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Operational Waste Management Plan

68 Bushside Drive, Ellenbrook 6069

EMERGEN PROPERTY



Operational Waste Management Plan

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We acknowledge the Whadjuk Nyoongar People as the Traditional Custodians of the land on which we work and pay respect to their Elders past, present and emerging.

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1. Introduction

URPS was engaged by Emergen Property to prepare an operational Waste Management Plan (WMP) for the proposed residential development at 68 Bushside Drive, Ellenbrook, 6069, Western Australia (the 'development').

1.1 Development Context and Description

The development site (the 'site') is situated within the City of Swan (the 'City'), which is the local authority. The site location is shown in **Figure 1**, with the existing site area illustrated in **Figure 2**. The site forms part of an established residential precinct of Ellenbrook, characterised by low-density housing on larger lots. The site is bordered to the east by residential properties along Bushside Drive and adjoining local streets. To the south, the site interfaces with a large area of open space.

To the north and west, the site is in proximity to businesses/employment uses, community infrastructure and educational facilities, including Aveley Secondary College. The broader surrounding area includes a mix of established and newer residential development, supported by local shopping centres, schools, public open space, and public transport routes along nearby arterial and distributor roads.

Figure 1: Site Location (Source: City of Swan [Intramaps](#))

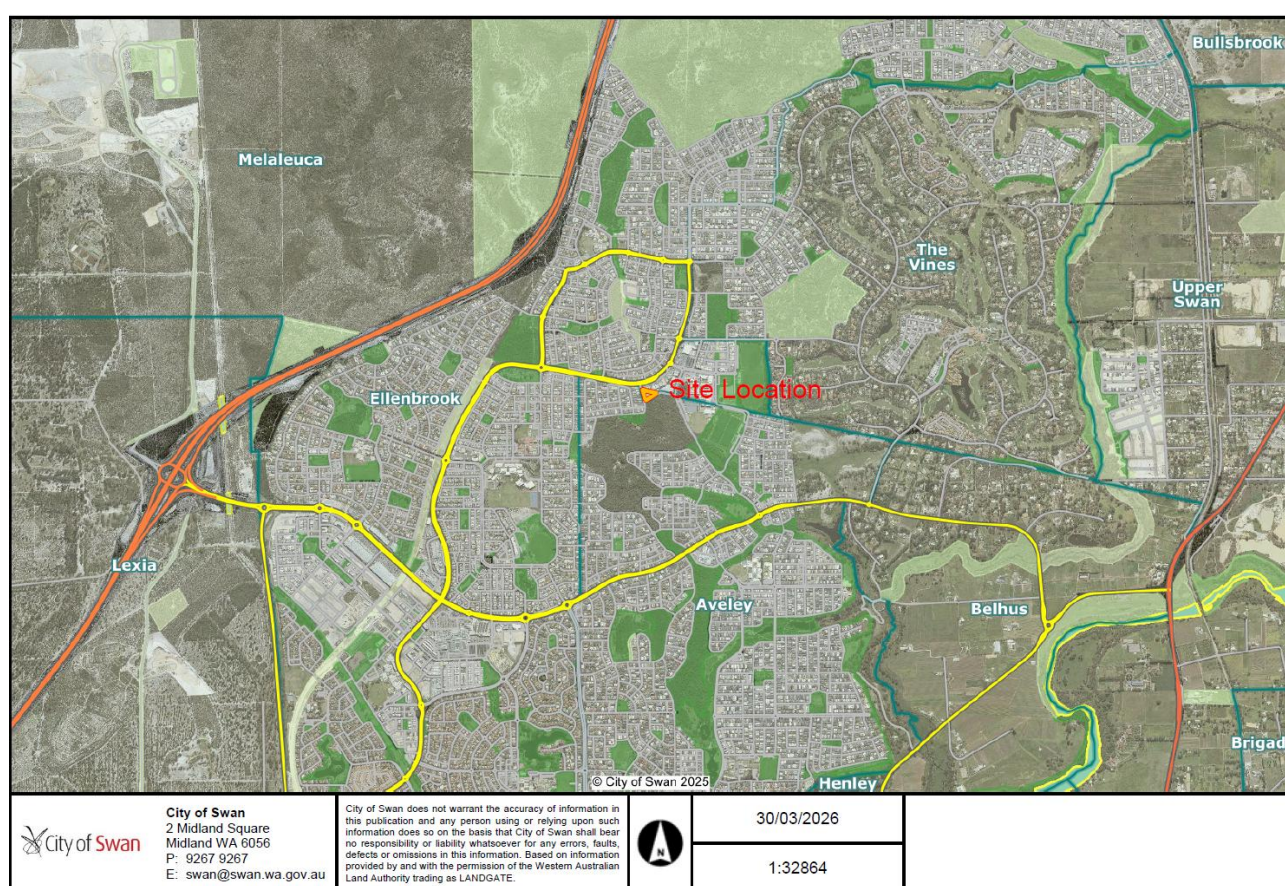
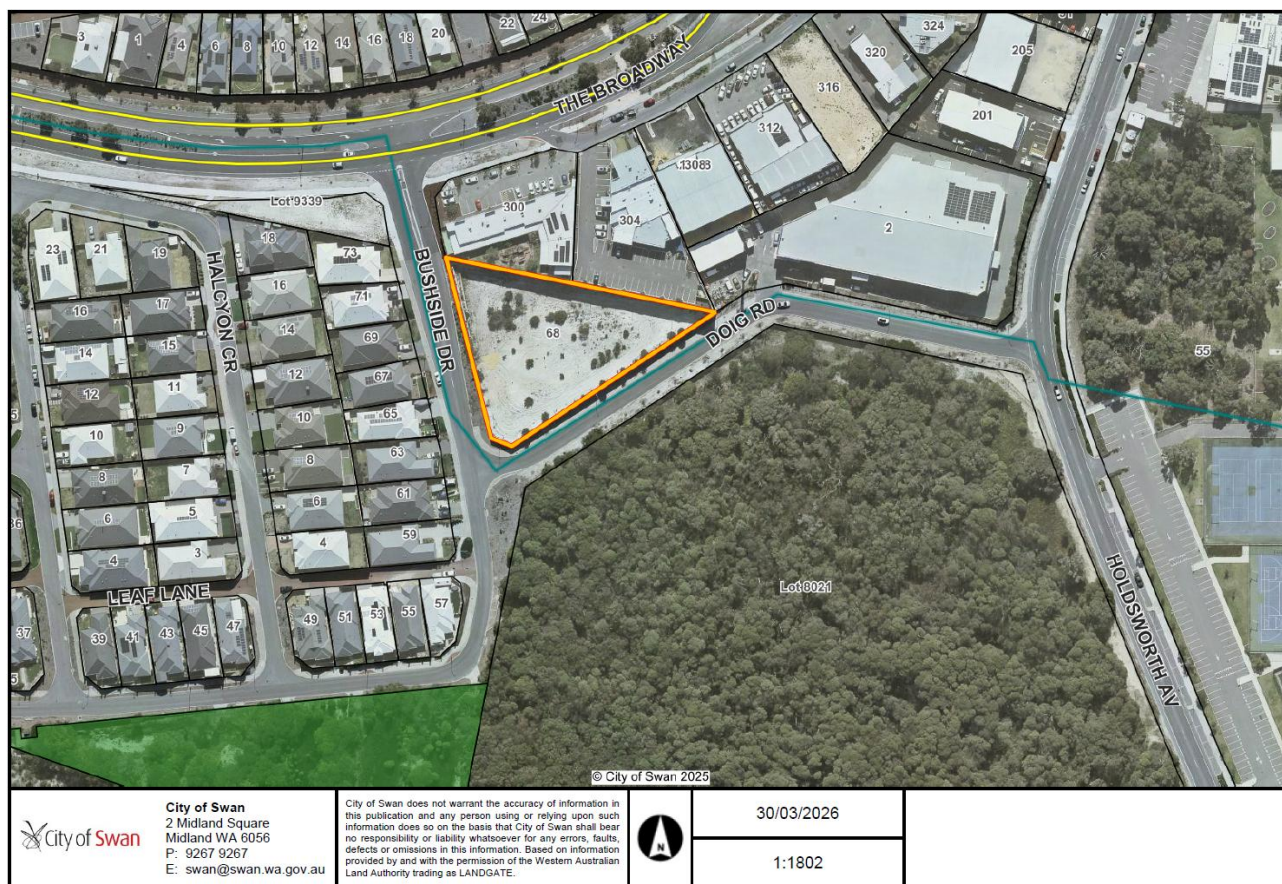


Figure 2: Site Area (Source: City of Swan [Intramaps](#))



1.1.1 Existing and Proposed Land Use

The site is currently a vacant lot. The proposed land use is for the construction and operation of 14 residential dwellings.

Table 1.1 below outlines the dwelling types, by number of bedrooms, allocated to each of the 14 residential units within the development. This information is provided for the purpose of assessing anticipated waste generation.

Waste management for the development will be provided through a fully communal waste storage and servicing system, whereby all waste and recycling generated by the 14 dwellings is managed collectively. All bins servicing the development will be stored within a centrally located communal Bin Storage Area (BSA) and coordinated through the strata management framework.

Table 1.1: Land Use

Residential Dwelling Units	Number
3 Bedroom Unit	10
4 Bedroom Unit	4
Total Dwellings	14

1.2 Purpose

The purpose of this WMP is to detail the systems and processes that will be implemented to effectively manage waste generated at the development. In particular, the WMP demonstrates that the development has been planned and designed to:

- Appropriately accommodate anticipated volumes of general waste, recycling and food organics and garden organics (FOGO) waste generated by the development, based on Western Australian Local Government Association waste generation rates applicable to developments comprising more than 12 dwellings;
- Provide sufficient waste storage capacity through a fully communal BSA, utilising standard residential kerbside bins sized in accordance with the largest options available under the City of Swan's standard waste collection service;
- Ensure waste storage areas are appropriately sized and accessible and compatible; and
- Establish clear operational and management arrangements for waste storage, presentation and ongoing use, with responsibility embedded within the strata management framework.

The WMP has been prepared on the basis that all waste and recycling generated by the development will be managed collectively through the communal system, with no reliance on individual private bin storage areas. This approach has been adopted to ensure bin storage is orderly, accessible and functional, while responding to site-specific spatial constraints and maintaining alignment with the City's standard kerbside collection service.

1.3 Structure of WMP

The structure of this WMP comprises the following:

- Section 2: Waste Generation Estimates.
- Section 3: Waste Storage and Infrastructure.
- Section 4: Collection, Access Arrangements and Ongoing Management
- Section 5: Conclusion.

2. Waste Generation Estimates

This WMP has been informed by a range of relevant policies and guidelines, including:

- Western Australian Local Government Association's (WALGA) Guidelines for New Multi Dwelling Developments (2021)¹ ('WALGA Guidelines'); and
- The City of Swan Waste and Recycling Services information².

The City's waste and recycling services information provides residents with strategic direction for local waste management, they do not include quantitative data specific to development related waste volumes. As such, to estimate waste generation for this development, reference has been made to the WALGA Guidelines. The WALGA Guidelines provide benchmark waste generation rates commonly used in the absence of site or project specific data and are considered appropriate for the development.

This WMP has been prepared on the basis that, at the time the development becomes operational, the FOGO waste collection system will be fully implemented and operational across the City. Accordingly, the WMP assumes that all dwellings within the development will be provided with access to a standard three stream waste collection service comprising general waste, recyclables, and FOGO. On this basis, the WMP has been designed to accommodate and manage FOGO waste streams. The WMP does not assess waste management in the absence of a FOGO service.

Table 2.1 outlines the waste generation rates applied based on the WALGA Guidelines. For any other alternative waste stream, including hard, bulk, or hazardous materials, residents and/or tenants will need to arrange for separate collection via the City's verge collection service or another appropriate waste removal provider. As such, these waste streams are not considered further within this WMP.

Table 2.1: WALGA Guidelines (Appendix A) Waste Generation Rate/Storage Requirement >12 dwellings

Dwelling Size	General Waste (on FOGO system)	Recycling	FOGO
3+ Bedroom Unit	80L/week	90L/week	60L/week

2.1 Waste Generation Volumes

Waste generation has been estimated in litres (L), as volume is typically the key factor influencing the selection of bin sizes, quantities, and the storage space required. This assessment considers the total potential waste volumes for the entire development, representing the maximum expected waste output under full operational capacity. To ensure consistency with the waste generation estimates provided in the WALGA Guidelines, volumes of waste are presented as litres per week (L/week).

The resulting weekly waste generation volumes adopted in this WMP are presented in **Table 2.2**. At full operational capacity, the development is estimated to generate approximately 1,120 litres of General Waste, 1,260 litres of Recyclables and 840 litres of FOGO per week.

¹

https://walga.asn.au/awcontent/Web/Documents/Waste/20221006_Waste_Management_Plan_Guidelines_for_New_Multi_Dwelling_Developments.pdf

² <https://www.swan.wa.gov.au/waste-and-sustainability/waste-and-recycling-services>

Table 2.2: Development Waste Generation Estimate

Dwelling Size	No. of Dwellings	Waste Generation Rate/Week	Waste Generation (L/Week)
General Waste			
3 Bedroom Unit	10	80L	800L
4 Bedroom Unit	4	80L	320L
Recycling			
3 Bedroom Unit	10	90L	900L
4 Bedroom Unit	4	90L	360L
FOGO			
3 Bedroom Unit	10	60L	600L
4 Bedroom Unit	4	60L	240L
Total			3,220L

2.1.1 Fortnightly Waste Generation Volumes

While waste generation rates are expressed in litres per week (L/week) for consistency with the WALGA Guidelines, the City of Swan's standard residential kerbside collection service operates on a combination of weekly and fortnightly collection cycles. Accordingly, consideration has been given to the equivalent fortnightly waste volumes to ensure that adequate aggregate bin capacity is provided within the communal system between scheduled collections.

Under the City's standard service model:

- FOGO waste is collected on a weekly basis; and
- General waste and recycling are collected on alternating fortnightly cycles.

On this basis, the estimated weekly waste generation volumes for general waste and recycling equate to the following fortnightly volumes:

- General waste: 2,240L (fortnightly volume); and
- Recycling: 2,520L (fortnightly volume).

3. Waste Storage and Infrastructure

This section outlines the proposed waste storage infrastructure for the development, including bin types and dimensions, the location and capacity of the BSA, and how waste storage has been designed to support efficient operation of the fully communal waste management system.

3.1 Typical Bin Dimensions

Table 3.1 presents the dimensions for 140L, 240L, and 360L bins, as outlined by the WALGA Guidelines. Whilst **Figure 3.1** and **Table 3.2** presents the dimensions for 140L, 240L, and 360L bins, as outlined by the City's waste and recycling services information. These measurements are indicative only and may vary slightly depending on the waste service provider.

Table 3.1: Typical Bin Dimensions (Source: WALGA Guidelines)

Bin Capacity	140L Bin Size	240L Bin Size	360L Bin Size
Height (mm)	1065	1080	1100
Depth (mm)	540	735	885
Width (mm)	500	580	600
Area (m ²)	0.27	0.43	0.53

Figure 3.1: Bin Dimensions (Source: City [Waste and Recycling Services information](#))



Table 3.2: Bin Dimensions (Source: City [Waste and Recycling Services information](#))

Bin Capacity	140L Bin Size	240L Bin Size	360L Bin Size
Height (mm)	927	1072	1116
Depth (mm)	616	740	904
Width (mm)	538	582	699
Area (m ²)	0.33	0.43	0.63

To ensure sufficient space is available within the BSA, bin sizes have been modelled using the bin dimensions outlined in **Table 3.2**.

3.2 Bin Provision and Capacity Requirements

3.2.1 Communal Bin Strategy

All bins provided within the development are communal bins, servicing the waste generated by the development as a whole rather than being allocated to individual dwellings. Accordingly, the waste storage strategy is based on accommodating the total volumes of waste generated by the 14 dwellings, as outlined in Section 2, rather than providing a prescribed set of bins per dwelling.

Bin numbers and sizes have been determined having regard to:

- The total estimated weekly and fortnightly waste generation volumes for the development;
- The City of Swan's standard residential kerbside collection frequencies; and
- The availability of standard kerbside bin sizes under the City's residential waste collection service.

To ensure sufficient capacity and operational resilience within the communal system, the WMP adopts standard kerbside bins at the upper end of the City's available residential bin sizes, being:

- 240L bins for general waste;
- 240L bins for FOGO waste; and
- 360L bins for recycling.

3.2.2 Required Bin Numbers

Based on the waste generation assessment outlined in Section 2, the development wide waste volumes applied to the selected bin sizes results in a minimum of 21 bins being required for the communal system broken down as follows:

- General waste: 2,240L (fortnightly volume) / 240L = 10 X 240L Bins;
- Recycling: 2,520L (fortnightly volume) / 360L = 7 X 360L Bins; and
- FOGO: 840L (weekly volume) / 240L = 4 X 240L Bins.

Where required, bin numbers have been rounded up to ensure that total available storage capacity exceeds estimated waste generation volumes.

3.3 Bin Storage Location and Area

A centrally located BSA is provided to service all 14 dwellings within the development. All waste and recycling bins generated by the development will be stored within the BSA when not awaiting collection. No individual on-site bin storage areas are provided. The location of the communal BSA is shown on the site layout plan (Figure 3.1).

No bulk or shared bins (e.g. 660L bins) are proposed.

Figure 3.1: General Layout Plan with BSA indicated in red



For the purposes of assessing the spatial adequacy of the BSA, indicative bin footprint areas have been adopted based on the City of Swan's standard kerbside bin dimensions, as outlined in Table 3.2, as follows:

- 240L general waste/FOGO bin: approximately 0.43 m² per bin;
- 360L recycling bin: approximately 0.63 m² per bin.

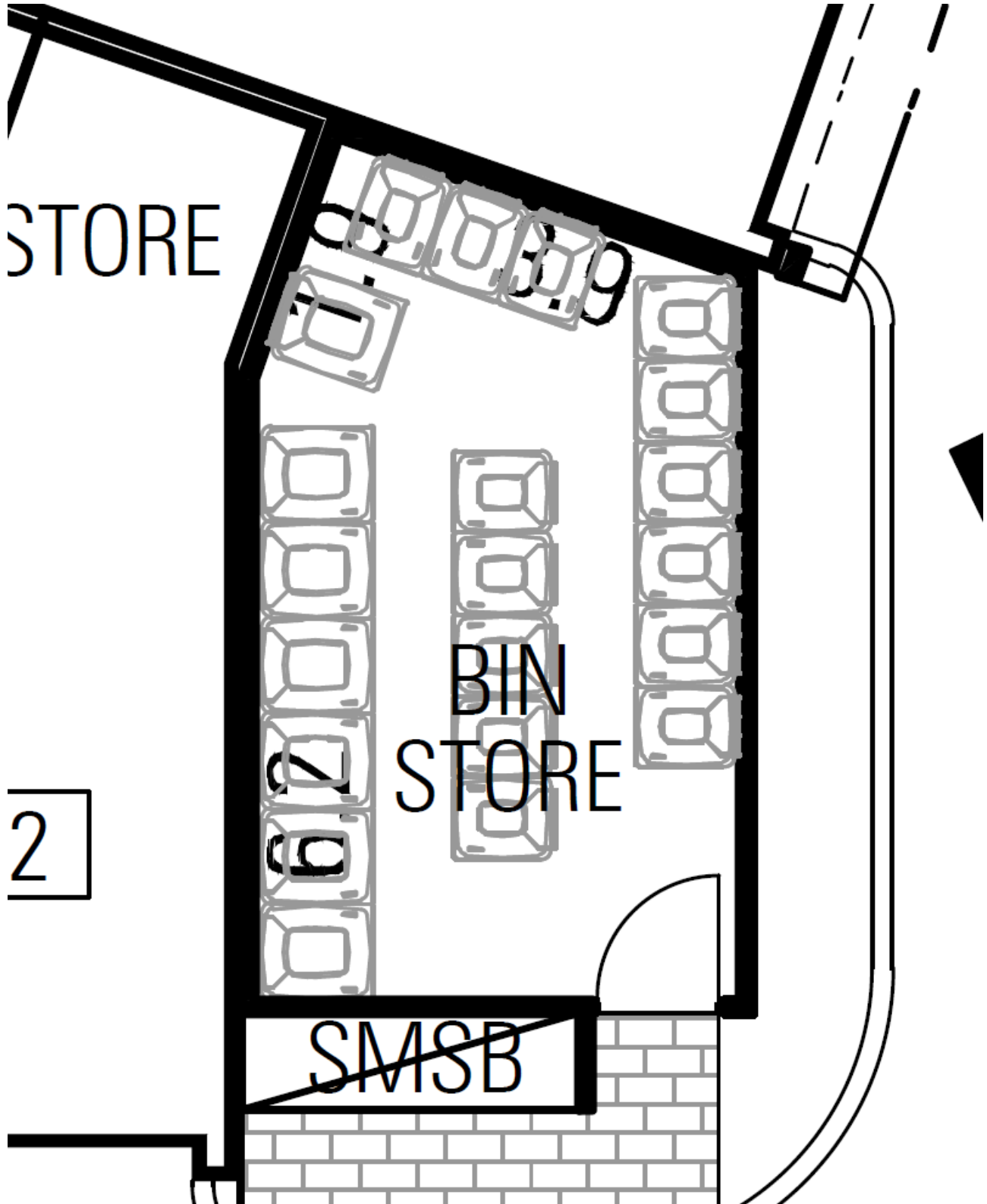
On this basis, the total minimum bin footprint required to accommodate all 21 bins is calculated as:

- 10 × 0.43 m² = 4.30 m² (general waste);
- 4 × 0.43 m² = 1.72 m² (FOGO); and
- 7 × 0.63 m² = 4.41 m² (recycling);

resulting in a combined minimum bin footprint of approximately 10.43 m².

With a total area of 19.5 m², the BSA provides adequate space to store all bins in an orderly and accessible manner, while allowing sufficient circulation space for residents to manoeuvre bins without obstruction as shown within Figure 3.2.

Figure 3.2: Example bin arrangement within the BSA for 14X240L and 7X360L bins



4. Collection, Access Arrangements and Ongoing Management

4.1 Collection and Access Arrangements

Waste collection for the development will be undertaken by the City's standard municipal kerbside collection service from Bushside Drive. No waste collection vehicles are required to enter the site, and all collections will occur from designated verge presentation areas.

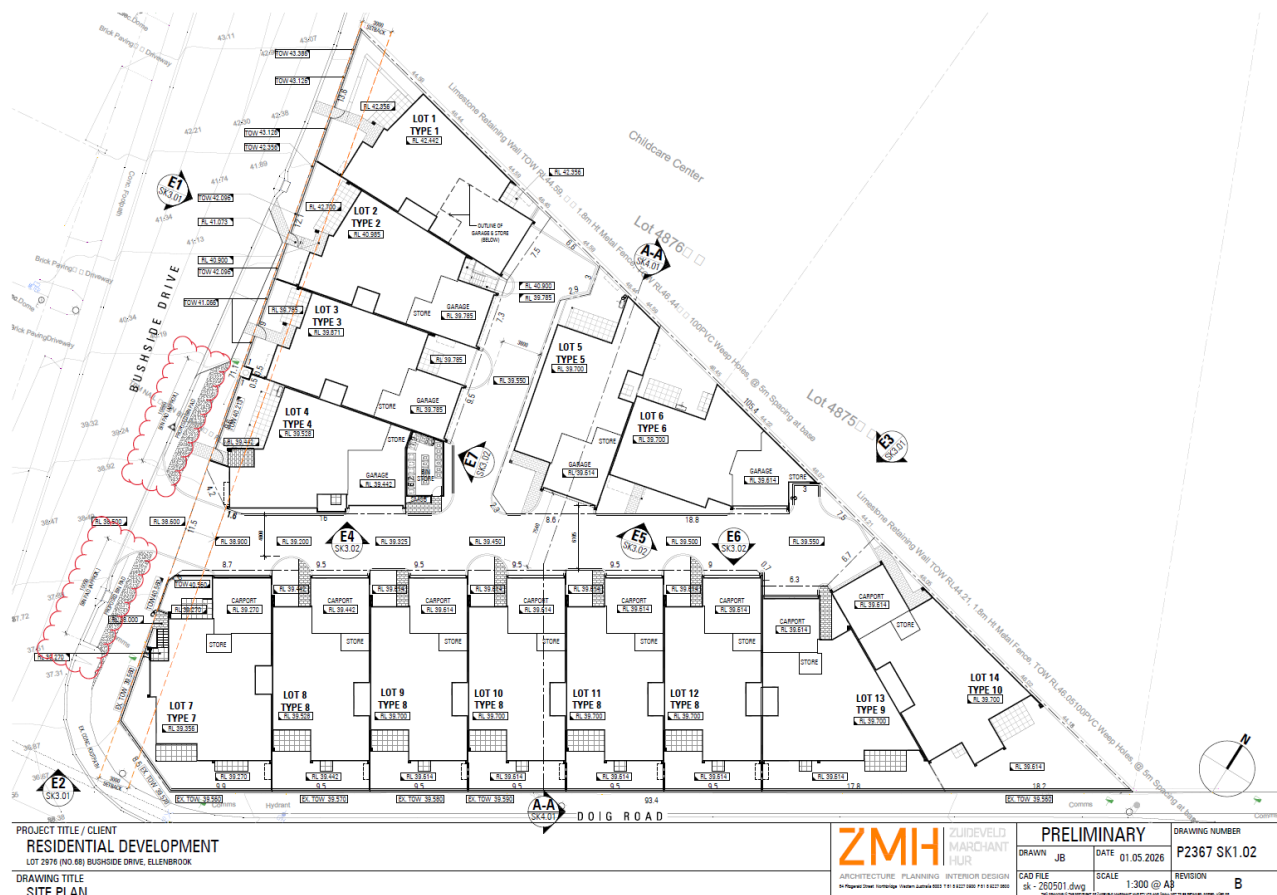
On collection days, bins will be retrieved from the BSA and presented to the verge in accordance with the City's collection timetable, with bins returned to the BSA following servicing.

FOGO bins will be collected on a weekly basis, while general waste and recycling bins will be collected on an alternating fortnightly basis in accordance with the City's standard kerbside collection service. As a result, on any given collection day, a maximum of 14 bins would be presented to the verge.

The development includes dedicated verge bin pads along Bushside Drive, with lengths of approximately 10.86 m and 10.05 m. Based on standard kerbside bin dimensions and allowing for appropriate spacing between bins, this combined length is sufficient to accommodate the presentation of 14 bins on collection days.

The location of the verge bin pads and bin presentation areas is shown on Figure 4.1.

Figure 4.1: Verge collection area indicated in red



4.2 Ongoing Management

Ongoing management of waste and recycling within the development will be coordinated through the strata management framework, ensuring that the communal waste management system operates effectively over the life of the development.

The strata company will be responsible for:

- Overseeing the day-to-day operation of the BSA;
- Ensuring bins are stored within the BSA when not awaiting collection;
- Coordinating the timely presentation and return of bins on scheduled collection days, either directly or through a contracted service provider;
- Monitoring waste separation practices to minimise contamination across waste streams; and
- Liaising with the City of Swan's waste services team as required to manage any operational issues.

Residents will be required, through strata by-laws or agreed management arrangements, to:

- Use the communal bin facilities provided;
- Correctly separate waste into the designated general waste, recycling and FOGO streams; and
- Comply with any procedures established by the strata in relation to waste management.

5. Conclusion

This WMP demonstrates that the proposed development at 68 Bushside Drive, Ellenbrook includes appropriate waste storage, access and collection arrangements to manage the anticipated waste streams generated by the 14 dwellings.

Waste generation has been assessed using WALGA rates applicable to developments comprising more than 12 dwellings, and the resulting development wide volumes have been used to determine the required communal bin capacities. Standard kerbside bins at the upper end of the City of Swan's available residential sizes have been adopted to ensure sufficient capacity between scheduled collections.

An assessment of bin footprints confirms that the BSA is capable of accommodating the required number of bins with appropriate circulation and access. Waste will be serviced via the City's standard kerbside collection regime, with bins presented from designated verge locations and no requirement for collection vehicles to enter the site.

Ongoing operation of the waste management system will be coordinated through the strata management framework. On this basis, the proposed arrangements are considered practical, efficient and appropriate to manage waste generated by the development.