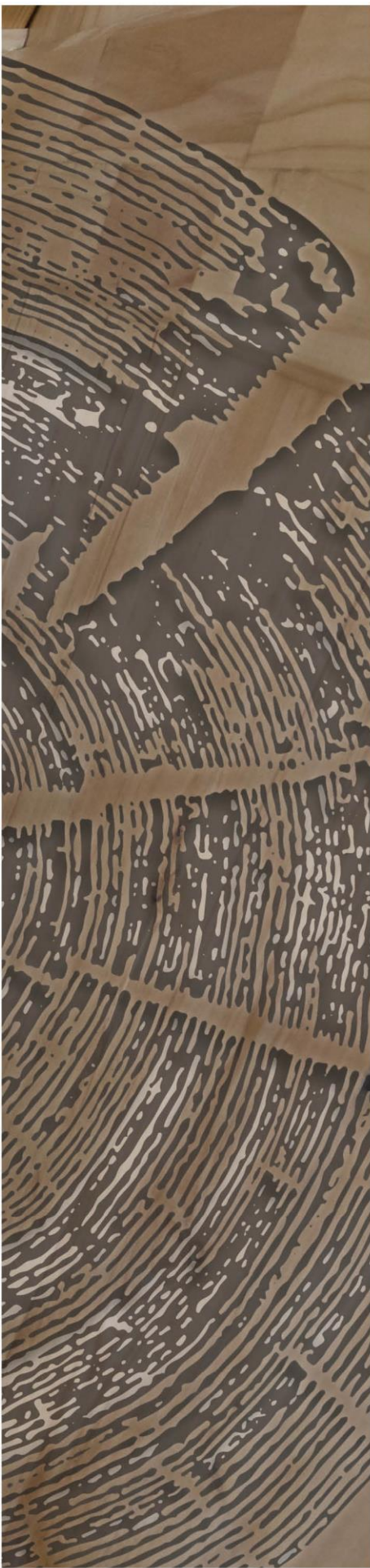
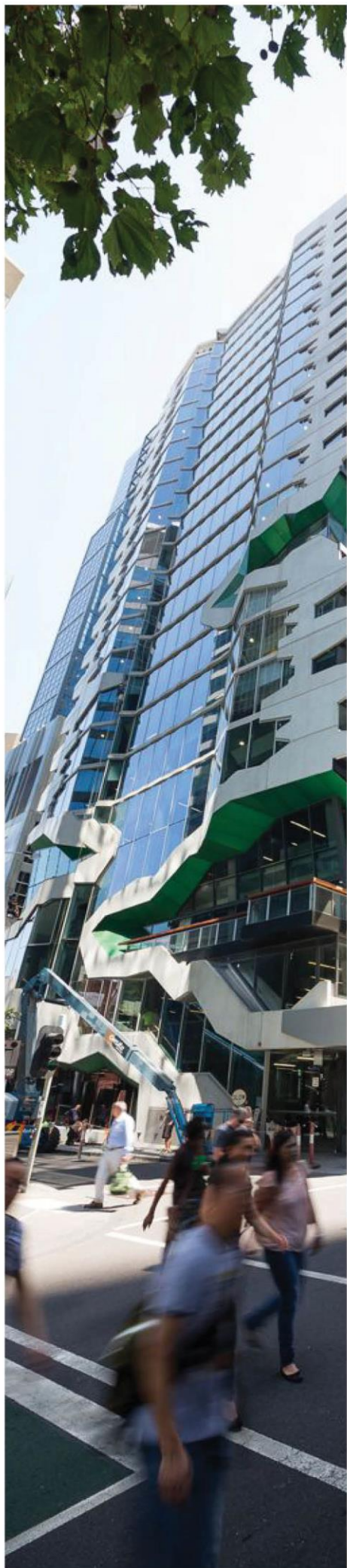


Waste
Management
Plan



36-52 Wellington Street
Collingwood



Waste Management Report

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Quality Information

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Executive Summary

As per the Yarra City Council planning scheme, the proposed development at 36 Wellington St requires a Waste Management Plan to be submitted and approved by a responsible authority. 36 Wellington St is being benchmarked against a minimum 5-star Green Star Design and As-Built v1.2 rating for the base building. Therefore, the Green Star framework has been used to guide the implementation of environmentally sustainable design (ESD) principles into the project, including operational waste management.

In preparation for planning approval, a waste management plan has been developed, based on best practice principles related to waste management in the following key areas;

1. Separation of waste streams
2. Dedicated waste storage area
3. Access to waste storage area.

To achieve best practice waste management outcomes and meet requirements under the benchmarked Green Star rating, the following waste management strategies are proposed in Table 1.

Table 1: Waste management provisions for 36 Wellington St

Criteria	Operational Waste Management Plan Response
Separation of Waste Streams	<p>The building will include amenity for the following waste streams:</p> <ul style="list-style-type: none"> • General waste • Co-mingled recyclables • Organic waste • E-waste
Dedicated Waste Storage Area	<p>A dedicated waste storage area is currently proposed in the buildings back-of-house area on Ground Floor, sized to accommodate a minimum collection cycle of five times per week, to be confirmed once a contractor is engaged. Access to the waste storage area from the upper floors will be via the services lift, connected by the ground floor corridor.</p> <p>The waste collection area will include the following provisions;</p> <ul style="list-style-type: none"> • Wash down area • Level floor – no steps (small navigable ramp between storage and collection) • Ventilation/exhaust per AS1668 • Clear-way for loading area
Waste collection	<p>The waste contractor will transport bins to and from the bin store during collection time. Facilities management will ensure that the waste contractor has unrestricted access to the bin store during this time.</p> <p>A 6.4m SRV waste vehicle is to enter Northumberland Street via Rokeby Street and reverse into the parking area to collect waste outside peak times. The waste vehicle can then exit the site in a forward direction and proceed to Wellington St.</p>

1.0 Introduction

AECOM has been engaged to prepare a Waste Management Plan for the new development at 36 Wellington St, Collingwood. The plan ensures there will be facilities in place to collect and separate distinct waste streams during operation and that these facilities meet best practice requirements for collection by the relevant contractor.

The Wellington St development is a 15-storey office building containing food and beverage tenancies and café on ground floor. The building also contains car parking in a two-level basement of 4,226m² gross floor area (GFA). The total GFA of the development is 30,192m². The building sits within the City of Yarra municipal boundary, with the project led by developer Hines.

1.1 Approach to waste management and minimisation

As per Clause 19.03-5S of the Victorian Planning Scheme, the new development requires a Waste Management Plan to be submitted and approved by the City of Yarra.

1.1.1 Approach

The following guidelines and inputs have been used to implement best practice operational waste management for 36 Wellington St, Collingwood:

- Green Star – Design & As Built v1.2 Submission Guidelines, Green Building Council of Australia
- Guidelines for Preparing a Waste Management Plan 2017, City of Melbourne
- Statewide Waste and Resource Recovery Infrastructure Plan (Sustainability Victoria, 2018)
- Metropolitan Waste and Resource Recovery Implementation Plan (Metropolitan Waste and Resource Recovery Group, 2016)
- Waste Management Policy (Siting, Design and Management of Landfills) (Environment Protection Authority, 2004)
- Environment Protection (Industrial Waste Resource) Regulations 2009
- Best Practice Environmental Management Guideline (Siting, Design, Operation and Rehabilitation of Landfills) (Environment Protection Authority, 2001)
- Victorian Organics Resource Recovery Strategy (Sustainability Victoria, 2015)
- Designing, Constructing and Operating Composting Facilities (Environment Protection Authority, 2015)
- Waste Reduction in Office Buildings – A Guide for Building Managers, Resource NSW
- Policy for Waste Minimisation in New Developments, City of Sydney

The guidelines and policies issued by the City of Melbourne and City of Sydney listed above are considered best practice in waste management and minimisation and form part of the strategies included within this plan. They are also recommended as guiding principles in the formulation of waste management plans in-line with the Green Building Council of Australia's guidelines for buildings.

1.2 Green Star Credit 8 – Operational Waste

36 Wellington St is being benchmarked against a minimum 5 Star Green Star Design and As-Built rating for the base building. The Green Star framework will be used to guide the implementation of environmentally sustainable design principles into the project.

The report is intended to confirm the necessary features to comply with the requirements outlined in Credit 8 Operational Waste in the Green Star Design and As-Built v1.2¹ rating tool.

¹ "Green Star – Design & As Built v1.2 Submission Guidelines" Green Building Council of Australia, June 2017

Under the Prescriptive Pathway, one point is awarded where the following requirements are met:

- Separation of waste streams
- Dedicated waste storage area
- Access to waste storage area.

2.0 Waste management plan

2.1 Waste streams

It is proposed that as a minimum, the following waste streams will be accommodated for in the new building.

- General waste
- Co-mingled recyclables
- Organic waste

To allow for separation of the applicable waste streams, bins and containers will be clearly marked for each stream, based on the Sustainability Victoria guidelines.²



Figure 1: Examples of signage as per the Sustainability Victoria guidelines³

2.2 Dedicated waste storage area

The dedicated waste storage area is to be located on ground floor and is to be sized to accommodate all bins and containers, for all applicable waste streams, for at least one collection cycle.

2.2.1 Waste generation rates

The following waste generation rates have been based on the City of Sydney's Guidelines for Waste Management in New Developments, updated in 2018. These guidelines are considered best practice for developments across Australia under the Green Star Design and As-Built V1.2 tool.

Table 2: Approximate daily waste generation rates

Building Area Type	Garbage	Comingled Recycling	Organic Waste
Restaurant (eating space)	1L/m ² floor area/day	5L/m ² floor area/day	1L/m ² floor area/day
Office	0.15L/m ² floor area/day	0.25L/m ² floor area/day	0.05L/m ² floor area/day

The table below shows the anticipated total daily waste generation of 36 Wellington St, Collingwood and the associated floor area of each building type in consideration of Table 2. These generation volumes will be accommodated for in the dedicated waste storage room.

² "Waste signage guidelines" Sustainability Victoria, 2011

³ "Signage Library" Sustainability Victoria

Table 3: 36 Wellington St daily waste output

Building Area Type	Floor Area (m ²)	Garbage (L/week)	Recycling (L/week)	Organic (L/week)
Restaurant (eating space)	616	4,312	21,560	4,312
Office	18,308	13,731	22,885	4,577
Total	18,924	18,043	44,445	8,889

2.2.2 E-waste

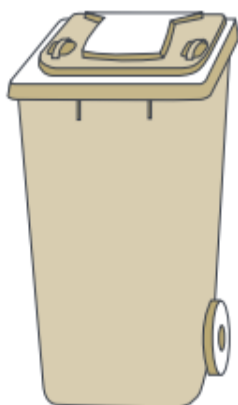
To enable the collection of various e-waste items such as mobile phones and laptops, a 240 litre e-waste bin (or equivalent, as deemed appropriate by building management) will be provided in the bin store room at ground level.

E-waste collections will be arranged by building management (or equivalent) via a private contractor as required.

2.2.3 Bin types

2.2.3.1 Waste storage area

The size of bins within the waste storage area have been determined based on efficiency and mobility. Organic bins and e-waste have been selected at 240L and general waste and commingled recycling at 1100L each.



Bin Type	80 Litre MGB	120 Litre MGB	140 Litre MGB	240 Litre MGB	360 Litre MGB
Height	870 mm	940 mm	1065 mm	1080 mm	1100 mm
Depth	530 mm	560 mm	540 mm	735 mm	885 mm
Width	450 mm	485 mm	500 mm	580 mm	600 mm

Mobile containers with a capacity from 500L to 1700L with four wheels



Dome or flat lid containers

Bin Type	660 Litre MGB	770 Litre MGB	1100 Litre MGB	1300 Litre MGB	1700 Litre MGB
Height	1250	1425	1470	1480	1470
Depth	850	1100	1245	1250	1250
Width	1370	1370	1370	1770	1770

Figure 2: Common mobile garbage bin sizes

2.3 Required bin storage

Based on the above generation rates, the development will require approximately 4 general waste bins, 9 co-mingled recycling bins and 8 organic waste bins to accommodate for the daily waste generation.

2.3.1.1 Throughout building

Bins or containers will be evenly distributed throughout the building. The locations will be determined based on a discussion with the future building tenants.

2.3.2 Collection frequency

It is proposed that waste collection of all streams except for e-waste will occur 5 times per week. Collection will be performed out of business hours. Both the time of collection and collection frequency will be confirmed once a waste contractor is appointed.

2.3.3 Waste storage area

It is proposed that a waste storage area of minimum 59m² be included in the new building, sized to accommodate 5 collections per week as detailed in this section of the report.

Waste will be transported from each level to the ground floor waste storage area daily by the waste/cleaning contractor via the services lift and ground floor corridor.

The waste storage area will accommodate all general, comingled recycling and organic waste streams, per Section 2.1. Ventilation will be in accordance with AS1668.2.2012; and a tap and drainage are provided to facilitate washdown.

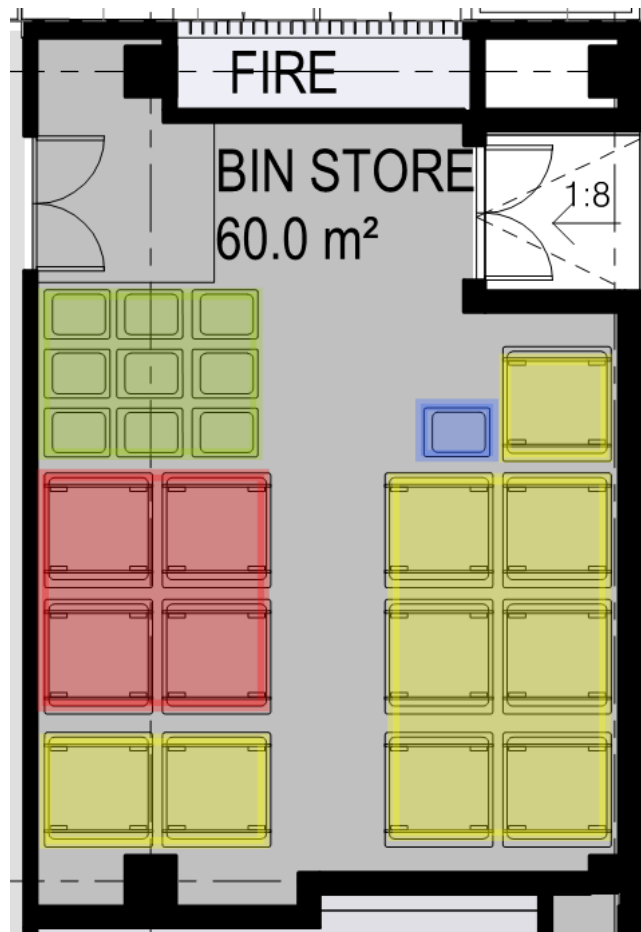


Figure 3: Bin allocation in waste storage area

2.4 Access to waste storage area

General waste, recycling and organic bins will be stored on-site in the waste storage area between collections.

The waste contractor will transport bins to and from the bin store during collection time. Facilities management will ensure that the waste contractor has unrestricted access to the bin store during this time.

The waste vehicle swept path analysis is provided in Figure 4 below. It demonstrates the proposed vehicular access to the waste collection area off Northumberland street, accommodating a rear-lift small-rigid waste collection vehicle, as described in the following section.

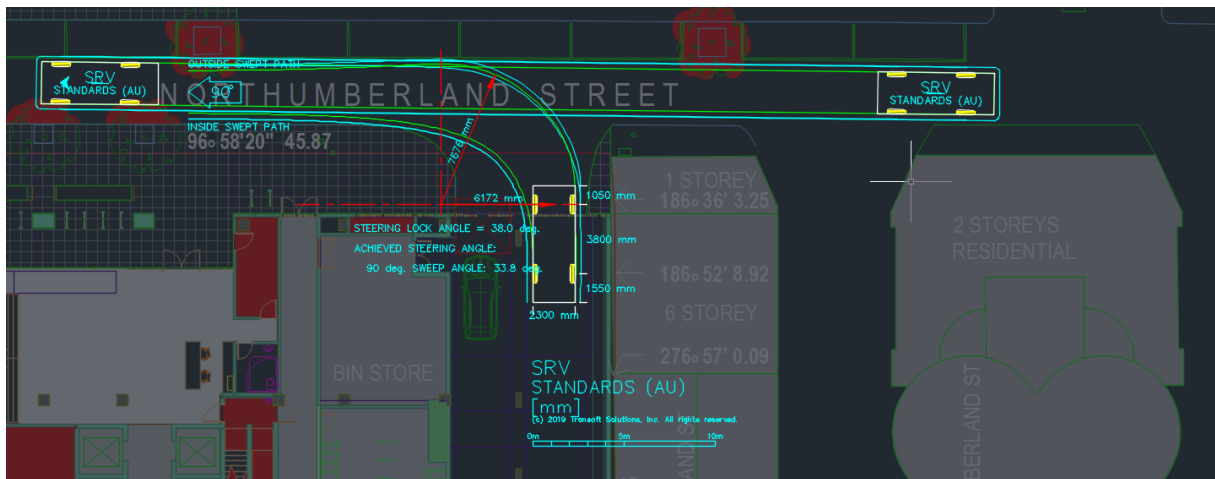


Figure 4: Waste Collection Swept Path Analysis

2.4.1 Collection vehicle type

Typical waste collection is performed using a rear-lift, small rigid vehicle (SRV), per that shown in Figure 5 . Generally, the truck dimensions are:

- Minimum height 3.5 meters
- Minimum width 2.3 meters
- Minimum length 6.4 meters



Figure 5: Typical SRV rear-lift waste collection vehicle

These type of waste vehicles are best suited to sites with limited access and space, the rear lift truck lifts manually collected bins and transports them to the rear of the truck to be automatically emptied and compacted. On-board safety features include a reversing camera, reversing lights and beepers, hydraulic lift valves and heated external mirrors.

These vehicles can collect containers of sizes 120, 240, 660 and 1100 litres in capacity.

3.0 Summary

To meet industry wide best practice guidelines, the 36 Wellington St development will implement the strategies outlined in Table 4.

Table 4: Operational Waste Management Strategy Summary

Criteria	Operational Waste Management Plan Response
Separation of Waste Streams	<p>The building will include amenity for the following waste streams:</p> <ul style="list-style-type: none"> • General waste • Co-mingled recyclables • Organic waste • E-waste
Dedicated Waste Storage Area	<p>A dedicated waste storage area is currently proposed in the buildings back-of-house area on Ground Floor, sized to accommodate a minimum collection cycle of five times per week, to be confirmed once a contractor is engaged. Access to the waste storage area from the upper floors will be via the services lift, connected by the ground floor corridor.</p> <p>The waste collection area will include the following provisions;</p> <ul style="list-style-type: none"> • Wash down area • Level floor – no steps (small navigable ramp between storage and collection) • Ventilation/exhaust per AS1668 • Clear-way for loading area
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