Australian Technology Park Development Project (Locomotive – Workshop)

OCTOBER 2017

Operational Waste Management Plan (RETAIL Bays 1 – 4a)

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1. Introduction

1.1 Introduction

This report supports a State Significant Development Application (SSDA) 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 8517) seeks approval for the adaptive reuse and redevelopment of the eastern portion of the Locomotive Workshop (being Bays 1-4a) within the Australian Technology Park (ATP), Eveleigh as described in the Proposed Development 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 (Mirvac) 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 is to be redeveloped in its entirety, however planning approvals are sought through the submission of two separate SSDAs. This Application relates to the eastern portion encompasses the heritage Bays 1 and 2, the existing Blacksmith operation and Bays 3, 4 and 4a. In conjunction with SSDA 8449 that relates to Bays 5-15, this Application 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 is identified in **Figure 2.**

Figure 1 – ATP Precinct

Source: Ethos Urban

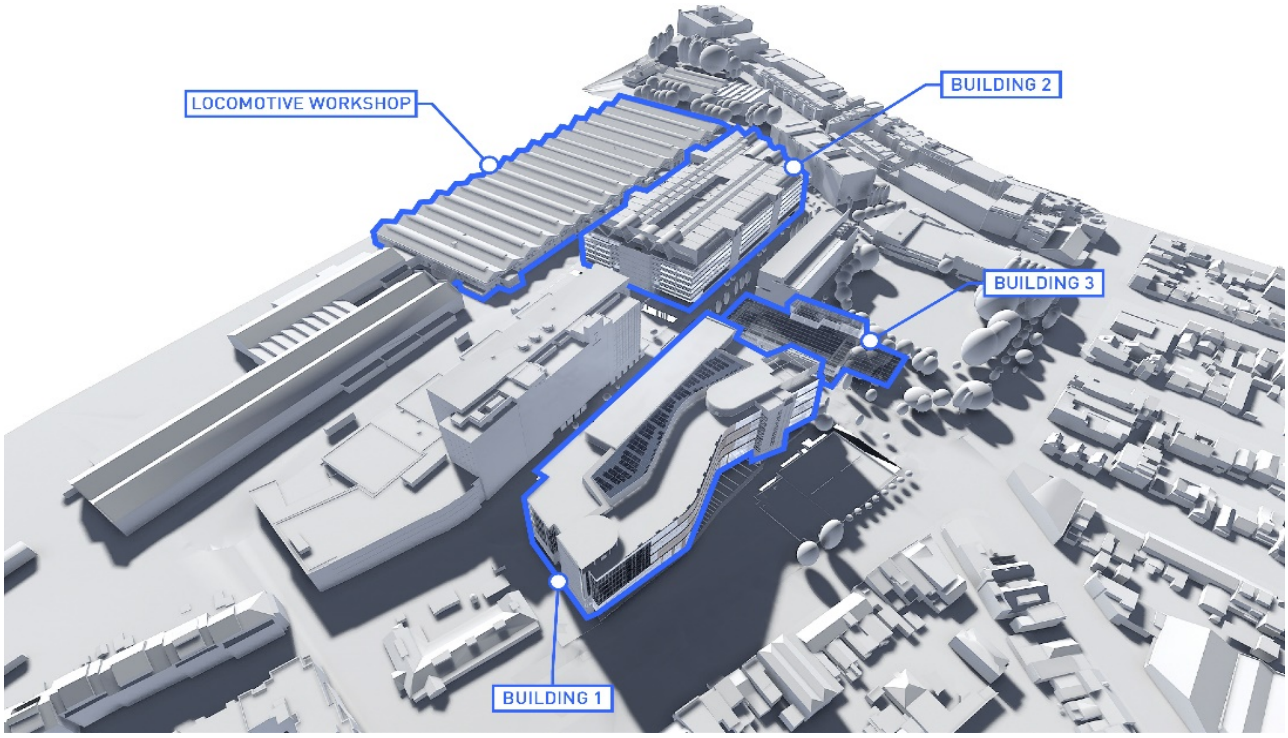


Figure 2 – Locational context of the Locomotive Workshop

Source: Sissons

1.4 Proposed Development Description

This SSDA seeks approval for the following:

- demolition of existing 'modern' infill fit-out elements to Bays 3-4a, including display barriers in Bays 1 & 2;
- relocation of moveable heritage items;
- adaptive reuse of the Bays 1-4a and two annex structures for retail premises uses, function centre uses, information and education facility uses, general industrial uses, recreation facility (indoor) uses and associated back of house facilities;
- construction of internal and external alterations to Bays 1-4a;
- heritage interpretation and conservation works;
- public domain improvements within the curtilage of Bays 1-4a;
- 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.

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:

- Paper/Cardboard recycling;
- Commingled recycling;
- Organics; and
- General waste

Paper and cardboard recycling from the retail premises will be consolidated into the one bin provided by the appointed contractor for recycling – this is to ensure that the system is economically viable. 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.

The medical centre will generate small volumes of clinical waste (including sharps), and this tenant will be required to utilise a contractor that will meet NSW EPA requirements for transport, tracking and treatment/disposal.

2.2 Waste Generation Estimates

The following tables show the estimated waste generated from the various components of the development – these estimates 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 waste generation rates as detailed in the City of Sydney's Policy.

It is estimated that the retail aspect of the development will generate a total of **114,016 litres** (114.1 m^3), of waste, recyclables and organics per week (this is total). This is broken down into:

Total Retail waste generation estimate

Retail	
Waste Type	**L**
General Waste	21688
Paper/Cardboard	14806
Commingled	7972
Organic	1400
TOTAL	**45,866**

Total Supermarket waste generation estimate

Supermarket	
Waste Type	**L**
General Waste	41300
Paper/Cardboard	17500
Commingled	3850
Organic	5500
TOTAL	**68,150**

3. Waste Management Systems

3.1 Waste Bin Requirements

Based on the above calculations the following are the bin requirements and associated footprint.

Retail bin requirements

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	7	5	23,100	21,688	0.98	6.86
Paper/Cardboard	660	5	5	16,500	14,806	0.98	4.9
Commingled	660	3	5	9,900	7,972	0.98	2.94
Organic	120	6	2	1,440	1,400	0.28	1.68
TOTAL		**21**		**50,940**	**45,867**		**16.4**

Supermarket bin requirements

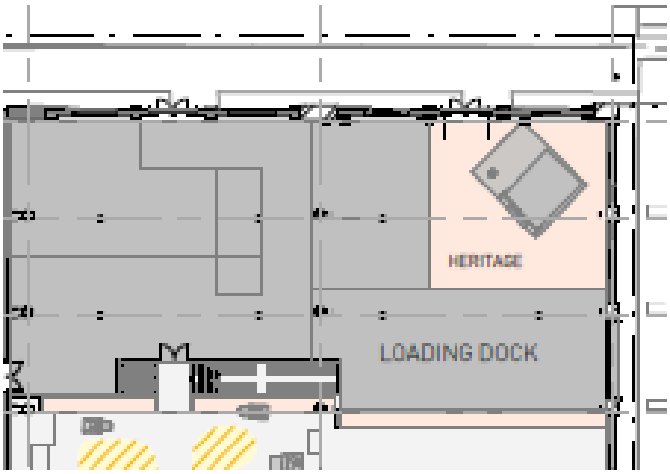
Waste Stream	Bin Size (MGB)	No. of Bins	Clearance Frequency/week	Capacity (weekly)	Estimated volume / week	Footprint per bin (m2)	Total Footprint
General Waste	660	13	5	42,900	41,300	0.98	12.74
Paper/Cardboard	660	6	5	19,800	17,500	0.98	5.88
Commingled	660	2	5	6,600	3,850	0.98	1.96
Organic	120	23	2	5,520	5,500	0.28	6.44
TOTAL		**44**		**74,820**	**68,150**		**27.0**

Based on these calculations, approximately 130m^3 of general waste is generated per week (excluding the supermarket waste). A 20m^3 compactor can accommodate approximately 1:3 to 1:4 compaction meaning that approximately 60 to 80 m3 of general waste would fit. With a 2 or 3 per week servicing schedule, this would avoid the need for bins for this stream.

With a baler for cardboard, the footprint with bins and/or bales is approximately the same.

3.2 Waste Storage

The following diagram illustrates the loading dock (on the Ground Level), where the waste/recycling systems will be located:



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. It is estimated that space that could be used is a minimum of 20m^2.

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 and employees of the retail premises.

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

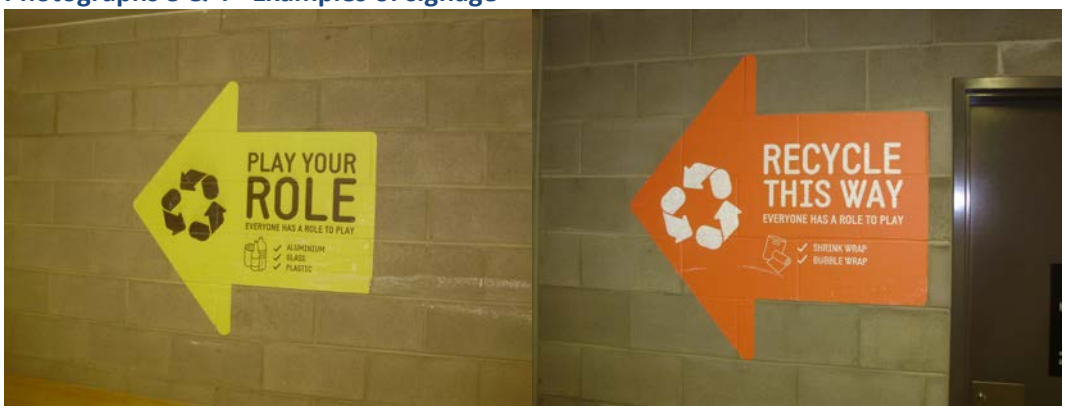
The waste area of the loading dock will contain the following to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- 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 utlised in the loading dock and other areas of the development.

Photographs 3 & 4 - Examples of signage



3.3 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*), the *Better Building Partnership (BBP) Operational Waste Guidelines*, *Mirvac's Operational Waste Guidelines* 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.

3.4 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 area, by building and/or cleaning staff via the lift.

Table 7 – Waste systems

Stream	System	Comment
Cardboard recycling	Baler	Tenants will install bin recycling stations in each tenancy to ensure separation of waste and recyclables is achieved. 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 will install bin recycling stations in each tenancy to ensure separation of waste and recyclables is achieved. 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.
Organics	120L MGBs	Tenants will install specific organics recycling bins in those tenancies that generate this material to ensure separation of waste and recyclables is achieved. Tenants place organics directly into the 120 litre MGB and cleaners transport down to the loading dock waste storage area.
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.

3.5 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 (and has been adopted by the waste industry).

Table 8 – Standards Australia waste/recycling container colour coding

Waste Stream	Bin Body Colour	Lid Colour
Paper Recycling	Blue	Blue
Cardboard Recycling	Green	Blue
Food Organics	Burgundy	Burgundy
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.

Mirvac's Operational Waste Guidelines contain detail of the roles and specific responsibilities for waste management by tenants, cleaners and building owners. These specific responsibilities will be included in the education program for all stakeholders.

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.

Tenants will be required to confirm agreement to comply with all waste management systems (including at source segregation). This requirement will be included in the Mirvac tenant's agreement.

5. 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.

This monitoring program will be based on cleaners being required to weigh all waste/recyclables being disposed of, maintain records of these weights and report to building management of a weekly basis these weights. To expedite this, resources such as scales will be installed.

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.

6. 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 cleaners as part of their existing waste and recycling operations.

Appendix A – Example Signage


PAPER &
CARDBOARD
This Changes Everything

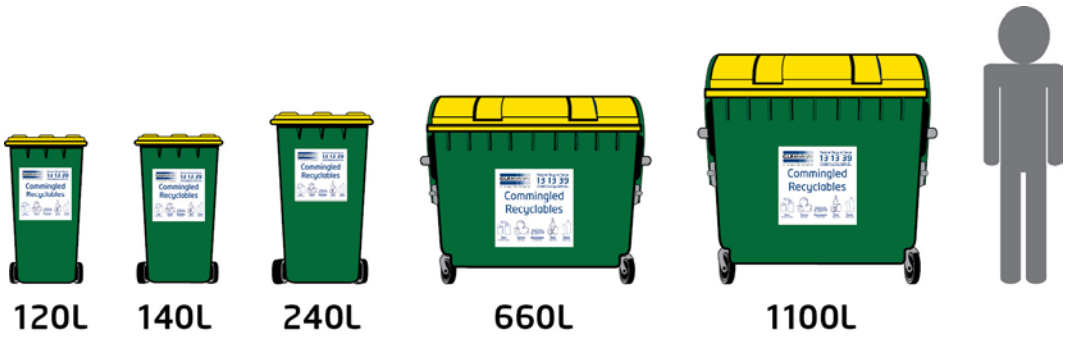

ALL OTHER
WASTE
This Changes Everything

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