28 McPherson St Banksmeadow

Operational Waste Management Plan

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This report contains confidential information. It has been compiled by Waste Audit and Consultancy Services (Aust) Pty Ltd on behalf of Orica Australia Pty Ltd for the warehouse development at 28 McPherson St, Banksmeadow.

This Operational Waste Management Plan is not a substitute for legal advice on the relevant environmental legislation, which applies to Orica Australia Pty Ltd, contractors or other bodies. Accordingly, Waste Audit and Consultancy Services (Aust) Pty Ltd will not be liable for any loss or damage that may arise out of this project, other than loss or damage caused as a direct result of Waste Audit and Consultancy Services (Aust) Pty Ltd's negligence.

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1. Introduction

This Operational Waste Management Plan has been prepared on behalf of Orica Australia Pty Ltd for the warehouse development at 28 McPherson St, Banksmeadow. It responds to the SEARs (for SSD 9691), issued for the project by the NSW Department of Planning and Environment, specifically to address the following waste management requirements (extract from the SEARs report related to waste management):

Waste:

- *details of the quantities and classification of all waste streams to be generated on site during the development;*
- *details of waste storage, handling and disposal during the development;*
- *details of the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2014- 2021*

The Plan has been developed with consideration of Bayside 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 Bayside Council's *Botany Bay Development Control Plan 2013.*

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. The waste management plan has three key objectives:

1. ***Ensure waste is managed to reduce the amount of waste and recyclables to land fill*** by assisting staff and visitors of the Warehouse Buildings to segregate appropriate materials that can be recycled; displaying signage to remind and encourage recycling practices; and through placement of recycling and waste bins to reinforce these messages.
2. ***Recover, reuse and recycle*** generated waste wherever possible.
3. ***Compliance*** with all relevant codes and policies.

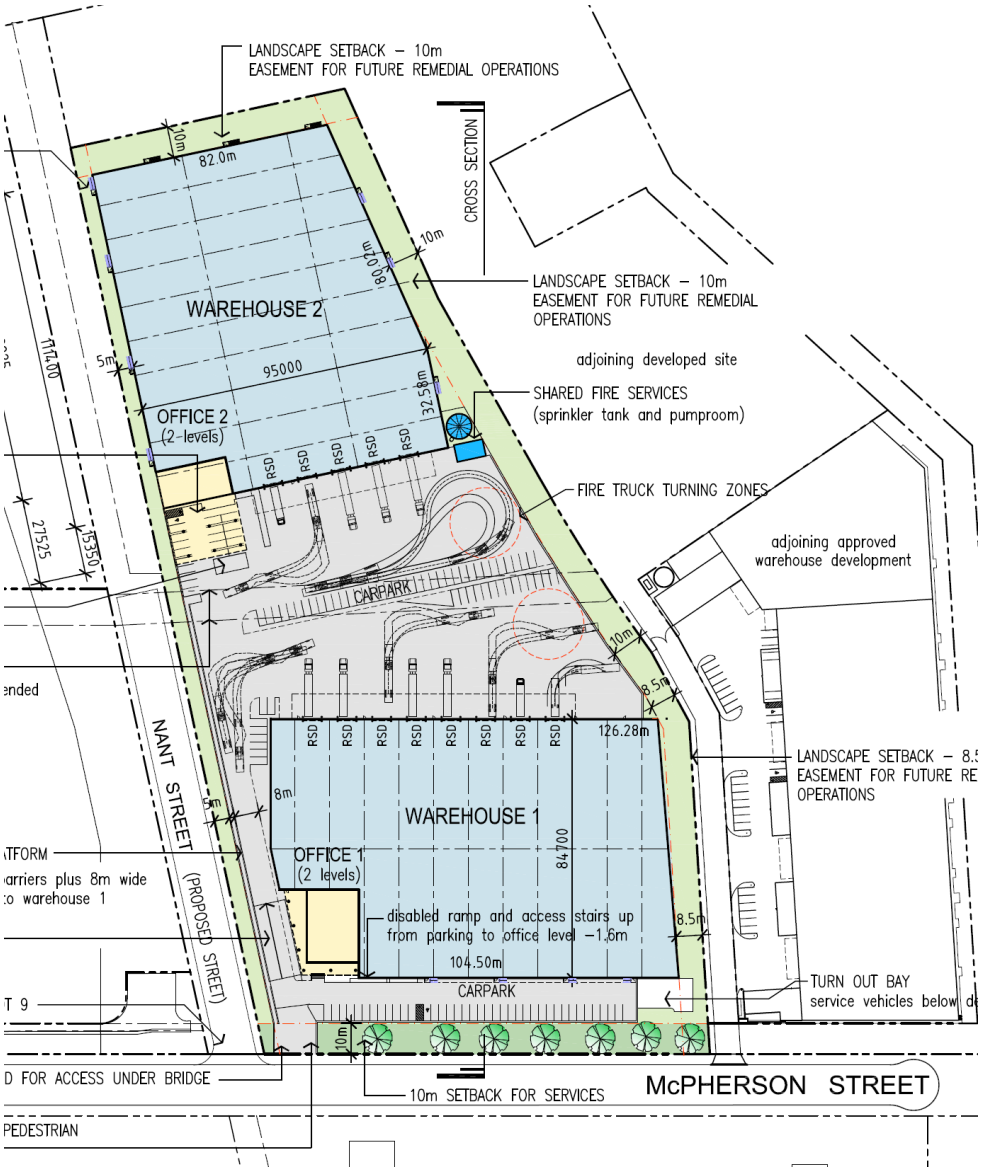
The development essentially consists of:

- A site of approximately 41,290 m^2, consisting of two warehouses
- Warehouse 1 with total building area of 11,135 m^2
- Warehouse 2 with total building area of 10,645 m^2

- 117 Car spaces

The following diagram provides an overview of the site and location of the warehouses/offices.

Diagram 1 – Site Plan



2. SEARs Checklist

Requirement	How it has been met
Details of the quantities and classification of all waste streams to be generated on site during the development	This requirement is addressed in the accompanying Construction Waste Management Plan (Section 4).
Details of waste storage, handling and disposal during the development	This requirement is addressed in the accompanying Construction Waste Management Plan (Section 3-5).
Details of the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2014- 2021	In identifying waste streams, strategies for minimising waste to landfill and maximising recycling, generation rates (with correct segregation), and management systems based upon education, compliance and enforcement this Plan responds to each of the six Key Result Areas of the NSW Waste Avoidance and Resource Recovery Strategy.

3. Waste Generation

3.1 Waste Streams

Based on the development profile, the following are the predominant waste streams that would be expected on a regular basis:

- General waste
- Commingled recycling
- Cardboard/Paper recycling
- Hard/Soft plastic recycling
- E-waste
- Pallet recycling
- Secure Paper recycling

Other wastes may be generated, but these would be irregular in terms of when generated and as such the quantities not able to be estimated. These would be materials such as hard and soft plastic, timber and other packaging materials (eg., polystyrene and metals). This Waste Management Plan does however recommend systems that will enhance landfill diversion of these materials. Importantly, tenants of the industrial units will need to demonstrate as part of their tenancy agreement adherence to the site developed waste management systems that aims to maximise landfill diversion.

Note: some of the above-mentioned waste streams will only be generated in specific areas within the development.

Note: for some of these waste streams it cannot be estimated as to volumes, however systems to effectively manage these materials are included in the following Sections.

3.2 Waste Generation Estimates

Calculations for the types and quantities of waste that will be generated are based on averages for quantity of waste generated and composition as determined by industry data (ie., 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 Bayside Council's *Botany Bay Development Control Plan 2013 (Amendment B)*, specifically, *Part 3N: Waste Minimisation and Management* and the EPA's *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*. In addition, reference has also been made to Bayside Council requirements, while management aspects have incorporated both Council and relevant Industry guidelines/best-practice waste management approaches.

Table 1 shows the estimated waste generated for the entire development. Tables 2-3 represent waste generation estimates for Warehouse 1 and Warehouse 2.

Table 1 – Waste generation estimate per week – entire development

	L/week
General Waste	5,446
Commingled Recycling	2,179
Paper & Cardboard Recycling	5,446
Total	**13,071**

Table 2 – Waste generation estimate per week – Warehouse 1

	L/week
General Waste	2,784
Commingled Recycling	1,114
Paper & Cardboard Recycling	2,784
Total	**6,682**

Table 3 – Waste generation estimate per week – Warehouse 2

	L/week
General Waste	2,662
Commingled Recycling	1,065
Paper & Cardboard Recycling	2,662
Total	**6,389**

3.3 Liquid Waste

As a generality, industrial units tend to generate very little, if any at all, liquid wastes. However, prior to completing all tenancy agreements, an understanding of the types of activities to be undertaken at each individual warehouse will be determined and based on this either specific liquid waste handling/storage facilities will be provided and/or advice provided on correct management.

Reference to the following NSW EPA publications will be used to guide liquid waste management strategies:

- Waste Avoidance and Resource Recovery Strategy
- EPA's Waste Classification Guidelines.
- Protection of the Environment Operations (Waste) Regulations 2005.
- Technical guidelines: Bunding and Spill Management

4. Waste Management Systems

4.1 Waste storage area – spatial requirements

Table 4 – Bin Requirement for Warehouse 1 and Warehouse 2

Waste Stream	Bin Size	Warehouse 1	Warehouse 2
General waste	3 m3 Bin	1	1
Commingled Recycling	1100L	1	1
Paper & Cardboard Recycling	3 m3 Bin	1	1
TOTAL		**3**	**3**

Above table shows the total number and size of bins required for Warehouse 1 and Warehouse 2. Size of waste storage area for Warehouse 1 and Warehouse 2 should be able to accommodate required bins as noted in above table. See Appendix A for Bin dimensions and bin footprint. It is recommended to allow 30% space for bin movement.

4.2 Waste Management

Warehouse areas (Office and storage areas) will be designed so as to allow effective segregation of recyclables. Each warehouse will be provided with sufficient number of smaller bins to allow for effective segregation of wastes/recyclables. Wastes/recyclables will be disposed into correct bins by waste caretaker(s).

Collection services will be provided by a commercial waste contractor. Utilising a commercial waste contractor affords the tenants greater flexibility regarding collection schedules. Appropriate collection frequencies will be determined in consultation with the waste contractor. Collection schedules may need to be adjusted accordingly depending on actual waste generation.

The collection of e-waste, soft plastic recycling and non-treated timber pallets will take place on an as-needed basis by a qualified private waste contractor. For timber pallets it is essential that warehouse management first and foremost hold delivery companies accountable for the removal of materials offsite. After which pallets should be reused onsite. Once these two strategies have been exhausted, a specialist contractor should be engaged to collect non-treated timber pallets for recycling. Strategies to deal with non-recyclable pallets will need to be discussed with the site's commercial waste contractor upon being appointed.

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 each warehouse, office area and waste storage area. Other signs can be accessed from the NSW EPA website at: https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs

4.3 Waste Storage area design

It is recommended to have separate waste storage areas for each warehouse. Waste storage area should have following features:

- Adequate size to comfortably accommodate all bins associated with the development.
- Gradient of waste storage area floor must be sufficiently levelled
- Convenient access

Appendix C contains diagram identifying the locations of waste storage areas

4.4 Disposal of Wastes/Recyclables

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

Table 8 – Waste Management Systems

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

To assist in achieving maximum landfill diversion, tenants will be provided with information as to suitable bin systems that could be utilised within the warehouse and office areas. This will include details such as bin sizes/types, colour coding and signage.

5. Waste Stream Acceptance Criteria

5.1 Acceptance Criteria

General Waste:

General waste bins will be 3.0 m3 industrial bin. 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):

Comingled recycling bins will be 1100L MGB's and should accept all recyclable plastic containers, aluminium containers, glass bottles and steel cans in. Comingled recycling bin lids and signage should be colour-coded yellow.

Paper/cardboard Recycling:

All paper and cardboard (excluding waxed cardboard) will be deposited into 3.0 m3 industrial bin which have a blue bin lid and signage.

Soft Plastic Recycling:

Includes shrink-wrap, bubble-wrap, shopping bags, plastic strapping and film. These will be disposed of into a recyclable plastic bag, supported by a frame and identifiable with the appropriate signage.

Timber Pallets Recycling:

Non-treated timber pallets will be stacked and stored for collection by the appropriate contractor.

E-Waste Recycling:

Desktop computers, laptops, computer keyboards, computer hardware and accessories will be stored in a palletised crate or cage, made identifiable by appropriate signage.

5.2 Bin Requirements

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

Table 9 – Standards Australia waste/recycling container colour coding

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

6. Education

All staff and management will receive information regarding the waste collection systems including how to use the system, which items are appropriate for each stream and collection regimes. Appropriate signage and updated information will also be provided.

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 is 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 monthly basis waste and recycling performance reports should be reported back to staff so that they are aware of their performance and areas for improvement.

7. Other Systems

In addition to the diversion system that will be implemented, other waste diversion and minimisation practices may also be implemented.

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.

Mobile Phones

Mobile phones can be collected in secure receptacles at centralised collection points. Alternatively, boxes containing postage satchels can be placed in centralised areas for use as needed.

Timber

All timber that is suitable for recycling will be collected and deposited into dedicated bins for collection and transport to a recycling facility (to be processed as mulch).

Appendix A – Bin Dimensions

Bin Size	Dimensions (Width x depth)	Bin footprint
120 litre	480 x 545 mm	0.26 sqm
140 litre	535 x 615 mm	0.33 sqm
240 litre	585 x 730 mm	0.43 sqm
660 litre	1260 x 780 mm	0.98 sqm
1100 litre	1240 x 1070 mm	1.32 sqm
3 m3 bin	2020 x 1450 mm	2.93 sqm

Appendix B – Example Signage

Appendix C – Waste Storage Areas