5 | RESIDENTIAL WASTE GENERATION RATES..... | 8 |
| TABLE 6 | RESIDENTIAL WASTE GENERATION ASSESSMENT..... | 8 |
| TABLE 7 | RESIDENTIAL BIN SIZE AND COLLECTION FREQUENCY..... | 11 |
| TABLE 8 | TYPICAL WASTE BIN DIMENSIONS..... | 11 |
| TABLE 9 | WASTE AREA SPACE REQUIREMENTS..... | 11 |
| TABLE 10 | COMMERCIAL WASTE GENERATION RATES..... | 12 |
| TABLE 11 | COMMERCIAL WASTE GENERATION ASSESSMENT..... | 12 |
| TABLE 12 | COMMERCIAL BIN SIZE AND COLLECTION FREQUENCY..... | 13 |
| TABLE 13 | TYPICAL WASTE BIN DIMENSIONS..... | 13 |
| TABLE 14 | COMMERCIAL WASTE AREA SPACE REQUIREMENTS..... | 14 |
| TABLE 15 | POTENTIAL RISKS AND CONTROL METHODS DURING WASTE COLLECTIONS..... | 18 |
| TABLE 16 | HIGH LEVEL PURCHASING SCHEDULE..... | 19 |

1 INTRODUCTION

SALT has been requested by Woolworths Group to prepare a Waste Management Plan for a proposed mixed-use commercial and residential development located at 488–492 Old South Head Road & 30 Albemarle Ave, Rose Bay.

This Waste Management Plan (WMP) has been prepared based on industry best practice and the Woollahra *Development Control Plan (DCP) Chapter E5: Waste Management 2015*. In the circumstance that the development plans are amended or new legal requirements are introduced, a revision of the enclosed WMP may be required by the Responsible Authority. The developer would be responsible in engaging with a waste consultant or engineer to prepare the updated report accordingly.

Generation rates have been adopted based on residential and commercial waste generation rates enclosed in the Woollahra *Development Control Plan (DCP) Chapter E5: Waste Management 2015*.

2 INCLUDED IN THIS REPORT

Enclosed is the Waste Management Plan for the proposed development at 488–492 Old South Head Road & 30 Albemarle Ave, Rose Bay. Included are details regarding:

- Land use;
- Waste generation;
- Waste systems;
- Bin quantity, size and colour;
- Collection frequency;
- Bin storage area;
- Signage;
- Waste collection;
- Responsibilities;
- Ventilation, washing and vermin-prevention;
- Noise reduction;
- DDA compliance;
- Supplier contact information; and
- Scaled waste management drawings.

3 LAND USE

Planning application number: to be allocated

Land Zone: B4 Mixed Use and R2 Low Density Residential

Land use type: Mixed-use (commercial and residential)

Number of levels: 4 (with 3 additional basement levels)

Residential Space: Total of 17 dwellings consisting of:

- 1 one-bedroom dwelling;
- 7 two-bedroom dwellings; and
- 9 three-bedroom dwellings.

Commercial Space: 2,224m² supermarket.

4 DEMOLITION AND CONSTRUCTION WASTE RESPONSIBILITIES

This Waste Management Plan must be adhered to during the demolition, construction and ongoing management of the proposed development.

During site inductions for the construction and demolition phase, all contractors must be made aware of the waste management obligations provided in this plan.

It is the responsibility of the Site Supervisor to ensure waste disposal is adequately tracked in a Waste Data File. Any associated receipt/invoices, waste classification and site validation certificate should be logged within this file.

All entries in the Waste Data File must include the following;

- Time and date;
- Description and size of waste;
- Waste facility used; and
- Vehicle registrations and company name.

5 DEMOLITION WASTE MANAGEMENT PLAN

5.1 ASBESTOS AND OTHER HAZARDOUS WASTE

It is noted that the demolition works may involve asbestos or hazardous waste removal. Asbestos will be removed and disposed of by a licensed asbestos removalist in accordance with the relevant guidelines.

Asbestos and hazardous waste must be removed and disposed of in accordance with the requirements of Work Cover and relevant environmental legislations.

Any disposal of hazardous waste must be recorded in the Waste Data File or the EPA online trackable waste system.

The nearest facility that accepts asbestos waste is the SUEZ's Wetherill Resource Recovery Facility, NSW 2164.

5.2 DEMOLITION WASTE GENERATION

Based on SALT's review of Woollahra *Development Control Plan (DCP) Chapter E5: Waste Management* 2015, it is understood that there are currently no construction and demolition generation rates provided by Council.

Therefore, demolition waste generation rates have been adopted from *The Hills Shire Council Development Control Plan Appendix A* (2012)

Based on a desktop assessment of the current site, it is noted that there is an existing one-storey brick house located at 30 Albemarle Avenue, Rose Bay and a service station located at 488-492 Old South Head Road. The demolition waste generation rates for a three-bedroom brick house has been adopted as these are found to be the most suitable rates for the existing site.

Additionally, the demolition waste generation rates for a factory has been adopted as the most relevant for the service station.

These generation rates are shown in Table 1.

Table 1 Waste Generation Rates for Demolition Materials

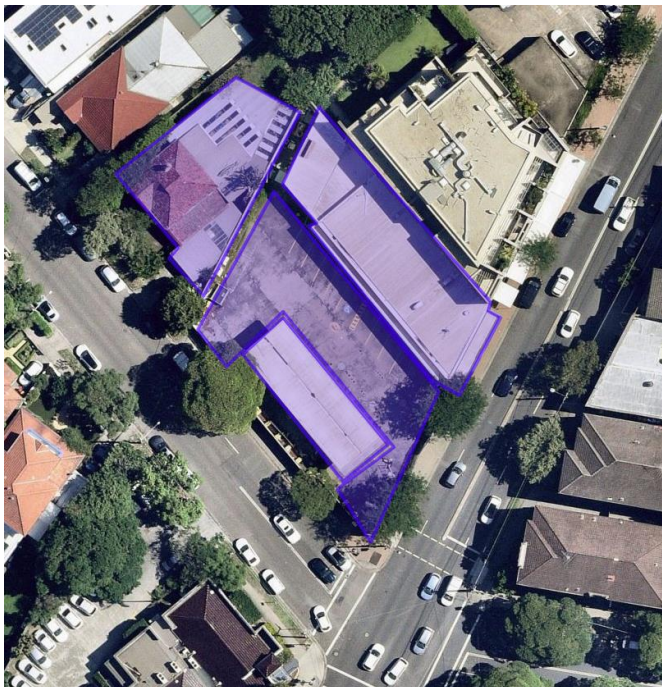
| Building Material | Brick House Waste Generation Rates (tonnes per 100m ²) | Factory Waste Generation Rates (tonnes per 1000m ²) |
|-------------------|--|---|
| Sandstone | 90 | N/A |
| Concrete | 4 | 448 |
| Bricks | 123 | 205 |
| Timber / Gyprock | 13 | 4 |
| Steel | 0.7 | 23 |
| Roof tiles | 9 | N/A |
| Others | N/A | 18 |

The estimated demolition waste volumes for each material have been calculated based on the current brick house footprint of 393m², service station footprint of 743m² as well as pavement and car park footprint of 591.5m².

Please find the demolition areas considered in the assessment below, in Figure 1.

A total pavement and car park area of 591.5m² has been estimated at the existing site. Based on this and an assumed asphalt depth of 20mm, a total volume of 11.83m³ of asphalt waste is expected to be generated.

Figure 1 Proposed Demolition Sites



The estimated volumes and management strategies for demolition waste are presented in in Table 2 below.

The demolition waste assessment below has been prepared to achieve a minimum recycling target of 80% which has been set by the NSW EPA *Waste Avoidance and Resource Recovery Strategy 2014-21*. This recycling target does not need to be achieved by the site however is recommended to maximise landfill diversion.

The total demolition waste generation volumes and landfill diversion rates may need to be revised from that listed below by the Site Supervisor during the demolition works. This is so as other waste streams (i.e. green waste and general waste) would need to be accounted for as well.

Table 2 Estimated Demolition Waste Generation Volumes and Management Options

| Type of Waste Generated | Most to Least Favorable | | | Specify method of onsite reuse, contractor and recycling outlet and /or waste depot to be used |
|---------------------------|-------------------------------------|---|--|---|
| | Reuse Estimate Volume Weight (t) | Recycle Estimate Volume Weight (t/m ³) | Disposal Estimate Volume Weight (t) | |
| Sandstone* | | 283.0t | 70.7t | Demolish using excavator, crushed on site and delivered to an off-site recycler. |
| Concrete* | | 278.9t | 69.7t | Demolish using excavator, crushed on site and delivered to an off-site recycler. |
| Bricks* | | 508.6t | 127.1t | Demolish using excavator, crushed on site and delivered to an off-site recycler. |
| Asphalt* | | 11.8m ³ | | Demolish using excavator, crushed on site and delivered to an off-site recycler or reused on site. |
| Timber / Gyprock | | 43.2t | 10.8t | Delivered to the off-site recycler listed below. |
| Steel | | 15.9t | 4.0t | Clean metal (i.e. without presence of other materials) will be delivered to the off-site recycler listed below. Any contaminated metal should be separated to be landfilled. |
| Roof tiles* | | 28.3t | 7.1t | Delivered to the off-site recycler listed below. |
| Other | | 10.7t | 2.7t | Delivered to the off-site recycler listed below. |
| Glass & Aluminium Windows | | | | Aluminium would be removed manually by hand and delivered to the off-site recycler listed below. |
| | | Minimal | Minimal | Glass would be removed and delivered to a suitable glass recycling facility or transfer station (i.e. Cleanaway's Auburn Resource Recovery Centre). |
| Floor Coverings | - | - | - | Depending on age and condition, materials would be removed and delivered to the off-site recycler listed below. |
| | | | | Damaged fittings that cannot be recycled are to be delivered to the nearest landfill as listed below. |
| Fittings & Fixtures | - | - | - | Depending on age and condition, materials would be removed and delivered to the off-site recycler listed below. |
| | | | | Damaged fittings that cannot be recycled are to be delivered to the nearest landfill as listed below. |
| Green Waste | | Minimal | Minimal | Separated and some chipped for landscaping. Delivered to off-site recycler listed below. |

| | |
|---------------------------|---|
| General Waste | It is anticipated that garbage will be generated on the subject site during the demolition phase. Any garbage generated shall be sorted and stored onsite in general waste skips or bins, as deemed necessary. |
| Hazardous / special waste | Should hazardous materials be present within the current developments at the subject site, it must be disposed of in accordance with the appropriate guideline. The SUEZ's Wetherill Resource Recovery Facility currently accepts asbestos, on the condition that a 24-hour notice is provided. |

*Excavated material is to be reused on-site as fill subject to a Virgin Excavated Natural Material (VENM) assessment. Any unused clean concrete (without the presence of metal or other materials), clay bricks, asphalt (ripped and profiled) can be accepted at Cleanaway Lucas Heights Resource Recovery Park, 2234.

5.3 DEMOLITION WASTE STORAGE AND COLLECTION

Demolition material generated during the development of the site will be recycled where possible. Recyclable material will be sorted and stored onsite in separate skips.

On-site training and inductions would be conducted to ensure staff are informed about the implemented waste management procedures.

All materials would be delivered to the appropriate landfill and resource recovery centres as listed below.

The principal off-site recycler that can be used for this project is:

- Cleanaway's Auburn Resource Recovery Centre, 02 8645 4304;
- Cleanaway Lucas Heights Resource Recovery Park, 02 8645 4304.

The principal licensed landfill/disposal sites that can be used for this project are:

- BINGO Alexandria, 1300 424 646

Demolition waste will be sorted and stored on-site in skips.

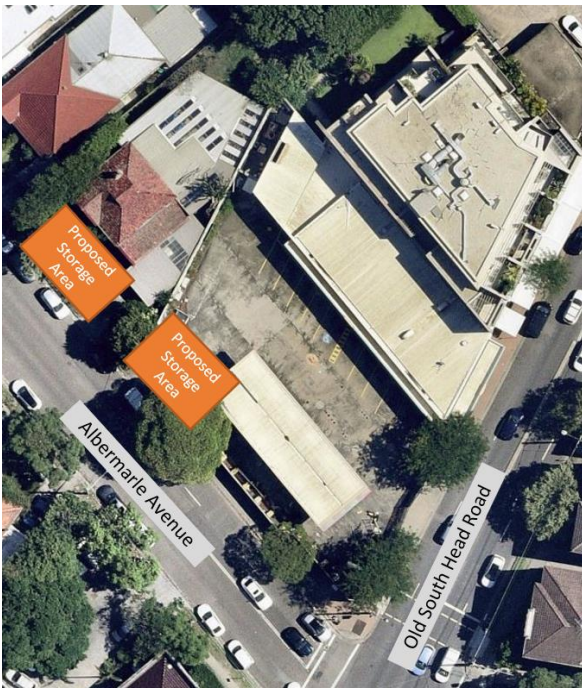
Please note that the nominated facilities below are suggested as suitably located, licensed facilities capable of accepting the relevant waste materials. Alternative facilities may be utilised if preferred, however must be licensed to receive the generated waste materials. Please also note that the capacities of the nominated facilities in accepting and recycling the specified materials may differ upon the time of construction hence it is recommended that they are contacted prior to transfers of waste to the site.

Waste skips should be provided for the following:

- 1 or more general waste skips (Masonry products which include plasterboard, treated timber, residual waste and dust) to be delivered to BINGO Alexandria Facility, 1300 424 646;
- 1 recycling skip for clean metal and aluminium to be delivered to Cleanaway's Auburn Resource Recovery Centre, 02 8645 4304;
- 1 recycling skip for glass to be delivered to Cleanaway's Auburn Resource Recovery Centre, 02 8645 4304;
- 1 recycling skip per material type, for clean tiles, fittings and fixtures and floor coverings subject to approval by the recycler to be delivered to Cleanaway's Lucas Heights Resource Recovery Park, 02 8645 4304.
- 1 organics waste skip for any VENM that is not reused on site, garden vegetation and untreated timber to be delivered to Cleanaway's Lucas Heights Organics Resource Recovery Facility, 02 8645 4304.

Figure 2 shows the proposed storage area for demolition waste. Demolition waste shall not be stored along footpaths, public reserves and street gutters or in areas that would lead to contamination of stormwater and waterways.

Figure 2 Proposed Demolition Waste Storage Areas



6 CONSTRUCTION WASTE MANAGEMENT PLAN

6.1 CONSTRUCTION WASTE GENERATION

As discussed in section 4.1 above, construction waste generation rates have also been adopted from *The Hills Shire Council Development Control Plan Appendix A (2012)* due to the lack of rates in Woollahra Municipal Council's development control plan.

The construction waste generation rates for a block of flats have been adopted as these are found to be the most suitable rates for the proposed use of the subject site. These generation rates are shown in Table 3.

Table 3 Estimate Waste Generation Rates for Construction Materials

| Building Material | Waste Generation Rates (tonnes per 1000m ²) |
|-------------------|---|
| Timber | 0.70 |
| Concrete | 6.70 |
| Bricks | 3.20 |
| Gyprock | 1.30 |
| Sand/Soil | 28.70 |
| Metal | 1.30 |
| Other | 0.60 |

The estimated construction waste volumes for each material have been calculated based on the total gross floor area of the proposed development of 4,400m². The estimated volumes and management strategies for construction waste are presented in Table 4.

The construction waste assessment below has been prepared to achieve a minimum recycling target of 80% which has been set by the NSW EPA *Waste Avoidance and Resource Recovery Strategy 2014-21*, with exception to the sand/soil due to the nature of this waste stream. This recycling target does not need to be achieved by the site however is recommended to maximise landfill diversion.

Based on the estimated demolition waste generation quantities, the site will need to divert 149.6 tonnes out of the total 187.0 tonnes generated. This may need to be revised by the Site Supervisor during the construction works as other waste streams (i.e. general waste) would need to be accounted for as well.

Table 4 Estimated Construction Waste Generation Volumes and Management Options

| Type of Waste Generated | Most to Least Favorable | | | Specify method of onsite reuse, contractor and recycling outlet and /or waste depot to be used |
|---|-------------------------------------|---------------------------------------|--|--|
| | Reuse Estimate Volume Weight (t) | Recycle Estimate Volume Weight (t) | Disposal Estimate Volume Weight (t) | |
| Timber | | 2.5t | 0.6t | Delivered to the off-site recycler listed below. Chip remainder may be used in landscaping. |
| Concrete | | 23.6t | 5.9t | To be used as hardstand during construction, then as base under pavements. Any unused concrete would be returned to batch plant for re-use. |
| Bricks | | 14.1t | | Clean and reuse lime mortar bricks for footings. Delivered to the off-site recycler listed below. Noted: it should not be mixed with other materials from construction and demolition waste and reinforced concrete. |
| Gyprock | | 4.6t | 1.1t | Disposed of in a designated general waste skip. Should asbestos be present, the waste must be removed and disposed of in accordance with the requirements of Work Cover. |
| Sand/Soil | | 101.1t | 25.3t | Delivered to the off-site recycler listed below. |
| Metal | | 4.6t | 1.1t | Clean metal (i.e. without presence of other materials) will be delivered to the off-site recycler listed below. Any contaminated metal should be separated to be landfilled. |
| General waste (including residual waste and dust) | | | 2.6t | Disposed into a general waste skip. |
| Other | | | | Sorted accordingly based on recycling potential of each material |

6.2 CONSTRUCTION WASTE STORAGE AND COLLECTION

Construction waste material generated during the construction of the proposed development will be recycled where possible. Recyclable material will be sorted and stored onsite in an appropriately labelled skip.

It is anticipated that garbage will be generated on the subject site during the construction phase. Any garbage generated shall be sorted and store onsite in waste skips.

Construction waste will be sorted and stored on-site in skips.

Please note that the nominated facilities below are suggested as suitably located, licensed facilities capable of accepting the relevant waste materials. Alternative facilities may be utilised if preferred, however must be licensed to receive the generated waste materials. Please also note that the capacities of the nominated facilities in

accepting and recycling the specified materials may differ upon the time of construction hence it is recommended that they are contacted prior to transfers of waste to the site.

Waste skips should be provided for the following:

- 1 or more general waste skips for products including sand and soil not classified as VENM, gyprock, treated timber, residual waste and dust, to be delivered to BINGO Alexandria Facility, 1300 424 646;
- Recycling skips with one skip per material type for bricks, sandstone and concrete to be delivered to S Cleanaway's Auburn Resource Recovery Centre, 02 8645 4304;
- 1 recycling skip for clean metal to be delivered to Cleanaway's Auburn Resource Recovery Centre, 02 8645 4304;
- 1 organics waste skip for untreated timber and VENM that is not reused on site including garden vegetation and untreated timber, to be delivered to Cleanaway's Lucas Heights Organic Resource Recovery Facility, NSW 2234;
- Additional recycling skips, as required for paper & cardboard, glass, plastics and others to be delivered to Cleanaway's Auburn Resource Recovery Centre, 02 8645 4304 or a suitable recycling facility.

Waste skips will be enclosed within waste bays. Waste bays will be lined with sediment fencing or shade cloth. Waste bays would be located in the same area as the demolition stockpiles, as shown in Figure 2.

Construction waste shall not be stored along footpaths, public reserves and street gutters or in areas that would lead to contamination of stormwater and waterways.

7 ONGOING RESIDENTIAL WASTE MANAGEMENT PLAN

7.1 WASTE GENERATION

Residential waste generation rates are shown below in Table 5. Calculations are based on a 7 day per week operation.

Residential waste generation rates have been adopted based on rates enclosed in the EPA NSW *Better Practice Guide for Resource Recovery in Residential Developments* 2019. These rates are considered appropriate for a residential development located within Woollahra Municipal Council.

Based on lack of landscaped spaces provided, low volumes of green waste are anticipated from the proposed dwellings hence the waste generation assessment below has only accommodated for the separation of food organics.

Table 5 Residential Waste Generation Rates

| Dwelling Size | Garbage (L/week) | Commingled Recycling (L/week) | Organics (L/week) |
|---------------|------------------|-------------------------------|-------------------|
| One Bedroom | 80 | 80 | 25 |
| Two Bedroom | 100 | 100 | 25 |
| Three Bedroom | 120 | 120 | 50 |

A waste generation assessment of the proposed development is provided in Table 6.

Table 6 Residential Waste Generation Assessment

| Dwelling Size | Quantity | Waste Per Week | | |
|---------------------------------------|----------|----------------|---------------|-------------|
| | | Garbage | Recycling | Organics |
| One Bedroom | 1 | 80L | 80L | 25L |
| Two Bedroom | 7 | 700L | 700L | 175L |
| Three Bedroom | 9 | 1,080L | 1,080L | 450L |
| Total Waste Generated per Week | | 1,860L | 1,860L | 650L |

7.2 WASTE SYSTEMS

Waste would be sorted on-site by residents as appropriate into the following streams:

- Garbage (General Waste);
- Commingled Recycling;
- Food Organics;
- Hard waste; and
- E-waste and charity.

SALT strongly recommends maximising recycling and recovery of materials where possible to minimise volume of waste landfilled and therefore minimise environmental harm. It should be ensured that all recyclable streams can be as easily disposed as garbage is throughout the development.

7.2.1 DUAL CHUTE

All residents would dispose of bagged garbage and loose recyclables using the provided dual chute system. There would be one chute dedicated to garbage and another dedicated to commingled recycling. Chute doors would be signed as "Garbage" or "Commingled Recycling" as appropriate.

Please note that the maximum deflection angle typically allowed for the garbage chute is 45° and 22.5° for the commingled recycling chute. It is however recommended that a smaller angle than the maximum is adopted to prevent clogging of materials within the chute system.

Termination of chutes would have skirting or other equivalent system to reduce any materials leaving the bin on impact.

Chute termination points would be fenced off, so residents are not able to access the equipment.

It is recommended that waste bins have reinforced bases for bin longevity.

7.2.2 GARBAGE (GENERAL WASTE)

Each dwelling would be furnished with plastic lined bins to have a minimum capacity of 20 litres for the temporary holding of garbage. Residents would transfer the waste as required to the appropriate chute drop off point located at each residential level, as shown in Appendix 1.

Garbage is to be disposed of bagged.

7.2.3 COMMINGLED RECYCLING

Each dwelling would be furnished with unlined bins to have a minimum capacity of 20 litres for the temporary holding of commingled recyclables. Residents would transfer recyclables as required to the appropriate chute drop off point located at each residential level, as shown in Appendix 1.

Commingled recyclables are to be disposed of loosely.

7.2.4 LARGE CARDBOARD WASTE

Large cardboard waste exceeding the size appropriate for the chute would be broken down and disposed of in the 1,100L commingled recycling bin located in the ground level residential bin room (refer to Appendix 1).

All other cardboard waste would be disposed of using the provided chute system.

7.2.5 FOOD ORGANICS

Each dwelling would be furnished with unlined bins or bins lined with compostable lining approved by the waste contractor, to have a minimum capacity of 8 litres. Residents would transfer food waste as required to the 60L organics bin provided adjacent to the services cupboard or hot water tanks at each residential level.

Organics waste is to be disposed of loosely or in compostable bags that have been approved by the waste contractor. These compostable bags should be marked with the Australian Standard compostable logo as shown in Figure 3 below. It should be noted that non-compostable bags should not be placed into the organics bins as it cannot be composted and thus will affect the quality of the organic product.

Figure 3 Australian Standard Compostable Logo



Green/FOGO waste generated by the maintenance of communal landscaped areas would be disposed of via the engaged landscaper.

7.2.6 HARD WASTE

A clearly marked hard waste storage area of 2m² and 3.1m² has been allocated on levels 1 and 2 respectively. Residents would access these areas via the internal accessways or lift provided, as shown in Appendix 1.

Building management would transfer the hard waste to the bulky waste area adjacent to the loading dock at ground level as required.

Building management would arrange hard waste collections with collections to be conducted by a private contractor as required.

7.2.7 E-WASTE AND CHARITY

The Victorian Government introduced a ban on e-waste disposal in landfills in July 2019. Therefore, residents should be made aware of the available e-waste deposit points within the Council region. E-waste must not be disposed into general waste or commingled recycling bins at any time.

Any e-waste generated within the development can be deposited at Council's recycling centre which is known as Randwick Recycling Centre. This recycling centre also accepts other waste streams such as clothing, chemical waste, polystyrene and soft plastics.

Further information regarding the recycling centre's opening hours and accepted waste types are listed here: <https://www.randwick.nsw.gov.au/services/rubbish-and-recycling/recycling-centre/about-recycling-centre>

7.2.8 SOFT PLASTICS

In addition to the Randwick Recycling Centre, residents can recycle soft plastics at a local Coles or adjacent Woolworths store. The soft plastics recycler would typically be Redcycle and a list of the types of soft plastics that are accepted at their deposit bins is available here: <https://www.redcycle.net.au/what-to-redcycle/>. Some of the commonly accepted soft plastics are shown in Figure 4 below.

Figure 4 Guide to Recyclable Soft Plastics



7.3 BIN QUANTITY, SIZE AND COLLECTION FREQUENCY

Table 7 and Table 8 below contain information regarding bin quantity, size and frequency of collection.

It should be noted that some waste contractors provide a maximum bin size of 120L for the organics stream due to the significant weight of the organics material. Therefore, the available organic bin sizes should be clarified prior to engaging the contractor.

Table 7 Residential Bin Size and Collection Frequency

| Waste Stream | Collections per Week | Bin/Area Size | No Bins | Weekly Volume | Weekly Capacity |
|----------------------|----------------------|-----------------|---------|---------------|-----------------|
| Garbage | 1 | 1,100L | 2 | 1,860L | 2,200L |
| Commingled Recycling | 1 | 1,100L | 2 | 1,860L | 2,200L |
| Organics | 1 | 240L | 3 | 650L | 720L |
| Hard Waste | As required | 1m ² | | N/A | |

Table 8 Typical Waste Bin Dimensions

| Capacity (L) | Width (mm) | Depth (mm) | Height (mm) | Area (m ²) |
|--------------|------------|------------|-------------|------------------------|
| 1,100 | 1240 | 1070 | 1330 | 1.33 |
| 240 | 585 | 730 | 1060 | 0.43 |

Note: The above dimensions are based on SULO's flat lid bin specifications

Please refer to the specifications sheet attached in APPENDIX 2 for dimensions of the recommended dual chute system.

7.4 BIN COLOUR AND SUPPLIER

All bins would be provided by private supplier. The below bin colours are specified by Australian Standard AS4123.7-2006, however due to the private nature of the collection, these are only recommendations and are not mandatory:

- Garbage (general waste) shall have red lids with dark green or black body;
- Recycle shall have yellow lids with dark green or black body; and
- Organics shall have green lids with dark green or black body.

7.5 WASTE STORAGE AREA

Table 9 demonstrates the cumulative space requirements and provision of waste areas in the residential areas of the proposed development.

Space within the storage location would allow for bin rotation and safe service provision.

Please refer to scaled drawing shown in Appendix 1.

Table 9 Waste Area Space Requirements

| Stream | Space Required (excluding circulation) | Space Provided |
|----------------------|--|---------------------------|
| General Waste | 2.66m ² | 18.69m ² |
| Commingled Recycling | 2.66m ² | |
| Organics | 1.29m ² | |
| Hard Waste | 1.00m ² | |
| TOTAL | 7.61m² | 23.79m² |

Note, commercial and residential waste would not be stored together.

8 COMMERCIAL WASTE MANAGEMENT PLAN

8.1 WASTE GENERATION

Commercial waste generation rates are shown in Table 10. Calculations are based on 7 days per week operation for the supermarket.

The waste generation rates have been derived based on the waste generation volumes and information provided by the Avalon Beach Woolworths store. The waste volume data used were based on the average waste volumes generated from January to December 2020.

Based on the current organics waste management methods at other Woolworths stores, it is understood that most of the organics waste generated would be collected by or delivered to farmers to be used as livestock feed. It is therefore presumed that the same arrangement would be made at the Rose Bay outlet. The remaining organics waste that is not suitable for use by the farmers would be collected by a private contractor and processed off-site.

Table 10 Commercial Waste Generation Rates

| Use | Garbage (L/100m ² /week) | Cardboard (L/100m ² /week) | Organics (farmers) (L/100m ² /week) | Organics (other) (L/100m ² /week) | Soft Plastics* (L/100m ² /week) |
|-------------|-------------------------------------|---------------------------------------|--|--|--|
| Supermarket | 511.6 | 1100.5 | 195.8 | 52.9 | 140L |

*Note: Soft plastic generation rate was estimated based on volumes generated in similar supermarkets/independent grocers

A commercial waste generation assessment is provided in Table 11.

Table 11 Commercial Waste Generation Assessment

| Use | Area | Waste Per Week | | | | |
|---------------------------------------|-----------------------|----------------|----------------|--------------------|------------------|---------------|
| | | Garbage | Cardboard | Organics (farmers) | Organics (other) | Soft Plastics |
| Supermarket | 2,046.4m ² | 10,470L | 22,521L | 4,006L | 1,083L | 2,865L |
| Total Waste Generated per Week | | 10,470L | 22,521L | 4,006L | 1,083L | 2,865L |

8.2 WASTE SYSTEMS

Waste would be sorted on-site by staff and cleaners as appropriate into the following streams:

- Garbage (General Waste);
- Cardboard;
- Food Organics; and
- Soft Plastics.

8.2.1 GARBAGE (GENERAL WASTE)

The supermarket would be furnished with plastic lined bins for the temporary holding of garbage waste, to have a minimum cumulative capacity of 1,650 litres. This capacity is based on the transfer of waste to the commercial bin room occurring once per day.

Staff/cleaners would dispose of waste from these bins directly into the appropriate 1,100L bin provided within the commercial waste area which will be located within the supermarket's back of house area (refer to Appendix 1).

Garbage is to be disposed of bagged.

8.2.2 CARDBOARD

The supermarket would be furnished with unlined bins for the temporary holding of cardboard, to have a minimum cumulative capacity of 3,500 litres. This capacity is based on the transfer of cardboard to the commercial bin room occurring once per day.

Staff/cleaners would dispose of waste from these bins directly into the baler provided within the commercial waste area, which will be located within the supermarket's back of house area (refer to Appendix 1).

Commingled recyclables would be disposed of loosely.

8.2.3 FOOD ORGANICS

For food waste which would be collected by the contractor, the supermarket would be furnished with unlined bins with a minimum cumulative capacity of 170 litres for temporary holding of the food waste. This capacity is based on the transfer of waste to the bin room occurring once per day.

For food organics which would be collected by farmers, the supermarket be furnished with bins or containers with a minimum cumulative capacity of 1,250 litres for the temporary holding of the food waste. This capacity is based on the collection of food waste by farmers occurring once every two days.

Staff/cleaners would dispose of waste from these bins directly into the appropriate 240L bins provided within the ground level commercial waste area.

Organics waste is to be disposed of loosely or in compostable bags that have been approved by the waste contractor.

Please refer to section 7.2.5 for more information regarding disposal bags allowed to be used for food organics disposal.

8.2.4 SOFT PLASTICS

The supermarket would be furnished with unlined bins for the temporary holding of soft plastics which would be collected by a contractor. These bins would have a minimum cumulative capacity of 170 litres. This capacity is based on the transfer of waste to the bin room occurring once per day.

A 1,100L soft plastics bin will be provided within the commercial waste area for soft plastics recycling. Staff/cleaners will access this waste area via the internal pathways, as shown in Appendix 1.

8.3 BIN QUANTITY, SIZE AND COLLECTION FREQUENCY

The bin quantity, size and the frequency of collection are shown below in Table 12 and Table 13.

Three waste collections per week is recommended given the volume and nature of the waste generated in the supermarket. Commercial waste collections would be coordinated with residential waste collections to reduce truck movements in the local area.

The weight of paper and cardboard is calculated using a waste conversion factor of 0.1 kilograms/litres which is adapted from the Government of South Australia *Zero Waste SA; Solid Waste and Recycling Reporting Template*.

Table 12 Commercial Bin Size and Collection Frequency

| Waste Stream | Collections per Week | Bin Size/ Equipment Type | Compaction Ratio | No. Bins/Bales | Weekly Capacity | Weekly Volume/*Baled weight |
|------------------|----------------------|--------------------------|------------------|----------------|-----------------|-----------------------------|
| Garbage | 3 | 1,100L | N/A | 4 | 13,200L | 10,470L |
| Cardboard | 1 | X50 Baler: 450kg/bale | 1:3 | 2 bales | 900kg | 751kg* (7,507L) |
| Organics (other) | 2 | 240L | N/A | 3 | 1,440L | 1,083L |
| Soft Plastics | 1 | 1,100L | N/A | 3 | 3,300L | 2,865L |

Table 13 Typical Waste Bin Dimensions

| Capacity (L) | Width (mm) | Depth (mm) | Height (mm) | Area (m ²) |
|--------------|------------|------------|-------------|------------------------|
| 1,100 | 1240 | 1070 | 1330 | 1.33 |
| 240 | 585 | 730 | 1060 | 0.43 |

Note: The above dimensions are based on SULO's flat lid bin specifications

Please refer to the specifications sheet attached in APPENDIX 3 for dimensions of the recommended baler.

8.4 BIN COLOUR AND SUPPLIER

All bins would be provided by private supplier. The below bin colours are specified by Australian Standard AS4123.7-2006, however due the private nature of the collection, these are only recommendations and are not mandatory:

- Garbage (general waste) shall have red lids with dark green or black body;
- Recycle shall have yellow lids with dark green or black body; and

- Organics shall have green lids with dark green or black body.

Note, private contractors often supply bins for collection.

8.5 WASTE STORAGE AREA

Table 14 demonstrates the cumulative space requirements and provision of waste areas in the commercial area of the proposed development.

It should be noted that the commercial waste storage area will be located within the supermarket's back of house area. The defined area of this storage space will be demonstrated on the development plans in the detailed design stage of the future development application.

Please refer to scaled drawing shown in Appendix 1.

Table 14 Commercial Waste Area Space Requirements

| Stream | Space Required (excluding circulation) | Space Provided |
|---------------|---|--------------------------------------|
| General Waste | 5.32m ² | 27.00m ² at minimum |
| Cardboard | 3.69m ² | |
| Organics | 1.29m ² | |
| Soft Plastics | 3.99m ² | |
| TOTAL | 14.29m² | 27.00m² at minimum |

Note, commercial and residential waste would be stored separately in the respective bin rooms at ground level.

Waste management would be overseen by building management.

8.6 WASTE COLLECTION

Residential waste would be collected by a private contractor as follows:

- 2 x 1,100L garbage bins collected once per week;
- 2 x 1,100L commingled recycling bins collected once per week;
- 3 x 240L organics bins collected once per week;
- 1m² of hard waste collected as required.

Commercial waste would be collected by private contractor as follows:

- 4 x 1,100L garbage bins collected three times per week;
- 2 x cardboard bales collected once per week;
- 3 x 240L organics bins collected twice per week;
- 3 x 1,100L soft plastic bins collected once per week;

All waste bins would be stored on-site in the bin rooms provided on the ground level.

General waste collections would occur via an 8.8m medium rigid vehicle with an operating height of 4 metres. This height clearance allows the waste truck to access and operate within the loading dock.

Hard waste collections would be performed by a utility vehicle or AustRoads B99 design vehicle equivalent.

Waste collection vehicles would enter the subject site via a forward motion from Albemarle Avenue.

Waste collection vehicles would prop safely on the turntable within the ground level loading dock.

Vehicle operators would ferry waste bins from the bin rooms and return upon emptying.

Waste collection vehicles would exit the loading dock in a forward direction onto Albemarle Avenue.

Please refer to the swept path analysis attached in APPENDIX 4.

Building management would ensure that waste vehicle operators are able to access the bin rooms.

All waste bins would not be presented to street kerb at any point.

9 RESPONSIBILITIES

Building management would be responsible for overseeing waste management within the development. Responsibilities would include:

- Provide residents and commercial tenants with a waste management handbook which would include information on bin storage areas, transfer paths and waste management methods onsite;
- Rotating bins placed beneath chutes or providing staff/cleaners with a cleaning and bin transfer/rotation schedules;
- Ensure that all bins throughout the site and the bin room are equipped with appropriate signages to guide users on appropriate segregation methods for their waste and recyclables;
- Inspecting waste stores;
- Reviewing contamination within bins;
- Providing staff/cleaners with a training session on the appropriate and safe utilisation methods of the baler and providing them with a user manual;
- Investigating incidents of inappropriate waste storage (or aggregation).

Building management would ensure anyone found responsible for inappropriate waste disposal would be appropriately educated and made aware of correct waste disposal techniques.

It is recommended that building management conducts a waste audit if waste is found to be inappropriately deposited by users or if the bin capacities need to be reviewed.

10 SIGNAGE

Waste storage areas and bins would be clearly marked and signed with the industry standard signage approved by NSW EPA or equivalent. The typical NSW EPA signage is illustrated in Figure 5.

Figure 5 NSW EPA Signage

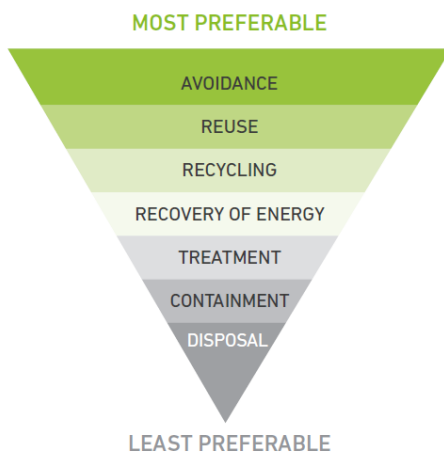


11 SUSTAINABILITY ACTION PLAN AND INITIATIVES

The importance of restructuring the institutional waste management methods in developments is becoming more apparent as we experience the adverse impacts of increasing waste volumes and declining recycling rates. Developments such as the proposed subject site can contribute towards the prevention and reduction of nationwide waste generation volumes as well as to promote a local circular economy system.

Building management should encourage users by demonstrating a commitment towards waste avoidance and minimisation initiatives. The waste hierarchy as detailed in the *Environmental Protection Act 2017* should be observed in order of preference (refer to Figure 6).

Figure 6 Waste Hierarchy



In addition to the waste management strategy detailed in the enclosed report, building management can establish landfill diversion and recycling targets and conduct periodic waste audits to monitor contamination levels in recycling and organics bins. The results of the audit could be shared with residents and commercial tenants to encourage them to continue or to improve their waste separation efforts. The audit may also be beneficial from a cost perspective as it would inform building management of opportunities to reduce bin numbers or collection frequencies.

Residents and commercial tenants should be inducted on on-site waste management practices and on the development's sustainability action plan via the provision of a handbook or in-person training, as deemed necessary. Commercial tenancies should be encouraged to minimise single use packaging and promote re-use by providing opportunities to consumers to utilise their own reusable containers or bags.

12 WASTE AREA DESIGN REQUIREMENTS

12.1 VENTILATION

Ventilation would be provided in accordance with Australian Standard AS1668. Rooftop exhaust fans would be implemented within each chute system to ensure proper chute ventilation is provided.

The waste room will be equipped with tight fitting doors and impervious flooring. Any openings within the waste room will be fitted with vermin-proof mesh.

12.2 LITTER MANAGEMENT, WASHING AND STORMWATER POLLUTION PREVENTION

Chutes would be equipped with flushing nozzles to enable the regular washing of chutes to maintain appropriate hygiene levels for future use.

An appropriately drained wash down area would be provided within the bin rooms in which each bin is to be washed regularly by building management. Bin washing areas or bin wash bays must discharge to a litter trap while the commercial bin washing area should discharge to a grease trap as well. Bin wash areas should not discharge into stormwater drainage. The bin washing provisions will be demonstrated in the Development Application stage of the project.

Alternatively, a third-party bin washing service can be engaged to perform this service. Bin washing suppliers must retain all waste water to within their washing apparatus so as to not impact on the drainage provisions of the site.

Building management and cleaners would be responsible in ensuring the following to prevent or minimise the dispersion of litter throughout the site:

- Prevent overfilling of bins by ensuring bin lids are closed at all times;
- Require waste contractor to remove any spillage that may occur during waste collections; and

- Ensure anyone found responsible for inappropriate waste disposal or dumping would be appropriately educated and made aware of correct waste disposal techniques.

12.3 NOISE REDUCTION

All chute systems and waste areas would meet EPA, BCA and AS2107 acoustic requirements as appropriate within operational hours assigned to minimise acoustic impact on surrounding premises.

Waste contractors should also abide by the following regulations to ensure minimal noise impacts to the neighboring properties:

- Compaction only to be carried while on the move;
- Bottles should not be broken up at the point of collection
- Routes that service entirely residential areas should be altered to reduce early morning disturbances; and
- Noisy verbal communication between operators should be avoided where possible.

12.4 DDA COMPLIANCE

All waste areas to be accessed by commercial staff/residents would comply with AS1428.1:2009.

13 RISK AND HAZARD ANALYSIS

Table 15 shows the potential risks, severity and suggested control methods that could be considered to avoid the risks from occurring during waste collections.

Note that this is a preliminary risk assessment and does not replace the need for the building management and collection contractors to complete their respective OHS assessment for waste collections.

The information provided below have been adopted from WorkCover NSW *Collection of Domestic Waste: Code of Practice*. The severity of each risk has been determined based on the risk rating table enclosed in Department of the Environment *Environmental Management Plan Guidelines* 2014.

Table 15 Potential Risks and Control Methods During Waste Collections

| Area | Risk | Severity | Suggested controls |
|---------------------|---|----------|--|
| Waste collection | Incidents during waste collection vehicle ingress or egress movements | Low | <p>Vehicle operators would be trained in ensuring the following</p> <ul style="list-style-type: none"> Tailgate is closed after clearing waste area Move vehicle slowly when tailgate or body is raised Clear waste from tailgate seal and from rear of machine before departure from the subject site Ensure tailgate is locked after unloading operation Vehicle operators should not exit the vehicle body unless engine is switched off, ignition key is removed, safety prop is in position and the vehicle body is well ventilated. Regular safety checks and inspection of vehicles should be conducted. |
| | Incidents during manual handling of bins | High | Vehicle should meet relevant Australian Design Rules. Ensure that vehicles with low bowl height are used to avoid lifting of bins above shoulder height. Vehicle operator should be clear of the equipment before activation of packing or tipping controls. |
| | Slip and trip hazards in moving into and out of the vehicle | Medium | Maintain sufficient and frequent communication between driver and runner. The hose should not be used as handholds when mounting or dismounting. |
| | Slips and trips while transporting bins | Low | <p>As the loading dock is at the same grade with that of the bin rooms, there are no hazards presented from the presence of slopes or steps. The loading dock and bin rooms would also be well lit at all times to ensure good visibility to staff/vehicle operators.</p> <p>However, to ensure that any other potential risks are mitigated, frequent communication should be maintained between the driver and runner and the runner should only transfer one bin at a time.</p> |
| Surrounding traffic | Conflict with other vehicle operators, commercial tenants and residents within the loading dock during collection | Medium | <p>Ensure that collection is to occur only at off-peak hours.</p> <p>The collection area should also be well-lit to allow for better visibility of oncoming traffic and pedestrians.</p> |
| Waste bins | Type of wastes handled – risk associated in contact with unknown hazardous substances or sharp objects | Medium | <p>Residents and commercial tenants should be educated on safe disposal of hazardous substances and sharp objects.</p> <p>Waste vehicle operators should be trained and informed on safe handling of unknown substances. Operators could be provided with PPE to avoid infections and to assist in handling of waste bins.</p> |
| Waste Bins | Overflowing bins affecting the transport of bins to the waste collection vehicle or presenting as a trip hazard. | Low | The recommended number of bins enclosed in this WMP provides larger capacities than the volumes generated for all waste streams hence there would be a low likelihood of this occurring. |



14 SUPPLIER CONTACT INFORMATION

Table 16 provides a list of equipment specified by this waste management plan.

Below is a complimentary listing of contractors and equipment suppliers. You are not obligated to procure goods/services from these companies. This is not, nor is it intended to be, a complete list of available suppliers.

SALT does not warrant (or make representations for) the goods/services provided by these suppliers.

Table 16 High Level Purchasing Schedule

| Item | Quantity | Supplier | Notes |
|-------------------|--------------|-------------------|--|
| 1,100L Bins | 11 | Private Supplier* | 2 x 1,100L residential garbage bins 2 x 1,100L residential commingled recycling bins 4 x 1,100L commercial garbage bins 3 x 1,100L commercial soft plastic bins |
| 240L Bin | 6 | | 3 x 240L residential organics bins 3 x 240L commercial organics bins |
| Dual Chute System | 1 (2 Chutes) | Private Supplier | 1500W x 1000D penetration allowed |
| Cardboard baler | 1 | Private Supplier | 1 x cardboard baler with weekly capacity of 751kg |

*Private waste collection contractors often supply their own bins for collection.

14.1 EQUIPMENT SUPPLIERS

14.1.1 DUAL CHUTE SYSTEM

- Wastech Engineering – 03 8787 1600
- ASI JD MacDonald – 03 8558 7200
- Elephant's Foot – 02 9780 3500
- Australian Chutes & Engineering – 03 9761 7557

14.1.2 BIN SUPPLIER

- Sulo MGB Australia (wheelie bin) – 1300 364 388

14.1.3 ORGANICS BIN BIO-FILTER

The bio bin-filter may be purchased for odour and vermin prevention purposes.

- Smart Biz Oz – 02 9160 7833

14.2 DEMOLITION AND CONSTRUCTION WASTE COLLECTORS

The principal off-site recycler that can be used for this project is:

- Cleanaway's Auburn Resource Recovery Centre, 02 8645 4304;
- Cleanaway Lucas Heights Resource Recovery Park, 02 8645 4304.
- Cleanaway Lucas Heights Organic Resource Recovery Facility, 02 8645 4304.

The principal licensed landfill/disposal sites that can be used for this project are:

- BINGO Alexandria, 1300 424 646

An additional recycler that can be used for this project is:

- SUEZ Seven Hills Resource Recovery Centre, 29 Powers Rd, Seven Hills NSW 2147 – 1300 651 116

14.3 ON-GOING WASTE COLLECTORS

14.3.1 GARBAGE, RECYCLING AND ORGANICS

- Capital City Waste Services – 02 9599 9999
- Cleanaway – 13 13 39
- JJ Richards – 1300 971 325
- SUEZ Environment – 13 13 35

- VISY Waste Management – 03 9369 7447
- Veolia Environmental Services – 132 955

14.3.2 HARD WASTE

- Cheap Cheap Rubbish Removal – 0499 930 333
- Same-Day Rubbish Removal – 0402 737 046

14.4 BIN WASHING SERVICES

- Bin2Clean – 0400 383 848/ 0433 038 222
- myBins – 1300 692 467

15 PURPOSE AND LIMITATIONS

This Waste Management Plan has been prepared to form a part of the development application. The report is prepared to:

- Demonstrate that an effective waste management system is compatible with the design of the development. An effective waste management system comprises of a system that is hygienic, clean, tidy, minimises waste being landfilled and maximises recycling and resource recovery;
- Ensure stakeholders are well informed of the design, roles and responsibilities required to implement the system;
- Provide supporting scaled drawings to confirm that the final design and construction is compliant with the report;
- Define the relevant stakeholders involved in ensuring the implementation of the waste management system; and
- Ensure tenants are not disadvantaged in access to recycling and other sustainable waste management options.

The following should be noted regarding the enclosed information:

- The waste generation volumes provided are estimates based on the best available waste generation rates. The actual waste volumes generated on-site may differ slightly from that estimated as it would depend on the occupancy rate of the development and tenant type (i.e. families or renters);
- The equipment specifications and any information provided regarding the recommended equipment are provided for reference purposes only and should not be relied upon for procurement. SALT recommends that the developer attains the latest specifications of the required equipment and service provisions from the respective contractor(s) prior to engaging them or purchasing the relevant equipment.
- The report should be updated if the development plans are amended or if new legal requirements are introduced.

APPENDIX 1 DESIGN DRAWINGS

APPENDIX 2 DUAL CHUTE SPECIFICATIONS (RECOMMENDED)

APPENDIX 3 BALER SPECIFICATIONS (RECOMMENDED)

APPENDIX 4 SWEPT PATH ANALYSIS (PREPARED BY OTHERS)



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