

BRINGELLY ROAD BUSINESS HUB

Lot 1
Waste Management Plan

Prepared for:
ESR Australia
Level 29
20 Bond St
Sydney NSW 2000

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with ESR Australia (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1 Introduction

1.1 Overview

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by ESR Australia (the Client) to prepare a waste management plan (WMP) in support of a development application (DA) to the Department of Planning and Environment (DPE) for Lot 1 of the Bringelly Road Business Hub (the Development).

This WMP applies to the waste generated from the site clearance, construction and operational stages of the development of Lot 1. This WMP complies with the requirements of the Secretary's Environmental Assessment Requirements (SEARs) relevant to this project. The relevant requirements of the SEARs issued for SSD-37558583 are addressed in this report as shown in Table 1.

Table 1 SSD-37558583 Conditions for Waste Management

Conditions for Waste Management	Relevant Sections in this WMP
17. Waste Management Identify, quantify and classify the likely waste streams to be generated during construction and operation.	Please see Section 5 on page 9 and Section 6 on page 18 of this waste management plan
Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	Please see Table 3 on page 10, Table 6 on page 18, Table 7 on page 19 and Table 13 on page 28
Identify appropriate servicing arrangements for the site.	Please see Section 6.8 on page 24
If buildings are proposed to be demolished or altered, provide a hazardous materials survey.	There are no structures or buildings on the site

SLR has also referred to the Camden Development Control Plan 2019 (Camden DCP) and Camden Council Waste Management Guideline August 2019 to assist in estimating potential waste quantities.

1.2 Objectives

The principal objective of this WMP is to identify all potential waste likely to be generated at the Development site during construction and operational phases, including a description of how waste would be handled, processed and disposed of, or re-used or recycled, guided by Camden Council's (Council) requirements where possible.

The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To ensure the appropriate management of contaminated and hazardous waste.
- To identify procedures and chain of custody records for waste management.
- To assist in ensuring that any environmental impacts during the operational life of the Development comply with Council's development consent conditions and other relevant regulatory authorities.

3 Better Practice Waste Management and Recycling

3.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in Figure 2, which summarises the objectives of the Waste Avoidance and Resource Recovery Act 2001.

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste avoidance, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste reuse, reuse without substantially changing the form of the waste.
- Waste recycling, treatment of waste that is no longer usable in its current form to produce new products.
- Energy recovery, processing of residual waste materials to recover energy.
- Waste treatment, reduce potential environmental, health and safety risks.
- Waste disposal, in a manner that causes the least harm to the natural environment.



Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

Figure 2 Waste management hierarchy

3.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.
- Lowered consumption of non-renewable resources.

- Reduced environmental impact, for example, pollution, from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

4 Waste Legislation and Guidance

The legislation and guidance outlined in Table 2 below should be referred to during the operational phases of the Development.

Table 2 Legislation and guidance

Legislation and Guidance	Objectives
State and National legislation and guidelines	
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2019	The National Construction Code 2019 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.
NSW DPIE (2021) Waste and Sustainable Materials Strategy 2041	The NSW Strategy 2041 outlines the actions the NSW Government will take over the next six years, the first phase of the strategy, to deliver on its long-term objectives. Some of the key reforms include, phasing out problematic single-use plastic items, financial incentives for manufacturers and producers to design out problematic plastics, having government agencies prefer recycled content, mandating the separation of food and garden organics for households and selected businesses and incentivising biogas generation from waste materials. Targets include, reduce total waste generated by 10% per person by 2030, have an 80% average recovery rate from all waste streams by 2030, significantly increase use of recycled content by governments and industry, phase out problematic and unnecessary plastics by 2025, halve the amount of organic waste sent to landfill by 2030, reduce litter by 60% by 2030 and plastics litter by 30% by 2025 and triple the plastics recycling rate by 2030.
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of wastes that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as ongoing wastes such as food waste. • Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. • Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	The NSW EPA Waste Classification Guidelines assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act 1997 and is associated regulations.

Legislation and Guidance	Objectives
Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011	The POEO Act 1997 and POEO Amendment Act 2011 are administered by the NSW Environment Protection Authority (NSW EPA) to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of waste generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.
The Work Health and Safety Regulation 2011	The Work Health and Safety Regulation 2011 provide detailed actions and guidance associated with the topics discussed in The Work Health and Safety Act 2011. The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.
Waste Avoidance and Resource Recovery Act 2001	The Waste Avoidance and Resource Recovery Act 2001 aims to promote waste avoidance and resource recovery and repeals the Waste Minimisation and Management Act 1995. Specific objectives of the Waste Avoidance and Resource Recovery Act 2001 include: • encouraging efficient use of resources • minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste • ensuring industry and the community share responsibility in reducing/dealing with waste, and • efficiently funding of waste/resource management planning, programs and service delivery. As of 2016, the addition to the Act of Part 5 defines the legislative framework for the "Return and Earn Container Deposit Scheme" whereby selected beverage containers can be returned to State Government authorities for a monetary refund.

5 Site preparation and Construction Waste Management

5.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2021) indicates that construction and demolition waste recovery rates in 2018-2019 were 77%.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet these targets. Waste reporting and audits can be used to determine the actual percentage of wastes that are being, or have been, recycled during the site preparation and construction stages of the Development.

5.2 Waste Streams and Classifications

The site preparation and construction activities are anticipated to generate the following broad waste streams:

- Site preparation waste as outlined in Section 5.3
- Construction waste as outlined in Section 5.4
- Packaging waste, and
- Work compound waste from on-site employees.

A summary of likely waste types generated from site preparation and construction activities, along with their waste classifications and proposed management methods are provided in Table 3. For further information on how to determine a waste's classification refer to the NSW EPA (2014) Waste Classification Guidelines.¹ Further information on managing site preparation and construction wastes is also available on the NSW EPA website² and the Western Sydney Recycling Directory – Construction and Demolition Waste 2017.³

Table 3 Potential site preparation and construction waste types, classifications and management methods

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Site Preparation and Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling; Chip for landscaping; Sell for firewood Treated: reused for formwork, bridging, blocking, propping or second-hand supplier Untreated: reused for floorboards, fencing, furniture, mulched second hand supplier, and remainder to landscape supplies.
Doors, windows, fittings	General solid waste (non-putrescible)	Off-site recycling at second hand supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production
Asbestos	Hazardous waste	Off-site disposal to a licensed landfill facility.
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle for more information ⁴

¹ Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

² Available online from <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>

³ <https://www.blacktown.nsw.gov.au/files/content/public/services/waste/demolition-and-construction-waste/western-sydney-recycling-directory-cd-updated-nov-2017.pdf>

⁴ Available online from <http://www.fluorocycle.org.au/> or <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Paint	Hazardous waste	Off-site recycling, Paintback collection ⁵ or disposal
Synthetic rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling, reprocessed for other uses
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling
Carpet	General solid waste (non-putrescible)	Off-site recycling, disposal or reuse
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact Business Recycling for more information ⁶
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Recyclable beverage containers, such as glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Recycling at off-site licensed facility or at NSW container deposit scheme 'Return and Earn' facility ⁷
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard, food and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

5.3 Site Preparation Waste Types and Quantities

The site is currently vacant, undeveloped and comprising mostly grass and trees. Some excavation is proposed at the site, but all soil will be reused on site for site levelling and landscaping. There are no structures on site so no demolition waste will be generated.

5.4 Construction Waste Types and Quantities

SLR has used the 'Factory' waste construction generation rates from Council's Waste Management Guideline August 2019 for estimating the type and quantities of waste generated from construction of the Development. SLR has also referenced Light Duty Asphalt Pavements - Design, Specification and Construction 2002 Australian Asphalt Pavement Association, specifically Table 10 Passenger Car Parking Areas, up to 50 Bays, for estimating the amounts of materials required for car park construction and assumed 10% waste.

The construction waste generation rates used are shown in Table 4 below.

⁵ Available online from <https://www.paintback.com.au/>

⁶ Available online from <https://businessrecycling.com.au/>

⁷ Available online from <http://returnandearn.org.au/>

Table 4 Construction waste generation rates

Rate Type	Per Area (m ²)	Waste types and quantities (m ³)								
		Timber	Concrete	Bricks	Roof Sheeting	Sand or Soil	Metal	Other	Asphalt	Granular Base
Factory	1,000	3	3	2	3	0	3	10	0	0
Car Park up to 50 bays	100	0	0.225	0	0	0	0	0	0.3	1.25
Hardstand	1,000	0	2.1	0	0	4.8	0.6	0.5	0	0

Estimates of the quantities of construction waste generated from the Development are shown in Table 5 below.

Table 5 Estimated types and quantities of construction waste

Development Component	Area (m ²)	Waste types and quantities (m ³)								
		Timber	Concrete	Bricks	Roof Sheeting	Sand or Soil	Metal	Other	Asphalt	Granular Base
Warehouse	4,470	134	134	89	134	-	134	447	-	-
Office	1,000	30	30	20	30	-	30	100	-	-
Car park	1,000	-	2	-	-	-	-	-	3	13
Hardstand	2,331	-	49	-	-	112	14	12	-	-
Total	8,801	164	215	109	164	112	178	559	3	13

The areas shown in Table 5 are based on the floor areas shown on the drawings in 22118_DA03_P6_Site plan.pdf.

5.5 Waste Avoidance Strategies

The Building Contractor, Building Designer and/or those in equivalent roles, should follow better practice waste management and the principles of Ecologically Sustainable Development.

Recommendations for the Building Designer include:

- Using prefabricated components
- Using low formaldehyde wood products, post-consumer reused timber and/or Forest Stewardship Council certified timber
- Using fittings and furnishings that have been recycled, are made from or incorporate recycled materials and have been certified as sustainable or environmentally friendly by a recognised third-party certification scheme
- Preferentially using building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Reducing the use of polyvinyl chloride products
- Preferentially using paints, floor coverings and adhesives with low VOC (volatile organic compound) content
- Avoiding unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau
- Selecting materials based on low embodied energy properties that suit the Development, such as recycled materials including recycled steel and glass-wool insulation, or concrete with slag and fly ash content

- Centralising wet areas together to minimise piping, and
- Designing for deconstruction rather than demolition.

Recommendations for the Building Contractor include:

- Applying practical building designs and construction techniques
- Minimising excavation works
- Investigating leased equipment and machinery rather than purchase and disposal
- Sorting and segregating site preparation and construction wastes to ensure efficient recycling of wastes
- Preferentially selecting building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Store wastes on-site appropriately to prevent cross-contamination and/or mixing of different waste types
- Reducing packaging waste by:
 - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
 - Purchasing in bulk
 - Requesting cardboard or metal drums rather than plastics
 - Requesting metal straps rather than shrink wrap, and
 - Using returnable packaging such as pallets and reels.
- Arranging deliveries 'as needed' to mitigate degradation, weathering or moisture damage, and
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

5.6 Re-use, Recycling and Disposal

Effective management of materials and construction and demolition waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only waste that cannot be cost effectively reused or recycled will be sent to landfill or appropriate disposal facilities.

In accordance with good practice waste management, the following specific procedures will be implemented:

- On-site source separation to ensure efficient recycling
- Concrete, tiles and bricks reused or recycled off-site
- Steel recycled off-site, and all other metals recycled where economically viable
- Framing timber recycled off-site
- Windows, doors and joinery off-site, where possible
- All glass that can be economically recycled will be recycled
- All solid waste timber, brick, concrete, rock that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner

- Re-use of materials on-site where possible
- Separate waste bins for recyclable and non-recyclable general wastes
- Assess excavation spoil for contamination status and beneficial re-use
- Retain used crates for storage purposes unless damaged
- Recycle cardboard, glass and metal wastes
- Provide sufficient space for storage of garden waste and other waste materials on-site
- Dispose of all asbestos, hazardous and/or intractable wastes in accordance with SafeWork NSW and NSW EPA requirements
- All used crates will be stored for reuse unless damaged
- Deliver batteries to drop off-site recycling facility, and
- Where source separation is utilised, materials are to be kept uncontaminated to guarantee the highest possible re-use value.

5.7 Waste Separation

Waste materials produced from site preparation and construction activities will be separated at the source and stored separately on-site.

It is anticipated that there will be enough space on-site for separate storage in, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full separation of waste types, the site manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled before removal from the site.

5.8 Waste Storage Areas

Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the Development. Where space is restricted, dedicated stockpile areas will be delineated on the site, with regular transfers to dedicated skip bins for sorting.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas will be kept clean and in a good state of repair.

Applicable weather protection measures should be considered for storage spaces.

In accordance with good practice waste management, areas designated for waste storage will:

- Allow unimpeded access by site personnel and waste disposal contractors
- Take into account environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation
- Allow sufficient space for the storage of garden waste and other waste materials on-site
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety and accessibility in their selection, and
- Not present hazards to human health or the environment.

5.9 Waste Servicing and Record Keeping

The Site Manager or equivalent role will:

- Arrange for suitable waste collection contractors to remove any construction waste from site
- Ensure waste bins are not filled beyond recommended filling levels
- Ensure that all bins and loads of waste materials leaving site are covered
- Maintain waste disposal documentation detailing, at a minimum:
 - Descriptions and estimated amounts of all waste materials removed from site
 - Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables
 - Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
 - Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA, and
- Remove waste during approved hours.

If skips and bins are reaching capacity, removal and replacement will be organised as soon as possible. All site-generated building waste collected in the skips and bins will leave the site and taken to a site lawfully able to accept them.

5.10 Signage

Standard signage will be posted in all waste storage and collection areas. All waste containers will be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online⁸ and should be used where applicable. A selection of the EPA's signs is shown in Figure 3.



Figure 3 Examples of NSW EPA labels for waste and skip bins

5.11 Site Inductions

All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Development will undergo induction training regarding waste management.

Induction training will cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets
- Emergency response procedures on-site
- Waste priorities and opportunities for reduction, reuse and recycling
- Waste storage locations and separation of waste
- Procedures for suspected contaminated and hazardous wastes
- Waste related signage

⁸ NSW EPA approved waste materials signage <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs>

- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

5.12 Monitoring and Reporting

During the site preparation and construction phases, the following monitoring practices will be undertaken to improve site preparation and construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

Records will be maintained for all waste quantities that are recycled, reused or removed by a contractor. All site preparation and construction waste dockets will be kept which show which facility received the material for recycling or disposal.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and logs recorded for reporting to the site manager or equivalent role on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits should be carried out by the building contractor or equivalent role to gauge the effectiveness and efficiency of waste segregation procedures and recycling and reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage will be re-examined.

5.13 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the site manager, or equivalent role, to implement the WMP, and the responsibility of employees and subcontractors to ensure that they comply with the WMP at all times.

Suggested roles and responsibilities for waste management at the site are provided in Table 6. Where possible, a construction environmental manager, or equivalent role, should be appointed for the site preparation and construction work. An equivalent construction environmental manager role is defined to be a person dedicated to overseeing the environmental compliance and performance of a development. Where a construction environmental manager is not appointed, responsibilities in Table 6 for the construction environmental manager will become those of the site manager.

Table 6 Suggested roles and responsibilities for site preparation and construction waste management

Role	Responsibilities
Site Manager	- Ensuring plant and equipment are well maintained - Ordering only the required amount of materials - Keeping materials segregated to maximise reuse and recycling - Ensuring that waste sorting and storage areas are maintained in a tidy and functional state and do not present hazards to human health or the environment - Ensure hazardous or contaminated materials are appropriately managed and disposed - Ensure site records and documentation is kept and is complete - Ensure this WMP are implemented, and - Liaise with Council and regulatory authorities as required.
Construction Environmental Manager or equivalent	- Ensuring staff and contractors are aware of site requirements for waste management - Establishing separate skips and stockpiles and recycling bins for effective waste segregation and recycling purposes - Developing or identifying, and using, local commercial opportunities for re-use of materials where re-use on-site is impractical - Facilitate correct waste collection - Engage suitable waste collection and disposal contractors - Approval of off-site waste disposal locations and checking licensing requirements - Arranging for the assessment of potentially hazardous or contaminated materials - Arranging for appropriate contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements - Monitor and maintain site environmental controls and - Monitoring, inspection and reporting requirements.

6 Operational Waste Management

6.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Each commercial and industrial development can contribute to this NSW State target through an effective waste management plan.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet the state's targets. Waste reporting and audits can be used to determine the actual percentage of waste that are being, or have been, recycled during operation.

6.2 Waste Streams and Classifications

The operation of the Development is anticipated to generate the following broad waste streams:

- Domestic wastes generated by employees, including food wastes
- Bulk packaging wastes, including polystyrene, plastic wrapping and cardboard boxes
- Office waste

- Garden organic waste from landscaped areas
- Bulky waste items such as furniture and e-waste, and
- Stores, plant and general maintenance wastes.

Potential ongoing waste types, their associated waste classifications, and management methods are provided in Table 7.

Table 7 Potential operational waste types, EPA classifications and management methods

Waste Types	NSW EPA Classification	Proposed Management Method
General Operations		
Clean office paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard including bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans	General solid (non-putrescible) waste	NSW container deposit scheme 'Return and Earn', container recycling at off-site licensed facility
Food waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Batteries	Hazardous waste	Off-site recycling, alternatively contact the Australian Battery Recycling Initiative for more information
Mobile Phones	Hazardous waste	Off-site recycling; can be taken to the Mobile Muster program. Contact Mobile Muster for more information
Bulky polystyrene	General solid (non-putrescible) waste	Off-site recycling or disposal at landfill
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste	Hazardous waste	Off-site recycling
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Maintenance		
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle ⁹ or Lamp Recyclers ¹⁰ for more information
Cleaning chemicals, solvents, area wash downs, empty oil or paint drums, chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility.

⁹ <https://www.fluorocycle.org.au/>

¹⁰ <https://www.lamprecyclers.com.au/>

Waste Types	NSW EPA Classification	Proposed Management Method
Garden organics - lawn mowing, tree branches, hedge cuttings, leaves	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licenced facility

For further information on how to determine a waste's classification, refer to the NSW EPA (2014) Waste Classification Guidelines. Suggestions for recycling drop off locations and contacts can be found on <https://businessrecycling.com.au/> for each waste type.

6.3 Estimated Quantities of Operational Waste

SLR has used the 'Offices' and 'Industrial' waste generation rates from Council's Guideline for estimating the type and quantities of waste generated from the operational activities of the Development. These are shown in Table 8 below.

Table 8 Operational waste generation rates

Type of Premises	General Waste Generation (L/100 m ² /day)	Recycling Generation (L/100 m ² /day)
Industrial	200	150
Offices	10	10

Using the waste generation rates in Table 8 above, the approximate weekly waste quantities for the Development have been calculated. The operational waste quantities were additionally calculated based on the assumptions below:

- The floor areas shown on the architectural drawings shown in 22118_DA03_P6_Site plan.pdf, and
- A week comprising seven days of operation.

The estimated quantities of operational waste generated by the Development are shown in Table 9.

Table 9 Estimated quantities of operational general waste and recycling

Development area	Area (m ²)	Litres per Day		Litres per Week	
		General Waste	Recycling	General Waste	Recycling
Warehouse	4,270	8,940	6,705	62,580	46,935
Office	1,000	100	100	700	700
Total	5,270	9,040	6,805	63,280	47,635

6.4 Other Types of Operational Waste

Based the Development's proposed operational activities large quantities of the recycling stream will likely include pallets and plastic and cardboard packaging waste. To minimise packaging waste generated in the recyclables stream packing waste should be returned to the suppliers where possible. Standard pallets are recommended to be returned to their owners and non-standard and broken pallets are to be stockpiled and collected as required as required as bulky waste.

If additional collection services are required, such as secured document destruction, these can be organised with a private waste contractor who can provide additional bins and take collected waste to an off-site licenced facility.

The Development is anticipated to produce minimal quantities of garden organics. This waste will be taken by a landscaping contractor who will dispose of it at a facility lawfully able to accept it.

6.5 Waste Storage Area Size

6.5.1 Garbage and Recycling Bins

The waste storage area for the Development is large enough to adequately store all quantities of operational waste and recycling between collections. Given the nature of the development and its size and scope, a front lift waste collection service is proposed. Bins of 4.5 m³ capacity are proposed.

All waste storage area calculations have considered the bin dimensions listed in the Guideline, as shown in Table 10 below.

Table 10 Dimensions and approximate footprint of bins

Capacity	Bin Type	Height (mm)	Depth (mm)	Width (mm)	Footprint (m ²)
4.5 m ³	Front lift	1,800	1,800	2,020	3.64

To allow for ready movement of bins into and out of the bin storage area, Council's Guidelines specify a floor area at least 50% larger than the size of the bins and/or equipment.¹¹ In this case 200% of the total minimum bin footprint has been allowed. This can also act as a contingency in the event of spikes in waste generation.

The recommended storage areas do not include consideration for the storage of bulky waste. For the additional storage space for bulky waste, refer to Section 6.5.2.

The estimated number of bins required for weekly storage of operational waste and recycling generated by the Development are in Table 11 and are based on:

- The estimated quantities of operational waste and recycling as shown in Table 9
- Bin dimensions from Council's Guidelines as shown in Table 10.

Table 11 Recommended number of bins and storage area

Bin Capacity	Collection Frequency per Week		Number of Bins Required		Total Number of Bins	Recommended Storage Area including Manoeuvring (m ²)
	Garbage	Recycling	Garbage	Recycling		
4.5 m ³	7	7	2	2	4	29.1

A space of 29.1 m² of space has been allowed for bin storage.

¹¹ Section 4.8, 4c

6.5.2 Bulky Waste

Council's Guideline makes no requirements for additional storage space for bulky waste. This stream includes broken pallets, broken furniture, e-waste and other materials that cannot be disposed of in the general or recyclable waste stream.

An area of 8 m² has been allocated for bulky waste storage for the warehouse. In addition to the recommended waste storage area noted in Table 11, the total waste storage area provided at the Development is shown in Table 12.

Table 12 Total storage area

Bin Capacities	Recommended Storage Area (m ²)		
	Bin Storage Areas	Bulky waste	Total Storage Area
4.5 m ³	29.1	8	37.1

This additional space can also act as a contingency in the event of spikes in waste generation and allow for additional bins. Depending on the Development's operations, this may include additional bins for the separate storage of items such as hard and soft plastics, timber, glass and metals and aluminium.

6.6 Waste Storage Room Location

The design for the waste storage areas of the Development takes into consideration better practice waste management and recommendations from the Camden DCP. The waste storage areas are located so that they:

- Are convenient for separation of recyclable material, garbage and other waste
- Allow onsite collection.
- Allow for access by a heavy rigid vehicle throughout the vehicle's entire onsite path of travel
- Do not impede access to, within or from the site for other users
- Allow collection vehicles to enter and exit the site in a forward direction

The waste storage areas for the Development are shown on the drawing in Figure 4 below and are labelled as 'Waste'.

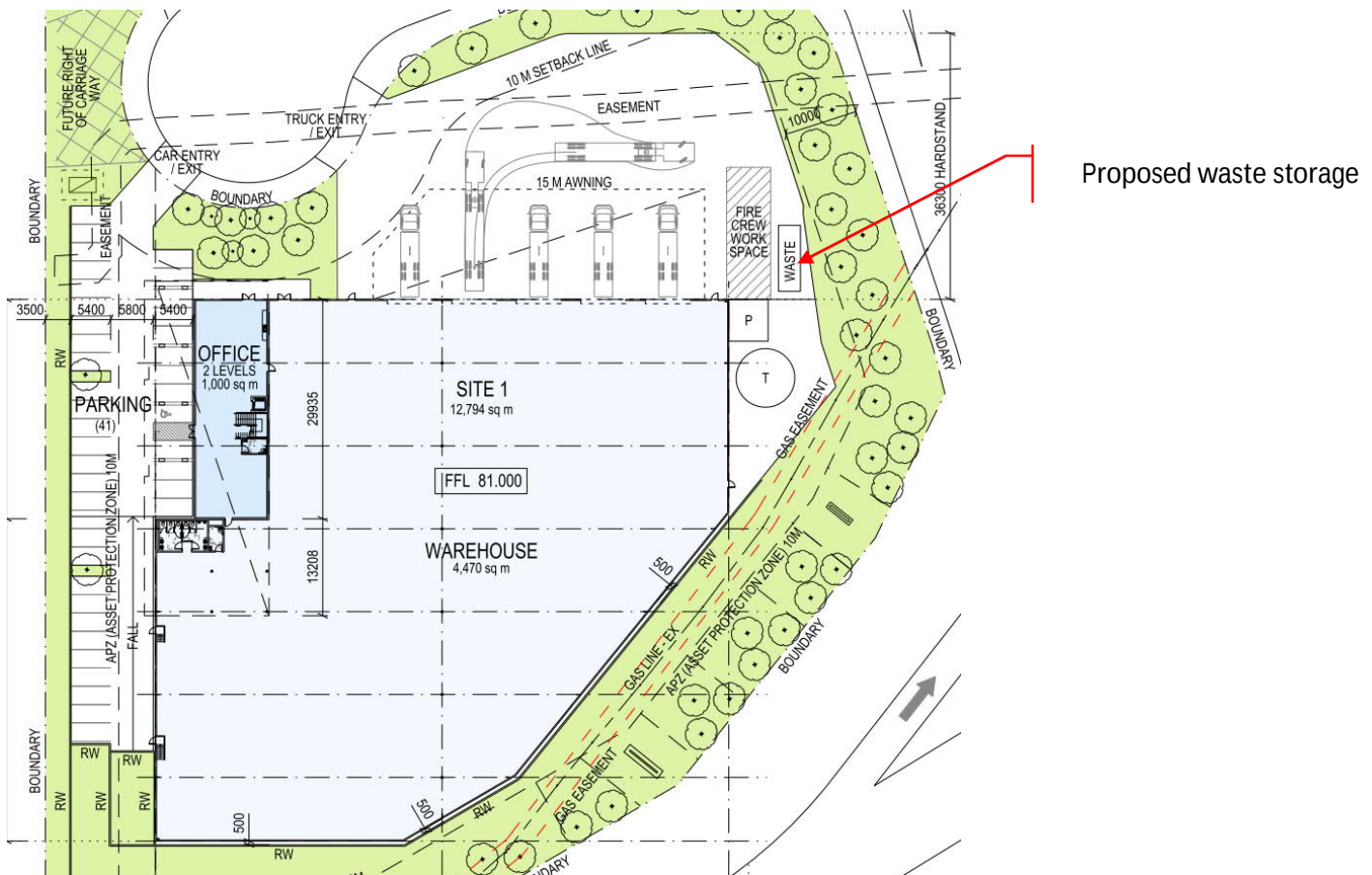


Figure 4 Proposed waste storage locations

The diagram shows the location of the waste storage area where 37.1 m² of space is available which is adequate to store the proposed number and types of bins.

6.7 Waste Storage Area Features

In accordance with better practice waste management and the Camden DCP, the Development's waste storage areas will have the following features:

- Provide storage for all bins required.
- Have a floor area at least 50% larger than the size of the bins and/or equipment
- Have a smooth graded ground surface
- Are well lit, built in accordance with the Building Code of Australia and well ventilated
- Be suitably enclosed, covered and maintained so as prevent polluted waste water runoff and unpleasant odour
- Be designed to prevent vermin
- Provide an external water tap adjacent to the storage area
- Provide a drain in the bin storage area discharging to a sewer connection where relevant
- Ensure untrained users cannot access any waste infrastructure and/or equipment, such as compactors

- Provide signage instructing users on bin types and appropriate materials and
- Be adaptable to changes in waste generation rates and type of waste produced.

6.8 Waste Servicing

Waste collections will be undertaken by a private contractor. In accordance with the Camden DCP, the following has been considered for the access provisions for waste collection vehicles:

- Collection is on-site
- Access by a heavy rigid vehicle throughout the vehicle's entire onsite path of travel
- Collection will not impede access to, within or from the site for other users
- Collection vehicles will enter and exit the site in a forward direction

Figure 5 below shows the expected collection vehicle travel paths. Entry paths to the Waste Enclosure are shown in red and exit paths from the Waste Enclosure are shown in blue.

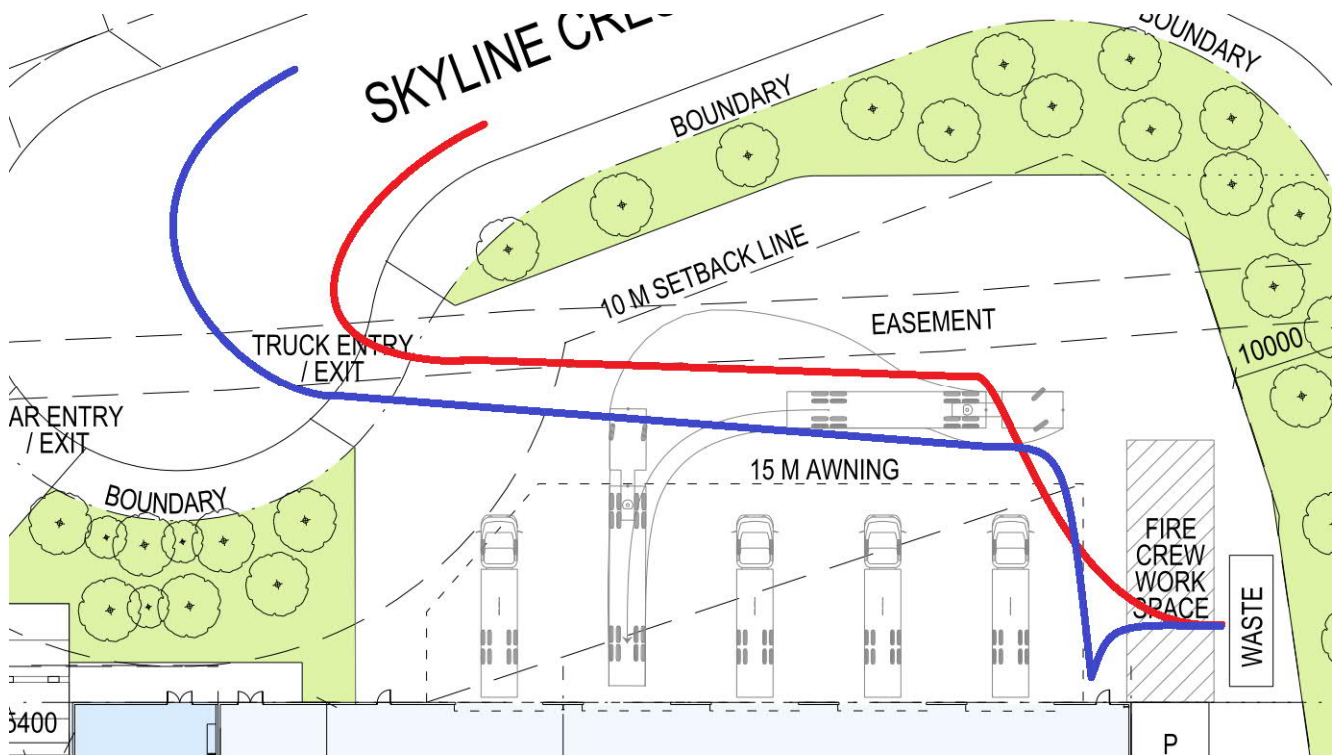


Figure 5 Collection vehicle travel paths

7 Waste Avoidance, Reuse and Recycling Measures

7.1 Waste Avoidance

Waste avoidance measures include:

- Participating in take-back services to suppliers to reduce waste further along the supply chain
- Avoiding printing where possible
- Review of packaging design to reduce waste but maintain 'fit for purpose'
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items
- Purchasing consumables in bulk to avoid unnecessary packaging
- Presenting all waste reduction initiatives to staff as part of their induction program, and
- Investigating leased office equipment and machinery rather than purchase and disposal.

7.2 Re-use

Possible re-use opportunities include establishing systems with in-house and supply chain stakeholders to transport products in re-useable packaging where possible.

7.3 Recycling

Recycling opportunities include:

- Collecting and recycling e-waste
- Flatten or bale cardboard to reduce number of bins required
- Paper recycling trays provided in office areas for scrap paper collection and recycling
- Collecting printer toners and ink cartridges in allocated bins for appropriate contractor recycling, and
- Development of 'buy recycled' purchasing policy.

7.4 Communication Strategies

Waste management initiatives and management measures should be clearly communicated to building managers, owners, employees, customers and cleaners. Benefits of providing this communication include:

- improved satisfaction with services
- increased ability and willingness to participate in recycling
- improved amenity and safety
- improved knowledge and awareness through standardisation of services
- increased awareness or achievement of environmental goals and targets
- reduced contamination of recyclables stream
- increased recovery of recyclables and organics material, if implemented, and

- greater contribution to targets for waste reduction and resource recovery, the environment and heritage conservation.

To realise the above benefits, the following communication strategies should be considered:

- Use consistent signage and colour coding throughout the Development
- Ensure all staff are trained in correct waste separation and management procedures
- Provide directional signage to show location of and routes to waste storage area
- General waste and co-mingled recycling bins should be clearly labelled and colour-coded to ensure no cross contamination, where applicable
- Employees and cleaners should adhere to the WMP for compliance, in consultation with management, and
- Repair signs and labels promptly to avoid breakdown of communications.

7.5 Signage

As outlined in the Camden DCP, the waste storage and collection areas should be provided with appropriate signage. These signs should clearly identify waste management procedures and provisions to contractors, tenants and visitors should be distributed around the Development.

Key signage considerations are:

- Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin, as shown in Figure 6
- Signposts and directions to location of waste storage areas
- Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling
- Maintaining a consistent style colour scheme and system for signs throughout the Development, and
- Emergency contact information for reporting issues associated with waste or recycling management.

Colour-coded and labelled bin lids are necessary for identifying bins. All signage should conform to the relevant Australian Standard and use labels approved by the NSW EPA¹². The design and use of safety signs for waste rooms and enclosures should comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describes the types of materials designated for each bin.

¹² NSW EPA waste signage and label designs <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>



Figure 6 Example of bin labels for operational waste

7.6 Monitoring and Reporting

Monitoring is recommended to ensure waste and recycling management arrangements and provisions for the Development are functional, practical and are maintained to the standard outlined in this plan, at a minimum.

Visual assessments of bins and bin storage areas should be conducted by the building manager, at minimum:

- Weekly, in the first two months of operation to ensure the waste management system is sufficient for the operation, and
- Every six months, to ensure waste is being managed to the standards outlined in this document.

In addition, audits are to be conducted on a half-yearly basis to ensure WMP provisions are maintained.

Quantities of waste and recycling associated with disposal of waste and recycling, including dockets, receipts and other physical records should be recorded by the Building Manager. This is to allow reviews of the waste management arrangements and provisions at the site over time. Records of waste disposal should also be available to regulatory authorities such as the NSW Environmental Protection Authority and SafeWork NSW, upon request.

Any deficiencies identified in the waste management system, including, but not limited to, unexpected waste quantities, is to be rectified by the Building Manager as soon as it is practical. Where audits show that recycling is not carried out effectively, management should carry out additional staff training, signage re-examination and reviews of the waste management system where the audit or other reviewing body has deemed necessary. If this waste management plan no longer sufficiently meets the needs of the Development, review and updates to maintain suitability must be undertaken.

7.7 Roles and Responsibilities

It is the responsibility of the Building Manager, or equivalent role, to implement this WMP and a responsibility of all warehouse tenants and staff to follow the waste management procedures set out by the WMP. SLR recommends that all subcontractors enlisted by the Client are to have roles and responsibilities identified and the Development's waste management system clearly explained. A summary of recommended roles and responsibilities are provided in Table 13.

Table 13 Operational waste management responsibility allocation

Responsible Person	General Tasks
Management	Ensure the WMP is implemented throughout the life of the operation.
	Update the WMP on a regular basis (e.g. annually) to ensure the Plan remains applicable.
	Undertake liaison and management of contracted waste collections.
	Organise internal waste audits on a regular basis.
	Manage any complaints and non-compliances reported through waste audits etc.
	Perform inspections of all waste storage areas and waste management equipment on a regular basis.
	Organise cleaning and maintenance requirements for waste management equipment.
	Monitor bins to ensure no overfilling occurs.
	Ensure effective signage, communication and education is provided to alert visitors, employees and cleaners about the provisions of this WMP and waste management equipment use requirements.
	Monitor and maintain signage to ensure it remains clean, clear and applicable.
	Ensure waste and recycling storage rooms are kept tidy.
	Ensure that regular cleaning and daily transfer of bins is being undertaken by the cleaners
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
Cleaners and Staff	Removal of general waste, recyclables, cardboard waste and hazardous waste from floor areas for transfer to centralised waste and recycling collection rooms daily or as required.
	Cleaning of all bins and waste and recycling rooms on a weekly basis or as required.
	Compliance with the provisions of this WMP.
Gardening Contractor, as applicable	Removal of all garden organics waste generated during gardening maintenance activities for recycling at an off-site location or reuse as organic mulch on landscaped areas.

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