Wallacia Country Club

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Operational Waste Management Plan

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1 Introduction

This Waste Management Plan (WMP) has been prepared on behalf of the Catholic Cemeteries Board to accompany a Development Application for the Wallacia Country Club, located at 13 Park Rd, Wallacia NSW.

The Plan has been developed with consideration of Penrith City 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 Development Control Plan 2014*.

The key components of the new development include the following:

- Golf course
- Pro Shop
- Bowling green
- Gymnasium
- Function rooms
- Gaming Room
- Lounge
- Office areas

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 staff 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 staff to segregate appropriate materials that can be recycled; displaying signage in all 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:

- Cardboard recycling;
- Paper recycling;
- Comingled (container) recycling;
- Food organics recycling; and
- General waste.

All green waste generated will be required to be managed by the appointed gardener by utilising it on-site.

Other wastes may be generated, but these would be in small volumes and irregular in terms of when generated. The management of the site will conduct a waste assessment once the site is operational to determine the additional types and quantities of wastes that may be generated. Following this, appropriate management systems will be implemented and where necessary generators advised of these management requirements.

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 in Penrith City Council's *Penrith Development Control Plan 2014, C5: Waste Management*, it is estimated that the entire development will generate a total of **9,450 litres** of waste and recyclables per week.

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

– Waste generation estimate

	L/week
Paper/Cardboard	2,500
Food organics	1,400
Co-mingled recycling	2,100
General waste	3,450
Total	**9,450**

Notes:

- Calculations are based on the predicted activity levels
- The level of activity may decline during "non-peak" periods and increase during the other parts of the year - calculations are averages
- The weights and volumes are based on correct segregation of waste and recyclables occurs
- The calculations allow for the commercial collection of food organics. However, an option could be to implement a system where there is on-site composting.
- If food organics system is not implemented, then this will be diverted to the general waste stream

2.3 Waste Systems and Bin Requirements

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

Waste Stream	Bin size	No. of Bins	Clearance Frequency/week	Capacity (weekly)	Estimated volume / week	Footprint per bin (m2)	Total Footprint
Paper/Cardboard Recycling	240L	6	2	2,880	2,500	0.44	2.64
Food Organics	120L	6	2	1,440	1,400	0.27	1.62
Comingle Recycling	240L	5	2	2,400	2,100	0.44	2.20
General Waste	240L	8	2	3,840	3,450	0.44	3.52
TOTAL		**25**		**10,560**	**9,450**		**9.98**

Note that once in operation collection frequencies may need to be changed to better reflect the generation of waste and recyclables onsite.

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 staff and cleaners.

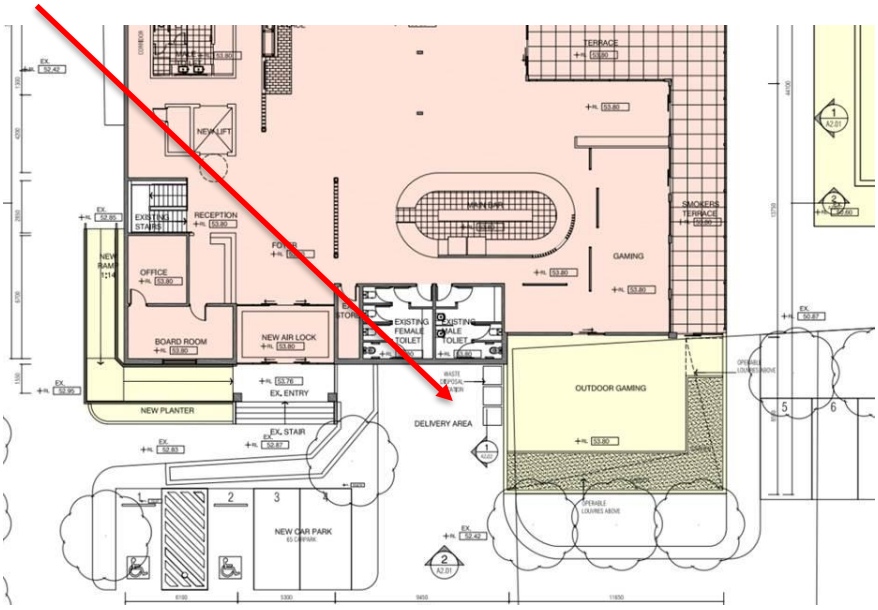
Appendix A contains example of bin types and other equipment that could be used for managing waste/recyclables within this development.

2.4 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.

Each stream will be located in a designated area. This will assist in easy identification of correct bins by cleaners and staff.

It is proposed that the waste and recycling bins be located in the car park as per the diagram below for servicing by the contractor:



2.5 Systems

The following summarises the recommended waste and recycling systems that will be implemented. These recommendations are based on Penrith City Council requirements and systems implemented for similar developments.

All cleaning and grounds staff will be briefed on the proper use of waste management systems. Staff will be encouraged to maximise the separation of general waste and mixed recyclables to aid the proper disposal of all materials.

Cleaners, grounds staff and management will monitor recycling streams as it is imperative that they remain free of contamination to ensure compliance with Penrith City Council and Suez – which will be the waste contractor utilised for the collection and depositing of waste and recyclables.

Waste/recyclables will be transported from internal bins to the larger bins located in the outside waste areas on a daily basis by staff.

In addition, staff will be provided with ad hoc recycling systems such as e-waste; batteries; mobile phones etc. Systems for these streams will be located within each tenancy or in common areas or be available upon request from building management.

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

3 Staff Education

All staff 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 be responsible for carrying out these tasks.

All waste receptacles will be appropriately signed. Examples of signage are included in Appendix B.

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 staff 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.

On a quarterly basis waste and recycling performance reports will be reported back to staff so that they are aware of their performance and areas for improvement. An active waste monitoring program will be employed.

4 Ongoing Management

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

Cleaners and grounds staff will be adequately trained and educated on the management of waste and recycling so as to ensure that segregated materials are placed in the correct systems. While site management will carry out monitoring of the system on a regular basis.

In addition, cleaners and grounds staff will be required to feed back to site management any non-compliance issues they observe during their cleaning activities and garbage collection service. 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.

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 with Suez Spring Farm Resource Recover Park to monitor actual volumes collected by stream.

All 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.

5 Public Place Recycling

With public open spaces, consideration needs to be taken regarding public place recycling (PPR). General waste and recycling facilities will be provided in public realm areas throughout the precinct.

Simple, colour-coded and consistent representation of common recycling and waste streams makes it easier for people to know how and what to recycle - whether at work, school or a public event. Introducing a public recycling system has environmental, social and financial benefits including:

- Responding to community expectations to 'Do the Right Thing'.
- Reducing the amount of waste sent to landfill and recovering valuable resources to be made into new products.
- Financial benefits over time as materials are diverted from landfill and into recycling.
- Improving the competitive edge of the Country Club in the eyes of users and other stakeholders.
- Contributing to triple bottom line reporting.

It is important that general waste and recycling bins are always located together in order to make recycling as accessible as general waste disposal. Recycling bins should never be located on their own in isolation from a general waste bin as patrons are likely to contaminate the recycling bin with general waste if there is no other option to dispose their general waste.

The implementation of organics recycling bins is not recommended in public places due to the high levels of contamination commonly observed in such systems.

All bins should be clearly signed and appropriately colour-coded to ensure the streams are readily identifiable. Signage for PPR should be:

- Colour-coded: red for general waste and yellow for recycling
- Large and easily viewed from all angles: this may mean that signs are placed on all sides of the bin or above the bin.
- Simple: don't use jargon (words such as PET, comingled, HDPE and even the recycling triangle can be confusing as this symbol can appear on a number of items that are not necessarily recyclable.
- Unambiguous and uses visual imagery

All public domain waste and recycling bins will be managed and collected by the appointed waste contractor as part of their existing waste and recycling operations.

Appendix A – 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 B – Example Signage