

LEIGH DESIGN	Leigh Design Pty Ltd ABN 37 139 522 437 PO Box 115 Carnegie VIC 3163 P +61 3 8516 5393
<i>waste management plans for all urban developments</i>	E leo@leighdesign.com.au I www.leighdesign.com.au

WASTE MANAGEMENT PLAN

**Proposed Development: Stage 3, Gracewood Village
8 Free Settlers Drive, Kellyville, New South Wales**

**Prepared for:
Baptist Care**

<u>Document Control</u>
<u>Report Date:</u> 28 November 2017 (supersedes all prior reports)
<u>Prepared By:</u> Leonardo Russi, BEng (Mech), MEng (Env)
Leigh Design retains copyright and intellectual property rights on this document. Except for town planning purposes associated with the above-referenced site, it may not be copied or used in whole or part by any person or entity for this or any other site without prior written consent from Leigh Design.

<u>TABLE OF CONTENTS</u>	
SECTION	PAGE No.
Waste Management Summary.....	2
Glossary.....	2
1 Space and System for Waste Management.....	3
2 Access for Users, Collectors, and Collection Vehicles	6
3 Amenity, Local Environment, and Facility Design	7
4 Management and Sustainability.....	9
5 Supplementary Information.....	11
6 Contact Information	12
7 Limitations	12

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.
- Waste shall be stored within the development (hidden from external view).
- Users shall sort their waste and dispose garbage and recyclables via chutes and/or directly into collection bins.
- Waste shall be collected within the onsite Loading Bay. The collection contractor shall transfer bins between the internal bin-holding area and the truck.
- A private contractor shall provide waste collection services.

GLOSSARY

Operator: refers to the Facility Management, who shall manage site operations (via cleaners, staff and contractors, if required).

User: refers to site staff, who shall utilise the waste system.

1 SPACE AND SYSTEM FOR WASTE MANAGEMENT

1.1 Development Description and Use

This development shall consist of Senior Independent Living Units (the number of units is stated in Table 1, below).

1.2 Estimated Garbage and Recycling Generation

The following table summarises the waste estimate (m³/week):

Table 1: Waste Estimate

Waste Source	Base Qty (est.)	Garbage	Commingled Recycling
Independent Living Units	No. of units = 88	7.04	7.04
TOTAL (m³/wk)		7.04	7.04

Note: Waste figures are based on adjusted guidelines from the Department of Environment and Climate Change NSW.

1.3 Collection Services

Based on the anticipated waste volume exceeding the municipal entitlement of the proposal, a private contractor shall be required to collect waste. The operator shall choose a waste collection provider, negotiate a service agreement, and pay for these services.

1.4 Location, Equipment, and System Used for Managing Waste

The waste management system is summarised as follows:

- Internal receptacles in apartments/work/amenity areas.
- Temporary bin-holding area located at Basement Level.
- Six diverter chutes for garbage and recycling, with residential level intakes and Bin Store discharge, including intake controls and split discharge for two bins beneath each chute.
- Six Bin Stores located at Basement Level.
- Collection bins (kept within the above 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.

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

Green 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.

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

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 ²
Stage 3 Units (shared bins)	Garbage	12	660	1	14.4
	Recycling	12	660	1	14.4
	Hard Waste	-	-	At Call	2.0
Net Waste Storage Area (excludes circulation), m²:					30.8

Notes:

- The operator shall organise hard waste collections (as required).
- Private bins shall be sourced by the operator (either purchased from a supplier or leased from the collection contractor).
- Subject to stakeholders' preference/capability (and as built constraints), bin sizes and quantities can be changed. Also, recyclables can be either commingled or split into bins for separate recycling streams.

1.5 Planning Drawings, Waste Areas, and Management of the Waste System

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

Notwithstanding the above, 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. 4.4 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)
660	1250	1240	780	43	130

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.
- Bins that receive waste under chutes shall be reinforced to withstand loads from waste falling at high speed.

Table 4: AS 4123.7-2006 Plastic Bin Colour Coding

Bin	Garbage	Recyclables	Green Waste
Lid	Red	Yellow	Lime Green
Body	Dark Green / Black	Dark Green / Black	Dark Green / Black

Note: 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

Residents shall dispose sorted garbage and recyclables via chutes (available at each apartment level), in accordance with instructions from the chute supplier. The operator shall assist residents to dispose large cardboard items and any other wastes unsuitable for chute disposal.

Note: The operator shall monitor the filling of the bins under the chutes and change these when full.

2.2 Collection Arrangements and Access to Waste Facilities

- Prior to the collection, the operator shall move waste bins from the Bin Stores to the onsite bin-holding area (and back to the stores once the collection has taken place).
- A private contractor shall collect waste within the onsite Loading Bay at Basement Level.
- Collection staff (driver and assistant) shall transfer bins between the holding area and the refuse truck.
- The waste collection shall be carried-out by rear-lift vehicles (nom. 9.21m long, 3.54m operational height, and 22.5 tonnes gross vehicle mass).

3 AMENITY, LOCAL ENVIRONMENT, AND FACILITY DESIGN

3.1 Noise Minimisation Initiatives

- Collection bins shall feature rubber wheels 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.
- The waste collector shall protect the acoustic amenity by minimising noise during the collection, adhering to the NSW Protection of the Environment Operations (Noise Control) Regulation.

3.2 Litter Reduction and Prevention of Stormwater Pollution

The operator shall be responsible for:

- Promoting adequate waste disposal into the bins (to avoid waste-dumping).
- Securing the waste areas (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 and cold mixing hosecocks, hose, and a suitable floor-waste connected in accordance with relevant authority requirements (alternatively, the operator shall engage a contractor to conduct off-site bin washing). The bin and wash areas may overlap, as stored bins can be moved 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.

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.

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

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 collection bins or chute. Cardboard shall be flattened and recycling containers un-capped, drained, and rinsed prior to disposal into the appropriate bin/chute. Bagged recycling is not permitted.

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 waste areas.
- Label the bins according to property address.
- Waste shall be collected within the subject site.

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.environment.nsw.gov.au/warr/RecyclingSigns.htm.
- 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 (provide the summary in 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 New South Wales' Waste Avoidance and Resource Recovery Act promotes waste avoidance and sets targets for increasing the recovery rate of solid waste for reuse and recycling.

The operator shall promote the observance of the above legislation 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:

- Perusal of the New South Wales Environment and Heritage Website: www.environment.nsw.gov.au.
- Consideration of state's Waste Hierarchy (in order of preference): 1) waste avoidance, 2) resource recovery (reuse/recycle), and 3) waste disposal.
- Participation in council and in-house programs for waste minimisation.
- Establishment of 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:
 - Abide by all relevant OH&S legislation, regulations, and guidelines.
 - Ensure the collector's compliance with NSW WorkCover Code of Practice for Collection of Domestic Waste.
 - Address the manual handling risk for waste and bin transfers (as per the National Code of Practice for Manual Handling).
 - Observe the NSW WorkCover Code of Practice for risk assessments. 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:

Task (to be confirmed)	Hazard (TBC)	Control Measures (TBC)
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 into truck	Vehicular strike, run-over	PPE. Develop a Hazard Control Plan for transfers and collections. Maintain visibility. Use a mechanical bin-tipper
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

The Hills Shire Council (local Council), ph 02 9843 0555

Cleanaway (private waste collector), ph 131339

SUEZ/SITA (private waste collector), ph 131335

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

Elephant's Foot (diverter chute supplier), ph 02 9780 3500

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

Note: The above includes a complimentary listing of 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 Permit 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, STCA).
- This report shall not be used to determine/forecast operational costs, or to prepare feasibility studies, or to document operational/safety procedures.