Hollinsworth Rd, Marsden Park

Operational Waste Management Plan

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1. SEARs Checklist

Requirement	How it has been met
Details of the quantities and classification of all waste streams to be generated onsite	Sections 2 & 3 of this report identify the waste streams expected to be generated onsite, with generation estimates and the systems to effectively and efficiently manage this waste also outlined.
Details of waste storage, handling and disposal	Section 3 of this report details waste storage areas and required design specifications, as well as the processes involved in the correct handling and disposal of waste streams.
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	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 report responds to each of the six Key Result Areas of the NSW Waste Avoidance and Resource Recovery Strategy.

2. Introduction

This Operational Waste Management Plan has been prepared on behalf of Logos Property Group for a development located at Lot 23 and Lot 24, Hollinsworth Rd, Marsden Park. It responds to the SEARs (for SSD 8606), issued for the project by the Department of Planning and Environment, specifically to address the following waste management requirements (extract from the SEARs report related to waste management):

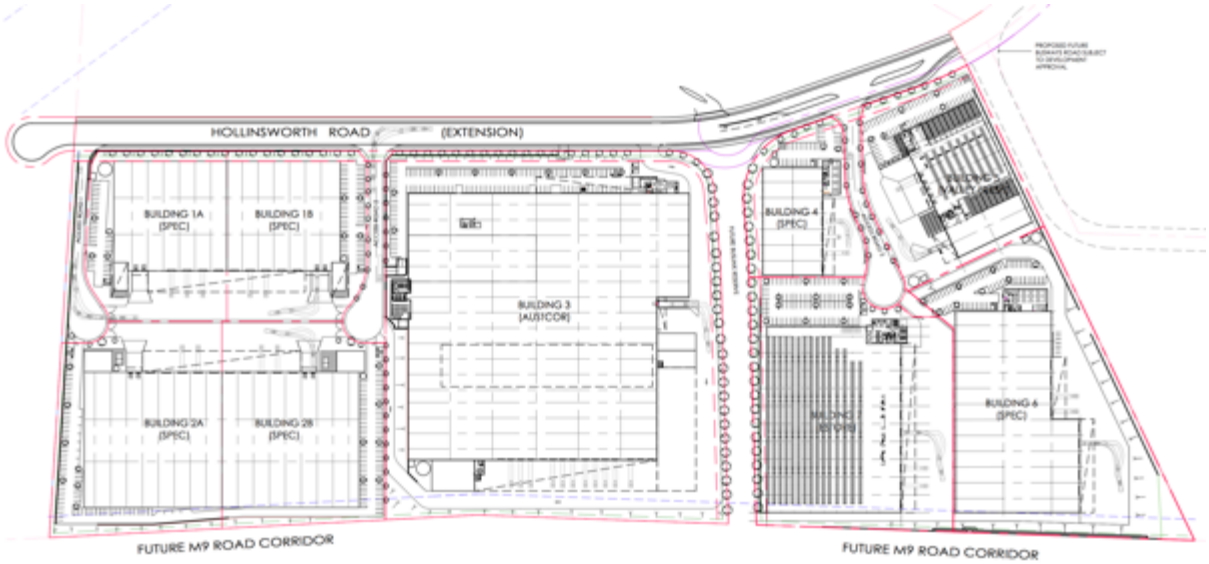
> *Waste Management Plan:*
>
> > *- details of the quantities and classification of all waste streams to be generated on-site;*
> >
> > *- details of waste storage, handling and disposal; and*
> >
> > *- details of the measures that would be implemented to ensure that the development is consistent with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

The development essentially consists of:

- A site of approximately 21 hectares
- 8 Industrial warehouses with office and distribution facilities. The size of the warehouses are:
  - Warehouse 1a – approximately 6,225 m^2 with office space of 500 m^2
  - Warehouse 1b – approximately 6,245 m^2 with office space of 500 m^2
  - Warehouse 2a – approximately 9,440 m^2 with office space of 625 m^2
  - Warehouse 2b – approximately 9,440 m^2 with office space of 625 m^2
  - Warehouse 3 – approximately 37,110 m^2 with office space of 2,333 m^2
  - Warehouse 4 – approximately 3,263 m^2 with office space of 300 m^2
  - Warehouse 5 – approximately 5,924 m^2 with office space of 300 m^2
  - Warehouse 6 – approximately 11,140 m^2 with office space of 1000 m^2
  - Warehouse 7 – approximately 12,352 m^2 with office space of 450 m^2

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

Diagram 1 – Site Map



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.

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:

- Cardboard/Paper recycling;
- Comingled recycling;
- Hard/Soft Plastic recycling;
- Organics recycling; and
- General waste.

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 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 warehouses will need to demonstrate as part of their tenancy agreement adherence to the site developed waste management systems that aims to maximise landfill diversion.

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 the City of Sydney's *Policy for Waste Minimisation in New Developments* 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 Blacktown City 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 from the development.

Table 1 – Waste generation estimate (Office Areas)/week

Waste Type	WH1a Office Litres	WH1b Office Litres	WH 2a Office Litres	WH 2b Office Litres	WH 3 Office Litres	WH 4 Office Litres	WH 5 Office Litres	WH 6 Office Litres	WH 7 Office Litres
General Waste	350	350	438	438	1,633	210	210	700	315
Recycling	350	350	438	438	1,633	210	210	700	315
TOTAL	**700**	**700**	**876**	**876**	**3,266**	**420**	**420**	**1,400**	**630**

Table 2 – Waste generation estimate (Warehouses)/week

Waste Type	WH 1a Litres	WH 1b Litres	WH 2a Litres	WH 2b Litres	WH 3 Litres	WH 4 Litres	WH 5 Litres	WH 6 Litres	WH 7 Litres
General Waste	1,750	1,800	2,000	2,000	10,000	1,600	1,600	2,700	2,950
Recycling	2,500	2,500	2,800	2,800	13,000	2,200	2,500	3,400	3,700
Organics Recycling	0	0	0	0	0	0	2,000	0	0
TOTAL	**4,250**	**4,300**	**4,800**	**4,800**	**23,000**	**3,800**	**6,100**	**6,100**	**6,650**

3.3 Liquid Waste

As a generality, warehouses 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 Systems and Bin Requirements

As these buildings (warehouses) are commercial entities, they would in all probability enter into separate waste/recycling management contracts with commercial companies. As such the type of systems that would be provided will depend on the services provided by these companies, costs of collection and this then would reflect upon servicing schedules.

However, it would be assumed that as a minimum each warehouse/office complex would be provided with:

- 1 to 4 x 3.0 m^3 front lift bins for general waste
- 1 to 4 x 3.0 m^3 front lift bins for paper/cardboard recycling
- 1 to 5 x 240 litre mobile garbage bins for commingled recycling

While Warehouse 5 will also be provided with the following to account for the generation of organics recycling onsite:

- 1 to 2 x 1.5 m^3 front lift bins for organics recycling

This is based on a once per week servicing schedule. Increased levels of servicing can be provided, but this may result in additional waste management costs – however, it would reduce the bin footprint required for the quantity of waste/recyclables generated.

4.2 Systems

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

All tenants will be briefed on the proper use of waste management system as it is imperative that the recycling stream remain free of contamination to ensure compliance with contractor collection protocols. Tenants will be encouraged to maximise the separation of general waste and mixed recyclables to aid the proper disposal of all materials.

It will be the responsibility of warehouse managers to ensure that waste areas remain clean and that waste and recyclables of disposed of correctly into the bins provided.

Waste and recycling collection services will be provided by a commercial waste contractor (TBA). Utilising a commercial waste contractor affords each tenant greater flexibility regarding collection schedules and the appropriate collection frequencies will be determined in consultation with the waste contractor once appointed – at present, this is planned to be weekly – however once each warehouse operational, collection schedules may need to be adjusted accordingly depending on actual waste generation (types and quantities).

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

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: http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm.

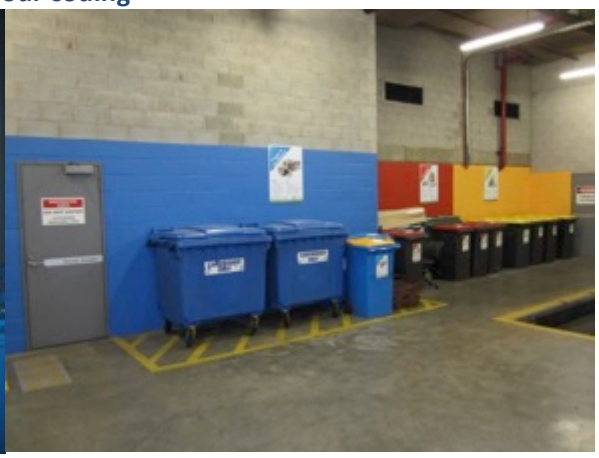
4.3 Waste Storage

Waste storage areas will be provided within the outside loading dock of each warehouse. The locations of these storage areas allow for the collection vehicles to enter the site, collect the waste or recyclables and then manoeuvre so as to exit the site in a forward direction (ie., there will be no need for reversing out of the site).

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

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 those with authorised access. The following photographs provide examples of how waste storage areas can be designed to promote correct separation of waste and recyclables.

Photographs 1 & 2 - Examples of waste room colour coding



All loading dock waste storage areas will be designed to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area. Bin movements should be with ease of access and conform to the Building Code of Australia, Australian Standards and local laws.

Waste bins will be able to be locked when not in use so as to prevent illegal dumping.

Occupational Health and Safety issues such as slippery floors in waste areas and the weight of the waste and recycling receptacles will need to be monitored.

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 3 – 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
Organics Recycling	Transported to a recycling facility for recycling 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 m^3 front lift bins. 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.

Comingled (Mixed Recycling):

The comingled recycling system will be 240L 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 or 4.5 m^3 front lift bins which have a blue bin lid and signage.

Organic Recycling:

All food waste (excluding liquids) will be deposited into 1.5 m^3 front lift bins, which will be identifiable with a burgundy lid and clear 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 4 – 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 tenants 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).

Plastic Wrapping

A dedicated 240 litre MGB will be located in the waste storage room for depositing soft plastic/wrapping for collection and transport by a recycling facility.

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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Appendix B – Example Signage

Example wall posters

Example bin lid stickers