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## WASTE MANAGEMENT PLAN

# Yanchep Central, Cnr Marmion Ave & Peony Boulevard, Yanchep WA 6035

*Proposed Tavern*

Prepared for:	Oldfield Knott Architects Pty Ltd
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## Introduction

AusWide Consulting was commissioned by Oldfield Knott Architects Pty Ltd to prepare a Waste Management Plan (WMP) for approval of a proposed commercial development at Yanchep Central, CNR Marmion Ave & Peony Boulevard, Yanchep WA 6035. The proposed commercial development consists of the construction of a new building for a tavern.

In the course of preparing this WMP, the subject site and its environs have been inspected, plans of the development examined, and all relevant council requirements and documentation collected and analysed.

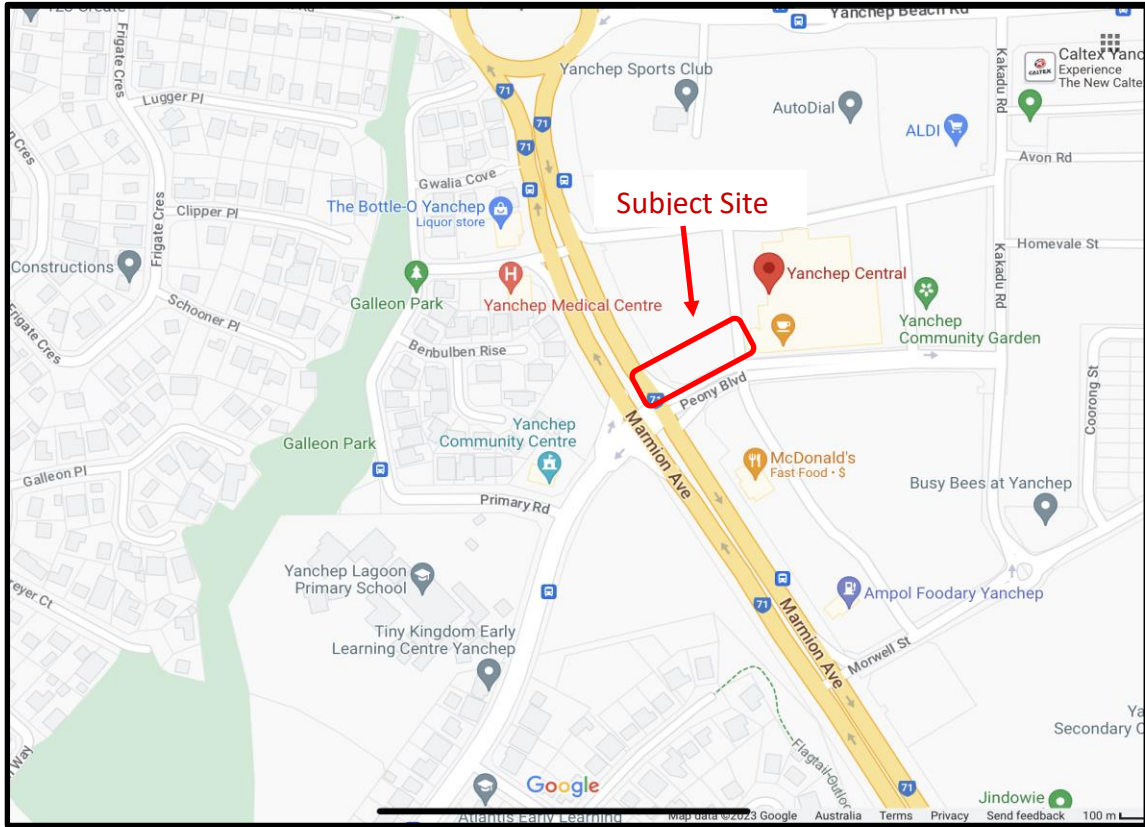
This WMP has been prepared based on the following information:

- Architectural Plans provided by Oldfield Knott Architects.
- WALGA Commercial and Industrial Waste Management Plan Guidelines.

## Background and Existing Conditions

The subject site is located at Yanchep Central, CNR Marmion Ave & Peony Boulevard, Yanchep WA 6035, on the northern side of Peony Boulevard, and the nearby land uses are predominantly commercial with residential to the west.

The following **Figure 1** provides an overview of the area, and its surrounding land uses whilst **Figure 2** provides an aerial view of the immediate area surrounding the subject site.



**Figure 1: Location of the Subject Site**



**Figure 2: Aerial View of the Subject Site**

## Proposed Development

The proposed development consists of the construction of a commercial tavern. The access to the proposed development will be provided via walkways and driveways via the Yanchep Central Car Park. The waste storage room has vehicular access on the ground level (**Refer Appendix A**).

The tavern will be constructed in an existing carpark. Minor earthworks and removal of concrete structures will be required to prepare the site for construction.

## Waste Management Principles

When dealing with waste, the following hierarchy has been adopted, prioritising from left to right:



### Avoid/Reduce

Particularly during the construction phase, avoidance of waste will be achieved through:

- Selecting design options with the most efficient use of materials.
- Selecting materials with minimal wastage, such as pre-fabricated materials.

### Reuse

Some of the materials encountered in the demolition stage can be recovered and reused both on-site and off-site. This will be practised wherever possible. Reusable materials shall be appropriately stored to avoid damage from weather or machinery.

### Recycle

Similarly, many materials from the demolition stage will be recyclable. These materials will be identified prior to demolition, and a system incorporated to efficiently separate reusable materials, recyclable materials, and disposable materials. Recyclable materials shall be appropriately stored to avoid damage from weather or machinery. Details and receipts verifying the recycling of these materials shall be kept present on site at all times.

### Disposal

The waste disposal contractor chosen for the job will comply with Council's DCP. Details and receipts verifying the disposal of these materials shall be kept present on site at all times.

## ***Handling***

When handling waste on-site, the system (including bin placement, volumes, and access) shall be designed with the following factors in mind:

- Safety (highest priority);
- Ease of use; and
- Aesthetics.

## ***Stockpiling***

Waste sorting areas and vehicular access on-site during demolition and construction shall be adequately maintained. The material (demolition material, excavation material, construction material and waste) stockpiling area shall always remain within the site boundary and relocate during different demolition and construction stages as necessary. The waste area shall be largely located at the front of the site. This is to maintain easy access and removal of waste. The stockpiling area shall not infringe on access to the site however hoardings shall bind the site perimeter; therefore, the waste shall not be visible from the street.

## **Demolition & Construction Stage**

The proposal involves the demolition of an existing carpark and the construction of a single building taking up a footprint of 1,162.38 m<sup>2</sup>.

### ***Demolition Works***

It should be noted that the demolition stage has the greatest potential for waste minimisation; the contractor should consider whether it is possible to re-use existing materials, or parts thereof, for the proposed use. With careful onsite sorting and storage and by staging work programs it is possible to re-use many materials, either on-site or off-site.

Councils are typically seeking to move from the attitude of straight demolition to a process of selected deconstruction, i.e., total reuse and recycling both off-site and on-site. This could require a number of colour-coded or clearly labelled bins onsite (rather than one size fits all).

Site contractors should demonstrate project management which seeks to:

- Re-use of excavated material on-site and disposal of any excess to an approved site.
- Green waste mulched and re-used in landscaping either on-site or off-site.
- Bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site.
- Plasterboard re-used in landscaping on-site or returned to supplier for recycling.
- Framing timber re-used on-site or recycled elsewhere.
- Windows, doors, and joinery recycled off-site.
- Plumbing, fittings, and metal elements recycled off-site.
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with Workcover Authority and EPA requirements.



- Locations of on-site storage facilities for material to be reused on-site or separated for recycling off-site.
- Destination and transportation routes of all materials to be either recycled or disposed of off-site.

### **Construction Works**

The following measures shall be considered during the construction stage in order to save resources and minimise waste:

- Purchasing Policy – i.e., ordering the right quantities of materials and prefabrication of materials where possible.
- Reusing formwork.
- Minimising site disturbance, limiting unnecessary excavation.
- Careful source separation of off-cuts to facilitate re-use, resale, or efficient recycling.
- Co-ordination/sequencing of various trades.

### **Estimating Waste Quantities**

There are many simple techniques to estimate volumes of construction and demolition waste. The sequence of steps provided below can be used as a guide:

- 1) Quantify materials for the project
- 2) Use margin normally allowed in ordering
- 3) Copy these amounts of waste into your waste management plan

When estimating waste generation, the following percentages can be used as a “rule of thumb” practice, as shown in the below table.

**Table 1: Estimating Waste Levels**

<b>Materials</b>	<b>Percentage of Waste / Total Materials Ordered</b>
Timber	5-7%
Plasterboard	5-20%
Concrete	3-5%
Bricks	5-10%
Tiles	2-5%

Subsequently, the following table illustrates how to convert volumes of material to their respective weights. This information is particularly important during material storage and transportation stages.

**Table 2: Converting Volume into Weight**

<b>Materials</b>
Timber = 0.5 tonnes per m <sup>3</sup>
Concrete = 2.4 tonnes per m <sup>3</sup>

Bricks = 1.5 tonnes per m <sup>3</sup>
Tiles = 0.75 tonnes per m <sup>3</sup>
Steel = 2.4 tonnes per m <sup>3</sup>

## Wastage Types and Handling

Waste volumes produced by excavation, demolition and construction stages are estimated in the following tables. Detailed waste volumes will be provided by the contractor at the construction certificate stage. Where possible, materials shall be reused or recycled, with disposal being the last resort. The destination of all recycled and disposed material shall be announced upon selecting the waste collectors and recyclers.

The arrangements for all reused, recycled and disposed waste shall be tracked and recorded, and all receipts shall be held on-site. The following table details estimated waste from the demolition phase of the development.

**Table 3: Waste Types and Handling during Demolition**

Materials on Site	Waste Estimate Volume	On-Site Reuse	Off-Site Recycling	Off-Site Disposal (Accordance with WA EPA)
Bricks	3t	Clean and remove lime mortar from bricks. Re-use in new footings. Broken bricks for internal walls. Crush and reuse as drainage backfill. Crushed and used as aggregate. 75-90%	25-10%	0%

<b>Concrete</b>	180t	Existing driveways to be retained during construction. Crushed and used as aggregate, drainage backfill. 75-90%	25-10%	0%
<b>Timber</b>	N/A	Re-use for formwork and studwork, landscaping, shoring 65-90%	35-10%	<10%
<b>Roof &amp; Ceramic Tiles</b>	N/A	Broken up and used as fill, aggregate, driveways 80-90%	20-10%	<10%
<b>Metals</b>	12t	0%	95%	5%
<b>Plaster Board &amp; Fibro</b>	N/A	0%	To be determined (dependent on asbestos content)	
<b>Residual Waste</b>	112t	0%	50%	50%
<b>Excavated material and overburden</b>	390m <sup>3</sup>	Yes. Keep and reuse topsoil for landscaping. Store on site. Use some for support of retaining walls (Excavated Materials are only to be used if the material is not contaminated or has been remediated in accordance with any requirements specified by any Environmental Consultancy engaged to carry out any contamination assessment of excavated material).	To be determined	0%
<b>Green Waste</b>	12t	To be separated. Chipped and stored on site for re-use in landscaping. 90%	10%	0%

The demolition reuse/recycling/disposal information will be advised at CC Stage.

It is noted that the quantities of materials detailed in this section are estimates only, based on current industry standards and quantity analysis, and may vary due to the prevailing nature of construction constraints, weather conditions, and any other unforeseeable activities associated with the demolition of the buildings, which are beyond the control of the developer, including but not being limited to theft, accidents, and other acts of misadventure. Notwithstanding any of the above, the developer will provide Council with all details in relation to any major variations in this regard.

The developer will keep a written record of all documentation associated with the transportation, disposal and processing of all materials associated with the demolition of all structures on site.

## Construction Phase

If sound construction management practices are in place, then waste volumes should be minimised with the majority of this waste being recyclable. Greater detail will be provided but the contractor at the CC stage. The following table details estimates for waste during the construction phase of the development.

**Table 4: Waste Types During Construction**

Materials on Site	Waste Estimate - Volume (m <sup>3</sup> ) or Weight (T)	On-Site Reuse	Off-Site Recycling	Off-Site Disposal (Accordance with WA EPA)
<b>Bricks</b>	3m <sup>3</sup>	Clean and remove lime mortar from bricks. Re-use in new footings. Broken bricks for internal walls. Crush and reuse as drainage backfill. Crushed and used as aggregate. 20-30%	70-80%	0%
<b>Ceramic Tiles</b>	1m <sup>3</sup>	Existing driveways to be retained during construction. Crushed and used as aggregate, drainage backfill. 20-30%	70-80%	0%
<b>Timber</b>	3m <sup>3</sup>	Re-use for formwork and studwork, landscaping, shoring 20-30%	70-80%	<10%
<b>Concrete</b>	1m <sup>3</sup>	Broken up and used as fill, aggregate, driveways 20-30%	70-80%	<10%
<b>Metals</b>	1m <sup>3</sup>	0%	95%	5%
<b>Plaster Board</b>	1m <sup>3</sup>	0%	100%	0%
<b>Other</b>	1m <sup>3</sup>	0%	50%	50%

## Anticipated Waste Generation, Storage and Collection

Waste collection will be provided by a private contractor.

### Waste Generation

Waste generation rates have been determined using the WALGA Commercial and Industrial Waste Management Plan Guidelines. The following table illustrates the typical garbage and recycling generation rates.

**Table 5: Typical Garbage and Recycling Generation Rates**

Type of Premises	General Landfill Waste	Commingled Recycling Waste
Licensed Club	50L/100m <sup>2</sup> floor area/day	50L/100m <sup>2</sup> of bar and dining areas/day

**NOTE:** Generation rates are based on generation rates within the WALGA Commercial and Industrial Waste Management Plan Guidelines. Actual usage can vary and may be generated at a reduced rate. Management will monitor all waste requirements and handling due to the on-going operations of business. Accessing any needs for waste management plan revisions.

### Waste within Overall Development

Using the garbage and recycling generation rates above and the floor area described in the table below, the following can be calculated:

**Table 6: Floor Areas for Proposed Tavern**

Type of Premises	Internal Floor Area	External Floor Area	Total Floor Area
Licensed Club	800.82m <sup>2</sup>	361.56m <sup>2</sup>	1162.38m <sup>2</sup>

### Licensed Club (7-Day Week)

- 50L/100m<sup>2</sup> of floor area per day general waste = 4,068.33L per week (uncompacted)
- 50L/100m<sup>2</sup> of floor area per day recycling waste = 4,068.33L per week (uncompacted)

### Waste Storage Areas

Based on the total waste generated by the development, the following Mobile Garbage Bins (MGBs) should be provided:

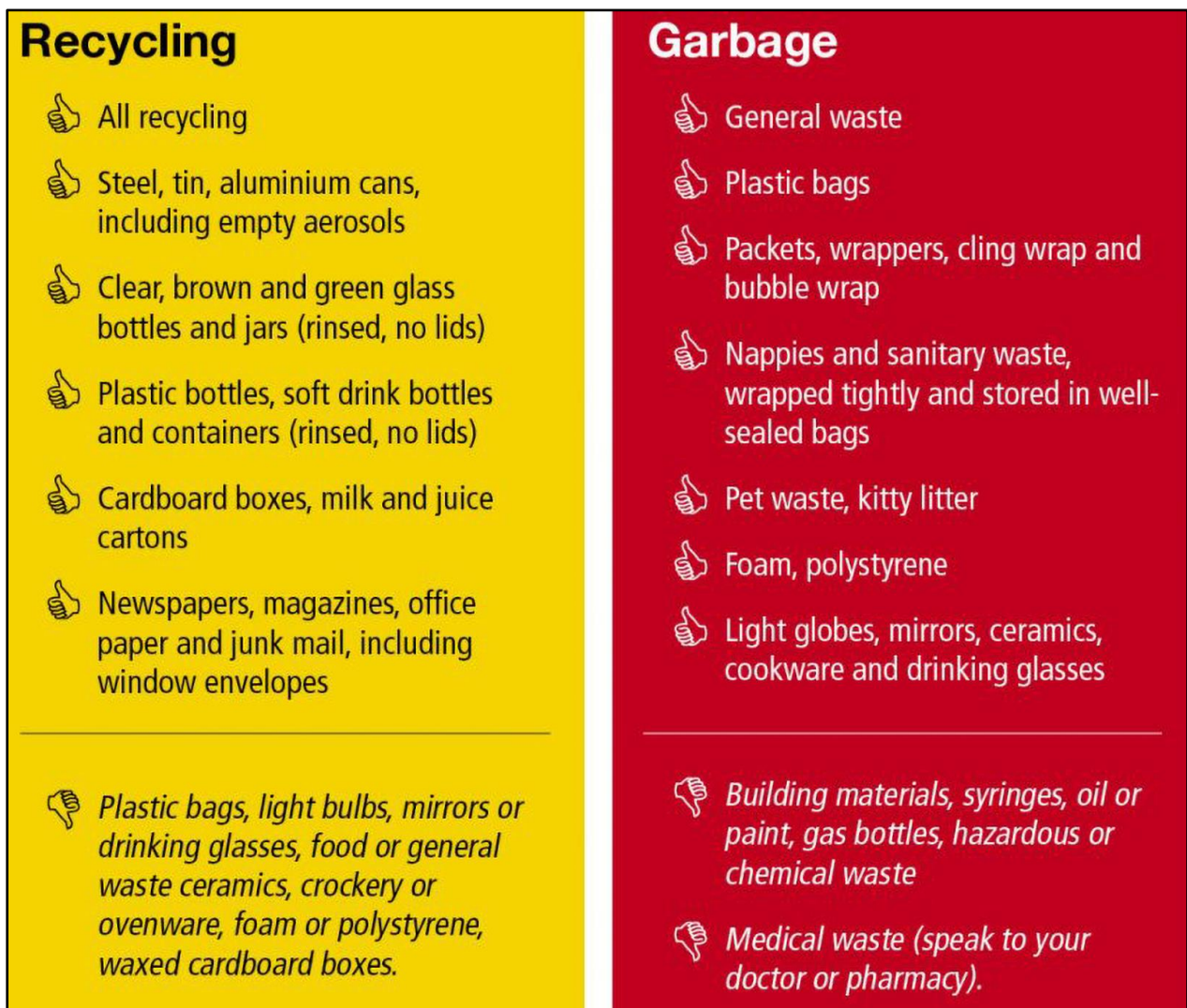
- 2 x 1,100L General Waste MGBs – collected and emptied twice a week.
- 2 x 1,100L Recycling Waste MGBs – collected and emptied twice a week.

**Table 7: Typical Measurements for WALGA MGBs**

Size	Height (mm)	Width (mm)	Depth (mm)
1,100L	1,470	1,370	1,245

### Waste Storage Area Signage

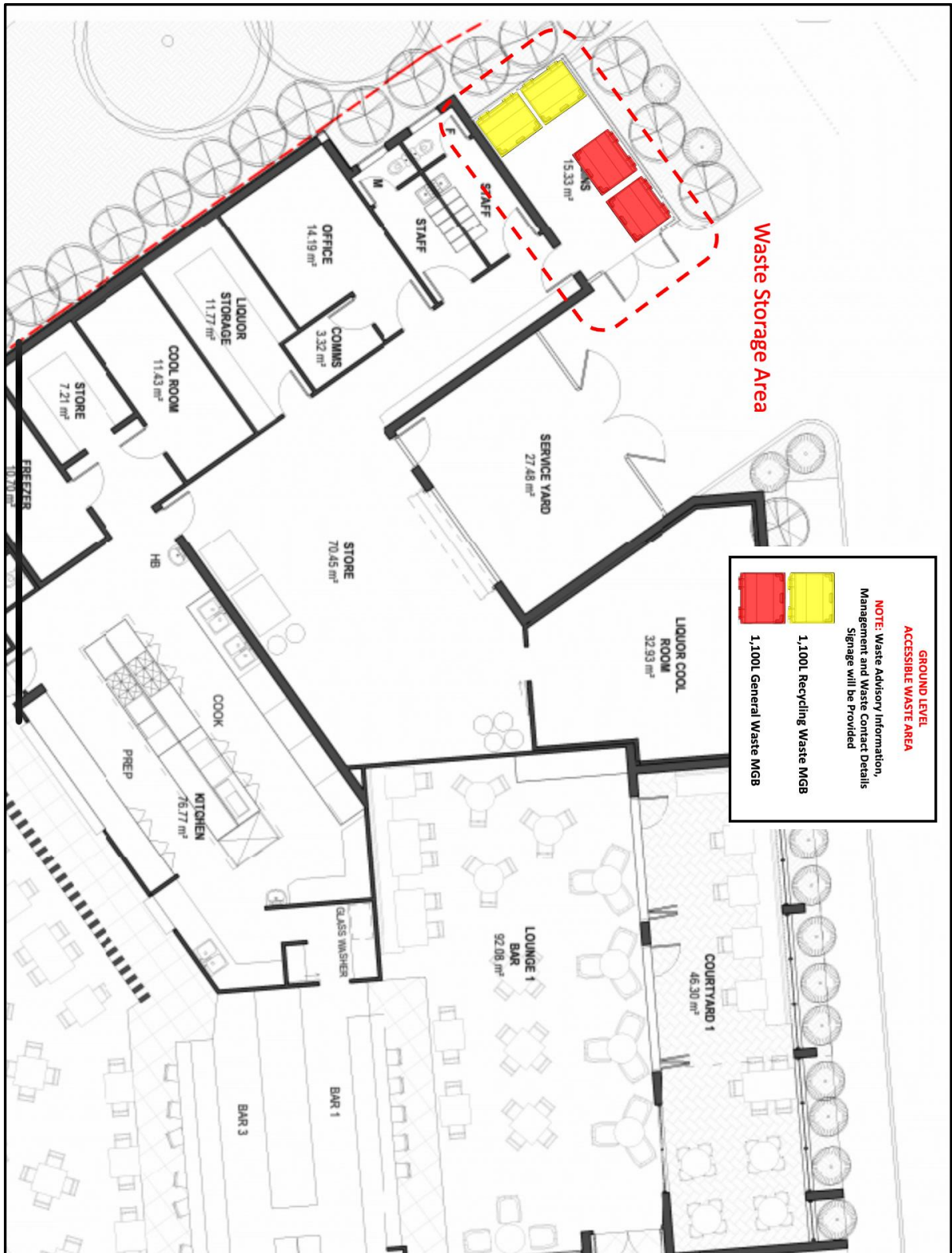
Waste separation and sorting information will be provided within the main waste storage area to ensure appropriate source separation of waste. The following figure shows examples of waste signage and appropriate waste separation.



**Figure 3: Waste Storage Area Signage**

The following figure (**Figure 4**) illustrates the scaled diagrams of the MGBs within the waste storage area.





**Figure 4: Scaled Diagram of the MGBs in the Waste Storage Area**



## Waste Storage Area Design Considerations

The 'WALGA Commercial and Industrial Waste Management Plan Guidelines' outline a number of general design considerations for waste storage areas. The new development has considered these at the design phase to ensure compliance. These are as follows:

- Have adequate storage space for required bins (based on the building size and the applicable waste and recycled material generation rates). **(COMPLIANT)**
- Be designed with some flexibility in relation to size to ensure future uses for the development are not limited. **(COMPLIANT)**
- Permit easy, direct and convenient access for tenants, cleaners and other users of the facility, whilst restricting access to unauthorised persons. **(COMPLIANT)**
- Permit easy transfer of bins to the presentation point if required, with doors and access wide and high enough to allow easy manoeuvring of any stored bin. **(COMPLIANT)**
- Permit easy, direct and convenient access for collection service providers. **(COMPLIANT)**
- Are integrated into the design of the overall development and do not affect visual amenity. **(COMPLIANT)**

## Waste Collection

The waste collection service for the proposed development will be provided by a private contractor.

The waste collection vehicle will enter the proposed development via the car park and utilise the loading area on the western end of the building. The contractor will wheel the MGBs to/from the waste vehicle. Once the MGBs have been emptied and returned, the waste vehicle will exit the development in a forward motion.



## **Amenity**

### **Noise**

The only noise generated from the waste management at the property will be that of the waste management truck, the wheeling of the MGBs to/from the waste vehicle and the emptying the MGBs. Any other noise related to the waste management will be kept to a minimum.

### **Ventilation**

The waste bin enclosure will need to be ventilated.

### **Security/Communication Strategy**

All MGBs will be secured within the ground level waste storage enclosures.

All management & staff will receive detailed documentation detailing all necessary requirements for safe waste management and handling including all relevant contact information.

### **Cleaning Facilities**

Management is responsible for keeping the MGBs clean.

**NOTE:** It is recommended that waste enclosures consist of; **(1)** Impervious coated/treated walls and ground surface, ensuring the ground is graded to the sewer (100 mm diameter) floor drain outlet within the enclosure/room. **(2)** With a tap and hose (hose cock must be protected from the waste containers) for use of cleaning the MGBs and waste area. **(3)** The enclosure/room should also be wet sealed to the ground surface (with a grated drain spanning the width of the entry) preventing any water leakage beyond the waste enclosure/room. **(4)** Self closing lockable double doors/electric roller door allowing easy removal of the MGBs.

### **Prevention of Vermin**

The staff will be advised to not overfill the bins so that the lids are closed at all times. It is suggested to place rat traps in the corners of the waste storage areas.

## **Miscellaneous**

### **Interim Internal Waste Storage**

Waste bins will be provided for interim storage of garbage and recyclables within the service areas of the development. Space should be allowed for separate storage of recyclables from the garbage stream and provision for the segregation of food organics in a separate waste bin if implemented at a later date.

### **Green Waste/Food Waste**

It is expected that green waste will be handled by the gardening contractor. Food waste should be placed in the General Waste MGBs.

### **Bulky Hard Waste**

If hard waste collection is required, management should call a private contractor directly.

### **E-Waste**

Recyclable electronic goods include batteries, equipment containing printed circuit boards, computers, televisions, fluorescent tubes, and smoke detectors. E-Waste will be placed in impermeable surface containers and collected by a registered E-Waste Re-Processor as required.

# Appendix A – Site Plans

