

**LEIGH DESIGN**

*waste management plans for  
all urban developments*

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## **WASTE MANAGEMENT PLAN**

**Proposed Development:  
517-521 Station Street, Box Hill, Victoria**

**Prepared for:  
Golden Age Development**

### **Document Control**

**Report Date:** 09 December 2016 (supersedes report dated 21-10-16)

**Prepared By:** Andrew McIntosh, Waste Management Consultant

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### WASTE MANAGEMENT SUMMARY

- The operator, as defined below, shall be responsible for managing the waste system, and for developing and implementing adequate safe operating procedures. All aspects of the waste system shall be the responsibility of the operator.
- Waste shall be stored within the development (hidden from external view).
- Users shall sort their waste, and dispose garbage and recyclables via dedicated chutes and/or directly into collection bins. The operator shall tip bins into the compactors.
- Waste shall be collected at the onsite Loading Bay.
- A private contractor shall provide waste collection services.

### GLOSSARY

**Operator:** refers to the Owners Corporation, who shall manage site operations (via employees, staff and contractors, if required).

**User:** refers to residents and commercial tenants, who shall utilise the waste system.

# 1 SPACE AND SYSTEM FOR WASTE MANAGEMENT

## 1.1 Development Description and Use

This development shall consist of residential apartments and commercial tenancies (refer to Table 1).

## 1.2 Estimated Garbage and Recycling Generation

The following table summarises the waste estimate (m<sup>3</sup>/week):

Table 1: Waste Estimate

Waste Source	Base Qty (est.)	Garbage	Commingled Recycling
<b>Building A (East)</b>			
Apartments (1 bed)	No. of units = 74	5.92	5.33
Apartments (2-3 bed)	No. of units = 179	14.32	21.48
Bowling	area (m <sup>2</sup> ) = 1194	1.55	0.36
Retail (bar)	area (m <sup>2</sup> ) = 576	2.59	2.48
Retail (shops)	area (m <sup>2</sup> ) = 2101	7.35	7.35
Retail (café)	area (m <sup>2</sup> ) = 77	0.81	0.43
Consulting / Medical Centre	area (m <sup>2</sup> ) = 404	0.61	0.22
Childcare	area (m <sup>2</sup> ) = 1273	4.46	1.53
Commercial (Office)	area (m <sup>2</sup> ) = 1943	1.36	1.46
<i>Building A (East) Subtotal</i>		<b>38.97</b>	<b>40.64</b>
<b>Building B (West)</b>			
Apartments (1 bed)	No. of units = 74	5.92	5.33
Apartments (2 bed)	No. of units = 102	8.16	12.24
Cinemas	area (m <sup>2</sup> ) = 1535	2.00	0.46
Retail (shops)	area (m <sup>2</sup> ) = 686	2.40	2.40
Retail (café)	area (m <sup>2</sup> ) = 83	0.87	0.46
Supermarket	area (m <sup>2</sup> ) = 358	6.01	6.05
Gym	area (m <sup>2</sup> ) = 687	0.69	0.41
Assembly / Amenities (Gym)	area (m <sup>2</sup> ) = 248	0.69	0.69
<i>Building B (West) Subtotal</i>		<b>26.74</b>	<b>28.05</b>
<b>Building C (South West)</b>			
Serviced Apartments	No. of units = 77	2.70	2.70
<i>Building C (South West) Sub-total</i>		<b>2.70</b>	<b>2.70</b>
<b>TOTAL (m<sup>3</sup>/wk)</b>		<b>68.40</b>	<b>71.38</b>

- Residential waste figures are based on Council's volumetric requirements.
- Commercial waste figures are based on adjusted Sustainability Victoria Guidelines, information from similar facilities and on discretionary rates.

### **1.3 Collection Services**

Residential Waste: The municipal wheelie bin service would be unsuitable as Council's wheelie bins are deemed impractical for chute applications. Therefore, a private contractor shall be engaged to collect waste (utilising bulk bins).

Commercial Waste: Municipal services would be insufficient as these are limited to a pair of wheelie bins per tenement. Therefore, a private contractor shall be engaged to collect waste.

For both residential and commercial waste, the operator shall choose a waste collection provider, negotiate a service agreement and pay for these services.

Note: All aspects of the waste system shall be the responsibility of the operator, as defined in the glossary in page 2.

### **1.4 Location, Equipment and System Used for Managing Waste**

The MGB configuration (and accompanying requirements as nominated in this report), shall be the approved method for waste management operation, which is not to be deviated-from without prior written consent of the Council.

The waste management system is summarised as follows:

- Apartment receptacles for garbage and recycling.
- Tenancy receptacles at internal areas.
- Waste receptacles located at public and residential amenity areas.
- Two Garbage Chutes and two Recycling Chutes (in pairs for each building), each with residential level intakes and Bin Store discharge.
- 2 x Bin Stores located at Lower Ground Level.
- 2 x garbage compactors with bin lifters (in the Loading Bay).
- Loading Bay at Upper Ground Level.
- Collection bins (kept within the Bin Stores - refer to Table 2).

The various collection waste-streams are summarised as follows:

Garbage: General waste shall be placed in tied plastic bags and stored within bins (prior to tipping into the compactor).

Recycling: All recyclables shall be commingled into a single type of collection bin (for loose paper, cardboard, glass, aluminum, steel and plastics).

Garden Waste: Garden organics shall be collected and disposed by the future landscape maintenance contractor.

Compost: At this development, composting is considered impractical, as there would be minimal onsite demand for compost.

Clinical Waste: Clinical waste (medical, infectious, cytotoxic, sharps, chemical, pharmaceutical, radioactive, etc) shall be managed in accordance with the Industry Code of Practice for the Management of Biohazardous Waste (including Clinical & Related wastes, 7<sup>th</sup> edition, 2014). A specialist clinical waste contractor shall be engaged to implement the code, provide facility design and operational details (incl. a Clinical WMP) for the safe handling and disposal of clinical waste, and for waste collection and treatment (refer to suggested contacts in Sect. 6).

A suitable Clinical Waste Store for a min. 1 x 240-lt Medical Bins and 1 x 20-lt Sharps Containers shall be provided (store size/design and all clinical waste streams/bins shall be confirmed by a specialist consultant).

Other Waste Streams: The disposal of hard/electronic/liquid and other wastes (polystyrene, batteries, paint, chemicals and detox items, etc), shall be organised by the operator.

If required, commercial tenants shall arrange the storage of used cooking oil and its collection by a recycler. The operator shall organise Grease Interceptor Trap servicing.

The following table summarises bin quantity/capacity, collection frequency and area requirements (based on Table 1):

**Table 2: Bin Schedule and Collection Frequency**

Waste Source	Waste Stream	Bin Qty	Bin Litres	Collections per Week	Net Area m <sup>2</sup>
<b>Building A (East)</b>					
Residential (communal private bins)	Garbage	6	1,100	3	9.6
	Recycling	8	1,100	3	12.8
	Hard Waste	-	-	At Call*	2.0
Commercial (shared private bins)	Garbage	6	1,100	3	9.6
	Recycling	5	1,100	3	8.0
	Hard/Other Waste	-	-	At Call*	2.0
<b>Building A (East) Net Waste Storage Area (excludes circulation), m<sup>2</sup>:</b>					<b>44.0</b>
<b>Building B (West)</b>					
Residential (communal private bins)	Garbage	5	1,100	3	8.0
	Recycling	6	1,100	3	9.6
	Hard Waste	-	-	At Call*	2.0
Commercial (shared private bins)	Garbage	4	1,100	3	6.4
	Recycling	3	1,100	3	4.8
	Hard/Other Waste	-	-	At Call*	2.0
<b>Building B (West) Net Waste Storage Area (excludes circulation), m<sup>2</sup>:</b>					<b>32.8</b>
<b>Building C (South West)</b>					
Commercial (shared private bins)	Garbage	1	1,100	3	1.6
	Recycling	1	1,100	3	1.6
	Hard/Other Waste	-	-	At Call*	2.0
<b>Building C (South West) Net Waste Storage Area (excludes circulation), m<sup>2</sup>:</b>					<b>5.2</b>
<b>Total Net Waste Storage Area (excludes circulation), m<sup>2</sup>:</b>					<b>82.0</b>

Waste Source	Waste Stream	Bin Qty	Bin Litres	Collections per Week	Net Area m <sup>2</sup>
Whole Development	Garbage	23m <sup>3</sup> Compactor		1	32.0
	Comm.Recycling	23m <sup>3</sup> Compactor		2	32.0
<b>Net Waste Storage Area (excludes circulation), m<sup>2</sup>:</b>					<b>64.0</b>

Notes:

- \* The operator shall organise hard and hard/other waste collections (as required).
- Compactors and bins shall be sourced by the operator (either purchased from a supplier or leased from the collection contractor).

### 1.5 Town Planning Drawings and Management of the Waste System

The plans shall illustrate sufficient space for onsite bin storage, as required by the above schedule.

Notwithstanding the above, collection days shall be staged appropriately and the operator shall stipulate procedures for effective management of the available space.

### 1.6 Collection Bin Information

The following bins shall be utilised (see Sect. 4.3 for signage requirements):

Table 3: Bin Details

Capacity (litres)	Height (mm)	Width (across front, mm)	Depth (side on, mm)	Empty Weight (kg)	Average* Gross Weight (kg)
240	1060	585	730	13	45
1100	1330	1240	1070	65	210

Notes:

- \* = Average Gross Weight is based on domestic waste studies (which vary subject to locality and waste-type). Expect greater weight for wet or compacted waste.
- Use the above details as a guide only – variations will occur. The above is based on Sulo plastic (HDPE) flat-lid bins. Also, steel 1100-litre bins could be adopted, STCA.
- For 1,100 litre bins, flat lids are recommended (instead of dome lids). However, the operator/purchaser shall consult with the waste collection contractor to specify and select the appropriate lid.
- Also, bins that receive waste under the chutes shall be reinforced to withstand loads from waste falling at high speed.

Table 4: Whitehorse Colour Coding

Bin	Garbage	Commingle Recycling	Green Waste
Lid	Green	Yellow	Lime
Body	Green	Green	Green

Note: For private bins, AS4123.7 bin colours can be adopted. Private bins shall be labelled to identify the waste generator and site address.

## **2 ACCESS FOR USERS, COLLECTORS AND COLLECTION VEHICLES**

### **2.1 User Access to Waste Facilities**

#### Residential:

Residents shall dispose sorted garbage and recyclables via dedicated chutes (available at each apartment level), in accordance with instructions from the chute supplier. For wastes unsuitable for chute disposal, residents shall transfer sorted waste directly to the Bin Stores (access via lift/stairs).

Site staff shall maintain the various public and amenity waste receptacles.

#### Commercial:

Commercial tenants shall dispose sorted waste into collection bins located within the Bin Stores (if required, using a suitable trolley and the lifts).

#### Notes:

- The operator shall have access to the Bin Stores to rotate the bins, ensuring that empty bins are available along the circulation area so that users are able to reach them. Also, the operator shall monitor the filling of the bins under the chutes and change them when full.
- The operator shall transfer garbage bins as required and empty the bins into the compactors using the associated bin lifter.

### **2.2 Collection Arrangements and Access to Waste Facilities**

- Waste shall be collected at the onsite Loading Bay.
- The compactor (and associated container) shall be collected by a matching hook-lift vehicle (nom. 9.8m long, approx. 4.5m operational height for articulated hooks and chamfered compactors, and 30 tonnes gross vehicle mass). The truck needs to be aligned with the longitudinal axis of the compactor and prop 1m in front. A removable bin-lifter (on wheels) shall be provided to facilitate the compactor collection.

#### Notes:

- Compactor clearing shall occur during off-peak waste disposal periods.
- A suitable goods lift shall be used for vertical bin transfers. Also, the operator shall provide mechanical assistance for lengthy bin transfers via a suitable tug (refer to Sections 5 and 6).
- The project's traffic engineer shall provide traffic management information.



### **3 AMENITY, LOCAL ENVIRONMENT AND FACILITY DESIGN**

#### **3.1 Noise Minimisation Initiatives**

- Collection bins shall feature rubber castors for quiet rolling during transfers.
- Chutes and waste areas shall meet BCA and AS2107 acoustic requirements.
- Local laws shall be observed for all operations in public and private areas.
- For private services, the hours of waste collections shall be as specified in council's local laws. Also, Section 5 of the Victorian EPA Noise Control Guideline Publication 1254 (see below) shall be observed to protect the acoustic amenity of the development and surroundings.

Victorian EPA Noise Control Guideline Publication 1254 October 2008 (excerpt)

[Section] 5. Domestic [and Commercial] Refuse Collection

The main annoyance produced by domestic refuse collections occurs in the early morning (i.e. before 7:00am). Therefore, if possible, routes should be selected to provide the least impact on residential areas during that time.

Collection of refuse should be restricted to the following criteria:

- Collection occurring once a week should be restricted to the hours: 6am to 6pm Monday to Saturday.
- Collections occurring more than once a week should be restricted to the hours: 7am to 6pm Monday to Saturday.
- Compaction should only be carried out while on the move.
- Bottles should not be broken up at the point of collection.
- Routes which service entirely residential areas should be altered regularly to reduce early morning disturbance.
- Noisy verbal communication between operators should be avoided where possible.

#### **3.2 Litter Reduction and Prevention of Stormwater Pollution**

The operator and residents shall be responsible for:

- Promoting adequate waste disposal into the bins (to avoid waste-dumping).
- Securing the Bin Stores (whilst affording access to users/staff/contractors).
- Preventing overfilled bins, keeping lids closed and bungs leak-free.
- Abating any site litter, and taking action to prevent dumping and/or unauthorised use of waste areas.
- Requiring the collection contractor to clean-up any spillage that might occur when clearing bins.

The above will minimise the dispersion of site litter and prevent stormwater pollution (thus avoiding impact to the local amenity and environment).

### **3.3 Ventilation, Washing and Vermin-Prevention Arrangements**

Waste areas shall feature:

- Ventilation in accordance with Australian Standard AS1668. For chute ventilation, a fan with riser to a rooftop exhaust shall be utilised.
- Tight-fitting doors (all other openings shall have vermin-proof mesh or similar).
- Impervious flooring (also, smooth, slip-resistant, and appropriately drained).
- A graded bin wash area, hot/cold mixing hosecock, hose and a suitable floor-waste connected in accordance with the relevant authority requirements. The bin and wash areas may overlap, as stored bins can be moved-out so that a bin can be washed.
- A water-flushing nozzle with accessible water cock shall be provided at the head of each chute. Include a floor waste and hosecock near each chute outlet.

The operator shall regularly clean waste areas/equipment. Also, access doors and bin-lids shall be kept closed.

The compactor shall be washed off-site at regular intervals (increasing the wash frequency during warm months). Odour control equipment and/or a refrigerated compactor shall be considered. Also, the compactor will require suitable floor drainage.

### **3.4 Design and Aesthetics of Waste Storage Areas and Equipment**

Waste shall be placed within collection bins and stored in designated onsite areas (hidden from external view). Following waste collection activities, bins shall be returned to the storage areas as soon as practicable.

Waste facilities shall be constructed of durable materials and finishes, and maintained to ensure that the aesthetics of the development are not compromised. These facilities and associated passages shall be suitably illuminated (this provides comfort, safety and security, to users, staff and contractors). Access doors shall feature keyless opening from within.

The design and construction, of waste facilities and equipment, shall conform to the Building Code of Australia, Australian Standards and local laws.

Chutes shall be sized and designed as recommended by a reputable chute manufacturer (chutes are proprietary items). The chute supplier shall fix safe-operating instructions to each intake-door and place a warning sign on each chute outlet.

For improved safety, each chute outlet shall be shrouded with a suitable rubber skirt and designed to minimise the effect of falling waste into the associated bin (and to stop dispersion of debris). Also, access to each chute outlet shall be restricted to trained personnel only (these areas shall be suitably fenced and kept locked).

The compactor and bin lifter shall be designed as recommended by a reputable manufacturer (these units are proprietary items). The supplier shall provide training to all users and include appropriate safety features and operating instructions to ensure safe operation. Access to compaction areas shall be restricted to trained personnel only (keep access doors locked).

## **4 MANAGEMENT AND SUSTAINABILITY**

### **4.1 Waste Sorting, Transfer and Collection Responsibilities**

Garbage shall be placed within tied plastic bags prior to transferring into the bins or chutes. Cardboard shall be flattened, and recycling containers un-capped, drained and rinsed prior to disposal into the appropriate bin or chute. Bagged recycling is not permitted.

Refer to Section 2 for waste transfer requirements and collection arrangements.

### **4.2 Facility Management Provisions to Maintain & Improve the Waste System**

The operator shall manage site operations (refer to the glossary in page 2).

It shall be the responsibility of the operator to maintain all waste areas and components, to the satisfaction of users, staff and the relevant authority (users shall maintain their internal waste receptacles).

The operator shall ensure that maintenance and upgrades are carried-out, on the facility and components of the waste system. When required, the operator shall engage an appropriate contractor to conduct services, replacements or upgrades.

### **4.3 Arrangements for Protecting Waste Equipment from Theft and Vandalism**

It shall be the responsibility of the operator to protect the equipment from theft and vandalism. This shall include the following initiatives:

- Secure the bin storage areas.
- Label the bins according to property address.
- Compactors shall be collected within the onsite Loading Bay.

### **4.4 Arrangements for Bins/Equipment Labelling, and Ensuring Users and Staff are Aware of How to Use the Waste System Correctly**

- The operator shall provide appropriate signage for the bins. Signage is available at the following internet address: [www.sustainability.vic.gov.au](http://www.sustainability.vic.gov.au).
- The operator shall publish/distribute “house rules” and educational material to:
  - Inform users/staff about the waste management system and the use/location of the associated equipment (include Page 2 of this report).
  - Improve facility management results (lessen equipment damage and chute blockages, reduce littering and achieve cleanliness).
  - Advise users/staff to sort and recycle waste with care to reduce contamination of recyclables.

#### **4.5 Sustainability and Waste Avoidance/Reuse/Reduction Initiatives**

The *Environment Protection Act 1970* includes principles of environment protection and guidance for waste management decision making. Also, the *Sustainability Victoria Act 2005* established Sustainability Victoria as the statutory authority for delivering programs on integrated waste management and resource efficiency.

From a design perspective, the development shall support the acts by providing an adequate waste system with ability to sort waste.

The operator shall promote the observance of the acts (where relevant and practicable), and encourage users and staff to participate in minimising the impact of waste on the environment. For improved sustainability, the operator shall consider the following:

- Observe the waste hierarchy in the *Environment Protection Act 1970* (in order of preference): a) waste avoidance, b) reuse, c) recycle, d) recovery of energy, e) treatment, f) containment and g) disposal.
- Peruse the Sustainability Victoria website: [www.sustainability.vic.gov.au](http://www.sustainability.vic.gov.au).
- Participate in Council and in-house programs for waste minimisation.
- Establish waste reduction and recycling targets; including periodic waste audits, keeping records and monitoring of the quantity of recyclables found in landfill-bound bins (sharing results with users/staff).

#### **4.6 Waste Management Plan Revisions**

For any future appropriate Council request, changes in legal requirements, changes in the development's needs and/or waste patterns (waste composition, volume or distribution), or to address unforeseen operational issues, the operator shall be responsible for coordinating the necessary Waste Management Plan revisions, including (if required):

- A waste audit and new waste strategy.
- Revision of the waste system (bin size/quantity/streams/collection frequency).
- Re-education of users/staff.
- Revision of the services provided by the waste collector(s).
- Any necessary statutory approval(s).

## 5 SUPPLEMENTARY INFORMATION

- The operator shall ensure that bins are not overfilled or overloaded.
- Waste incineration devices are not permitted, and offsite waste treatment and disposal shall be carried-out in accordance with regulatory requirements.
- For bin traffic areas, either level surfaces (smooth and without steps) or gentle ramps are recommended, including a roll-over kerb or ramp. Should ramp gradients, bin weight and/or distance affect the ease/safety of bin transfers, the operator shall consider the use of a suitable tug.
- The operator and waste collector, shall observe all relevant OH&S legislation, regulations and guidelines. The relevant entity shall define their tasks and:
  - Comply with Worksafe Victoria’s Occupational Health and Safety Guidelines for the Collection, Transport and Unloading of Non-hazardous Waste and Recyclable Materials (June 2003).
  - Assess the Manual Handling Risk, and prepare a Manual Handling Control Plan for waste and bin transfers (as per regulatory requirements and Victorian COP for Manual Handling).
  - Obtain and provide to staff/contractors equipment manuals, training, health and safety procedures, risk assessments and adequate personal protective equipment (PPE) to control/minimise risks/hazards associated with all waste management activities. As a starting point, these documents and procedures shall address the following:

<b>Task (to be confirmed)</b>	<b>Hazard (TBC)</b>	<b>Control Measures (TBC)</b>
Sorting waste and cleaning the waste system	Bodily puncture. Biological & electrical hazards	Personal protective equipment (PPE). Develop a waste-sorting procedure
Bin manual handling	Sprain, strain, crush	PPE. Maintain bin wheel-hubs. Limit bin weight. Provide mechanical assistance to transfer bins
Chute discharge	Strike & debris from falling waste	PPE, staff training, and signage, maintain access restrictions. Include a suitable curtain/skirt and a locked mesh fence around the discharge zone of the chute
Bin transfers and emptying	Vehicular strike, run-over	PPE. Develop a Hazard Control Plan for transfers and collections. Maintain visibility. Use a mechanical bin-tipper
Compactor operation	Crush/strike/cut and shear points	Staff training, signage and warning system, maintain access restrictions
Truck access (reversing & manoeuvring)	Vehicular incident, strike, run-over	PPE. Use a trained spotter. Develop a truck-manoeuving and traffic-control procedure

Note: The above shall be confirmed by a qualified OH&S professional who shall also prepare site-specific assessments, procedures and controls (refer to Section 6).

## **6 CONTACT INFORMATION**

**City of Whitehorse** (local Council), ph 03 9262 6333

**Cleanaway** (private waste collector), ph 131339

**Veolia** (private waste collector), ph 132955

**Eco-Safe Technologies** (odour control equipment supplier), ph 03 9706 4149

**FJP Safety Advisors Pty Ltd** (OH&S consultant), ph 03 9255 3660

**Electrodrive Pty Ltd** (tug & trailer supplier – for bin transfers), ph 1800 033 002

**Sabco Commercial** (supplier of cleaner's trolleys), ph 1800 066 522

**Sulo MGB Australia** (bin supplier), ph 1300 364 388

**One Stop Garbage Shop** (bin supplier), ph 03 9338 1411

**Wastedrive Equipment** (steel bin supplier), ph 02 9630 9333

**ASI JD MacDonald Pty Ltd** (chute supplier), ph 03 8558 7200

**Wastech Engineering Pty Ltd** (chute supplier), ph 1800 465 465

Note: The above includes a complimentary listing of collection contractors and equipment suppliers. The stakeholders shall not be obligated to procure goods/services from these companies. Leigh Design does not warrant (or make representations for) the goods/services provided by these suppliers.

## **7 LIMITATIONS**

The purpose of this report is to document a Waste Management Plan, as part of a Planning Application.

This report is based on the following conditions:

- Operational use of the development (excludes demolition/construction stages).
- Drawings and information supplied by the project architect.
- The figures presented in this report are estimates only. The actual amount of waste will depend on the development's occupancy rate and waste generation intensity, the user's disposition toward waste and recycling, and the operator's approach to waste management. The operator shall make adjustments, as required, based on actual waste volumes (if the actual waste volume is greater than estimated, then the number of bins and/or the number of collections per week shall be increased).
- This report shall not be used to determine/forecast operational costs, or to prepare feasibility studies or to document operational/safety procedures.