Proposed Residential Development – Lot 35 Montario Quarter, Shenton Park

Waste Management Plan

Rev B

Prepared for: Montario Project Pty Ltd

Date: 28 September 2023

Ref: CW1200355/304900738

Stantec

Revision

Revision	Date	Comment	Prepared By	Approved By
A	27 September 2023	Final	JD	DH/RJC
B	28 September 2023	Update Final	JD	DH

Stantec Australia Pty Ltd

Ground Floor, 226 Adelaide Terrace, Perth WA 6000

Acknowledgment of Country

Stantec would like to acknowledge the Traditional Owners of the lands on which this report was prepared, the Wadjak Nyoongar people of the Mooro Country. We pay respects to Elders past, present and emerging, and extend that respect to all Aboriginal and Torres Strait Islander peoples.

Limitations

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900738\5_TECHNICAL\WATER AND ENVIRONMENT\REPORTS\REPORT01_REV0\LOT 35\RPT_MONTARIO_QUARTER_BLDG2_LOT35_WMP_02.DOCX

CW1200355/304900738

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1. Introduction

1.1 Background

Stantec has been commissioned by Montario Project Pty Ltd ("the Client") to prepare a Waste Management Plan (WMP) for the proposed build to sell multi residential development (the Development) located at Lot 35 & Lot 36 Montario Quarter, Shenton Park within the City of Nedlands.

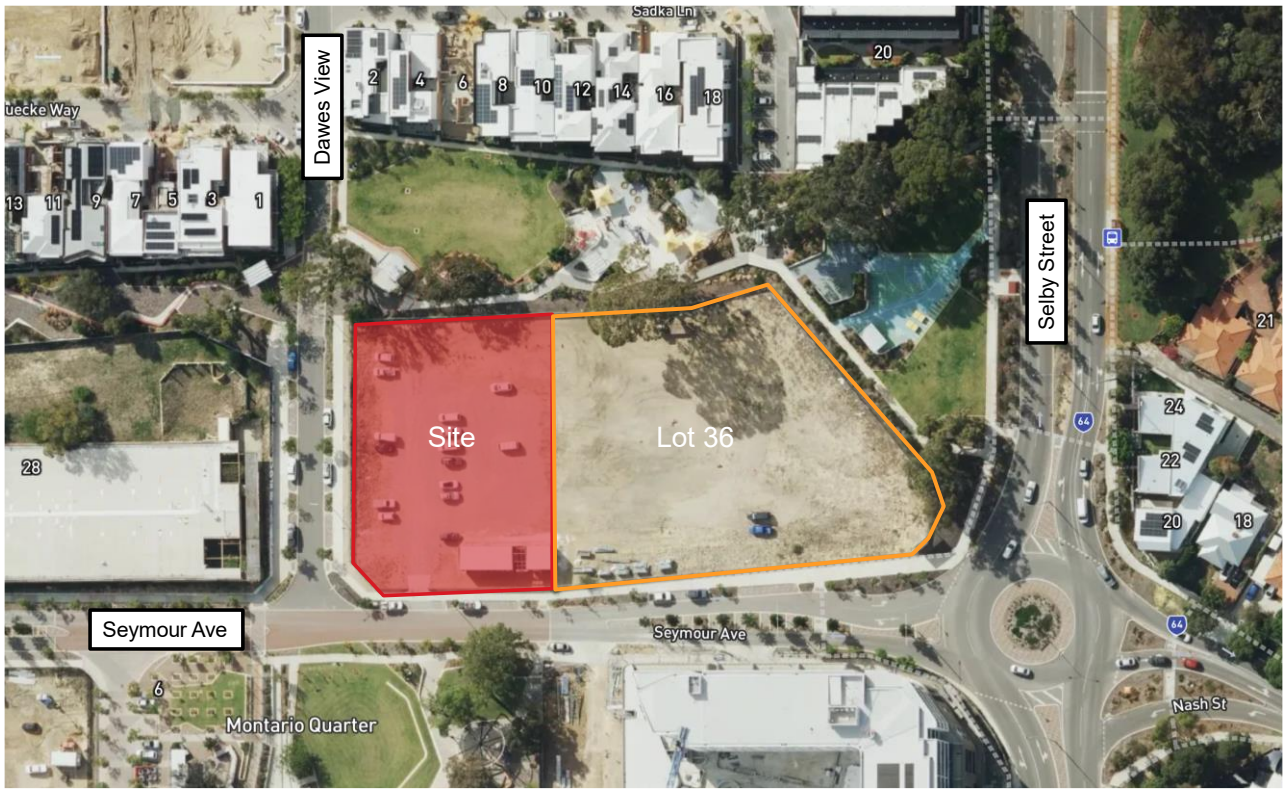
The scope of this WMP is limited to the estimation of general waste, recycling, and food organic and garden organic (FOGO) volumes generated by the Development and includes recommendations for the appropriate collection, storage, handling and transportation of waste and recycling, in accordance with the requirements outlined in the City of Nedlands Local Planning Policy and the WALGA's Commercial and Industrial Waste Management Plan Guidelines.

Estimations of generated volumes of liquid and bulk rubbish are not provided. Specialist contractors will need to be commissioned by the Development operators for the collection and disposal of liquid waste and bulk rubbish, as necessary.

1.2 Site location

The Site is located on Lot 35 Montario Quarter, Shenton Park within the City of Nedlands. **Figure 1-1** shows an aerial image of the Site.

Figure 1-1 Aerial Image of Site



Source: MetroMap (2023)

Plans for the Development outlines an eight-storey building with the majority of its premises dedicated for residential dwellings. The anticipated development yield for the Development is tabulated in **Table 1-1**.

The proposed Development will front onto Seymour Avenue on the southern side and is surrounded by residential and commercial premises. The bin enclosure for the development is proposed to be located on the ground floor of the subject site and is accessible from Dawes View.

Architectural plans outlining the usage of floor space are provided in **Appendix A**.

Table 1-1 Development Yield

Type of Dwelling	Development Yield
1-bedroom	8
2-bedroom	31
3-bedroom	26
4-bedroom	3
Townhouse*	4
Total	72

**Townhouses consist of 3-bedrooms*

1.3 Waste and Recycling Collection Services

The Development will use the waste collection service provided by the City of Nedlands for the collection of general, recycling and FOGO waste which is anticipated to be collected twice a week.

General, recycle and FOGO waste collections will be undertaken on-site and arranged to occur during off-peak hours to minimise disruption to traffic operations as well as minimise any impacts to residents and tenants.

1.4 Bin enclosure

The Mobile Garbage Bin (MGB) storage for the Development will be in a bin enclosure located on the ground floor.

1.4.1 Construction Considerations

The bin enclosures for the Development will be designed with the following considerations:

- The bin store area will have concrete slab floor with a graded floor to a waste drain that is connected to sewer. Floors to be even and flat for safe storage of bins;
- Access doors will be self-closing to prevent access to vermin;
- Adequate aisle width for easy manoeuvring of bins;
- No double stacking of rows of bins;
- All wall joins will be sealed to a height of 150 mm for ease of washing;
- Walls are to be painted with washable paint;
- A hose cock will also be included to facilitate washout of bins and washout of the area.
- Drainage of waste water from washing facilities will drain to main sewers;
- Sufficient lighting for the bin enclosure should be provided by motion detected automatic artificial lighting in order to facilitate access to the bin enclosure;
- Adequate ventilation will be provided to the bin enclosure to ensure sufficient turnover of the air mass to prevent odour nuisance;
- Appropriate signage to be provided;
- To be designed to not permit stormwater to enter into the drain;
- Bins not to be visible from the property boundary or areas trafficable by the public;
- Any external bin store greater than 20m is to be roofed as per Water Authority requirement; and

- Bins are reasonably secured from theft and vandalism.

2. Waste Generation and Management

In order to ensure that the waste from the Development is properly managed, it was necessary to estimate the volume of waste that is likely to be generated on the premises. The City has advised that a waste management plan for a three-bin collection system i.e. general waste, recyclables and FOGO is required. The waste generation rates indicated in the City's Local Planning Policy was used to calculate the estimated waste anticipated to be generated by the proposed residential apartments.

Using these general, recycling and FOGO waste generation rates, a broad estimation of the daily waste to be generated by the proposed development has been calculated.

2.1 Waste Streams

2.1.1 General, Recycling and FOGO

Waste and recyclables will be sorted on-site and as close to source as possible. Sorting will rely on appropriate education of residents, and tenants in addition to adequate signage for bins located in the bin enclosures. Waste and recycling will be based on the following streams:

- General Waste.
- Co-mingled Recycling, which includes clean aluminium foil and trays, glass bottles and jars, long-life milk and juice cartons, cardboard, plastic containers, tins and cans.
- Food organics and garden organics (FOGO), which includes food and green waste, uncontaminated wood waste, forestry residues and other biodegradable organic residues. The City will dictate what can be included in these bins.

2.1.2 Other Streams

Storage, handling and collection of liquid wastes are not covered in this WMP. The Development operator will need to source and enter into an agreement with an appropriate registered and accredited waste collection contractor from the City. It should be noted that the City offers bulk rubbish and green waste collections twice a year for residential tenants. This collection enables residential tenants to dispose hard waste items, green waste, mattresses and electronic waste.

2.2 Waste Streams Estimates

The waste generation of the residential component of the development was calculated based on the requirements of the City. The City requires that sufficient general, recycle and FOGO bins are provided for the proposed multi-residential apartment development. The waste generation and bin requirements have been calculated using the waste generation rates detailed in **Table 2-1.**

Table 2-1 Waste Generation Rates for the Development

Type of Premises	General Waste (L)	Co-mingled Recycling (L)	FOGO (L)
1-bedroom	80 L/dwelling/week	240 L/dwelling/fortnight	40 L/dwelling/week
2-bedroom	120 L/dwelling/week	240 L/dwelling/fortnight	40 L/dwelling/week
3+ bedroom*	120 L/dwelling/week	240 L/dwelling/fortnight	40 L/dwelling/week

** Waste generation rates for 3 bedroom units and 4 bedrooms units are the same*

A summary of the estimated weekly waste generated for each waste stream is provided in **Table 2-2**. Waste estimates were obtained by way of calculations outlined in **Appendix B**.

Table 2-2 Weekly Waste

Type of Premises	Weekly General Waste (L)	Weekly Co-mingled Recycling (L)	Weekly FOGO (L)
Residential	8,320.00	8,640.00	2,880.00

The waste volumes presented are estimates only and are representative of the design drawings of the Development provided in September 2023.

2.3 Bin Requirement

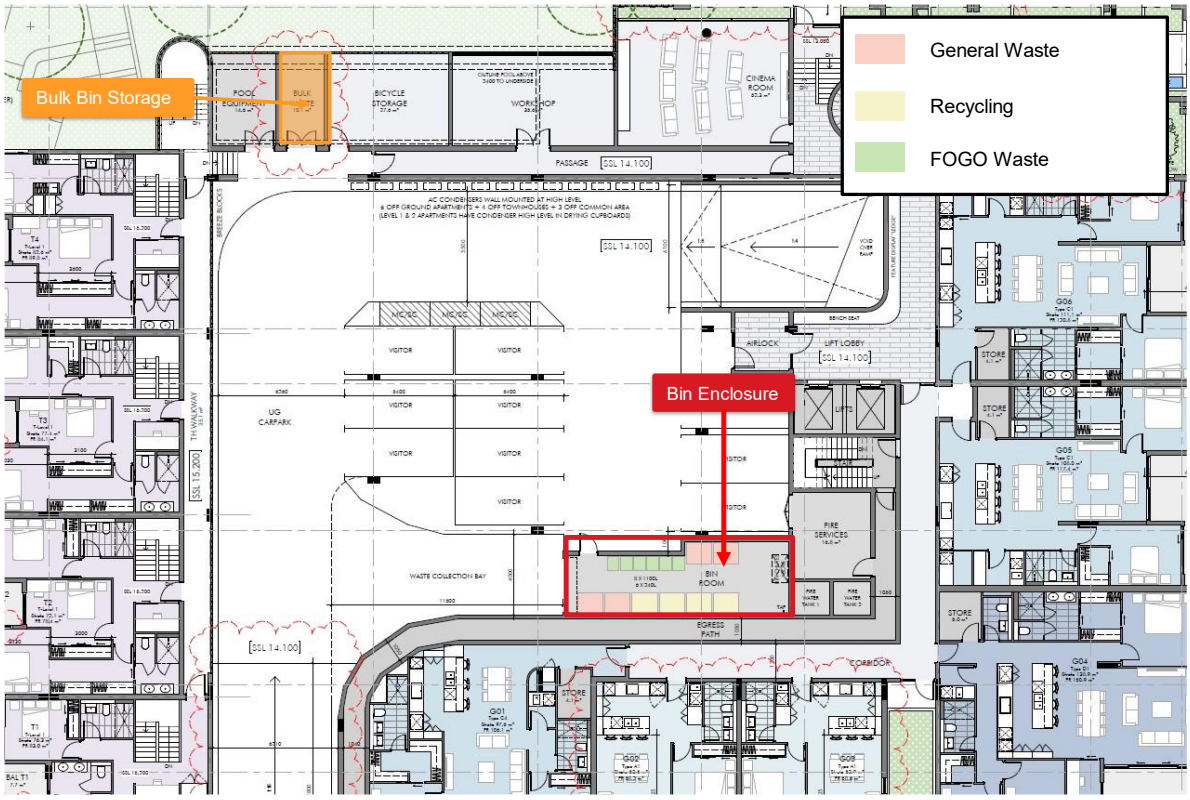
A summary of the breakdown of the anticipated MGB requirements for the proposed development, the proposed bin sizes, and the proposed collection frequencies are provided in **Table 2-3.** Bin sizes proposed are as recommended by the City of Nedlands.

Table 2-3 Bin Requirements for Enclosure of Proposed Site

	Residential		
	Size (L)	**Collection**	**No of Bins**
General Waste	1100	Twice a week	4
Co-mingled Recycling	1100	Twice a week	4
FOGO	240	Twice a week	6
Total	**8 x1100L and 6 x240L**		

A layout of the anticipated bin enclosure and the location of the bulk bin storage is illustrated in **Figure 2-1**. The proposed bin enclosures are adequately sized for the storing and manoeuvring of the bins. The proposed bulk storage area provided meets the City of Nedlands' Waste Management Local Planning policy requirements for 56 – 200 apartment dwellings. Furthermore, it is envisaged that the bulk skip bin will be located in the proposed waste collection bay and will be collected by the City a day before the collection of the general and recycling waste.

Figure 2-1 Bin Enclosure



Source: Space Collective Architects (September 2023)

2.4 Bin Enclosure Layout

MGBs will be stored in an allocated enclosure within the Ground Floor of the Development and will be easily and safely accessible from within the development. The waste bins will generally be stored directly abutting the walls of the enclosures.

2.4.1 Design Consideration

A number of problems can arise from inadequate consideration of waste management in developments. Some of these problems include noise, odour, hygiene issues, vermin, negative impacts on the health, safety, environment and security. To avoid these issues, it is vital to consider waste management in the design and planning of the proposed Development.

Odour

The enclosure is located away from public areas which will prevent odour nuisance.

Noise

The bin enclosure is located away from public areas to limit noise that may otherwise disturb surrounding premises when materials are placed in the bins.

Vermin

The use of lidded MGBs will eliminate access by vermin. The use of bait stations will also be considered by the Development operator if required.

Aesthetics

The bin enclosure has been designed with the Development and as such will be consistent with the overall aesthetics, avoiding the placement of bins along the external faces of the building.

Protection from Vandalism

The bin enclosure will be closed off from public access and will use secured doors. No bins will remain or be stored outside of the enclosure.

Regular Washing of Bins and Enclosure

An assigned staff/cleaner will be responsible for the organisation of regular washing of bins and for maintenance of the storage area. The washing area will have graded floors that drain to the sewer which will allow for the cleaning of the store and bins.

2.5 Transfer of Waste and Recycling

2.5.1 Waste Transfer

A dual chute system is proposed for the Site for the ease of transfer of waste from each level to the bin store. Residents are to transfer their general waste and recycling via the dual chutes located on each floor as shown in **Figure 2-2**. The information on the chutes system is detailed in **Appendix C**.

Alternatively, FOGO wastes are to be transferred to the dedicated bin enclosures on the ground floor as required. These wastes will be emptied into their respective bins within the associated bin enclosures.

Figure 2-2 Bin Chutes

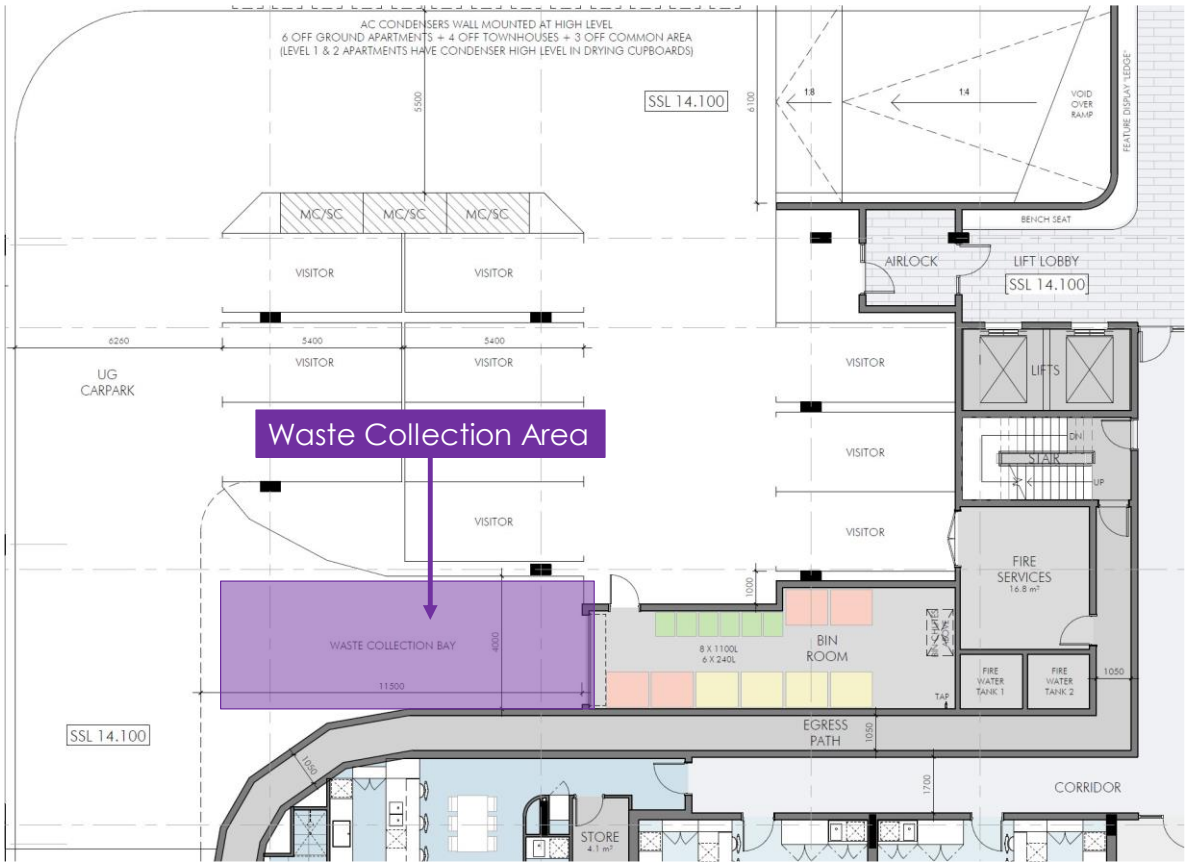
Source: Space Collective Architects (September 2023)

2.6 Collection of Waste and Recycling

2.6.1 Waste Collection

The City will service the residential dwellings by providing the number of bins as per the collection frequencies indicated in **Table 2-3**. Waste collection is proposed to be undertaken on-site near the bin enclosure as illustrated in **Figure 2-3**.

Figure 2-3 Waste Collection Area



Source: Space Collective Architects (September 2023)

The Strata/Facility Manager or staff will provide access to the proposed bin enclosures. The City's staff will ferry the loaded MGBs from the bin enclosure to the waste truck for disposal on the days of collection and return the empty MGBs back to the respective bin enclosures.

2.6.2 Provision of Service Vehicle

Waste collection is proposed to occur on site. A service area is provided on the ground floor near the proposed bin enclosure. A swept path analysis for a 8.5m waste vehicle was undertaken as illustrated in **Figure 2-4** and **Figure 2-5.** The swept path analysis shows that the City's waste truck is able to manoeuvre into the Site in a forward gear, reverse into the proposed waste collection area and exit in a forward gear.

Waste collections will be undertaken on-site by the City and to be arranged to occur during off peak hours or after normal business hours to minimise disruption to traffic operations as well as minimise any impacts to staff and visitors.

Figure 2-4 Swept Path – Waste Collection (Ingress)

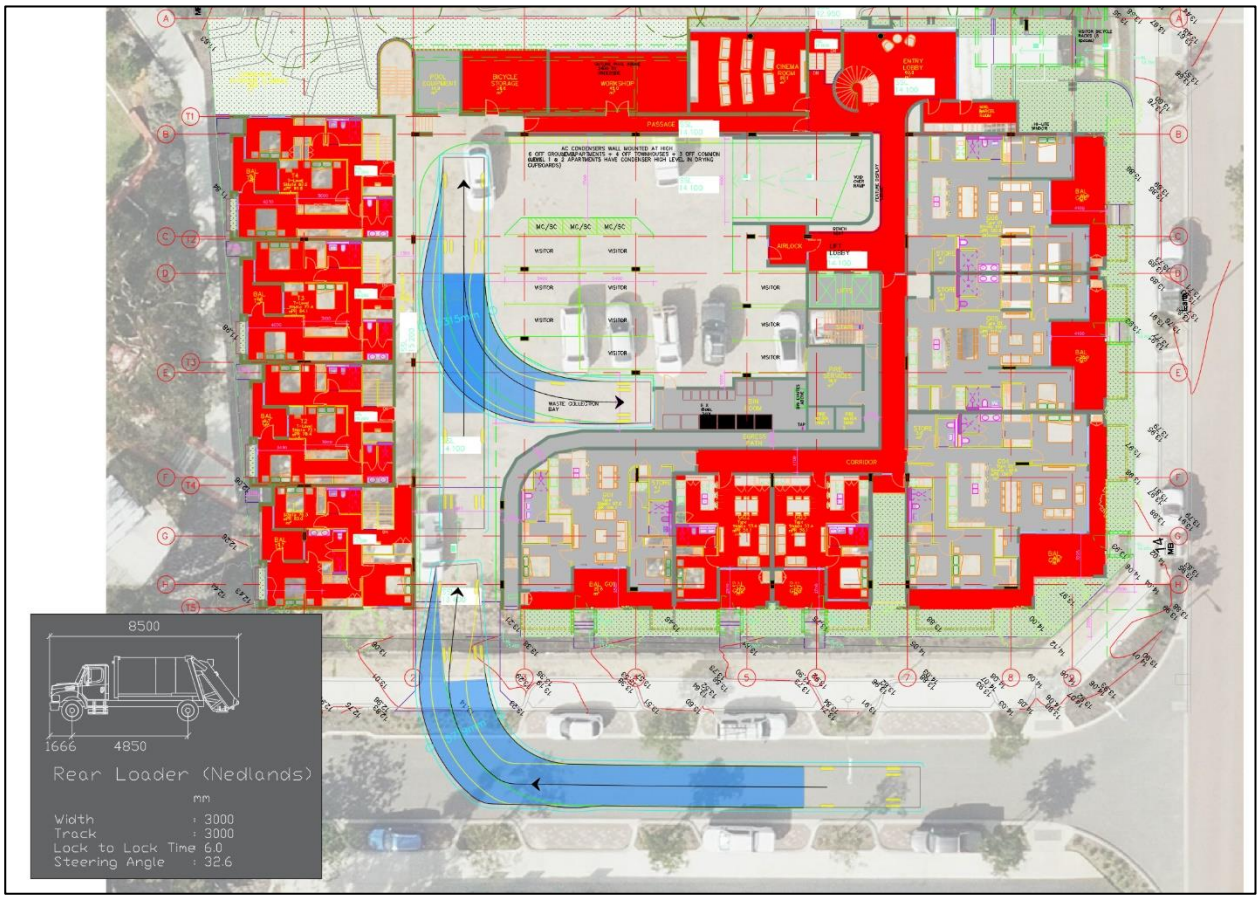
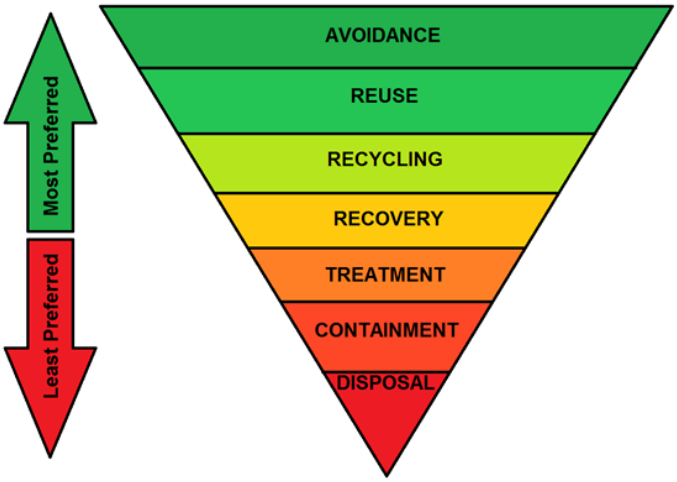


Figure 2-5 Swept Path – Waste Collection (Egress)

3. Waste Reduction and Management

This waste management plan has been developed with the strategic approach of reducing waste through best practices and education of residents. Best practices for waste minimisation will optimise the Development's use of the waste minimisation hierarchy, which seeks to encourage sustainable options for waste. The waste hierarchy is demonstrated in **Figure 3-1.**

Figure 3-1 Waste Hierarchy



3.1 Provision of Information

Information dissemination is essential in order to communicate well the best practices of waste management. Suitable types of information which can be provided includes:

- Sufficient labelling of bins, signage of bin enclosure areas and equipment to reinforce waste separation.
- Marketing materials such as posters and leaflets demonstrating procedures of waste segregation and waste collection days; and

However, information on its own is not enough and it must be paired with initiatives to be effective.

3.2 Engagement

A regular engagement between the residents and staff of the Development should take place to remind everyone the proper and best practices of waste management. The engagement should include.

- Demonstration of waste management systems pertinent to an individual's role.
- Distribution of waste management strategy documents in relevant locations.
- An explanation of the benefits of waste separation and recycling; and
- Training on all pertinent equipment related to waste management.

3.3 Monitoring and Review

The Facility Manager/nominated staff who will oversee the implementation of the Waste Management Plan should continually monitor and review the waste management plan activities.

The Facility Manager/nominated staff will be responsible for the following:

1. Monitoring and maintenance of bins and the bin enclosure area.
2. Conduct regular training on waste segregation, reduction, and waste management.
3. Conduct regular waste audits to improve waste management.
4. Monitor and manage bulk waste accumulation and communicate with the city for bulk waste collection services.
5. Providing access to the bin enclosure area for the waste contractor staff; and
6. Engage with the local authority to ensure efficient and effective waste service for the Development.

If waste generation rates for the Development change, a waste audit may be required by the City or other regulatory bodies. Similarly, should a change to the waste regulations be implemented by the City or other regulatory bodies, a waste audit may be required in addition to further waste stream separation.

4. Conclusion

This Waste Management Plan demonstrates that the proposed development provides a sufficiently sized Bin Storage Area for storage of general, recyclable and FOGO waste based on the estimated waste generation and a suitable configuration of bins.

The collection of general, recyclable and FOGO waste is achieved using:

- 4x660L general waste bins for residential to be collected twice a week.
- 4x660L recycling bins for residential to be collected twice a week.
- 6x240L FOGO bins for residential to be collected twice a week.

The waste collection vehicle is anticipated to collect the general, recycling and FOGO bins on site. The Strata /Facility Manager or staff will provide access to the proposed bin enclosures. The City staff will ferry loaded MGBs from the bin enclosure to the waste truck for disposal on the days of collection and return the empty MGBs back to the respective bin enclosures.

5. References

WALGA (n.d.), Commercial and Industrial Waste Management Guidelines, Perth.

City of Nedlands (n.d.), Local Planning Policy – Waste Management, Nedlands

COMMUNAL OUTDOOR (LOWER) 156.0 m²
POOL EQUIPMENT 14.5 m²
BULK WASTE 10.1 m²
BICYCLE STORAGE 27.6 m²
OUTLINE POOL ABOVE 2400 TO UNDERSIDE
WORKSHOP 35.6 m²
CINEMA ROOM 52.3 m²
SSL 12.950
SSL 13.050
ENTRY LOBBY 71.6 m²
SSL 14.100
WATER FEATURE
SCULPTURE ARTWORK
VISITOR BICYCLE RACKS (10 spaces)
MAIL & PARCEL ROOM
HI-LITE WINDOW
RL 13.750
RL 13.800
PASSAGE
SSL 14.100
AC CONDENSERS WALL MOUNTED AT HIGH LEVEL
6 OFF GROUND APARTMENTS + 4 OFF TOWNHOUSES + 3 OFF COMMON AREA
(LEVEL 1 & 2 APARTMENTS HAVE CONDENSER HIGH LEVEL IN DRYING CUPBOARDS)
BREEZE BLOCKS
VOID OVER RAMP
FEATURE DISPLAY 'LEDGE'
BENCH SEAT
AIRLOCK
LIFT LOBBY
SSL 14.100
LIFTS
STAIR
STORE 4.1 m²
BAL G06 24.8 m²
G06 Type C1 Strata 111.1 m² PR 120.8 m²
G06 Garden 3.4 m²
RL 13.900
BAL G05 24.8 m²
G05 Type C1 Strata 108.0 m² PR 117.4 m²
G05 Garden 3.4 m²
G05 Garden 5.6 m²
RL 13.900
STORE 5.0 m²
G04 Type D1 Strata 138.9 m² PR 150.9 m²
G04 Garden 5.6 m²
BAL G04 45.7 m²
RL 14.050
2000
BAL T4 8.2 m²
T4 T-Level 1 Strata 82.6 m² PR 89.8 m²
SSL 15.200
BAL T3 7.5 m²
T3 T-Level 1 Strata 77.4 m² PR 84.1 m²
BAL T2 6.7 m²
T2 T-Level 1 Strata 72.1 m² PR 78.4 m²
BAL T1 7.7 m²
T1 T-Level 1 Strata 76.3 m² PR 83.0 m²
TH WALKWAY 35.1 m²
UG CARPARK
MC/SC
VISITOR
WASTE COLLECTION BAY
8 X 1100L 6 X 240L
BIN ROOM
BIN ROOM ABOVE
FIRE SERVICES 16.8 m²
FIRE WATER TANK 1
FIRE WATER TANK 2
TAP
EGRESS PATH
CORRIDOR
SSL 13.300
RL 13.400
RL 12.525
G01 Type C4 Strata 97.6 m² PR 106.1 m²
BAL G01 20.6 m²
G01 Garden 5.1 m²
G02 Type A1 Strata 53.5 m² PR 58.2 m²
BAL G02 12.7 m²
G02 Garden 5.4 m²
RL 13.700
G03 Type A1 Strata 53.9 m² PR 58.6 m²
BAL G03 12.7 m²
G03 Garden 5.2 m²
RL 13.875
G04 Garden 10.6 m²

space collective architects

L35 MONTARIO QUARTER
SHENTON PARK

PRELIMINARY

SCALE 1 : 100 @A1 (1:200 @A3)

NP

DATE ISSUED 21.09.23

DRAWING NAME UPPER GROUND FLOOR PLAN

PROJECT PHASE SCHEMATIC

PROJECT No. 2215

DRAWING No. SD2-03

REV K

Appendix A. Site Plans

Appendix B. Waste Calculations

Waste generation rate as per City of Nedlands Local Planning Policy Waste Management

Residential: General Waste, Recycling and FOGO Generation Rates

Type of Premises	General Waste (L)	Co-mingled Recycling (L)	FOGO (L)
1-bedroom	80 L/dwelling/week	120 L/dwelling/week	40 L/dwelling/week
2-bedroom	120 L/dwelling/week	120 L/dwelling/week	40 L/dwelling/week
3-bedroom	120 L/dwelling/week	120 L/dwelling/week	40 L/dwelling/week

The following equation was used to calculate the anticipated weekly waste generation for residential waste:

$$Total\ Amount\ of\ Waste\ Type = (Number\ of\ Units \times Waste\ Rate) \times 7\ days$$

The total number of bins required for general waste for residential units with waste collection taking place twice a week was calculated using the following equation:

$$Total\ Number\ of\ Bins\ Required = \frac{Total\ Weekly\ Waste\ Generated}{1100\ L} \times \frac{1}{2}$$

The total number of bins required for recycling for residential units with waste collection taking place twice a week was calculated using the following equation:

$$Total\ Number\ of\ Bins\ Required = \frac{Total\ Weekly\ Waste\ Generated}{1100\ L} \times \frac{1}{2}$$

The total number of bins required for FOGO for residential units with waste collection taking place twice a week was calculated using the following equation:

$$Total\ Number\ of\ Bins\ Required = \frac{Total\ Weekly\ Waste\ Generated}{240\ L} \times \frac{1}{2}$$

Appendix C. Waste Equipment

Smoothtubes™ Plastic Chutes

Chute Construction

Nominal Internal Diameter: Garbage 530mm
Material LLDPE (linear low density polyethylene). Internal surface is closed cell, ultra smooth finish that resists waste residue build up, odour, blockages, corrosion and liquid. +Fire hazard property tests in accordance with BCA Clause C1.10 and Specification C1. 10 in complying with Australian Standard AS1530 by Warrington Fire Research (Aust) Pty Ltd.

Material Thickness: Chute tubes 5mm nominal.

Mounts: Designed to be flexible and smoke seal at every level.

Noise & Vibration Prevention: Acoustic lagging is not necessary. Refer to #acoustic report. Isolation is provided at every level under the floor mounts. Flexible mount is isolated from concrete using polyurethane sealant that is acoustically rated.

Ventilation: 200mm diameter galvanised steel ventilation fan and discharge cowl assembly. The fan is supplied with 240 volt single phase plug and lead. The cowl assembly comes complete with dektite flashing. The vent is connected to the top of the chute by a flexible duct.

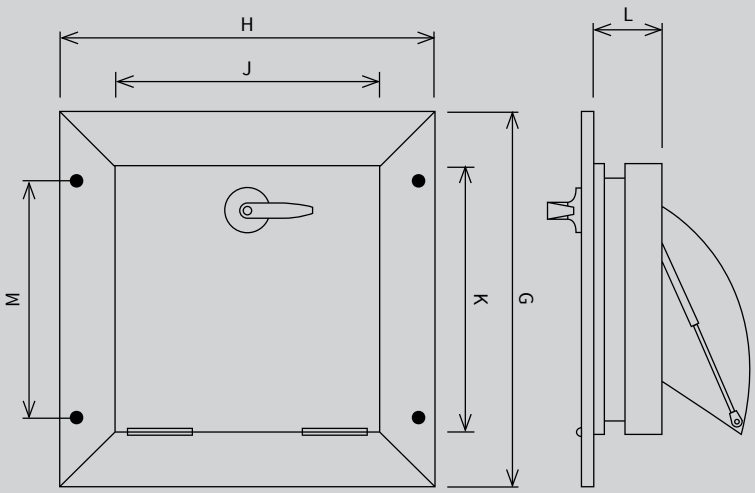
Loading throat door: Smoothtubes™ Loading Throats are molded within the chute tube creating a smooth flowing entry to reduce impact noise and minimise blockages. Loading doors -304 grade Stainless Steel with a fire block core, door frame sealed to wall using fire sealant. Compliance to Australian Standards AS.1530.1 (FRL:-/120/30). Doors are self closing. Key locks are supplied standard for Linen doors, Garbage and recycling doors. Fire sprinklers are installed in every loading throat ready for connection to fire services by others.

Deflector: The discharge of the chute has a 3 or 5mm thick Galvanised Steel deflector, set at 45 degrees (min) for discharge directly into a bin. The deflector is fitted with a fire activated fusible link close-off door which can be manually overridden, to close the chute for bin changes. For garbage discharge into an EcoPack Compactor the fire door is not required as the Compactor isolates the chute at all times.

Installation

Chute sections weigh no more than 15kg each allowing easy transport and installation by hand without reliance on Tower Cranes. Bricking up instructions are detailed on the front panel of every loading throat, which stays fitted until installation of loading door to prevent unauthorised use and potential damage from building rubble.

Chute Door Dimensions

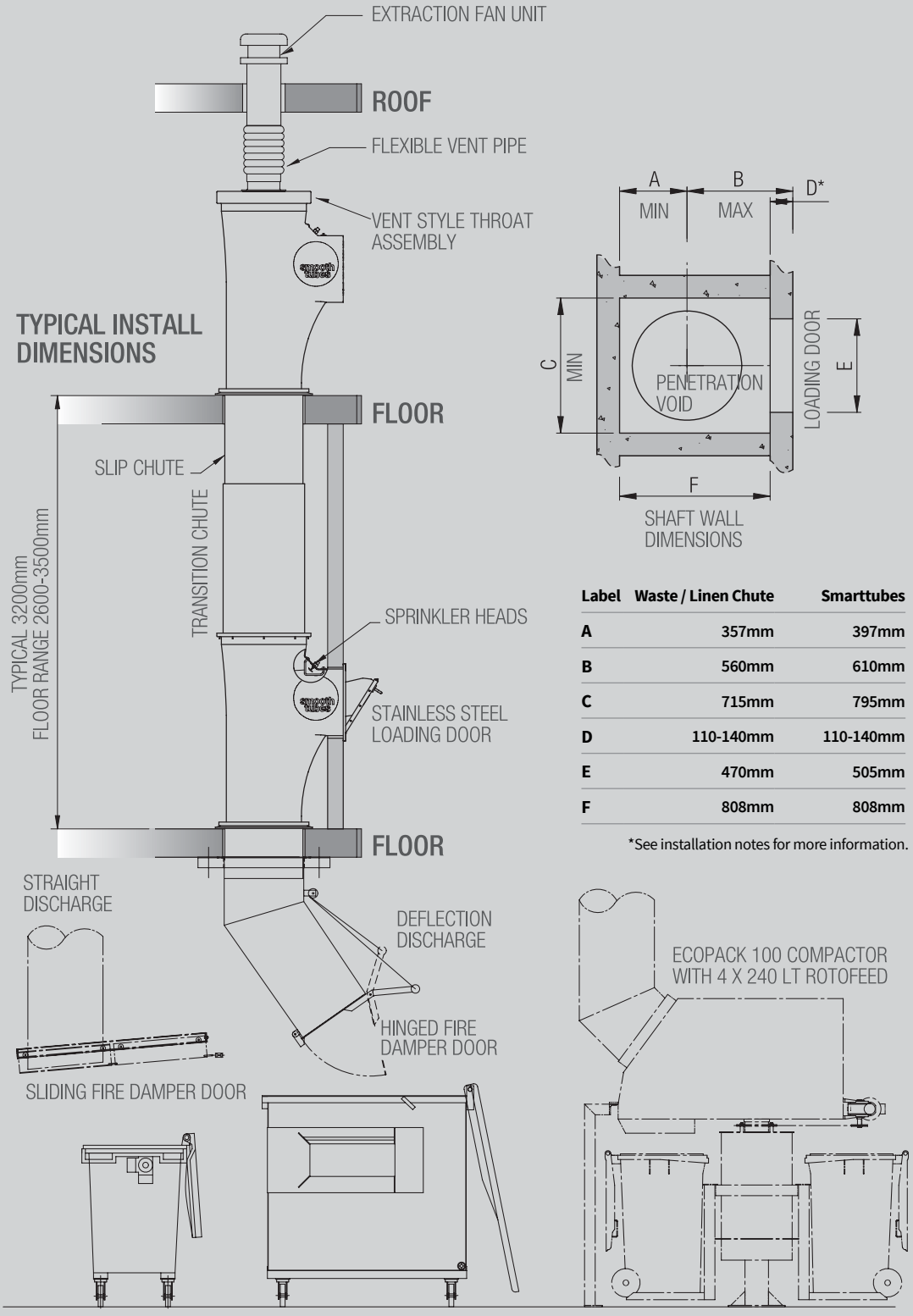


Dimensions

Label	Waste Door	Linen Door	Recycling Door
G	603mm	573mm	603mm
H	603mm	573mm	603mm
J	435mm	432mm	432mm
K	435mm	432mm	432mm
L	110mm	110mm	110mm
M	380mm	380mm	380mm

 A large range of configuration options and layouts are available. For more information or specifications, please contact a Wastech consultant on 1800 465 465.

TYPICAL INSTALL DIMENSIONS



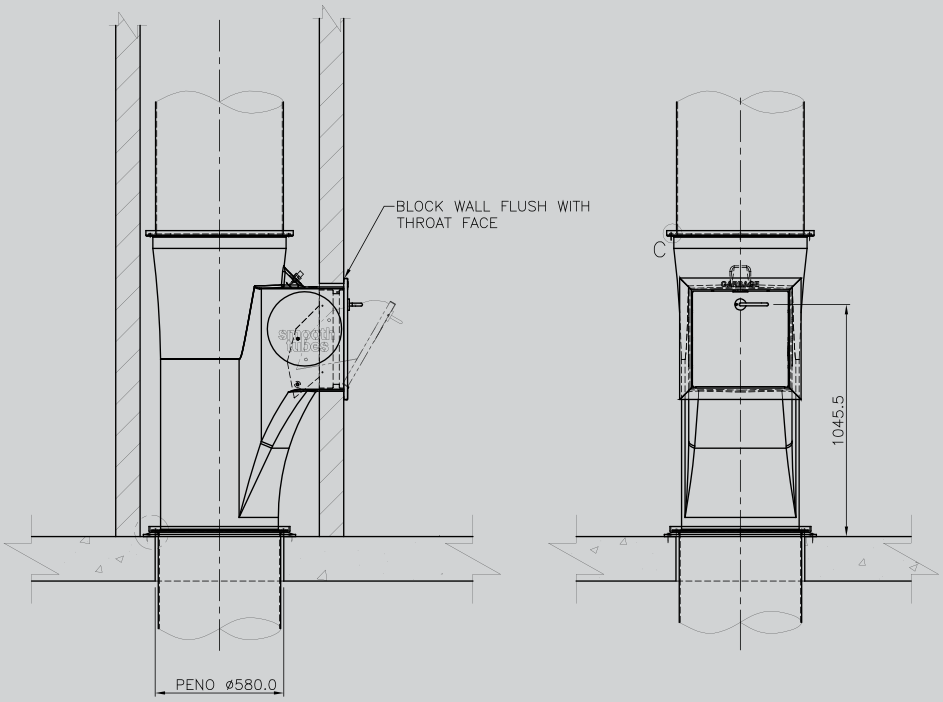
Label	Waste / Linen Chute	Smarttubes
A	357mm	397mm
B	560mm	610mm
C	715mm	795mm
D	110-140mm	110-140mm
E	470mm	505mm
F	808mm	808mm

*See installation notes for more information.

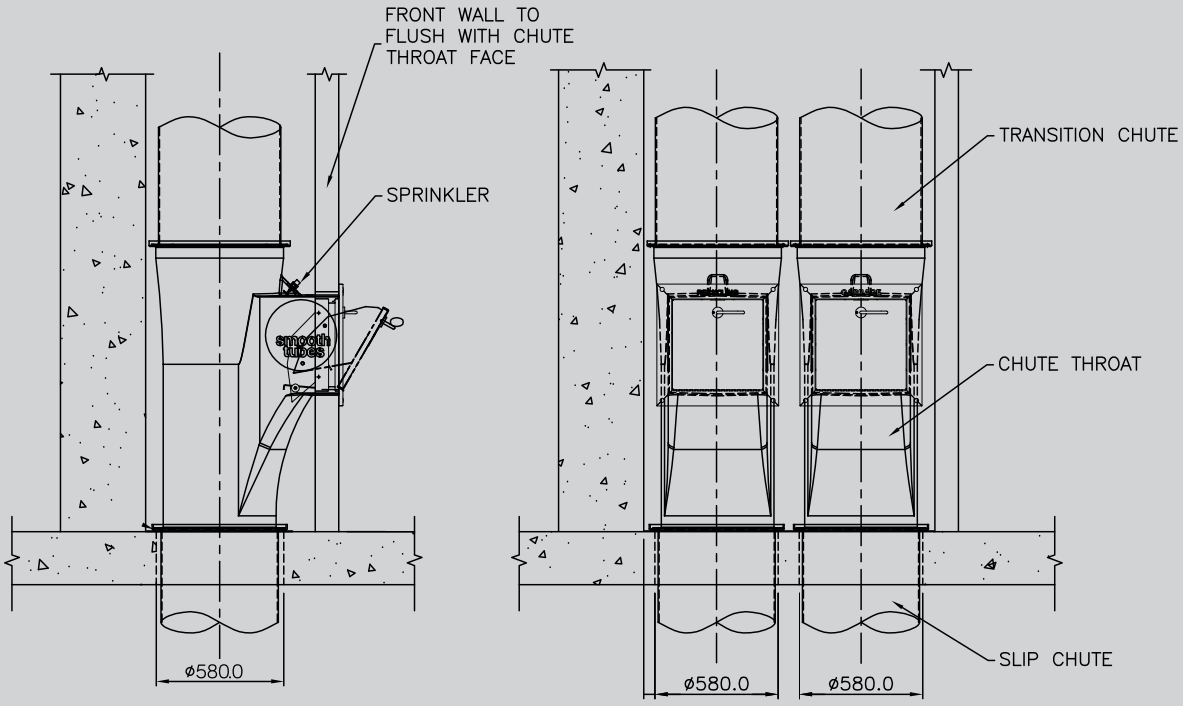
Wastech reserves the right to make improvements, adjustments and amendments to design and dimensions.

Smoothtubes™
Chute Assembly

Single Chute Assembly Example



Dual Chute Assembly Example



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