

# **Australian Technology Park Development Project (Locomotive – Commercial)**

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## **Operational Waste Management Plan**



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# 1. Introduction

## 1.1 Introduction

This report supports a State Significant Development Application (SSDA 8449) submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Application (referred to as SSDA 8449) seeks approval for the adaptive reuse and redevelopment of the western portion of the Locomotive Workshop Building (being Bays 5-15) within Australian Technology Park (ATP), Eveleigh as described in the Project Description section of this report.

## 1.2 Background

Historically, ATP was used for railway maintenance, storage and other associated industries. Use of the site as marshalling yards and workshops formed part of a large railway-based precinct on both sides of the main railway line, dating from 1882 and growing in size until its closure in 1989. Since this time, the precinct has been progressively redeveloped and repurposed.

In 2014, the NSW Government resolved to offer development sites within the ATP for sale through a selective tender process conducted by Urban Growth NSW Development Corporation (UGDC). In November 2015 Mirvac Projects Pty Ltd (Mircvac) was named as the successful party and ownership and development rights of the precinct were subsequently transferred.

In December 2015, an SSDA was submitted to the Department of Planning & Environment for a multi-building redevelopment (i.e. Buildings 1, 2 and 3 shown in **Figure 2**) of the ATP to provide new commercial office, retail and community uses and a significant upgrade to the ATP public domain. Following public exhibition, and the submission of additional information, the development was approved by the Planning Assessment Commission on 20 December 2016. The construction of Buildings 1, 2 and 3 is currently underway.

The redevelopment of the Locomotive Workshop is also part of Mirvac's redevelopment strategy for the ATP. The Locomotive Workshop building is to be redeveloped in its entirety, however planning approvals are sought through the submission of two separate SSDAs. This Application relates to the western portion of the Building and is envisaged to be the next phase of urban regeneration within the ATP.

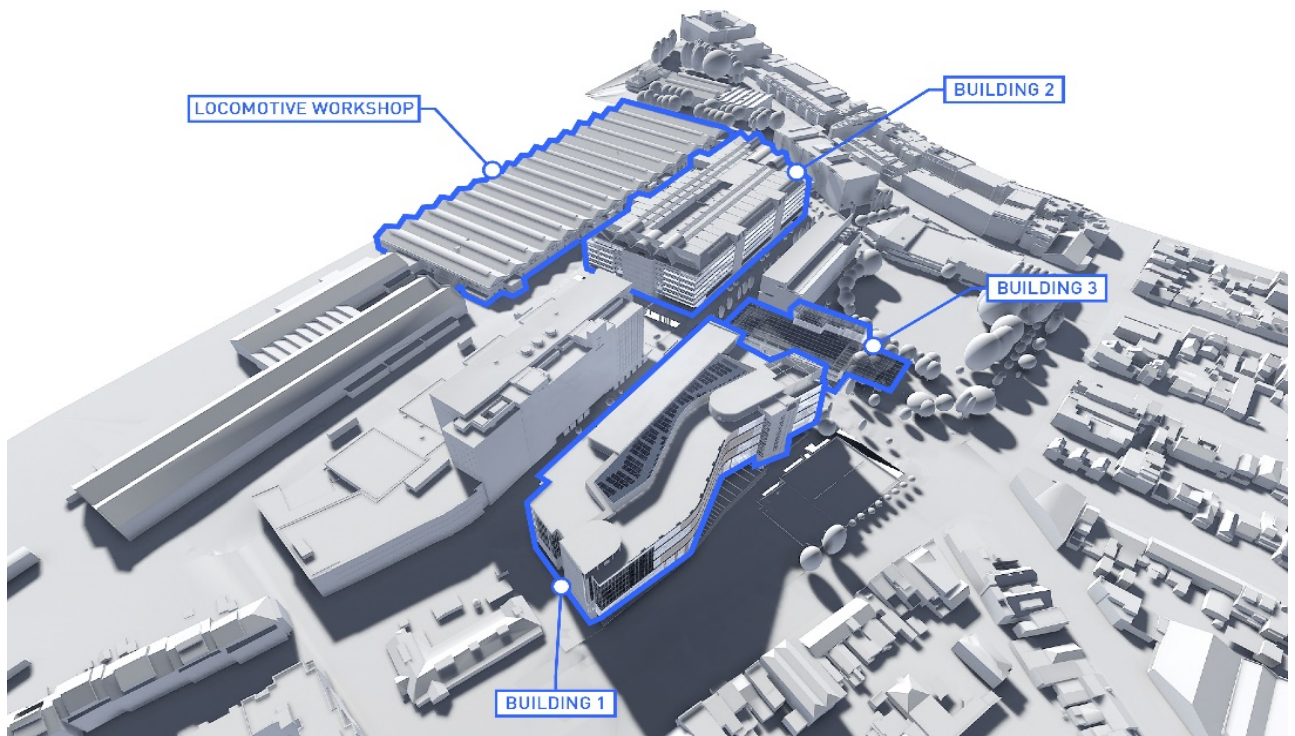
## 1.3 Site Location

The Locomotive Workshop is located within the Australian Technology Park (ATP), Eveleigh. The ATP precinct is located approximately 5km south of the Sydney CBD, 8km north of Sydney airport and within 200m of Redfern Railway Station and has an overall area of approximately 13.2 hectares. An aerial photograph of the ATP precinct is shown in **Figure 1** and the locational context of the Locomotive Workshop building is identified in **Figure 2**.



 The ATP Precinct

Figure 1 – ATP Precinct



**Figure 2 – Locational context of the Locomotive Workshop**

## **1.4 Proposed Development Description**

This SSDA seeks approval for the following:

- demolition of existing ‘modern’ infill fit-out elements to Bays 5-13 and 15;
- the adaptive reuse of the western portion of the Locomotive Workshop Building for ‘commercial premises’ uses including light industrial floorspace;
- construction of internal and external improvements to the Locomotive Workshop Building;
- heritage interpretation and conservation works;
- public domain improvements within the curtilage of the Building;
- provision of an external building illumination system;
- signage; and
- associated utilities and infrastructure.

A more detailed and comprehensive description of the proposal is contained in the EIS prepared by Ethos Urban.

## 1.5 Summary

The following has been based on the information provided and is intended to inform the design of the waste services by identifying the estimated waste profile for the ATP Locomotive Workshop Development as well as management requirements.

This profile is based on a maximum of 27,860m<sup>2</sup> GFA for commercial premises uses within Bays 5-15 and the two annex structures, that may include a maximum of 154m<sup>2</sup> for retail premises uses (within the two Annexes) and a maximum of 1,206m<sup>2</sup> GFA for light industrial uses.

The City of Sydney's *Policy for Waste Minimisation in New Developments* has been referred to in the development of the waste estimates and related requirements.

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 to the 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.

## 2. Waste Generation

### 2.1 Waste Streams

Based on the development profile (as per Section 1), the following are the predominant waste streams that would be expected on a regular basis:

- Cardboard recycling;
- Paper recycling;
- Comingled (container) recycling (glass and plastic); and
- General waste.

Paper and cardboard recycling will be consolidated into the one bin provided by the appointed contractor for recycling – this is to ensure that the system is economically viable. However, confidential document management will ensure that this stream (ie., materials), is not consolidated with other paper or the cardboard.

In addition to these four streams, other streams such as toner cartridge recycling will be implemented.

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 office furniture, e-waste and other materials. This Waste Management Plan does however recommend systems that will enhance landfill diversion of these materials.

### 2.2 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*. In addition, reference has also been made to the NSW Office of Environment and Heritage, Model Waste Not Development Control Plan 2008.

The following table shows the estimated waste generation for the Commercial component of the development.

**Table 1 – Commercial (including the retail and light technical uses) waste generation estimate (per week)**

Commercial	
Waste Type	L
General Waste	66,833
Paper/Cardboard	43,441
Commingled	23,391
<b>TOTAL</b>	<b>133,665</b>

## 3. Waste Management Systems

### 3.1 Existing Waste Management System

The intent for the commercial portion of this development is to utilise the existing waste management system (enhanced where necessary to address to larger commercial, retail and industrial uses within bays 5-15) to manage wastes and recyclables. This system is detailed in the operational Management Plan.

However, this existing system will be enhanced due to increases in waste generating spaces (ie., commercial premises).

### 3.2 Waste Bin Requirements

The following table show the bin numbers and associated footprint required to manage the estimated waste profile as detailed in the above tables for the development. The systems refer to the bins for consolidation of wastes and recyclables and waste storage rather than the internal bins that may be used within the development.

While 660 litre mobile garbage bins have been used for the calculations, other bins such as 1100/2400 could be implemented – this will depend on the preferences (and associated costs) in discussions with the appointed waste management service provider.

**Table 2 – Commercial (including the retail and light technical uses) Waste Systems**

Waste Stream	Bin Size (MGB)	No. of Bins	Clearance Frequency/week	Capacity (weekly)	Estimated volume / week	Footprint per bin (m2)	Total Footprint
General Waste	660	21	5	69,300	66,833	0.98	20.58
Paper/Cardboard	660	14	5	46,200	43,441	0.98	13.72
Commingled	660	8	5	26,400	23,391	0.98	7.84
<b>TOTAL</b>		<b>43</b>		<b>141,900</b>	<b>133,665</b>		<b>42.1</b>

These calculations show that a waste/recycling storage space of 56m<sup>2</sup> is required to both store bins and allow 30% additional space for bin movement.

However, as there is sharing of storage space with the retail aspect of this development, it has been recommend that the following systems be implemented:

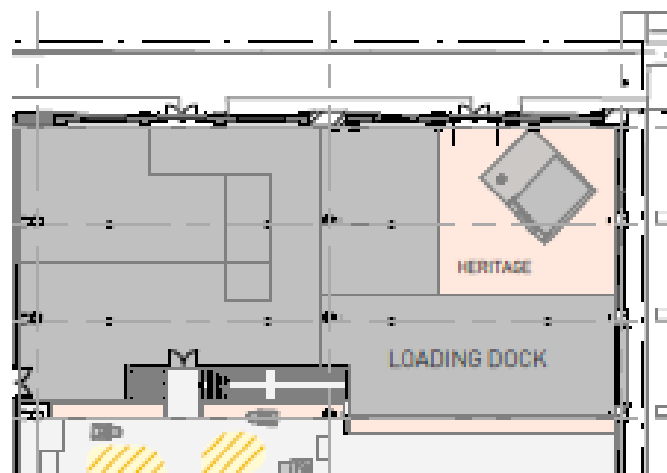
- A 20m<sup>3</sup> compactor. By servicing this twice per week, (and based on a compaction ration of approximately 1:3 to 1:4), means that there is capacity for approximately 60 to 80 m<sup>3</sup> of general waste per week. This would avoid the need for bins for this stream.
- A baler for cardboard. This would avoid the need for bins for this stream. In addition there would be approximately 4-5 bales of 1m<sup>3</sup> per week.

Using this recommended system results in a waste/recycling system footprint of:

- 8m<sup>2</sup> for commingled recyclables
- 25m<sup>2</sup> for the waste compactor
- 3m<sup>2</sup> for the cardboard baler, plus 5m<sup>3</sup> for cardboard bales

### 3.3 Waste Storage

The following diagram illustrates the loading dock (on the Ground Level), where the waste/recycling systems will be located – note that this option is dependent on the Retail SSDA 8849 being granted approval:



Based on the calculations for bin requirements (and space for bin movement), this space allocation is sufficient for storage of bins and the other recommend waste management systems. In addition, there is space for additional waste materials should they be generated, as well as contingencies should a collection be missed.

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.

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 factored into the waste storage space calculations.

The waste areas will be accessed by cleaning staff only.

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.

### Photographs 1 & 2 - Examples of colour coding for dock area



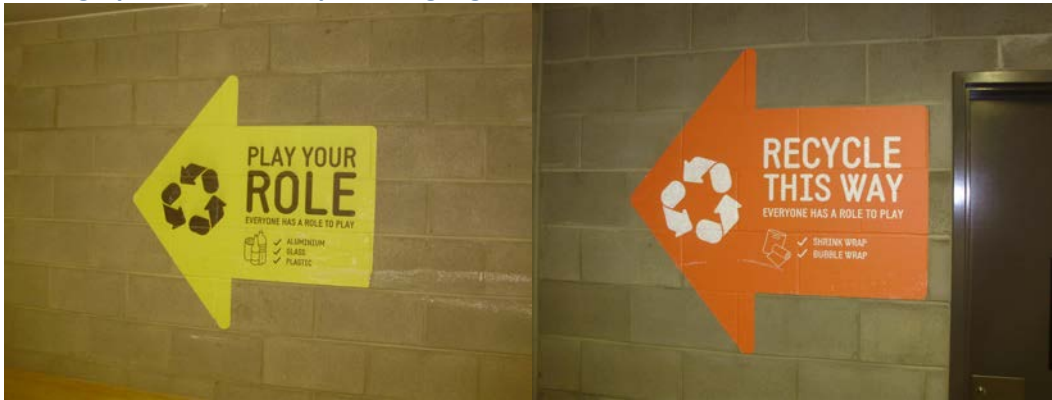
The waste area of the loading dock will contain the following to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- waste room area 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 will 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;
- waste area 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;
- 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 all spills will be attended to immediately by cleaners.

Other signage to assist in correct placement and segregation of waste/recyclables will be provided such as in the examples below. Appendix A also contains examples of signage that can be utilised in the loading dock and other areas of the development.

**Photographs 3 & 4 - Examples of signage**



### 3.4 Systems

The following summarises the recommended waste and recycling systems that will be implemented for the building. These recommendations are based on the City of Sydney’s requirements (*City of Sydney DCP 2012 (including Section 3 – General Provisions)* and *Policy for Waste Minimisation in New Developments*) and systems implemented for similar developments (and tenants).

All tenant’s staff will be briefed on the proper use of waste management system and the recycling streams will be monitored and reported by cleaners/building management as it is imperative that the recycling stream remain free of contamination to ensure compliance with The City of Sydney’s and/or 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.

Waste and recycling collection services will be provided by a commercial waste contractor (TBA). Utilising a commercial waste contractor affords the development (tenants) 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 five per week – however once operational, collection schedules may need to be adjusted accordingly depending on actual waste generation.

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

Signage will be a crucial element of the waste management system. Appendix A contains examples of signage. These are the type of signs that should be used throughout the buildings 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>.

### 3.5 Summary of management process

The following summarises the management system for the wastes and recyclables for the buildings.

All wastes and recyclables that are collected from the Ground Floor will be transported to the waste storage areas (for each building), by buildings and/or cleaning staff via the lift.

**Table 7 – Waste systems**

Stream	System	Comment
Cardboard recycling	Baler	Tenants separate paper/cardboard materials to deposit directly into bins. Cleaners to transfer bins/liners from the points of generation to the waste storage area for baling and collection.
Comingled Recycling	660L MGBs	Tenants separate comingled materials and then deposit directly into 240L MGBs. Cleaners to transfer bins/liners from the points of generation to the waste storage area for collection.

Stream	System	Comment
General Waste	Compactor	Tenants separate general waste and then deposit directly into MGBs. Cleaners to transfer bins/liners from the points of generation to the waste storage area for placement into the compactor.

### 3.6 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 8 – 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

## 4. Education

All tenants and cleaning staff 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 A.

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 tenants 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.

## 5. 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.

## 6. 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. Monitoring of the system will be carried out by the cleaning supervisor and site management throughout the term of the contract.

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 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 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.

## 7. 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. The final number of bins will be determined in consultation with Sydney City Council and Building management.

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 buildings (and tenants – specifically the retail and cafes), 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 – Example Signage





## Appendix B – 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 – Indicative size of MGB



**Figures 3, 4 and 5 – Bin movers and tugs**

