Edinglassie Village

Waste Management Plan

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1 Introduction

This Waste Management Plan (WMP) has been prepared on behalf of Uniting to accompany a Development Application for Edinglassie Village development.

The Plan has been developed with consideration of Penrith Council's and other Authority's requirements. It is intended to inform the design of the waste services by identifying the estimated waste profile for the development and providing the total area required by the recommended equipment/systems.

In doing so this Plan, which includes waste estimates and related management requirements, has been developed in accordance with the Penrith Council's *Development Control Plan 2014: Part C- Section C5: Waste Management*, *Residential Flat Building Guideline* and *Commercial Waste Generation Rates Guideline* documents.

The project involves the construction of a new RACF facility, which will be replacing the existing aged care facility. In relation to this waste management plan, the key component of the new development is a:

- New 100 bed RACF facility.

Waste audit and management strategies are recommended for new developments to provide support for the building design and promote strong sustainability outcomes for the building. All recommended waste management plans will comply with council codes and any statutory requirements.

To assist building management in achieving effective waste and recycling management, this waste management plan has three key objectives:

i. **to minimise the environmental impacts of the operations of the development** – this will be achieved by ensuring maximum diversion of waste from landfill; correct containerisation and transport of materials; correct segregation of materials into appropriate management streams; awareness among tenants of waste avoidance practices.

ii. **to minimise the impact of the management of waste within the development on local residents** – this will be achieved by ensuring waste is managed so as to avoid odour and litter and collected during suitable times.

iii. **to ensure waste is managed so as to reduce the amount landfilled and to minimise the overall quantity generated** – this will be achieved by implementing systems that assist tenants to segregate appropriate materials that can be recycled; displaying signage in all tenant areas to remind and encourage avoidance and recycling to staff; and through associated signage in the commercial areas to reinforce these messages.

2 Waste Generation

2.1 Waste Streams

Based on the development profile, the following waste streams would be expected:

- General waste;
- Commingled recycling; and
- Organics Recycling

2.2 Waste Generation Estimates

Based on averages for quantity of waste generated and composition as determined by industry data (i.e. data/information provided by WACS' waste audits conducted in a broad range of sectors) as well as consideration of the waste generation rates as detailed by Penrith Council's *Residential Flat Building Guidelines* and *Commercial Waste Generation Rates Guidelines* documents, It is estimated that the entire development will generate a total of **16,268 litres** of waste and recyclables per week.

The following table summarises the expected quantities of waste and recyclables generated for the development in terms of weight and volume per week.

Table 1 – Waste/recycling generation

	L/week
General Waste	9,079
Commingled Recycling	6,048
Organics Recycling	1,141
Total	**16,268**

Note: The volumes are based on correct segregation of waste and recyclables. They also include waste and recyclables to be generated by the kitchen facility proposed for operation in the future.

3 Waste Management Systems and Spatial Requirements

3.1 Waste Systems and Bin Requirements

The following tables show the recommended systems required to manage the estimated waste profile as detailed in the above table for the development. The systems refer to the waste storage system rather than the internal bins that may be used within the development.

Table 2 – Waste Systems

Waste Stream	Bin Size	No. of bins	Clearance (frequency/ week)	Capacity (Weekly)	Estimated Volume/ Week	Footprint per bin (m2)	Total Footprint
General waste	1100	2	5	11,000	9,079	1.35	2.7
Commingled Recycling	1100	2	3	6,600	6,048	1.35	2.7
Organics Recycling	120	2	5	1,200	1,141	0.27	0.54
TOTAL		**6**		**18,800**	**16,268**		**5.94**
						Plus Bin Wash Area	**8.44**
						Plus 30%	**11.00**

Based on the estimates of waste generation and the number of bins required (with the collection schedule as noted), as well as allowing for a bin wash area and 30% space for bin movement, the minimum size of the waste storage facility should be approximately **11 sqm**. With the size of the waste room **15 sqm** there is sufficient space onsite to comply with this spatial requirement.

Based upon Council-approved calculations It is recommended that a bulky storage room of at least **16 sqm** be provided in the facility. The Central Store onsite is **34 sqm** in size, which is sufficient space for the storing and collection of bulky wastes such as furniture to be collected by council on an as need basis.

3.2 Waste Storage

The waste areas will be accessed by staff/cleaning staff via the lift or via the Back of House corridor, where they will dispose of wastes/recyclables into the designated bins provided. Appendix A contains the locations of the waste storage and bulky waste storage rooms.

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by tenants and cleaners.

This principle will apply to the waste storage room and the Central Store – signage will clearly indicate where to deposit materials.

3.3 Storage Design

In keeping with best practice sustainability programs, all waste areas; reuse areas and waste and recycling bins will be clearly differentiated through appropriate signage and colour coding to Australia Standards to reflect the materials contained.

There will be a need to ensure that there is sufficient space to allow for bin movement. As a general rule, it is recommended that an additional 30% of the estimated footprint for bins be allocated to this (and this has been calculated in estimating the waste storage space requirements).

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by cleaners and staff.

The garbage room will contain the following to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- waste room floor to be sealed with a two pack epoxy;
- waste room walls and floor surface is flat and even;
- all corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- a water facility with hose cock must be provided for washing the bins;
- any waste water discharge from bin washing must be drained to sewer in accordance with the relevant water board;
- tap height of 1.6m;
- storm water access preventatives (grate);
- all walls painted with light colour and washable paint;
- equipment electric outlets to be installed 1700mm above floor levels;
- the room must be mechanically ventilated;
- light switch installed at height of 1.6m;
- waste rooms must be well lit (sensor lighting recommended);
- optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;
- all personnel doors are hinged and self-closing;
- waste collection area must hold all bins – bin movements should be with ease of access;

- conform to the Building Code of Australia, Australian Standards and local laws; and
- childproofing and public/operator safety shall be assessed and ensured.

Occupational Health and Safety issues such as slippery floors in waste rooms and the weight of the waste and recycling receptacles will need to be monitored. Cleaners will monitor the bin storage area and will attend to all spills immediately, as they occur.

4 Waste Management Systems

The following summarises the recommended waste and recycling systems that will be implemented. These recommendations are based on Penrith Council requirements and systems implemented for similar developments (ie., types of tenants and residential areas).

4.1 Disposal of Waste and Recyclables

All staff/cleaners (and contractors) will be briefed on the proper use of waste management systems. Recycling streams will be monitored and reported by cleaners/building management, as it is imperative that they remain free of contamination to ensure compliance with Penrith Council and the appointed waste service contractor collection protocols. Staff will be encouraged to maximise the separation of general waste and mixed recyclables to aid the proper disposal of all materials.

Waste/recyclables from the RACF and ancillary spaces areas will be collected on a daily basis by staff/cleaners and transported to the waste storage room. All food wastes will be collected after each meal and placed in 15L buckets. At the end of the day these buckets will be taken to the waste room where all food waste will be transferred into organics recycling bins.

4.2 On-site Collection

An appointed private contractor with an SRV and/or mini rear loader waste collection vehicle within their fleet will provide on-site collection. This will allow for the collection vehicle to meet the loading bay's 3.6m clearance height and service the site's bins, entering and exiting in a forward direction via Emerald St.

Utilising an appointed contractor, in turn, affords Uniting greater flexibility regarding collection schedules and the appropriate collection frequencies will be determined in consultation with the waste contractor once appointed – however once operational, collection schedules may need to be adjusted accordingly depending on actual waste generation.

Contractors will collect waste and recycling via the loading bay. On collection days it will be the responsibility of collection vehicle driver to move bins from the waste storage room into the adjacent loading dock for servicing. This will take place during off-peak hours, during the late night and early morning. Once collection has occurred, it will then also be the responsibility of the collection vehicle driver to relocate bins back to the waste storage room. Staff/cleaners will then ensure that bins are housed correctly.

In addition to this collection system it is noted that Penrith Council require their standard collection vehicle, an HRV with a 3.7m design height, to be able to service the site while entering and leaving in a forward direction, and with minimal reversing.

In order to comply with this Council requirement an additional collection path, one that enables a standard Council collection vehicle to service the site, has also been devised.

Both collection routes, including swept paths are outlined in Appendix B.

4.3 Clinical Waste

Clinical waste bins will be located within the Dirty Utility rooms on each floor of the RACF and will be used by cleaners/staff as required.

All waste containers and bin liners are to be colour-coded and identified in accordance with the NSW Health's waste streams as outlined in their *Clinical and Related Waste Management for Health Service* document.

While it is best practice to minimise the handling of waste bags, when doing so clinical waste bags must be held away from the body by the closed top of the bag and placed directly into a bin appropriate to the waste. Gloves, apron and protective eyewear must all be worn when closing the bags and placing them into the correct containers. Waste bags must also be filled no greater than two-thirds of their capacity to avoid spillages and their contents are to be secured within the bag when closing.

This stream will be collected by a specialist, qualified contractor and is likely to be collected from the floors upon request.

Site management will be responsible for ensuring staff/cleaners are properly informed, trained, instructed and supervised as to the safe and correct implementation of clinical waste management practices.

NSW Health's *Clinical and Related Waste Management for Health Service* document should be referred to for all other clinical waste management requirements, protocols and governmental policies.

4.4 Other Systems

Items such as furniture/whitegoods stored within the Central Store will be managed by building management. Appropriate collection organisations will be called to collect the items for recycling/reuse as required.

Residents will also be provided with ad hoc recycling systems such as e-waste; batteries etc. Systems for these streams will be located back-of-house or in common areas or be available upon request from building management.

Signage will be a crucial element of the waste management system. Appendix E contains examples of signage. These are the type of signs that should be used throughout the commercial tenancies and waste storage area(s).

4.5 Summary of management process

The following summarises the management system for the wastes and recyclables for the commercial tenants.

Table 3 – Overview of management process

Stream	System	Comment
Commingled Recycling	1100L MGBs	Staff/cleaners separate commingled materials and deposit directly into MGBs, located in the Waste Room for collection.
General Waste	1100L MGBs	Staff/cleaners separate general waste and deposit directly into the MGBs, located in the Waste Room for collection.
Organics Recycling	120L MGBs	Staff/cleaners separate food waste and deposit directly into the MGBs, located in the Waste Room for collection.

4.6 Disposal of Wastes/Recyclables

The following summarises the disposal pathway for the wastes and recyclables generated once the development is operational. Note though that this management summary cannot specify the actual locations until the waste/recycling contractor is appointed.

Table 4 – Waste Management Systems

Type of material	Destination
Commingled recycling	Transported to a recycling facility for recycling by the appointed contractor
General waste	Transported to a landfill facility for disposal by the appointed contractor
Organics Recycling	Transported to a recycling facility for recycling by the appointed contractor

5 Waste Stream Acceptance Criteria

5.1 Acceptance Criteria

General Waste:

General waste bins will be 1100L MGBs. The lids and signage should be colour-coded red. The general waste stream does not include hazardous material (such as batteries, fluorescent light tubes, light bulbs and/or toner cartridges), recyclable material or electronic equipment such as computers, TVs and mobile phones.

Commingled (Mixed Recycling):

The comingled recycling system will be 1100L MGBs and should accept all recyclable plastic containers, aluminium containers, glass bottles and steel cans, paper and cardboard. Comingled recycling bin lids and signage should be colour-coded yellow.

Organics:

The organics recycling system will be 120L MGBs and should accept all food and organics waste. Organics recycling bin lids and signage should be colour-coded burgundy.

5.2 Bin Requirements

Containers located within the development for waste and recycling should be consistent. The following table outlines the colour coding that has been developed by Standards Australia.

Table 5: Standards Australia waste/recycling container colour coding guide.

Waste Stream	Bin Body Colour	Lid Colour
Food Organics	Burgundy	Burgundy
Commingled Recycling	Green	Yellow
General Waste	Green	Red

Appendix D contains illustrations of bins (and other waste management equipment) that could be used within the various areas. The pictures provide examples of the different options for equipment such as MGB, tugs for transporting bins, trolley unit and a wheelie-safe trolley.

6 Staff and Cleaner Education

All staff and cleaners will receive information regarding the waste collection systems including how to use the system, which items are appropriate for each stream and collection times. Appropriate signage and updated information will also be provided, as well as receiving feedback on issues such as contamination of the recycling stream or leakage of the recyclables into the general waste. The building management will have the responsibility for these tasks.

All waste receptacles will be appropriately signed and additional room signage is usually provided from most waste contractors during implementation of the waste contract. Examples of signage are included in Appendix E.

It is recommended that all signs should:

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.
- As part of the tenant induction process, a waste and recycling toolkit will be provided. This toolkit will include the details of each of the systems in place; acceptance criteria for each stream and how each stream is managed. A visual communication aid such as short video will also be provided to enable tenants to educate their employees.

On a quarterly basis waste and recycling performance reports will be reported back to staff/cleaners so that they are aware of their performance and areas for improvement. An active waste monitoring program will be employed. The waste and cleaning contracts will ensure that contractors actively participate in the waste reduction program for the site and meet monthly to identify performance and new opportunities for diversion and avoidance.

7 Other Systems

In addition to the diversion system that will be implemented, other waste diversion and minimisation practices may also be implemented. The following provide an example of these types of systems:

Fluorescent Light Tubes

A fluorescent light tube recycling stream may be required depending on the contractual arrangements for replacing light tubes. Recycling of used fluorescent light tubes could be a contractual requirement of the electrician responsible for servicing the lights. Alternatively if lights are services using in-house staff a fluorescent light tube recycling receptacle should be located in the recycling area.

Toner Cartridges

A toner cartridge recycling bin/box should be placed in key printing areas to capture used cartridges. These can be recycled on an as-needed basis.

E-Waste

Electronic equipment should be recycled on an as-needed basis.

8 Ongoing Management

Having suitable systems in place is only one element of an effective waste management system. Compliance by all stakeholders is essential.

Cleaners are a key element in the effectiveness of the systems in place. Prior to acceptance of the cleaning contract, the contractor will be required to demonstrate how the management of waste and recycling will be carried out so as to ensure that segregated materials are placed in the correct systems. This process will be agreed and a training program implemented by the cleaning contractor to ensure full understanding by all cleaners. The cleaning supervisor and site management throughout the term of the contract will carry out monitoring of the system.

In addition, cleaners will be required to feed back to site management any non-compliance issues they observe during their cleaning activities. This may include contamination of recycling, non-participation in the recycling system, or missing or damaged bins. In this way issues can be promptly dealt with by management.

Waste and recycling contractors will be required to report actual volumes collected by stream so that site management can monitor performance and feed this back to stakeholders.

It is highly recommended that a basic reporting program be set up at the site which would include bin tally sheets that detail the number of bins collected and how full they are at the time of collection, in addition to communication procedures to allow waste contractors to provide feedback regarding contamination and leakage.

All tenants and staff should be educated and made aware of any changes to the existing waste systems.

If a public place recycling system was implemented it would need to be accompanied by clear signage and colour coding to help differentiate the systems. It is likely that staff would also be required to inform the public about the systems and to guide their waste disposal practices. Additionally, notices and information sheets could be placed on public notice boards informing the public of the changes at the centre.

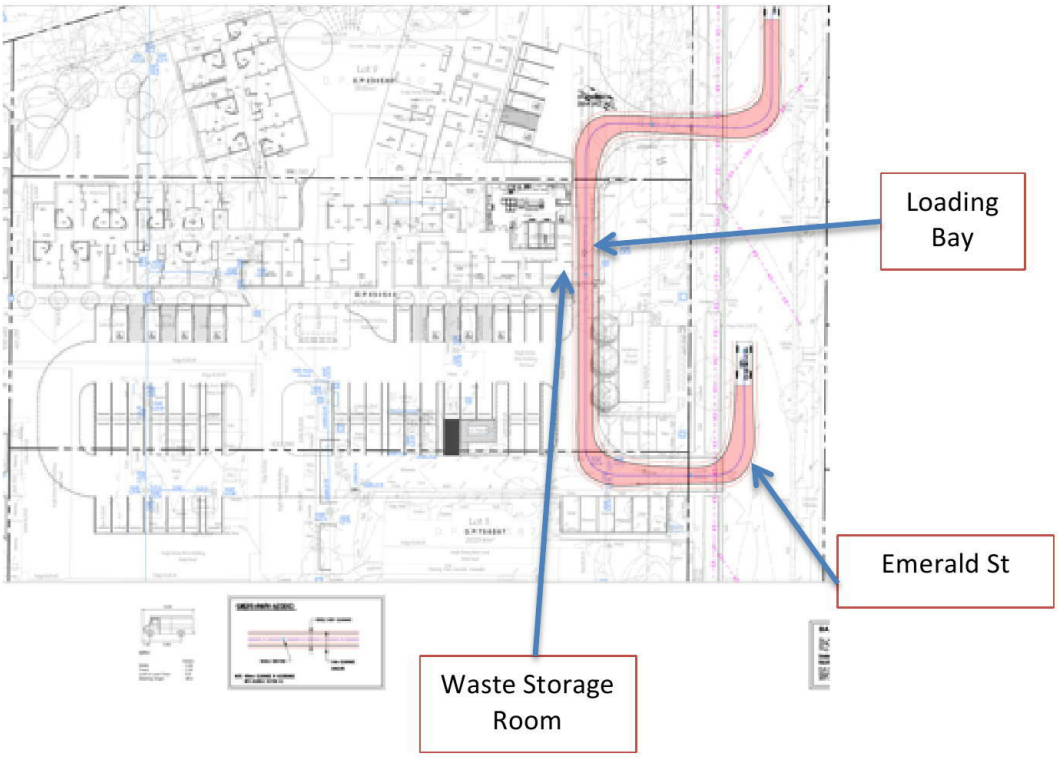
Appendix A – Waste Storage Area and Collection Point

Waste Storage Areas

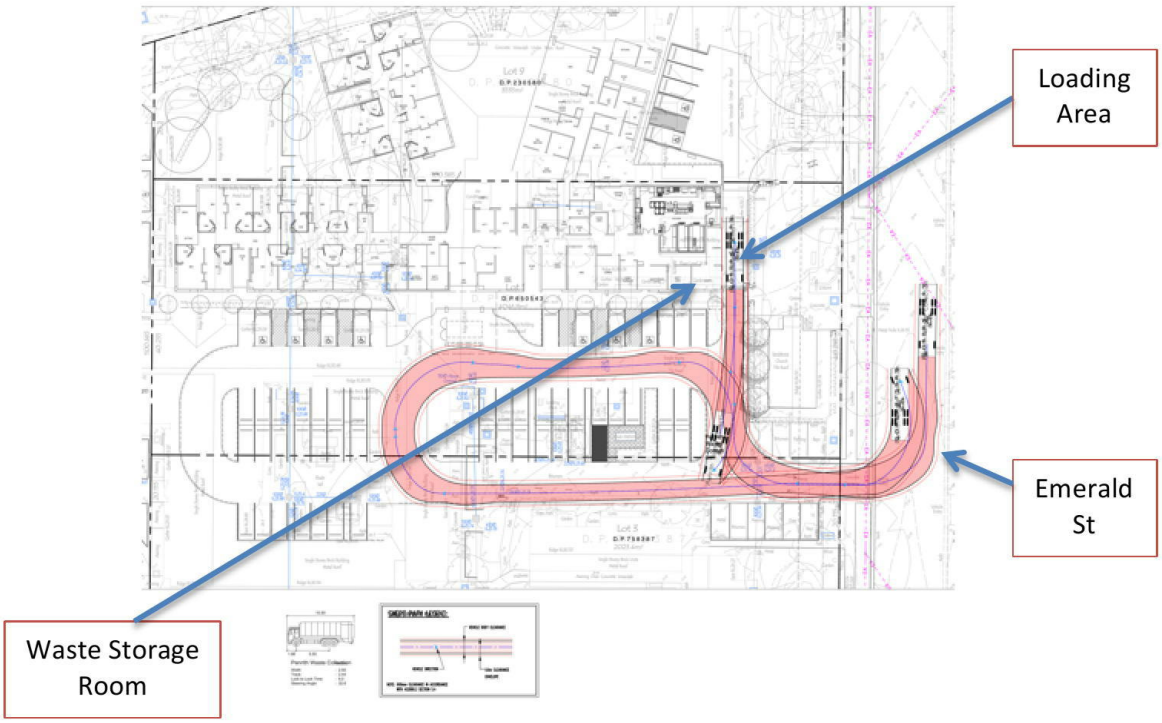
Appendix B – Collection Route Swept Paths

The following swept paths have been provided by a qualified traffic consultant in Taylor Thomson Whittting.

Swept Path with an SRV waste collection vehicle



Swept Path with an a Council HRV waste collection vehicle



Appendix C – Waste Storage Area Colour Coding

Photographs 1 & 2 - Examples of waste room colour coding

Appendix D – Waste Management Equipment

The following diagrams illustrate colours and sizes of different bins that could be used within the development.

Figure 1 – MGB bin

Figure 2 – MGB bin

Figure 3 – Indicative size of MGB

Figures 4, 5, 6 and 7 – Bin movers and tugs

Appendix E – Example Signage