



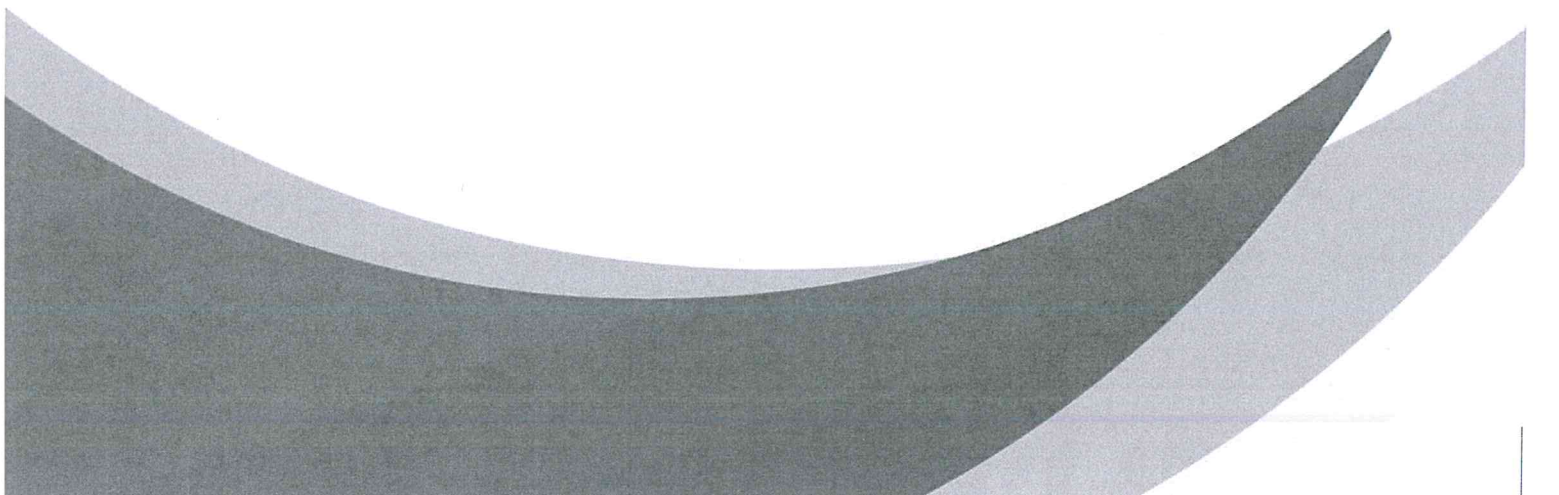
Asset Management | Civil Engineering | Environmental Services | GIS & Spatial Intelligence | Waste Management

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# Waste Management Plan

Strive Loop, Girrawheen

Prepared for Greenhaven Property  
July 2016  
Project Number TW16035





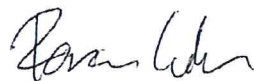
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Approval for Release

Name	Position	File Reference
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**Signature**



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# Summary

## Proposed Waste Collection Summary

Waste Type	Generation (L)	Bin Size (L)	Number of Bins	Collection Frequency	Collection
<b>Residential</b>					
Refuse	6,240	660	5	Twice Weekly	Private Waste Contractor
Recycling	1,560	1,100	2	Weekly	Private Waste Contractor

Waste generation rates were obtained from the Western Australian Local Government Association's *Draft Multi Dwelling Development Waste Management Plan Guidelines (2014)* with consideration given to other local government waste generation rates.

A Private Waste Contractor will service the Proposal by providing 660L receptacles for refuse and 1,100L receptacles for recyclables which will be collected by rear-lift collection vehicle.

A suitably qualified Property Manager will be engaged to oversee relevant aspects of waste management at the Proposal.



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## 1 Introduction

Greenhaven Property (GHP) is currently seeking approval for the development of a multi-residential development located at Strive Loop, Girrawheen (the Proposal). As part of the Development Approval (DA) for the project, the City of Wanneroo (the City) requires GHP to prepare a Waste Management Plan (WMP) that satisfies the City's requirements on how waste is to be stored and collected from the development. The Proposal is located on Lot 69, Strive Loop Girrawheen and is bordered by Allinson Drive to the west, and residential properties to the north and south as shown in **Figure 1**.

The numbers of apartments at the Proposal are:

- One Bedroom Units – six (6); and
- Two Bedroom Units – thirty six (36).

### 1.1 Objectives and Scope

The objective of this WMP is to outline the equipment and procedures that will be adopted to manage all waste (both refuse and recycling) at the Proposal. Specifically, the WMP demonstrates that the Proposal has been designed to:

- Adequately cater for the anticipated quantities of waste and recyclables to be generated;
- Provide a suitable bin storage area including appropriate receptacles; and
- Allow for efficient collection of receptacles by appropriate waste collection vehicles.

To achieve the objective, the scope of the WMP is:

- Section 2: Waste Generation;
- Section 3: Waste Storage;
- Section 4: Specialty Waste Streams;
- Section 5: Waste Collection;
- Section 6: Property Management Activities; and
- Section 7: Conclusion.

## 2 Waste Generation

The anticipated quantities of refuse and recyclables were estimated based on the number of units to determine the receptacle requirements at the Proposal once constructed. The Proposal consists of six (6) one bedroom and thirty six (36) two bedroom units.

Waste generation rates were obtained with consideration given to the Western Australian Local Government Association's *Draft Multi Dwelling Development Waste Management Plan Guidelines* (2014), City of Sydney's *Policy for Waste Minimisation in New Developments* (2005), City of Melbourne's *Guidelines for Preparing a Waste Management Plan* (2014) and Randwick City Council's *Waste Management Guidelines for Proposed Developments* (2004).

Waste generation is estimated by volume in litres (L) as this is generally the influencing factor when considering receptacle size, numbers and storage space required. The waste generation volumes in litres per week (L/week) of refuse and recyclables adopted for this study are shown in **Table 2-1**.

**Table 2-1: Estimated Residential Waste Generation**

Use	Number of Units	Generation Rate (L/week)	Waste Generation (L/week)
<b>Refuse</b>			
Units (One Bed)	6	80	<b>480</b>
Units (Two Bed)	36	160	<b>5,760</b>
<b>Total</b>			<b>6,240</b>
<b>Recycling</b>			
Units (One Bed)	6	20	<b>120</b>
Units (Two Bed)	36	40	<b>1,440</b>
<b>Total</b>			<b>1,560</b>

As shown in **Table 2-1**, the Proposal will require 6,240L of refuse waste receptacle space and 1,560L of recycling waste per week.

### 3 Waste Storage

To ensure that waste is managed appropriately at the Proposal, it is important to allow for sufficient space to house the required receptacles within the designated Bin Storage Area. The procedure and receptacles to be used in this area are described in the proceeding sections.

#### 3.1 Internal Receptacles

Waste materials generated within the Proposal will be taken by tenants and placed in 660L refuse receptacles and 1,100L recycling receptacles located in the Bin Storage Area as shown in **Figure 2**.

#### 3.2 Bin Storage Area

##### 3.2.1 Size

To ensure sufficient space is available for the storage of receptacles within the Bin Storage Area prior to collection, the quantity of receptacles required was modelled utilising a range of receptacle sizes from 240L to 1,100L as shown in **Table 3-1**.

**Table 3-1: Residential Receptacle Requirements**

Waste Stream	Waste generation (L/week)	Number of Receptacles Required		
		240L	660L	1100L
Refuse	6,240	13	5	3
Recycling	1,560	7	3	2

The number of receptacles required was based on two collections per week of refuse and one collection per week of recyclables by a Private Waste Contractor. Based on receptacle dimensions as per **Table 3-2** the placement of the receptacles within the Bin Storage Area has been considered, as shown in **Figure 2**. Therefore, the Bin Storage Area is designed to accommodate the following receptacles:

- 5 x 660L refuse receptacles; and
- 2 x 1100L recycling receptacles.

The Bin Storage Area is sized to accommodate the above number of receptacles on scheduled collection days. Access to the Bin Storage Area is designed to accommodate the largest receptacle required which is an 1,100 L receptacle. It is proposed that residential refuse and recycling will be serviced by a Private Waste Contractor on different days.

It should be noted that the number of receptacles and corresponding placement of receptacles as shown in **Figures 2** represents the maximum requirement based on the proposed collection frequencies for residential waste. More frequent collections would reduce both the number of receptacles and the storage space required.

**Table 2-2: Receptacle Dimensions**

Receptacle Size (L)	Depth (m)	Width (m)	Area (m <sup>2</sup> )
240	0.75	0.60	0.45
660	0.765	1.360	1.040
1,100	1.070	1.240	1.327

References: SULO Australia Bin Specification Data Sheets

### 3.2.2 Design

The Bin Storage Area is located on ground level of the Proposal as shown in **Figure 2**. The Bin Storage Area will have an impervious floor draining to the sewer and a tap to facilitate internal washing of receptacles, doors will be vermin proof and will also be ventilated to a suitable standard. To reduce potential odours the receptacles, floor and walls will be cleaned as required.

It is worth noting that the number of receptacles and corresponding placement of receptacles as shown in **Figure 2** represent the maximum requirements assuming two collections per week for refuse and one collection per week for recyclables. More frequent collections would reduce both the number of receptacles and the storage space required.

Receptacle capacity and storage space within the Bin Storage Area will be monitored during the operation of the Proposal to ensure that there are sufficient receptacles.





## 4 Speciality Waste Streams

Adequate space has been allocated for the collection of the following Specialty Waste types:

- Batteries;
- Printer Cartridges;
- Fluorescent Globes; and
- Mobile Phones.

Specialty Wastes will be collected in a specially designed cabinet located in a communal area of the Proposal. The typical dimensions of a Specialty Waste cabinet are as follows:

- Height – 1.5 metres;
- Length – 2 metres; and
- Depth – 0.5 metres.

Once sufficient materials have been deposited, the Specialty Wastes will be collected and transported by the Property Manager to suitable collection locations for recycling.

## 5 Waste Collection

### 5.1 Residential Apartments

A Private Waste Contractor will service the Proposal by providing 660L receptacles for refuse and 1,100L receptacles for recyclables which are to be collected by rear lift collection vehicle twice per week for refuse and once per week for recycling. The bins can be collected from the Bin Storage Area or receptacles will be ferried from the Bin Storage Area to the kerb by the proposals Property Manager as shown in **Figure 2**.

As described previously, there is sufficient space within the Bin Storage Area for the number of receptacles required for collection twice per week for refuse and once week for recycling. However, increased collection frequency would reduce the number of receptacles required.

### 5.2 Bulk Waste Collection

The City provides residents with one bulk waste collection service per year. The appointed Property Manager for the Proposal will be required to ensure that bulk waste will be deposited on the verge in accordance with the City's requirements.



## 6 Property Management Activities

A suitably qualified Property Manager will be engaged to complete the following tasks:

- Monitoring of the Bin Storage Area;
- Transport receptacles to and from the Proposals kerb on collection days if required;
- Transport collected Specialty Wastes to suitable collection locations for recycling or disposal as required;
- Maintenance of receptacles and Bin Storage Area;
- Clean receptacles and Bin Storage Area when required; and
- Ensure that bulk waste will be deposited on the verge in accordance with the City's requirements.

## 7 Conclusion

As demonstrated within this WMP, the Proposal provides a sufficiently sized Bin Storage Area for the storage of receptacles for both refuse and recyclables based on a configuration of suitable receptacles identified by Talis. This indicates that a satisfactorily designed Bin Storage Area has been provided and collection of both refuse and recycling receptacles can be completed from the Proposal.

The above is achieved using five 660L refuse receptacles collected twice per week and two 1,100L recycling receptacles collected once per week. Servicing will be conducted from within the Property or with the Property Manager transferring receptacles to and from the Bin Storage Area to the kerb for servicing by a Private Waste Contractor.

A Property Manager will be engaged to oversee relevant aspects of waste management at the Proposal.



# Figures

**Figure 1: Site Aerial**

**Figure 2: Bin Storage Area and Bin Presentation Area**



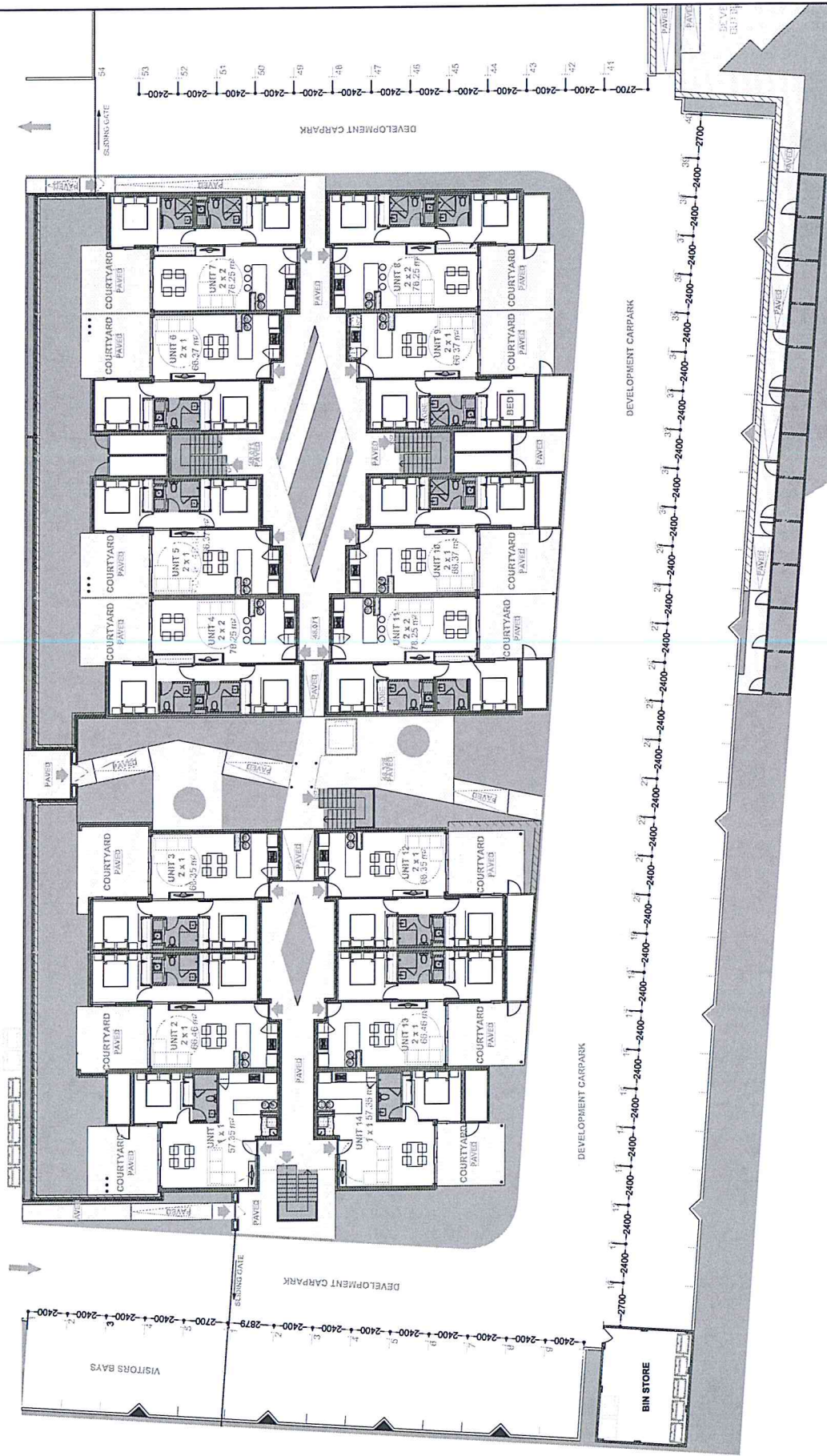
**Legend:**



660L Refuse Receptacles (0.765m x 1.360m)

1,100L Recycling Receptacles (1.070m x 1.240m)

*strive loop*



**Client:** Greenhaven Property

**ASSET MANAGEMENT:** CIVIL ENGINEERING, ENVIRONMENTAL SERVICES, SPATIAL INTELLIGENCE, WASTE MANAGEMENT

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Lot 69 Strive Loop, Greenhaven  
Leedsdale VIC 3087  
PO Box 404, Leederville WA 6003  
T. 1300 251 070  
www.isilkconsultants.com.au

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**Task:** Bin Store Area and Bin Presentation Area

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**NOTES:**

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