

## Waste Management Plan

Royal Far West Redevelopment

14-22 Wentworth St & 19-21 South Steyne, Manly NSW 2095

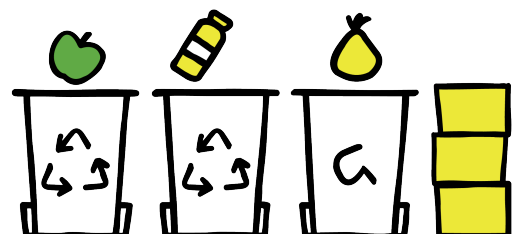
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01	10/6/2022	For DA	LR
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Commercial waste calculations are based on rates provided by government organisations and adopted and used as an industry standard. Bin numbers and spatial requirements have been calculated in accordance with these guidelines. The end user requirements may vary from this depending on the business use, type and operational practice.



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LID acknowledges and pays respect to the Australian Aboriginal and Torres Strait Islander people, to their ancestors and elders, past, present and emerging, as the traditional custodians of the lands upon which we work and live. We recognise Aboriginal and Torres Strait Islander people's deep cultural and spiritual relationships to the water, land and sea, and their rich contribution to society.

# 1 Waste Collection Summary

Located on the prominent beach front corner of Wentworth & South Steyne in Manly, Royal Far West (as land owner) is a service that provides integrated health, education and disability services for rural children both on this site and through remote community programs.

The approved development extends the existing facilities towards Manly beach to provide additional public retail and amenity at street level. Residential apartments are proposed above.

Royal Far West will retain full land ownership across the site, with a strata leasehold structure. The complex facility management is responsible for all aspects of waste management including access for the waste contractor to enter the site and bin stores on the days of collection.

This revised Waste Management Plan Report dated 13/12/2023 provides an update to the previously approved and endorsed Waste Management Plan dated 14 October 2022 under DA2022-1000. The strategy is described below and remains unchanged:

## Residential Waste

The Council collection service is proposed to collect all residential waste from Wentworth Street. The Council waste vehicle is able to stop adjoining the Wentworth Street kerbside and collect all bins from within the site. A dedicated Bin Store (1) has been provided, concealed within the building facilities to store all bins ready for collection.

The basement includes 2 additional residential bin stores (Bin Stores 2 & 3) including storage of bulky hard waste and bins for Building D. Building Management will be responsible to transfer bins to the dedicated Bin Store 1 at street level for collection via the waste lift provided.

## Commercial Waste

A private collection service is proposed to be engaged to collect all commercial waste generated on the site from within the site at Basement level. The waste vehicle is to enter the site via the existing ramp down to the basement from Wentworth St, turn & exit up the same ramp exiting back onto Wentworth Street in a forward direction.

Space for the separation, storage and collections for a number of waste streams has been provided for all users. This is contained within the site with no visual impact on the adjoining amenity.

## 1.1 Amendments – S4.55 Basement

This revised Waste Management Plan report looks to incorporate the updated basement layouts provided by the applicant. While the storage compartments have been amended, the overall operational aspects of waste management has not changed.

This approved and endorsed Waste Management Plan (WMP) is the model adopted for this development. Detailed design and as-built installation must incorporate the design proposed and approved under the DA2022/1000. Any revisions of the WMP or changes to the approved waste system of the development may require Council approval and may require a re-submitted Waste Management Plan. More detail is contained within this report.

## 2 Waste Management Plan

Low Impact Development (LID) Consulting was engaged by Royal Far West to assess the proposed development at 14-22 Wentworth St & 19-21 South Steyne, Manly NSW 2095 to provide an operational Waste Management Plan (as required by Statutory Planning).

A waste management analysis has been undertaken based on the following documents:

- a) NSW EPA's Better Practice Guide for Resource recovery in Residential Developments 2019;
- b) Northern Beaches Council's Waste Management Guidelines, Chapter 4 – On-going waste management for three or more dwellings and Chapter 6 – Ongoing waste management for mixed use developments dated 26 October 2016
- c) Concept Approval (as modified) document Ref MP10\_0159 MOD 1 stipulating the inclusion of a waste management plan.
- d) Northern Beaches Council's Waste Referral Response dated 26/7/2022. The following stipulations are to be adhered to (and included herein):
  - o All internal walls of the waste rooms shall be rendered to a smooth surface with coved floor junction, graded and appropriately drained to the sewer with a tap point in close proximity to facilitate cleaning
  - o Waste room floors shall be graded to an approved Sydney Water drainage system
  - o A positive covenant shall be created on the title of the land to the issue of an interim/final occupation certificate requiring the proprietor of the land to provide access to the waste storage facilities. The terms of the positive covenant are to be prepared to Council's requirements at the applicant's expense and endorsed by council [prior to lodgement with the NSW Land Registry Service.
  - o Commercial waste and recycling bins must be stored in a separate area to the residential waste as shown on the approved plans.
- e) The DA consent and approved architectural plans endorsed with Council's stamp (DA Condition 1a.

This report is based on the drawing set 5899 S4.55 – 111 & S4.55 – 112 Issue A dated 11/12/2023 prepared by Murcutt Candalepas Architects.

### 2.1 Approved Development

**Address:** 14-22 Wentworth St & 19-21 South Steyne, Manly NSW 2095

**Type:** Mixed Use development

**Dwellings:** 58 units

**Tenancies:** 5 commercial tenancies (including Royal Far West)

**DA Consent No.** DA2022/1000

The project sees the implementation of Stages 3 and 4 of the Concept Approval as modified (Application #MP10\_0159 MOD 1) and involves the retention and alterations to the previously constructed Stages 1 and 2 (hospital facility 'Centre for Excellence' now known as the 'CCK' building) as well as alterations and additions to Drummond House. It also includes the construction of mixed-use buildings which incorporate tourist and visitor accommodation, residential apartments and retail/ commercial uses with basement parking and landscaping.

The approved development takes up an 'L'-shaped site that currently comprises of a number of service, education and commercial buildings.

Located on the prominent beach front corner of Wentworth & South Steyne Street in Manly, Royal Far West (as land owner) is a service that provides integrated health, education and clinical services for rural children both on this site and through remote community programs.

Royal Far West currently operates in the 2 existing buildings fronting Wentworth Street. The CCK Building (Building A) is a recently built facility that will remain and houses many of the education and clinical support services and Drummond House (Building B), a heritage building that will be renovated and restored to provide guesthouse accommodation primarily to support families seeking clinical services from the adjoining CCK.

These existing facilities currently have all waste collected privately with a waste truck propping on Wentworth St with bins brought to the street from the rear of the site daily for collection. Neighbours at 25-29 Victoria Pde have highlighted their preference for waste to be collected from the basement to minimise any nuisance from noise and odour at the rear of the site. This was noted through the pre-DA stakeholder consultation process.

The rest of the buildings will be demolished to make way for the proposed mixed-use development. A separate demolition and construction waste management report will detail waste for this process.

The approved new buildings will comprise of 2 additional mixed-use buildings (Building C & D) incorporating commercial tenancies plus 58 units over 7 levels. The existing basement carpark relating to Royal Far West will be extended under the entire site and will provide common facilities and parking for all buildings.

**The freehold ownership of the land will remain in the hands of Royal Far West, a company entity.** This is a commercial enterprise. It is understood that the sale of residential units will be under a leasehold arrangement and that there will be a common Building Management Committee across the mixed-use strata buildings (C & D). The waste management requirements will be captured in the Building Management & Strata Management Statements for the site.

## 2.2 Council Considerations

As previously noted, the following considerations are all consistent with the DA approved development DA2022/1000:

- a) The Council collection service is proposed to collect all residential waste from Wentworth Street. The Council waste vehicle is able to stop adjoining the Wentworth Street kerbside and collect all bins from within the site. A dedicated Bin Store (1) has been provided, concealed within the building facilities to store all bins ready for collection.
- b) The private collection service to collect all commercial waste from the basement can occur discreetly away from the built surrounds, minimising any amenity impacts to the neighbouring properties and Manly Beach proper. Appropriate litter management should also be put in place to minimise impact to the surrounding natural environment.
- c) The following council residential waste policy guidelines have been considered and have been incorporated in the approved development:

Policy Chapter 4 – Section 4.2	Design Response
<u>Waste area storage design will:</u> - Accommodate Council's allocated number of waste and recycling containers	

<ul style="list-style-type: none"> <li>- Practical and free from obstructions with 90deg corners</li> <li>- Accommodate 1 x 240L vegetable bins for every 200m2 of landscaped area</li> <li>- Be graded and drained to a Sydney approved drainage system</li> <li>- Be serviced by and easily accessible water tap</li> <li>- Be cement rendered and coved at the floor and wall intersections</li> <li>- Clear of any services and utility infrastructure</li> <li>- Be capable of being kept clean and tidy at all times</li> </ul>	<b>All Provided</b>
Chute Systems	No chute system is proposed in this instance.
External waste storage areas	No external waste storage areas are proposed. All open space at street level has been given over as public space to the benefit of the public domain.
<b>Policy Chapter 3 – Section 4.3</b>	<b>Design Response</b>
<u>Residential Waste Storage area:</u> <ul style="list-style-type: none"> <li>- At street level</li> <li>- Permit easy, direct and convenient access for residents</li> <li>- Permit easy, direct and convenient access for Council and Council waste contractors.</li> <li>- Clear of any obstructions and security devices</li> <li>- Incorporated within the site boundary, designed to reduce visual impact and clutter</li> <li>- No closer than 3m from any dwelling opening</li> <li>- Clear of any stormwater entry point</li> </ul>	<u>Proposed Council collection service:</u> <ul style="list-style-type: none"> <li>• Residential waste storage areas have been provided both at basement level for Building D and at Street Level for Building C residents. This is the most direct and convenient option for all residents and consistent with the stamped approved DA plans.</li> <li>• Building Management will be responsible to transfer waste from basement levels to the street level Bin Store 1 ready for collection by council.</li> <li>• Residential Bin Store 1 has ample space to hold all residential bins for collection by council.</li> <li>• All storage has been designed clear of obstructions, within the site boundary with NO possible visual impact from the street.</li> <li>• With storage proposed in the basement, the location is completely separated from all dwelling openings and designed to be contained and connected to sewer (NO risk of stormwater ingress)</li> </ul>
<u>Commercial Waste Storage area:</u>	<u>Proposed Private collection service:</u>

	<p>There are many advantages for the proposed private collection service from the basement:</p> <ul style="list-style-type: none"> <li>• The waste collection strategy has been designed to ensure the safety of the site users while maintaining the least impact on the amenity of the local area.</li> <li>• Retention and reuse of the existing heritage building and basement access retains the urban street character</li> <li>• Reduces additional vehicle crossovers in such a prominent and sensitive environment and promotes the pedestrian and public interface</li> <li>• To occur outside peak time with least interference with local and development traffic.</li> </ul>
<b>Policy Chapter 3 – Section 4.4</b>	<b>Design Response</b>
<p>Pathway &amp; Access between the waste storage area and collection point will be:</p> <ul style="list-style-type: none"> <li>- Solid, concrete, continuous, non-slip and clear of any obstructions and steps</li> <li>- Maximum grade of 1 in 8</li> <li>- Hazard free and not a pathway with vehicular traffic</li> <li>- Doors with a minimum width of 1200mm</li> <li>- Doors able to be latched in an open position</li> <li>- Doors are unobstructed by any locks and security devices</li> <li>- Doors openable in an outward direction</li> </ul>	<b>Provided</b>
<b>Policy Chapter 3 – Section 4.5</b>	<b>Design Response</b>
<p>Bulky goods waste storage for developments with more than 10 units:</p> <ul style="list-style-type: none"> <li>- Minimum 4m<sup>3</sup> per 10 dwellings</li> <li>- A room or caged area separated from the waste storage area</li> <li>- Incorporated completely within the site boundary and not visible to the public</li> </ul>	<b>All Provided</b>
<b>Policy Chapter 3 – Section 4.6</b>	<b>Design Response</b>
<p>Kerbside (on-street) waste collection requirements:</p> <ul style="list-style-type: none"> <li>- The pathway and access between the waste storage area and property</li> </ul>	<p>This strategy has now been approved per the DA consent and endorsed plans and remains constant in the S4.55 Modification application.</p>

boundary must be a maximum distance of 6.5m - Pre-DA comments said council would consider an increase in this distance from 6.5m to 12m.	
<b>Other</b>	<b>Design Response</b>
Waste collection point is located: - In a way not to obstruct the use or safety of any driveway - Away from street frontages, street car parking and key pedestrian movements - Aways from street stopping and emergency zones - Able to be effectively managed by the complex management.	<b>Provided</b>

## 2.3 Proposed Residential Waste Solution

The proposed residential waste strategy has been carefully considered to have the least impact on the amenity of the adjoining properties, streets and beachside environment. Further, it has been designed with the end residential user and local community in mind.

The site is located prominently on the corner of Wentworth Street and South Steyne directly fronting Manly beach. The proposed redevelopment of the site seeks to achieve a compatibility with both the existing and future desired character of the area. This is achieved through the promotion of an open and welcoming public domain in the immediate proximity of Manly Beach frequently trafficked by local and international visitors.

The existing basement is to be extended under the new works that will accommodate parking and essential services, including waste

Building D residents are to take their own waste via their lifts direct to the basement bin store 2. This will most likely be upon exiting the site while accessing their own vehicle. This area may only be accessible to these residents.

Building C residents have a separate dedicated bin store at street level adjoining the waste lift. This store has ample space to hold all waste (including the Building D waste from the basement), close to the Wentworth Street collection point to aid the collection of bins by the Council collection service.

Centrally located, residents do not need to walks more than 30m to place their waste into the shared bins. This is in accordance with NSW EPA's Better Practice Guide for Resource recovery in Residential Developments 2019.

**Site Layout:** Refer to **Appendix 1** for Waste Collection Plan

**Collection Type:** Private collection service to collect all waste streams

**Collection Location:** From within the site, at Basement Level



**Bin Store Location:** Bin Store 1 – street level - Building C residents & collection location  
 Bin Store 2 – basement level - Building D residents including bulky waste  
 Bin Store 3 – basement level - Building C residents bulky hard waste

Residential	Northern Beaches Council Waste generation rates			Proposed Shared Bin Solution		
	No. units	Allowances	Total estimated waste volume	No. of Bins	Bin Size	Collection Frequency
Landfill Waste	58	Refer North Beaches Council – Appendix A bin number allocation	na	20	240L	Once weekly
Paper Waste			na	13	240L	Once weekly
Garden waste			na	2	240L	Once weekly
Glass Bottle			na	13	240L	Once weekly
Hard Waste		8m <sup>3</sup>		NA	NA	As required to maintain space
E-waste			N/A See <b>Section 4</b> for E-Waste Recycling	1	240	As required to maintain bins

## 2.4 Proposed Commercial Waste Solution

**Royal Far West:** Waste calculations for Royal Far West is based on the analysis of the existing waste generated and extrapolated to suit the new facilities.

Building A will essentially remain which provides all of the service and medical spaces for Royal Far West. Building B, the accommodation building will be expanded to sleep 98 people over all.

Currently only 2 waste streams are collected daily; landfill and cardboard waste. The existing private service provider currently separates out any viable recyclables. Even so, further waste streaming is encouraged.

Staff / cleaners would take waste directly down to the dedicated basement bin store on a regular basis. All waste collections are to occur from basement level. The Private waste contractor is to retrieve, empty and return bins directly to/from the commercial bin store at the time of collection.

Facility Management (Royal Far West) will also be responsible to monitor and manage public bins at street level. Refer Appendix 1 for the location of these bins.

**Tenancy/spaces:** Refer **Appendix 3** – Waste Generation Rates

**Site Layout:** Refer to **Appendix 1** - Waste Collection Plan

**Collection Type:** Private collection service to collect all waste streams

**Collection Location:** From within the site at Basement Level

**Bin Store Location:** Basement Level – Bin Stores 4 & 5

Commercial	Royal Far West (Buildings A & B)		Proposed solution		
	Allowances	Total estimated waste volume	No. of Bins	Bin Size	Collection Frequency
Landfill waste	Refer Appendix 3 - Waste rates & Calculation	15 796L to landfill	4	660L	Daily
Return & Earn		Refer <b>Section 4</b> below for more details	3	240L	Once weekly
Organic Food Waste					Daily
Cardboard / paper		2832L of recycling	4	660L	Once weekly
Green Garden Waste			na	na	By a private maintenance contractor as required
Hard Waste	5m <sup>2</sup> provided	Refer <b>Section 4</b> below for more details	NA	NA	As often as required to maintain space
E-waste		Refer <b>Section 4</b> below for more details	2	240L	As often as required to maintain bin

### Commercial Tenancies:

Waste collections for the other commercial facilities will also occur in the basement with a separate dedicated bin store provided. While council provides rates to estimate the volume of landfill and recycling waste, additional streaming is encouraged.

It is proposed that staff / cleaners in the commercial tenancies in Building C & D would transfer waste down to basement level on a regular basis – there is capacity within the food based take away tenancies back of house areas to store a day's worth of waste. At the time of writing this report, the commercial tenancy types are still to be confirmed.

All waste collections are to occur from basement level. The Private waste contractor is to retrieve, empty and return bins directly to/from the commercial bin store at the time of collection.

**Tenancy/spaces:** Refer **Appendix 3** – Waste Generation Rates

**Site Layout:** Refer to **Appendix 1** - Waste Collection Plan

**Collection Type:** Private collection service to collect all waste streams

**Collection Location:** From within the site at Basement Level

**Bin Store Location:** Basement Level – Bin Store 4 only

Commercial	Commercial Tenancies (Buildings C & D)		Proposed solution		
	Allowances	Total estimated waste volume	No. of Bins	Bin Size	Collection Frequency
Landfill waste	Refer Appendix 3 - Waste rates & Calculation	41472L to landfill	9	660L	Daily
Co-mingled Recycling		13521L of recycling	4	660L	Three times weekly
Cardboard / paper			3	660L	Three times weekly
Return & Earn			3	240L	Once weekly
Organic Food Waste		Refer <b>Section 4</b> below for more details			Daily
Green Garden Waste			na	na	By a private maintenance contractor as required
Hard Waste	5m <sup>2</sup> provided	Refer <b>Section 4</b> below for more details	na	na	As often as required to maintain space
E-waste		Refer <b>Section 4</b> below for more details	2	240L	As often as required to maintain bin

NOTE: Streaming of waste into dedicated bins is encouraged where possible. The type of recycling bins nominated above may be swapped to suit the type of recyclable commercial waste generated (while not altering the number of bins overall). Possible additional waste streams include:

- hard plastics
- soft plastics
- glass
- food waste

## 3 Waste Management Details

### 3.1 Management Responsibilities

The complex facility management is responsible for all aspects of waste management including implementing adequate safe operating procedures. Items to be addressed in maintaining the system include:

- a) To ensure minimal contamination occurs in bulk bins prior to collection in order to maximise recycling. This is to be achieved by:
  - o Providing separate bins for each waste stream (including recycling, food organics & landfill) in all units and work areas for staff and residents to appropriately stream waste.
  - o Routine inspection of bins in shared bin stores and interim bin stores to ensure their appropriate use.
  - o Feedback to occupants if the system is not working properly. Undertake a waste audit should it be suspected waste is not being placed in the correct bins.
  - o Provision of information to occupants with guides of how to using the various bin systems e.g. boxes to be flattened, containers for recycling washed, bins to not be over-full.
- b) Facility Management is to ensure all residents are aware of their responsibility with regard to waste & bin management:
  - o A copy of this Waste Management Plan (as approved).
  - o Methods and techniques for waste reduction and minimisation
  - o Information regarding bin collection days and requirements
  - o Residents' responsibility with regard to bin usage, storage and collection
  - o Residents' responsibility with regard to litter and waste removal from the common property areas.
- c) Ensuring each waste contractor has access to the site and bin store areas on the days of collection and for also providing information to make building occupants aware that waste vehicles enter the site.
- d) Allocation of responsibility to the contractor to retrieve bins directly from the bin store area and return emptied bins at the time of collection. Responsibility should include ensuring the private contractor collects any waste that spills from the bins during emptying.
- e) Commercial Cleaners & staff are responsible for placing waste in the appropriate colour coded bins in provided in work areas and then transferring them to corresponding bin in the bulk bin store to ensure all waste types are collected and recycled where possible.
- f) That bins and bins store areas are monitored regularly with bins rotated as required to ensure areas are fully operational with regular cleaning of the bins and bin store spaces and clean-up after collection if necessary.
- g) Monitoring and feedback to occupants if the system is not working properly. Undertake a waste audit should it be suspected waste is not being placed in the correct bins.

### 3.2 Individual Occupants Responsibilities

The occupants (including residents, staff and cleaners) are responsible for their own waste. Items to be addressed in maintaining the system include:

- a) Individual occupants are responsible for placing their waste in the appropriate colour coded bins. This is to ensure all waste types are collected and recycled where possible and contamination of waste streams is minimised.
- b) **Landfill shall be placed in plastic bags** before placement into bins
- c) **Recycling materials are not to be bagged** and are to be placed loosely into the recycling bins. (Items in plastic bags in recycling bins are not recycled). Recyclable items in bin collections include:
  - o Rigid plastic containers
  - o Paper, cardboard
  - o Glass bottles and jars
  - o Steel cans, aluminium cans and aluminium foil are among items that can be recycled.But excludes:
  - o Soft plastic bags
- d) **To improve recycling:**
  - o Empty containers and bottles of any leftover food or liquid. Ideally rinse them out.
  - o Don't put anything inside plastic bottles or containers
  - o Paper – if it can't be ripped, it can't be recycled due to the plastic coating.
  - o Check local waste collection / contractor requirements – some recycle all plastic resin codes, some are more restricted. Some want lids on bottles, some want them separate and in landfill.

### 3.3 Bin Store Design

Bin Store Design must include the following:

- a) A layout that allows access to all of the bins with adequate size to allow easy movement/transfer of the required number of bins. There is to be convenient access by residents and made easily accessible to people with limited mobility.
- b) All screening should be suitably designed for durability and to blend in with the development. Floor and wall surfaces are to be appropriately durable and easily cleaned.
- c) Doors located in the allocated storage areas should be designed for easy access of larger bins sizes, hard waste, for durability and to blend in with the development.
- d) Space suitable for bin wash down is to be available in the development. If this is the bin store then the floor is to be graded to a waste outlet with a litter trap. Alternately, a private contractor can be arranged to swap dirty bins for clean ones on a regular basis.
- e) If a bin wash is installed, a water tap and hose installed in or near the bin wash areas and correct drainage to sewer (never direct waste to storm water drains) should be designed in accordance with the relevant EPA Bunding Guidelines. Drains to the sewer to be located undercover to prevent rainwater infiltration.

- f) Bin stores must be vermin proof - particularly where food waste is included. (The bin store is in the basement that is a closed space and considered to be largely vermin proof). Consider using baits for vermin control and maintained as an ongoing requirement.
- g) A waterproof power point in or near the bin store.
- h) Adequate mechanical or natural ventilation.
- i) Ensure adequate lighting is provided in accordance with National Construction Code (NCC) guidelines.
- j) Secure locks (where bin stores are accessible to the street)
- k) Space for a tug or bin lifter if required by the waste contractor(s) / facility management.
- l) Meter boxes should not be included in bin store areas.

### 3.4 Occupational Health & Safety

A **preliminary OHS risk assessment** has been included to identify potential OHS issues, however this risk assessment does not replace the need for the Management and collection contractors to complete their own OHS assessment for the bin collection process. See **Appendix 1** for further detail.

### 3.5 Waste Streaming & Contamination

Managing waste contamination requires the correct separation of products that are recycled differently. This is called waste streaming. Correct streaming requires consideration by staff, cleaners and visitors in work, accommodation and leisure areas as to where and how they dispose of their waste.

Good waste streaming reduces contamination to ensure more effective recycling. Refer **Appendix 4** for Better Practice Waste Management links.

### 3.6 Bin Store Access

A layout that allows access to all of the bins with adequate size to allow easy movement/transfer of the required number of bins. There is to be convenient access by residents and made easily accessible to people with limited mobility.

- a) Manoeuvrability within the bin store area is open, with 1m minimum to walk between bins.
- b) There is to be no significant step at any threshold between the bin store area and the point of collection.

### 3.7 Bin Types & Bin Sizes

#### 3.7.1 Mobile Wheelie Bins (MGBs)

The following sizes are indicative bin sizes based on the NSW Better Practice Guide specified sizes. These sizes are the size allowances required by most Councils in bin store areas. Allow 100mm between 4 wheel bins and 50mm between 2 wheel bins for movement.



Size	Width	Depth	Height	Footprint
80L	450mm	530mm	870mm	0.24m <sup>2</sup>
120L	485mm	560mm	940mm	0.27m <sup>2</sup>
240L	580mm	735mm	1080mm	0.43m <sup>2</sup>
360L	600mm	885mm	1100mm	0.53m <sup>2</sup>
660L	1370mm	850mm	1250mm	1.16m <sup>2</sup>
1100L	1370mm	1245mm	1470mm	1.71m <sup>2</sup>



#### Standard bin colours (refer AS4123.7)

Landfill	Red
Co-mingled recycling	Yellow
Green organics	Light Green
Glass	Purple
Paper and cardboard	Light Blue
E-waste	Light Grey

\* NOTE: size may vary between Councils and contract suppliers

### 3.7.2 Streamed Bins – Residential

In multi-unit developments streamed waste bins are to be included in each dwelling (perhaps under the kitchen sink). Bin types are to include Co-mingled Recycling, Organic Food Waste and Landfill (general) waste.



*Kitchen Caddy – supplied by council where food scraps can be placed in FOGO bins.*



*Pull-out kitchen bins to be supplied in each unit for better waste separation. This encourages better recycling practices.*



*Apartment Bokashi / Urban Composter bins where food scraps can be placed in on site compost.*



*Example of Charity Clothes bin – refer Section 4.3.3 below.*



*Examples of a stack of tubs for small recyclable waste streams such as batteries, light globes and printer cartridges.*



For larger developments, a more extensive recycling unit may be more appropriate to stream miscellaneous items.

This unit is to be placed in strategic locations to make it easy for users and encourage further separation of smaller recyclable items such as:

- Batteries
- Light globes
- Plastic bread tags & bottle tops
- Printer cartridges
- Toothpaste tubes
- Medicine blister packs

Items can be tailored to suit waste types most generated.



*This communal recycling sorting hub managed by central management. Each waste stream is to be sent / taken to the appropriate recycling facility as often as required.  
– refer **Section 4.3.3** below.*

### 3.7.3 Streamed Bins – Commercial

Correct streaming in commercial developments requires consideration by staff, cleaners and visitors. It needs to be clear for all users as to where and how they dispose of their waste.

- Separation of landfill and recyclables is to initially occur in all work areas, kitchenettes and then in bin stores. For this reason, the development will include streamed waste bins on each floor or work area. Cleaners and staff would then transfer already streamed waste to the corresponding bin in the main storage area.
- Correct streaming in these areas in the first instance reduces contamination to ensure more effective recycling occurs.
- Commercial waste is to be transferred to the shared bulk bin store with minimal manual handling. The tenancy is to include a trolley to cart bags of waste or wheeled bins to transfer waste.



*Examples of streamed commercial waste bins. Larger sizes may be*



*Example of trolley used for moving commercial waste to bulk bin storage location*



*Example of smaller 60L wheeled bins allow for*



*required to suit development*

*easier transfer of waste*

**All bins are to be placed alongside each other to ensure recycling is easy.**

- d) For larger mixed use and commercial developments with a public interface, litter bins are recommended to be provided within forecourts or public areas for building users to dispose of waste in the correct manner.
- e) Outdoor areas where people congregate, where possible should be smoke free zones. Locations where smokers congregate should include an ash box installed on the litter bins or a wall. This will help reduce cigarette butts being left on the ground and entering the stormwater system and creeks.



*Example of external public litter bins appropriately located to encourage users to separate out waste for better recycling practices*

*Example of cigarette ash bin*

### 3.8 Commercial Waste Vehicle Requirements

- a) A 6.4m rear mini loader waste vehicle only is to enter the site from Wentworth Street, Manly and travel down the existing vehicular ramp to the basement to collect bins from all Bin Stores. There is sufficient head clearance to collect 660L bins (maximum size).
- b) The waste contractor will be responsible for retrieving, emptying and returning bins to/from the bin store at the time of collection.
- c) The waste vehicle is to turn & exit up the same ramp exiting back onto Wentworth Street in a forward direction.
- d) The Building Management Committee is responsible for ensuring the waste contractor has access to the site and bin store on the days of collection. If there is a security code or key required for access, the contractor should be provided with these so they may access the bin store on the specified collection days.

Vehicle	Typical size
Rear mini loader	6.4m long x 2.35m wide truck (basement collections) – 2.2m head clearance

NOTE: Larger vehicle(s) may need to be assessed for clearances prior to entering the site.

### 3.9 Collection Times

**Collection times** in New South Wales are not subject to any specific legislated time restrictions as waste collections are considered an essential service. If excessive noise is coming from waste collections associated with either residential or commercial premises, you can refer a complaint to the local council to investigate if this cannot be resolved otherwise. See <https://www.environment.nsw.gov.au/questions/noise-from-garbage-trucks>

### 3.10 Response to Increasing Waste

- a) The total waste capacity exceeds the required allowance calculation by rounding up to the nearest bin size so there is built in capacity should waste levels increase beyond estimates.
- b) A waste audit can be undertaken to understand the content of the waste bins and provide images and feedback to clients of good or poor recycling practices.
- c) If garbage bins consistently overflow, then occupants are to be directed to educational material as to the appropriate streaming of waste including food and other recyclables. (see **Section 4** and **Soft Plastic** Recycling below).
- d) If recycling bins continue to overflow, OCCUPANTS should be reminded to crush and flatten all cardboard boxes and plastic containers before placing these in the recycling bin(s). It may also be appropriate to obtain an additional recycling bin.

### 3.11 Reducing Odour

Odour from waste primarily emanates from bin store areas. Control of odour must occur in the bin store area with the provision of suitable natural or mechanical ventilation. If installed the mechanical ventilation system for the bin storage area must not cause a public health nuisance (noise and odour generation) and comply with EPA requirements and in accordance with the ventilation requirements of the Building Code of Australia and AS 1668.2.

The bin store area and bins are to be monitored and cleaned on a regular basis to remove sources of smells.

### 3.12 Noise management

Minimising noise associated with waste movement and collections include:

- a) Locating bin stores and collection points at an appropriate distance from both onsite and adjoining residences;
- b) Minimising the need for the waste vehicle to reverse;
- c) Collections occurring during the stipulated collection times restrict the hours of noise from collections.
- d) Collection vehicles should not break up bottles at the point of collection, only once off site. Compaction of waste should only be carried out whilst waste vehicles are on the move.

### 3.13 Traffic Management

- a) Traffic management along Wentworth Street and South Steyne will not be an issue with collection occurring within the property boundary.
- b) Appropriate engineering standards will need to be addressed in the detailed design stage to ensure adequate pavement depths and clearance height. A trafficable pit lid should be designed above all in ground services.

### 3.14 Litter Spread

- Litter spread is to be managed by ensuring garbage and recycling bins are not overloaded, and lids are always closed.
- Litter spread is to be managed by the system of contractors collecting bins from within the property. As bins are not left outside overnight, the possibility of vandalism is removed.
- The private collection contractor's agreement should require their pickup of any waste that spills from the bins during collections.

### 3.15 Signage, Education & Safety

It will be the responsibility of facility management to ensure all occupants have all of the material available to them and that they adhere to the required practices regarding waste management, sustainability and promoting waste minimisation.

- All education material will be in accordance with Council requirements
- Ensure permanent "No Standing" text and line markings are visible in the car park area, indicating the parameters of the rubbish collection zone to ensure access for the collection vehicle.
- Directional signage should be installed to direct occupants and bin collectors to the bin storage areas.
- The hard waste storage zone should also be signed.
- Instructional signage within shared communal bin stores is to indicate which bin is for landfill and which is for recyclables (& food waste/organics) and also include what items can be included in landfill and recycling bins, and items that need to be disposed of via other services.



*Simple, brightly coloured signs, such as those shown above, quickly communicate what items are acceptable for each bin.*

A sign will be placed on residential landfill bins that soft plastics can be recycled at any location identified on the Redcycle website <http://www.redcycle.net.au/where-to-redcycle/>



*A quick guide to some most commonly recycled Soft Plastic item*

## 4 Managing Waste Streams

### 4.1 Sustainability Initiatives

Residents / Occupants are to be made aware of the EPA's recommendations for waste reduction.

Where possible they should practice the waste reduction hierarchy identified in the Environmental Protection Act 1970;

The first step to reducing waste, particularly food waste is to avoid and minimise waste from occurring in the first instance. Changing purchasing habits and implementing waste avoidance include:

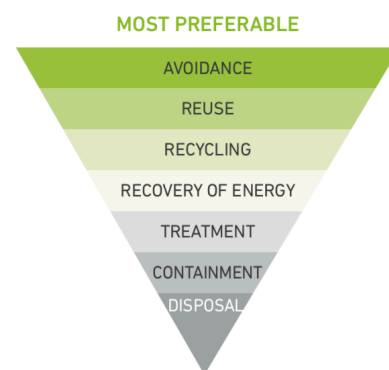
Purchase only what you will consume

Use re-usable drink bottles, lunch containers, shopping bags

Avoid single use plastics

Compost anything that once was alive

Meal plan, shop seasonally, shop locally



### 4.2 Separating & Streaming Food Waste

Diverting food waste from landfill is not only a really effective way to reduce greenhouse gas emissions, but also a regenerative solution, creating rich, healthy soil.

The Better Practice Guidelines stipulates diverting food from landfill waste. This can be achieved in a number of ways including on site composting and/or via dedicated food waste collections in larger mixed-use developments.

#### Tips for Food organics waste

- Place all food waste direct into Council provided FOGO bins
- Keep the wheelie bin in a shady spot
- Use paper towel to line the bottom of plastic bags to soak up any moisture that can cause the liner to break down quicker than normal
- Double wrap meat, bones and unwanted pet food (with newspaper or paper towel) before placing in your caddy
- Line the organics bin with newspaper to aid cleaning
- Wrap fish and seafood waste (in newspaper or paper towel) and place in your freezer until your next collection is due
- Sprinkle vinegar, baking soda, charcoal or eucalyptus oil in your organics bin to combat odours
- A mix of garden and food waste helps keep bin odours under control
- Purchase a Bin Kill tag that can be attached to the inside of your organics bin. The tag emits a vapour that kills flies and maggots. The product is available from Bunnings, Coles or Woolworths supermarkets.

### 4.2.1 Commercial Food waste

There are a number of onsite treatment and diversion options to remove food waste from landfill.

#### a) Onsite Options for Organics Treatment

On site food and organic waste treatment/pre-processing systems can reduce the footprint area of a bin store by reducing the number of bins required, and can reduce waste collection frequency when food or organics waste can be diverted to these units.

These units reduce food scraps to 90% of their original volume in 24 hours, through heat and agitation, and the by-product is a compost material. These units take all kinds of food ie fruit, vegetables, meat, fish, eggshells so sorting is not an issue. These units prevent generation of the greenhouse gas methane (methane is 25 times more detrimental than carbon dioxide) which otherwise is generated when organic wastes decompose anaerobically in landfills. The suppliers usually can provide Green-house gas cost v benefit assessments of their units. These systems are increasingly being introduced around Melbourne.

- **WasteMaster** is an Australian technology which converts putrescible waste to a concentrated residue within 24 hours. <https://www.greenecotec.com>
- **Closed Loop Organics** provide CLO'ey bins of different capacity and rental servicing costs. More information available at: <http://www.closedloop.com.au/domestic-composter>
- Other systems such as **PulpMaster**, **EcoGuardians (Gaia system)** or **Biobin** generally provide systems that dehydrate or mash up food waste to reduce total volumes, but operate slightly differently to the above two systems.

#### b) Surplus food donation

There are organisations that collect surplus food for human consumption. Collectors that provide this service within NSW include:



- **SecondBite** - SecondBite redistributes surplus fresh food to community food programs around Australia. Farmers, wholesalers, markets, supermarkets, caterers and events donate food. This high quality surplus food is redistributed to community food programs that support people who are homeless, women and families in crisis, youth at risk, indigenous communities, asylum seekers and new arrivals. Contact: (02) 9316 9200



- **OzHarvest** is the first perishable food rescue organisation in Australia collecting quality excess food from commercial outlets and delivering it, direct and free of charge, to 600 charities providing much needed assistance to vulnerable men, women and children. [www.ozharvest.org](http://www.ozharvest.org), Ph: (02) 9516 3877 [sydney.info@ozharvest.org](mailto:sydney.info@ozharvest.org)



- **Foodbank** - Foodbank is a non-denominational, non-profit organisation, which acts as a pantry to the charities, and community groups who feed the hungry. Foodbank is a conduit between the food industry's surplus food and the welfare sector's need. Foodbank accepts donations of any food that is fit for human consumption in order to reduce food waste. [www.foodbanknsw.org.au](http://www.foodbanknsw.org.au), Ph: (02) 9756 3066

## 4.3 Other Waste Streaming Details

### 4.3.1 Green Garden Waste

- a) For common areas a private maintenance contractor will be responsible for removing any green garden waste and can also by arrangement, remove green waste from private spaces if required.
- b) Common area gardens are recommended to be designed to encourage low maintenance gardens and an annual or bi-annual pruning. This service will need to be arranged by facility management.

### 4.3.2 Hard Waste Collection

In the first instance occupants are to be encouraged to donate, unwanted bulky items, clothes and other consumables to charities, sold on online or at second-hand market places if in good condition. If repairs are required, seek out repair community centres for re-purposing.

- a) Facility Management will arrange hard rubbish collections with a private contractor for both commercial and residential bulky hard waste throughout the year.
- b) It should be well communicated to each tenancy that they can request additional hard rubbish collections.
- c) Facility Management to ensure no hard waste is left kerbside at any time.
- d) Search PlanetARK for a comprehensive listing to each council.  
<https://recyclingnearyou.com.au/councils/>
- e) In addition suppliers such as **Ecycle**  
<http://www.ecyclesolutions.net.au> will deliver whitegoods and either collect clean polystyrene from retailers or take polystyrene away after delivery.



- f) **TerraCycle** is a national initiative where you can look up where to deposit non-recyclable waste such as contact lenses, coffee capsules, mailing satchels, toothbrushes & tubes.  
<http://www.terracyclemap.com>

### 4.3.3 Return and Earn

- a) Bottles, cans and cartons make up a large proportion of the litter on our streets, beaches and green spaces. Tackling the problem costs NSW millions of dollars every year. Return and Earn is a way for us all to help solve the litter problem and be rewarded for our efforts.
- b) With a food based tenancy proposed within the building, a recycling bin can be swapped for a Return & Earn bin. There are many options for these containers to be deposited or collections. View the website for more information:  
<https://returnandearn.org.au>

### 4.3.4 Soft Plastic Recycling

- a) Eliminating or reducing the use of single-use plastics can greatly reduce waste volumes both in residential and commercial settings. This includes straws, plastic bags and plastic wraps. Many private waste contractors can commercially collect soft Plastic.
- b) NSW as yet to set legislation to ban soft single use plastic but will in the future. There are a number of companies that already collect streamed soft plastics in NSW including:
  - o <https://wanless.com.au/waste-services/soft-plastic-recycling/>
  - o <https://www.veolia.com/anz/our-services/our-services/recycling-waste-services/recycling/plastics/soft-plastics>
  - o <https://www.cleanaway.com.au/waste/clear-plastic-and-polystyrene/>

### 4.3.5 E-Waste Recycling

- a) Any item with a plug, battery or cord can be deposited at a designated e-waste drop-off point. Electronic waste includes old mobile phones, computers, audio devices, refrigerators and other white goods, hair dryers, TVs, heaters, and air-conditioners.
- b) A private commercial contractor must be engaged to collect these items.
- c) Other authorised electrical waste disposal locations can be found:
  - o <https://wanless.com.au/waste-services/soft-plastic-recycling/>
  - o <https://www.veolia.com/anz/our-services/our-services/recycling-waste-services/recycling/plastics/soft-plastics>
  - o <https://www.cleanaway.com.au/waste/clear-plastic-and-polystyrene/>

### 4.3.6 Other Recyclables

One container with drawers or a number of small stackable plastic crates with minimum footprint 500x500mm is to be supplied to the development to collect recyclables such as:

- o batteries
- o light globes
- o printer cartridges
- o clothes.

These items are to be recycled periodically as arranged by Facility Management.

Note: in addition to Council recycling hubs and the e-waste links to over 1000 locations state-wide, Officeworks provide recycling drop-off points for printer cartridges, old IT equipment, and mobile phones.



#### 4.3.7 Hospitality Waste Reduction

- Responsible Cafes is an organisation that provides educational material for the hospitality section. Their website contains various resources, waste education and lists responsible cafes participating in the scheme. See <https://responsiblecafes.org>
- Reducing takeaway food container waste - The website Trashless Takeaway [www.trashlesstakeaway.com.au](http://www.trashlesstakeaway.com.au) lists restaurants around Australia that allow you to bring your own container to pick up your takeaway food, enabling a reduction in use of recyclable or compostable (only in some commercial composters) food containers.
- Yume work with leading food suppliers to ship surplus stock, that may otherwise have been wasted, to smart hospitality and retail businesses. Stock may be considered surplus for a number of reasons: a supplier may have a cancelled or placed an incorrect order, there may be no space for new stock, or a product might be close to code. This can leave primary producers, wholesalers, distributors and manufacturers with tonnes of surplus food and a lack of time or the contacts to re-sell it. Yume provides the network to sell this surplus stock. See <https://yumefood.com.au/>

#### Recycling Take Away Coffee Cups

There are a number of companies that now provide take away coffee cups that can be recycled. These includes (but not limited to) <https://www.detpak.com/recycleme/> and <https://www.simplycups.com.au>.

These services will provide all of the resources required for customers to use & store cups and lids as well as collect waste on a regular basis.





## 5 Supplementary information

### 5.1 Waste Links

Northern Beaches Council Recycling Directory:

<https://www.northernbeaches.nsw.gov.au/services/rubbish-and-recycling/a-to-z-guide-to-recycling-reuse-and-disposal>

Waste collection companies in NSW:

Sita – Suez <http://www.sita.com.au>, Ph: 1300 651 116

Transpacific-Cleanaway - <https://www.cleanaway.com.au>, ph 13 13 39

Waste Wise Environmental [www.wastewise.com.au](http://www.wastewise.com.au) Ph: 0447 595 092 (Sydney)

JJ Richards & Sons [www.jrichards.com.au](http://www.jrichards.com.au)

Veolia - <https://www.veolia.com/anz/>, Ph 132 955

### 5.2 Mechanical Tug Details

Where mechanical tugs are recommended, the following details will assist.

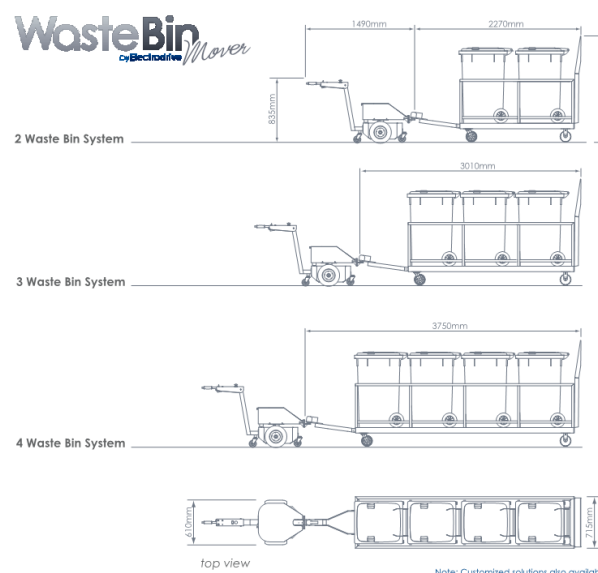
Suppliers include

- [www.electrodrive.com.au](http://www.electrodrive.com.au)
- <http://www.mastermover.com.au>
- [www.sitcraft.net.au](http://www.sitcraft.net.au)
- <http://www.hercules.com.au/index.php?tug2>.

Two-wheel bins are usually loaded onto a trailer/dolly for transportation. Space is required for storage of the tug unit plus trailer. Tugs can be 1.5m long x 0.8m wide. Trailers can vary in size – allow space larger than the bin footprint.



Sitecraft Logistec bin mover



Four-wheel bins can be towed directly by the tug and require less space as only the tug is required to be stored, not a trailer. Towing brackets and directional wheel locks are available from Sulo [www.sulo.com.au](http://www.sulo.com.au) and can readily be retrofitted to 660-1100L bins for towing. Towing brackets and wheel locks do not project outside of the bin footprint area.



Mechanical tug systems will usually cost in the range of \$10,000 - \$15,000, with trailer possibly extra.

### 5.3 Bin Lifters

Electro Hydraulic Bin-Lifters should be provided in each bin room to help staff safely to empty the internal 120L/240L bins into the main 1100L bins placed in the bin store.

Suppliers for Bin-Lifter are as follows:

LiftMaster <http://www.liftmastermh.com.au/>

WasteTech <http://www.wastech.com.au/Bin-Lifters/bin-lifters.html>

SPACEPAC Industries Pty Ltd.

[http://www.spacepac.com.au/Brochures/Lifters/LiftMaster/Bin-Lifters\\_2pg\\_np.pdf](http://www.spacepac.com.au/Brochures/Lifters/LiftMaster/Bin-Lifters_2pg_np.pdf)

SiteCraft <http://www.sitecraft.net.au/materials-handling/recycling-waste-management/wheelie-bin-lifters-bin-tippers/#>

EasyLift [http://www.easylift.com.au/a/Materials\\_Handling\\_Equipment/Wheelie\\_Bin\\_Lifters](http://www.easylift.com.au/a/Materials_Handling_Equipment/Wheelie_Bin_Lifters)

Active lifting equipment co. pty ltd.

<http://www.activelifting.com.au/MaterialsHandling/Binlifters/powered150.htm>



### 5.4 Bottle Crushing

Onsite crushing of glass bottles via units such as the Bottlecycler [www.bottlecycler.com](http://www.bottlecycler.com) is a significant way to reduce waste volumes and also assist with glass recycling. Bottles without contaminants other than remnant drink are loaded directly into the Bottlecycler and crushed on the spot to reduce bottle volumes by about 80% (5:1 reduction). Broken glass cullet can be sorted by colour off site after collection for recycling.

## Appendix 1 - Bin Collection Plans



EXISTING + EXTENSION

PROPOSED

PROPOSED

PROPOSED

BUILDING A  
'C.C.K.' BUILDING

BUILDING B  
DRUMMOND HOUSE

BUILDING C  
RESIDENTIAL / COMMERCIAL

BUILDING D  
RESIDENTIAL / RETAIL

NEW OPEN SPACE



All Dimensions shall be verified on site.

## Drawing

# Bin Collection Location Plan Street Level

Date	Scale	Sheet Size
13/12/2023	1:100 / 1:50	@ A1
Req No.	Drawn	Chk.
	LR	CH
Job No.	Drawing No.	Revision
	WP.01	n



lid  
cap your footprint

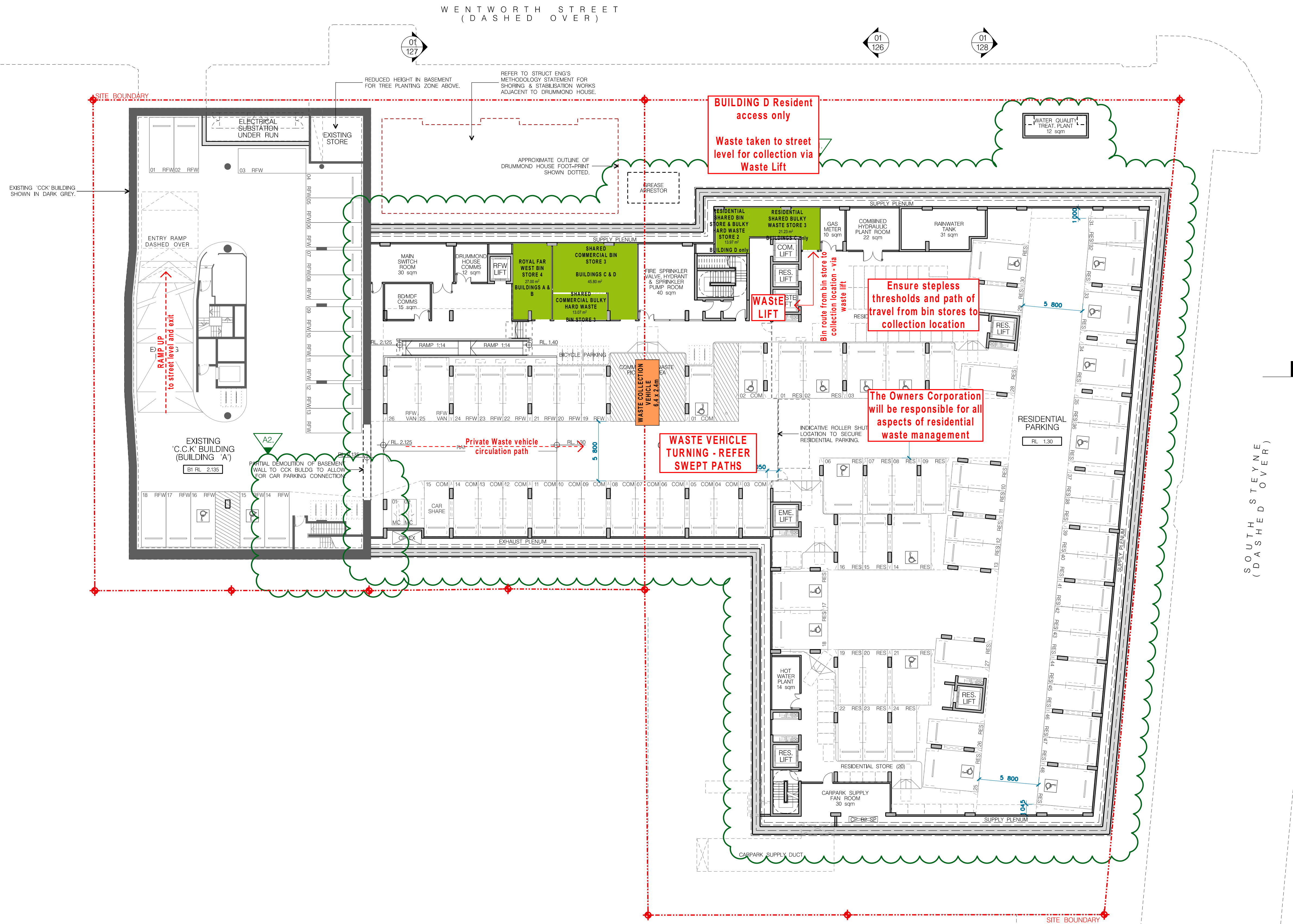


**Existing Building A - Royal Far West to  
Remain inc Basement Entry**



**Existing Building B (heritage) -  
Royal Far West set for  
renovation**





**Bin Collection Location Plan**  
**Basement Level 1:100**

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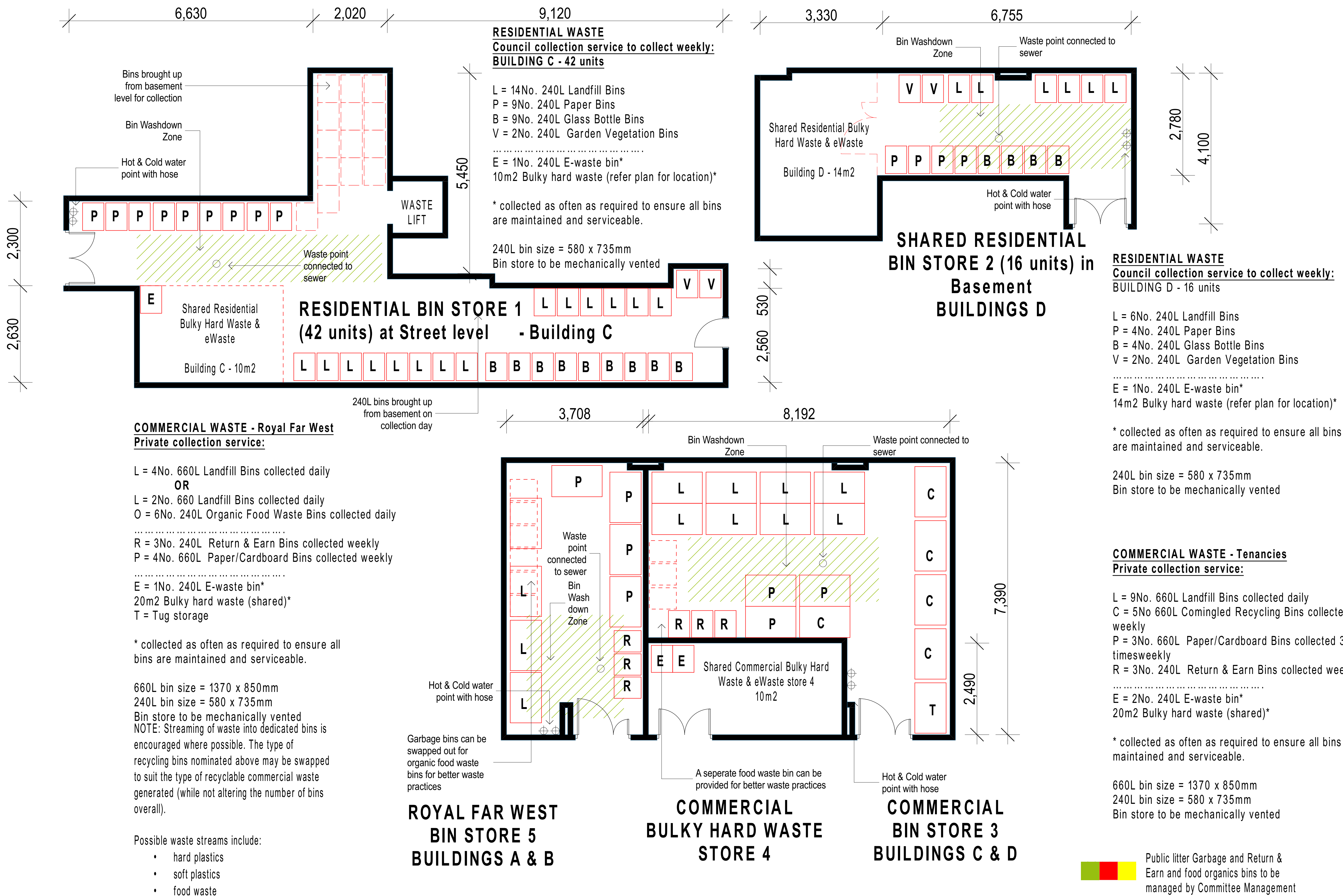
Project	14-22 WENTWORTH ST & 19-21 SOUTH STEYNE MANLY NSW 2095
Drawing	Bin Collection Location Plan Basement Level

Date	Scale	Sheet Size
13/12/2023	1:100 / 1:50	@A1
Reg No.	Drawn	Chk.
	LR	CH
Job No.	Drawing No.	Revision
	WP.02	n

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Project	14-22 WENTWORTH ST & 19-21 SOUTH STEYNE MANLY NSW 2095
Drawing	Bin Store Layouts - Street & Basement Levels

Date	Scale	Sheet Size
13/12/2023	1:50	@A1
Reg No.	Drawn	Chk.
	LR	CH
Job No.	Drawing No.	Revision
	WP.03	n

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## Appendix 2 - Preliminary Risk Review

<b>Class 1 Risk</b> = Potential to cause death or permanent injury.		<b>Class 2 Risk</b> = Potential to cause injury requiring medical attention.		<b>Class 3 Risk</b> = Potential to cause an injury treatable with first aid.
Activity	Steps involved in completing activity & risk	Risk level	Risk mitigating measures	Implementation responsibility
Vehicle comes on site for collection	Large vehicle entering site, and reversing before exiting site. Major risk is hitting, particularly when reversing, young children, the elderly or unaware people	1	Vehicle driver entering site is to survey carpark for activity. If there is no activity near reversing location, driver to execute reverse move immediately before the situation can change. If there is activity, the driver should ensure the person/persons moving in the basement are aware of the pending reversing action, and have time to stay away from the reversing zone or ensure children are away from the reversing zone. Reversing should be at very slow speed.  Reversing buzzers to be applied to all trucks.	Waste collection contractor / Facility Management
Moving of bins from bin store to collection space	Distance bins to be moved approx 30m. Risk of manual handling injuries	2	Use max bin sizes of 660L or mechanical tug.  Minimise distance of travel, with the area kept free of all obstacles including loose gravel or dirt, steps, kerbs, speed bumps, berms, sills or ramps.  Ensure all access points have suitably wide doorways and circulation areas.	Building Designer / Facility Management
Movement of commercial waste from shops to the basement	Carting waste from the shops down to the basement bin store.  Risk of manual handling injuries.	2-1	Commercial tenants should ensure their bin sizes are not excessive and cannot carry too much weight to safely negotiate to the basement bin store. Building owner to include clause in tenants contract to ensure bin sizes are not excessive due to this risk.	Building owner/manager

## Appendix 3 - Waste rates & calculations



## Appendix 3 - Waste Generations Calculations

14-22 Wentworth Street & 19-21 South Steyne, Manly NSW 2095



Commercial waste - Buildings C & D	AREA (m2)	Waste Generation Rates (L/100m2/day)		Source <sup>^</sup>	Waste Generated (L/Week)	
		Garbage	Recycling		Garbage	Recycling
Multi-purpose (7 days)	155	10	10	Office	108.5	108.5
Commercial tenancy - office (5 days)	1914	10	10	Office	957	957
Commercial tenancy - retail (7 days)	662	50	50	Retail - non-food	2317	1655
Commercial tenancy - possible food based (7 days)*	207	300	200	Café	4347	2898
<b>Total Litres per Week</b>	<b>2938</b>				<b>7730</b>	<b>5619</b>

<sup>^</sup> Northern Beaches Council - Waste Management Guidelines

\*Limited food service available - most likely take away / coffee only - café rates allowed

Weekly Collections	No. 1100L Bins	7.0	5.1
	No. 660L Bins	11.7	8.5
	No. 240L Bins	32.2	23.4

Actual Commercial waste - Buildings A & B	AREA (m2)	Actual Waste Generation at existing facility (101 beds = Litres collected)					Source /Total
		Garbage 1500L bins	Garbage 240L bins	Garbage 660L bins	Garbage 240L bins (dry)	C'board 1100L bins	
Jun-19		4500	18480	10560	9360	8800	invoices
Jul-19		3000	0	34320	18720	9900	
Aug-19		4500	0	34980	21120	9900	
<b>Total Litres (3 months)</b>	<b>0</b>	<b>12000</b>	<b>18480</b>	<b>79860</b>	<b>49200</b>	<b>28600</b>	<b>188140</b>

		Garbage	Cardboard	
<b>TOTAL WASTE - 2 Streams, 3 months</b>		<b>159540</b>	<b>28600</b>	
<b>Average Litres per Month</b>		53180	9533	62713
<b>Average Litres per Week</b>		13295	2383	15678
<b>Average Litres per Person per Week - 101 persons existing</b>		132	24	155
<b>Average Litres per Week - 120 persons proposed</b>		<b>15796</b>	<b>2832</b>	<b>18628</b>

Weekly Collections	No. 1100L Bins	14.4	2.6
	No. 660L Bins	23.9	4.3
	No. 240L Bins	65.8	11.8

## Appendix 4 - Swept Path Diagrams

\\AU2019-PPF5301\SHARED\_PROJECTS\300305176\TECHNICAL\TRANSPORTATION\DRAWINGS\300305176-01-P4.DWG PLOTTED BY HONG, SUNNY ON 01/12/2023 AT 10:46

SWEPT PATH

KEY

—

VEHICLE CENTRE LINE

—

VEHICLE TYRE PATH

—

VEHICLE BODY PATH

—

300mm CLEARANCE FROM VEHICLE BODY

—

ASSUMED SPEED5km/h

6.42

0.98

3.40

HINO 300 614 - WASTE WISE

Width : 1.70

Track : 1.87

Lock to Lock Time : 6.0

Steering Angle : 52.2

meters

VEHICLE ENTRY

EXISTING 'CCK' BUILDING SHOWN IN DARK GREY.

VEHICLE EXIT

**PRELIMINARY PLAN**  
FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

**WARNING**  
BEWARE OF UNDERGROUND SERVICES  
THE LOCATIONS OF UNDERGROUND SERVICES ARE  
APPROXIMATE ONLY AND THEIR EXACT POSITION  
SHOULD BE PROVEN ON SITE. NO GUARANTEE IS  
GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

DESIGNED  
S.HONG/ W.XIE

APPROVED BY  
K. MCNATTY

DESIGN CHECK  
D. SALANGSANG

DATE ISSUED  
01 DECEMBER 2023

SCALE  
A3 0 1.25 2.5 5 1:250

CAD FILE NO.  
300305176-01-P4.DWG

ROYAL FAR WEST CAMPUS REDEVELOPMENT, MANLY  
BASEMENT LEVEL 1

VEHICLE SWEEP PATH ASSESSMENT  
DRAWING NO. 300305176-1-04 SHEET 08 OF 09 ISSUE P4

ARCHITECTURAL BASE IN BLUE  
DRAWING DA-111  
ISSUE P12  
BY MURCUTT CANDELPAS  
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