Waste Management Plan

Project Pluto – Data Centre, 132 McCredie Road, Guildford West

Goodman Property Services (Aust) Pty Ltd

The Hayesbery
1-11 Hayes Street
Rosebery NSW 2011

Prepared by:

SLR Consulting Australia

SLR Project No.: 610.031859.00001

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Revision: 5.0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
5.0	26 February 2025	Andrew Quinn	Chris Hambling	Andrew Quinn

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Goodman Property Services (Aust) Pty Ltd (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.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

Executive Summary

This waste management plan has been prepared by SLR Consulting Australia Pty Ltd (SLR) to accompany the State Significant Development Application (SSDA) for the construction and ongoing operation of a data centre facility at 132 McCredie Road, Guildford West NSW 2161, in the Cumberland Council Local Government Area. The site is legally described as Lot 1 in DP596315.

This waste management plan has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the Project Pluto Data Centre (SSD-69223466) dated 4 April 2024

This report concludes that the proposed data centre is suitable and warrants approval subject to the implementation of the following mitigation measure:

- Separation of waste and recyclables as described.

Following the implementation of the above mitigation measure, the remaining impacts are acceptable.

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1.0 Introduction

1.1 Background

A state significant development application (SSDA) has been prepared in support of a proposed data centre at 132 McCredie Road, Guildford West NSW 2161. The site is zoned E4 General Industrial and has a road frontage to McCredie Road. The developable site area is 71,710 m^2.

The proposed development comprises:

- Construction, fit out and operation of a data centre with a maximum building height of 25.77 m and total gross floor area of 29,444 m^2 comprising:
  - At-grade parking for 53 car parking spaces and two accessible car parking spaces
  - Two loading dock spaces.
  - Two levels of technical data hall floor space with incorporating a total of nine data halls
  - Ancillary office space.
- Provision of required utilities, including:
  - Fuel storage
  - Two switch-rooms
  - Four industrial water storage tanks.
- Vehicle entry and egress driveways located along McCredie Road.
- Internal access road
- Associated landscaping and site servicing
- Installation of services and drainage infrastructure.

The proposal seeks consent for development to be constructed and operated in two phases to reflect the staged availability power supply. The proposed stages involve the following:

Stage 1: Construction of the main data centre building as well as the car park, perimeter access road, site access and exit driveways and landscaping. Stage one will involve the fit-out and operation of five of the nine proposed data halls at Levels 1 and 2 as well as the associated electrical rooms, generators, storage and office rooms.

Stage 2: Completion of the ultimate development scheme involving the extension of the building to the south with an additional four data halls, associated electrical rooms and generators, and associated landscaping and external works. The electrical substations will also be constructed in the north of the site during this phase.

The works are to be completed in four construction stages, as follows:

Stage 1:

- CC1 – Site preparation works, including vegetation removal, earthworks and piling, installation of footings, retaining walls

- CC2 – Inground services installation, structural works
- CC3 – Façade construction, installation of services, fit out
- CC4 – Landscaping and external works.

Stage 2:

- CC1 – Site Preparation works, earthworks and piling, installation of footings
- CC2 – Inground services installation, structural works
- CC3 – Façade construction, installation of services, fit out
- CC4 – Landscaping and external works.

1.2 Waste Management Plan

This waste management plan has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) and accompanying cover letter issued for the Project Pluto Data Centre (SSD-69223466) dated 4 April 2024.

Specifically, this report has been prepared to respond to the SEARs requirement issued and shown in Table 1 below using the Cumberland Development Control Plan 2021 (CDCP)[1] as a guide.

Table 1 SEARs

Item	Description of requirement	Section reference (this report)
17. Waste Management	Identify, quantify and classify the likely waste streams to be generated during construction and operation.	For the site preparation and construction phases please refer to: • Section 9.2 Waste Streams and Classifications • Section 9.3 Construction Waste Types and Quantities • Table 3 Potential site preparation and construction waste types, classifications and management methods • Table 5 Estimated types and quantities of construction waste For the operational phase please refer to • Section 10.2 Waste Streams and Classifications • Section 10.3 Waste quantities • Table 7 Potential waste types, classifications and management methods for operational waste • Table 9 Estimated quantities of operational general waste and recycling
	Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	For construction and site preparation waste please refer to: • Section 9.4 Waste Avoidance • Section 9.5 Reuse, Recycling and Disposal • Section 9.6 Waste Storage and Servicing For operational waste please refer to: • Section 10.9 Waste Avoidance, Reuse and Recycling • Section 10.10 Communication Strategies • Section 10.11 Signage
	Identify appropriate servicing arrangements for the site.	Please refer to:

[1] https://www.cumberland.nsw.gov.au/development-control-plans-dcp

Item	Description of requirement	Section reference (this report)
		• Section 10.8 Waste Vehicle Access • Section 10.5 Bulky Waste • Section 10.6 E-waste
	If buildings are proposed to be demolished or altered, provide a hazardous materials survey.	Please refer to the separate hazardous materials survey

2.0 The Site

The site is located on Gandangara Land and is in the Smithfield Industrial Area within the Cumberland Local Government Area. It is bounded by McCredie Road to the north.

The front part of the site adjoins the Guildford Transmission Substation, which is located immediately to the east and fronts onto McCredie Road. Other industrial uses are located further east, with residential properties beyond.

The Guildford West Sports Ground, which comprises several playing fields, is located to the south of the Guildford Transmission Substation. The playing fields bound the southern part of the site to the east. The playing fields and public recreation area also abut the southern boundary of the site.

Prospect Creek is located to the south of the public recreation area and is zoned C2 Environmental Protection. The area to the south of Prospect Creek is predominately characterised by low density single storey residential housing.

The site is located in the south eastern corner of the Smithfield Industrial Estate and is in close proximity of the Cumberland Highway (A28) and M4 and M7 motorways, which provide access to Sydney CBD, western Sydney and the south. A range of large format industrial uses are located to the west and north west of the site. The Smithfield Industrial Estate extends across the A28 to Gipps Road, approximately 3 km west of the site. It forms part of the broader Smithfield Wetherill Park industrial area, which is one of the largest of its kind in the Southern Hemisphere and makes a significant contribution to the New South Wales and Australian economies.

The site has a net developable area of 71,710 m^2 and is currently vacant. It previously operated as a Castrol Lubricants facility. However, the majority of the site has now been cleared and subject to category 1 remediation works. A single storey office building is located on the northern portion of the site fronting McCredie Road. The building is vacant.

All other buildings and structures have been demolished, although areas of concrete and asphalt remain.

An aerial image of the site showing its location is shown in Figure 1 below.

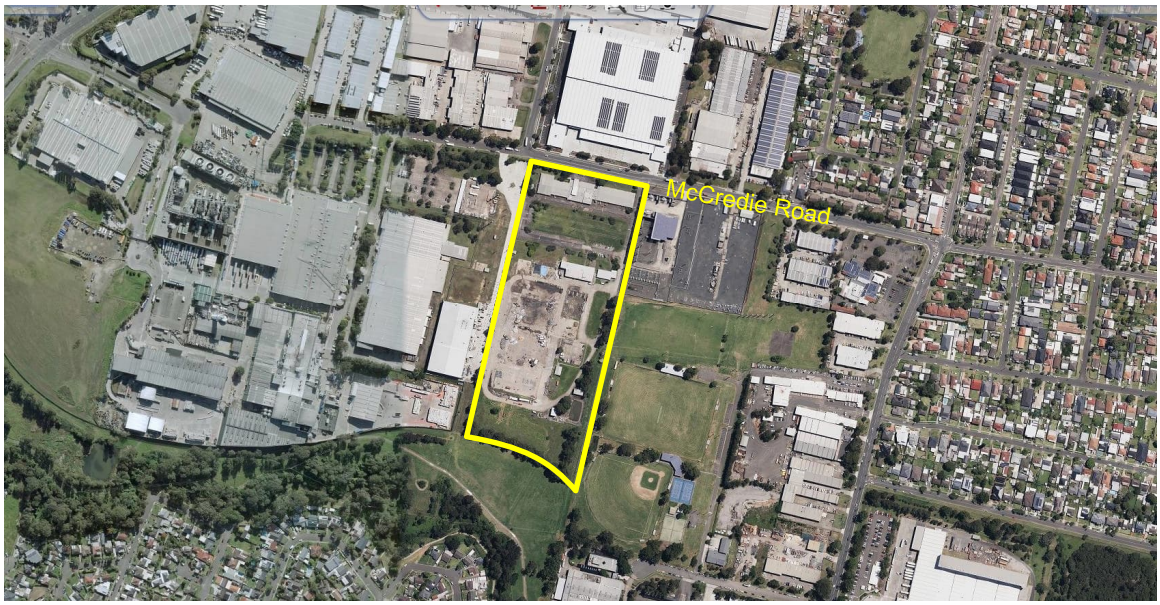


Figure 1 - Site Location

3.0 Objectives

The principal objective of this Waste Management Plan (WMP) is to identify all potential waste likely to be generated at the Development site during the site preparation and construction phases, including a description of how waste would be handled, processed and disposed of, or re-used or recycled, in accordance with the SEARs and guided by Council's requirements.

The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To assist in ensuring that any environmental impacts during the construction of the Development comply with Council's development consent conditions and other relevant regulatory authorities.

4.0 Review of WMP

This WMP will be reviewed and updated:

- To remain consistent with waste and landfill regulations and guidelines.
- If changes are made to site waste and recycling management, or
- To take advantage of new technologies, innovations and methodologies for waste or recycling management.

Copies of the original WMP and its future versions should be retained by the building manager. Changes made to the WMP, as well as the reasons for the changes made, should be documented by the building manager as part of the review process.

5.0 Waste Specialist

This waste management plan was prepared by Andrew Quinn, an environmental consultant with more than 30 years' experience in waste management. He has worked for the NSW EPA, waste management contractors and consultants. He has a Bachelor of Applied Science, University of Technology Sydney (2000), Master of Environmental Studies, Macquarie University (2009) and has lectured in waste management at the University of NSW.

His experience includes waste management plans for new developments, transfer station and resource recovery facility concept design and master planning, operational systems assessments, expert witness and due diligence for waste projects, waste chapters for EISs, contract and tender preparation, tender assessment and evaluation, resource recovery technology research, resource recovery management strategy and policy development, data analysis, managing and conducting waste audits of residential, commercial, industrial, landfill and MRF streams and in remote locations.

Andrew prepared the *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*, the NSW EPA's official guide to waste management in commercial and industrial developments. He has also prepared hundreds of waste management plans for new developments. This most relevant to this project include:

- For Goodman Property
  - Project Duke, Kent Road Data Centre, Mascot
  - Project Apollo, Talavera Road Data Centre, Macquarie Park
  - Project EOS, Lanceley Place Data Centre, Artarmon
- For Macquarie Tech Operations – Macquarie Data Centre, Macquarie Park
- For AW Edwards – AirTrunk Data Centre, Lane Cove
- For EMKC^3 Developments
  - AirTrunk Data Centre, Huntingwood, two sites
  - AirTrunk Data Centre, Lane Cove, two sites
- For ESR Australia – AirTrunk Data Centre, Blacktown
- For Digital Reality – Lockwood Road Data Centre, Erskine Park
- For Urbis – Canberra Data Centres, Eastern Creek
- For Lindsay Bennelong Developments – Gore Hill Data Centre.

6.0 Better Practice Waste Management and Recycling

6.1 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.

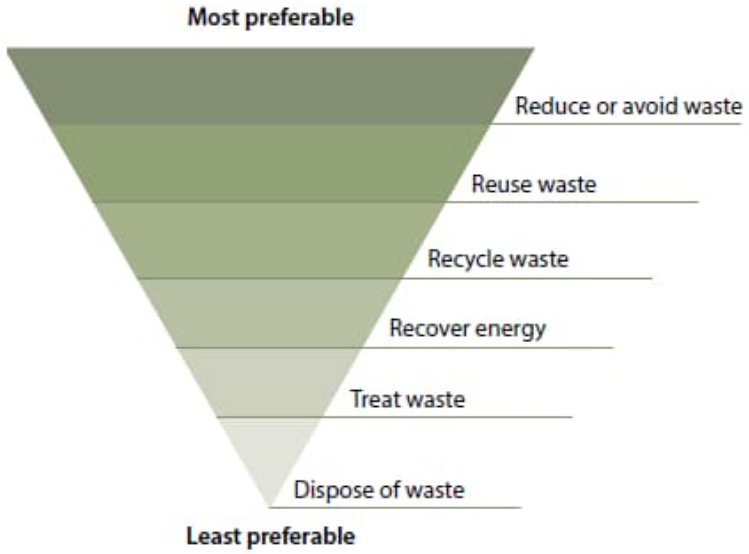


Figure 2 - Waste Management Hierarchy

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

7.0 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.

8.0 Waste Legislation and Guidance

8.1 Cumberland Development Control Plan 2021

The following sections of the Cumberland DCP are relevant to this development.

8.1.1 Part D – Development in Industrial Zones

Section 2.13 Environmental management[2]

Objectives

O2 Ensure waste storage and removal will not have a detrimental effect on environmental amenity.

Waste[3]

C2. An on-going waste management plan is required to be submitted with the application to detail how all solid and liquid wastes handled on site will be managed. The plan may include, but is not limited to, details on:

- *all waste storage areas (including internal and external areas/rooms);*
- *waste collection arrangements, including collection location and times/frequency;*
- *measures to prevent potential pollution from waste storage/handling activities on site;*
- *any trade waste arrangements; and*
- *measures for dealing with contaminated and/or hazardous waste.*

C3. Garbage storage areas shall be designed so as to:

- *be readily serviced within the confines of the site with minimum impact on adjoining uses;*
- *incorporate ventilation measures; and*
- *have suitable access to water to maintain waste storage areas.*

8.1.2 Part G – Miscellaneous Development Controls

Part G8 Waste Management[4]

Section 2. General objectives[5]

Objectives

Ensure waste minimisation through source separation, reuse and recycling.

[2] Page D13 of D16
[3] Page D14 of D16
[4] Page G107 of G122
[5] Page G109 of G122

Ensure efficient storage, access, collection of waste and quality design of facilities.

Implement the principles of the waste hierarchy of avoiding, reusing and recycling during the demolition, construction and ongoing use of premises through efficient resource recovery.

Promote the principles of ecologically sustainable development through waste avoidance, resource recovery and recycling to achieve improved environmental outcomes.

Section 3. Objectives and controls

3.6 Collection area requirements[6]

Objectives

Ensure that an appropriately designed waste and recycling collection area is provided to all new development.

Ensure waste collection vehicles have safe, reliable access to all collection points and can manoeuvre to all waste collection points during construction and ongoing operation and use of the development.

Controls

General

All developments must allocate a suitable collection point for collection of waste and recycling bins from either inside the development (on-site) or from kerbside (off-site).

3.7 Collection vehicle requirements [7]

Objectives

Provide for the adequate accessibility, manoeuvrability and operability of waste collection vehicles within all developments.

Controls

All proposed developments will need to accommodate a Heavy Rigid Vehicle (HRV) for all waste collection.

Proposed developments that require a waste collection vehicle to enter the site for the collection of waste, a swept path analysis for a 10.5 m HRV with a height clearance of 4.5 m must be clearly demonstrated in the Architectural Plans, Waste Management Plan, and Traffic and Transport Management Plan. If a hook lift bin is to be used, the height clearance will increase and greater height clearance will be required.

The bin lift arc will also need to be taken into consideration when designing the height for the area for bin collection.

[6] Page G119 of G122

[7] Page G120 of G122

The proposed development must have sufficient manoeuvring area on site to allow for a HRV to enter and leave the site in a forward direction and service the development with minimal or no need to reverse.

The grades of entry and exit routes must not exceed the capabilities of the waste collection vehicle and must comply with AS 2890.2.

Ensure the waste collection vehicle can park safely within a designated parking/ loading area on-site whilst servicing the bins. The truck loading area must be separated from car parking bays, footpaths and not block any driveways.

The truck loading area is to include an extra 2 m length at the rear of the vehicle for bins to be loaded and emptied into the truck.

Standard HRV specifications as identified in Australian Standard 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities shall be complied with. This information is provided as a guide in Table 4.

Table 4: Standard specifications for a Heavy Rigid Vehicle sourced from AS2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities

Vehicle Classification	*Dimensions*
Overall Height (m)	*4.5*
Operational Length (m)	*12.5*
Design Width (m)	*2.8*
Design Height (m)	*3.7*
Swept Circle (m)	*27.8*
Clearance - travel height (m)	*4.5*
Roadway/ramp grade (maximum)	*1:6:5 (15.4%)*
Rate of change of grade (max)	*1:16 (6.25%) in 7m of travel*
Weight Fully Loaded (tonnes)	*22.5*
Capacity (m^3)	*24*
Front Chassis Clearance	*13°*

Should there be a case for a smaller rigid garbage collection vehicle to be used consideration will be given to alternative building design requirements. In these circumstances, supporting documentation is to be provided with the development application.

8.2 Other Legislations and Guidance

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

Table 2 Legislation and guidance

Legislation and Guidance	Objectives
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.

Legislation and Guidance	Objectives
Council of Australian Governments National Construction Code 2016	The National Construction Code 2016 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 Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027	Replacing the *NSW Waste Avoidance and Resource Recovery Strategy (2014-21)*, the NSW Waste and Sustainable Materials Strategy 2041 focuses on the transition of NSW to a circular economy. The strategy focuses on minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible. The strategy identifies the need to identify infrastructure needs, the mandating of separation of some organic waste streams, and incentivising biogas generation from waste materials.
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 waste that may be recovered for beneficial re-use. These waste typically include those from demolition and construction works, as well as operational waste 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.
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 2017	The Work Health and Safety Regulation 2017 provide detailed actions and guidance associated with the topics discussed in *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.

Legislation and Guidance	Objectives
	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.

9.0 Site preparation and Construction Waste and Recycling Management

9.1 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 (2023) indicates that construction and demolition waste recovery rates in 2022-2023 were 78%.

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.

9.2 Waste Streams and Classifications

The site preparation and construction of the Development is likely to generate the following broad waste streams:

- Site preparation waste.
- Construction waste.
- Plant maintenance waste.
- 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, is provided Table 3 below.

For further information on how to classify a waste type refer to the NSW EPA (2014) *Waste Classification Guidelines*[8]*.* Further information on managing site preparation and construction waste is available from the NSW EPA website[9].

[8] Available online from https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines

[9] http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition

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 – treated	General solid waste (non-putrescible)	Reused for formwork, bridging, blocking, propping or second-hand supplier
Timber - untreated		Off-site recycling, chip for landscaping, sell for firewood, reused for floorboards, fencing, furniture, mulched secondhand supplier and remainder to landscape supplies.
Doors, windows, fittings	General solid waste (non-putrescible)	Off-site recycling at secondhand 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	Special waste	Off-site disposal to a licensed landfill facility.
Fluorescent light fittings and bulbs	General solid waste (non-putrescible)	Off-site recycling or disposal, contact *FluoroCycle* for more information[10]
Paint	Liquid waste	Off-site recycling, Paintback collection[11] 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

[10] Available online from http://www.fluorocycle.org.au/ or http://www.environment.gov.au/settlements/waste/lamp-mercury.html

[11] Available online from https://www.paintback.com.au/

Waste Types	NSW EPA Waste Classification	Proposed Management Method
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[12]
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[13]
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
Plant Maintenance		
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming.	Hazardous waste	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers have been cleaned by washing or vacuuming.	General solid waste (non-putrescible)	
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal
Oil filters, drained	General solid waste (non-putrescible)	Off-site recycling
Lead-acid or nickel-cadmium batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative[14] for more information
Other batteries	General solid waste (non-putrescible)	

9.3 Construction Waste Types and Quantities

The CDCP does not provide waste generation rates for construction activities. In the absence of readily available construction waste generation rates from Council, SLR has adopted the 'Office' waste generation rates from The Hills Development Control Plan (Hills DCP) 2012 for estimating the type and quantities of waste generated from construction of the Development.

The waste generation rates are shown in Table 4.

[12] Available online from https://businessrecycling.com.au/

[13] Available online from http://returnandearn.org.au/

[14] http://www.batteryrecycling.org.au/home

Table 4 Construction waste generation rates

Rate Type	Floor Area (m^2)	Waste types and quantities (m^3)						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Office	1,000	5.1	18.8	8.5	8.6	8.8	2.75	5
Hardstand			2.1			4.8	0.6	0.5
Factory		0.25	2.1	1.65	0.45	4.8[15]	0.6	0.5

These waste generation rates are used to estimate the waste generated from the construction of the Development. The anticipated construction waste quantities for the Development are shown in Table 5 below and are based on the areas shown in drawings:

- *240028-GBA-XX-DR-AR-0000020-X - OVERALL GROUND FLOOR PLAN.pdf*
- *240028-GBA-XX-DR-AR-0000021-R - OVERALL LEVEL 1 FLOOR PLAN.pdf*
- *240028-GBA-XX-DR-AR-0000022-S - OVERALL ROOF PLATFORM LEVEL.pdf*
- *240028-GBA-XX-DR-AR-0000024-D - OVERALL ROOF MAINTENANCE LEVEL.pdf*

The construction waste quantities anticipated are shown in Table 5 below.

Table 5 Estimated types and quantities of construction waste

Level	Area	GFA (m^2)	Waste types and quantities (m^3)						
			Timber	Concrete	Bricks	Gyprock	Sand and Soil	Metal	Other
Ground	Driveway	12,636	-	26.5	-	-	60.7	7.6	6.3
Ground	Building	24,852	6.2	52.2	41.0	11.2	119.3	14.9	12.4
Level 1	Building	23,177	5.8	48.7	38.2	10.4		13.9	11.6
Roof	Building	4,302	21.9	80.9	36.6	37.0		11.8	21.5
Total		**64,967**	**34**	**208**	**116**	**59**	**180**	**48**	**52**

9.4 Waste Avoidance

In accordance with better practice waste management, the Building Contractor, Building Designer and/or equivalent roles should:

- Develop a purchasing policy based on the approximate quantities of materials to be used so that the correct quantities are purchased.
- Arrange for delivery of materials on an ‘as needed’ basis to avoid material degradation through weathering and moisture damage.
- Communicate strategies to handle and store waste to minimise environmental, health and amenity impacts.
- Select materials with a low environmental impact over the lifecycle of the building.
- Choose timber from certified plantations and avoid unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau.

[15] Ground floor only

- Use leased equipment rather than purchase and disposal.
- Minimise site disturbance and unnecessary excavation.
- Incorporate existing trees and shrubs into the landscape plan.
- Grouping wet areas together to minimise the amount of pipe work required.
- Design the Development to require standard material sizes or make arrangements with manufacturing groups for the supply of non-standard material sizes.
- Design works for de-construction.
- Reduce 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.
- Use prefabricated materials.
- Select materials for Development works with low embodied energy properties or materials that have been salvaged or recycled for the construction of the Development including concrete that utilises slag and fly ash content, structural and reinforced steel that uses recycled steel content or bulk insulation products that contain recycled content, such as recycled glass in glass-wool.
- Preferentially use paints, floor coverings and adhesives with low VOC (volatile organic compound) content.
- Reduce the use of polyvinyl chloride products.
- Implement measures to prevent the occurrence of windblown litter, dust and stormwater pollution.
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

9.5 Reuse, Recycling and Disposal

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

Refer to Table 3 for an outline of the proposed reuse, recycling and disposal methods for potential site preparation and construction waste streams generated by the Development.

In accordance with best practice waste management, the following specific procedures should be implemented:

- Ensure the site's Development management of the site includes minimising waste generation, requiring the appropriate storage and timely collection of waste materials, and maximising re-use or recycling of materials.

- Store wastes on site appropriately to prevent cross-contamination and guarantee the highest possible re-use value.
- Consider the potential of any new materials to be re-used and recycled at the end of the Development's life.
- Determine opportunities for the use of prefabricated components and recycled materials.
- Strip topsoil from areas designated for excavation and store it on site for reuse.
- Reuse excavation material will be on-site where possible.
- Re-use formwork where appropriate.
- Retain roofing material cut-offs for re-use or recycling.
- Retain used crates for storage purposes unless damaged.
- Recycle cardboard, glass and metal wastes.
- Recycle or dispose of solid waste timber, brick, concrete, asphalt and rock, where such waste cannot be re-used on site, to an appropriately licenced construction and site preparation waste recycling facility or an appropriately licenced landfill.
- Dispose of all asbestos and/or hazardous wastes in accordance with SafeWork NSW and NSW EPA requirements.
- Deliver batteries and florescent lights to drop off-site recycling facility.
- Return excess materials and packaging to the supplier or manufacturer.
- Dispose of all garbage via a council approved system.

9.6 Waste Storage and Servicing

9.6.1 Waste Segregation and Storage

Waste materials produced from site preparation and construction activities should be separated at the source and stored separately on-site. It is anticipated that the Development will provide enough space on-site for separate storage, 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 segregation 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 prior to removal from the site.

9.6.2 Waste Storage Areas

Waste storage areas will be accessible and allow enough 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 are to 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 the waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas are to be kept clean and in a good state of repair.

Areas designated for waste storage should:

- Allow unimpeded access by site personnel and waste disposal contractors.
- Consider 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 enough 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, accessibility and convenience in their selection, and
- Not present hazards to human health or the environment.

9.6.3 Waste Servicing and Record Keeping

The Site Manager or equivalent role is to:

- 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 hours approved by Council.

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

9.7 Site Inductions

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

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

It is the responsibility of the Site Manager or Building Contractor to notify Council of the appointment of waste removal, transport or disposal contractors.

9.8 Signage

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

Signs approved by the NSW EPA for labelling of waste materials are available online[16] and should be used where applicable. A selection of signs prepared by NSW EPA is provided in Figure 3.

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

Figure 3 - Examples of NSW EPA labels for waste skips and bins

9.9 Monitoring and Reporting

The following monitoring practices are to 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 Resource Recovery Management Plans.

Records of waste quantities recycled, reused or contractor removed should be maintained. This can include dockets or receipts verifying recycling and disposal in accordance with this WMP. This evidence should also be presented to regulatory bodies when required.

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 on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the Building Contractor 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 re-examined.

9.10 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 Building Contractor to implement the WMP, and an employee and subcontractor responsibility to ensure that they always comply with the WMP.

Where possible, an Environmental Management Representative should be appointed for the Development. Suggested roles and responsibilities are provided in Table 6.

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

Responsible Person	General Tasks
Construction Site Manager	Ensuring plant and equipment are well maintained.
	Ordering only the required amounts of materials.
	Keeping materials segregated to maximise reuse and recycling.
	Ultimately responsible for routinely checking waste sorting and storage areas for cleanliness, hygiene and safety issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP.
Construction Environmental Manager or equivalent	Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical.
	Establishing separate skips and recycling bins for effective waste segregation and recycling purposes.
	Ensuring staff and contractors are aware of site requirements.
	Provision of training of the requirements of the WMP and specific waste management strategies adopted for the Development.
	Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements.
	Approval of off-site waste disposal locations and checking licensing requirements.
	Assessment of suspicious potentially contaminated materials, hazardous materials and liquid wastes.
	Monitoring, inspection and reporting requirements.

Daily visual inspections of waste storage areas may be delegated to other on-site staff. All subcontractors will be responsible for ensuring that their work complies with the WMP through the project induction and contract engagement process.

10.0 Operational Waste and Recycling Management

10.1 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 (2023-2024) indicates that the commercial and industrial waste recovery rate in 2023-2024 was 51%.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to achieve this recycling rate. Waste reporting and audits can be used to determine the actual percentage of wastes that are being or have been recycled during operation.

10.2 Waste Streams and Classifications

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

- Domestic type waste generated by employees, including food waste
- Bulk packaging waste, including polystyrene, plastic wrapping and cardboard boxes
- Office waste
- Garden organic waste from landscaped areas
- Bulky waste items such as furniture and e-waste.

Potential waste types, their associated waste classifications, and management methods are provided in Table 7. For further information on how to determine a waste's classification, refer to the NSW EPA *Waste Classification Guidelines* 2014. Recycling drop-off locations and contacts can be found on https://businessrecycling.com.au/ for each waste type.

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

Waste Types	NSW EPA Waste 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	Compost on or off-site or dispose to landfill with general garbage
Lead-acid or nickel-cadmium batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative17 for more information
Other batteries	General solid waste (non-putrescible)	
Mobile Phones	General solid waste (non-putrescible)	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	General solid waste (non-putrescible)	Off-site recycling
Clinical waste	Special waste	Stored, handled, collected and disposed of according to AS 3816 and the *Protection of the Environment Operations Act 1997*
Printer toners and ink cartridges	General solid waste (non-putrescible)	Off-site recycling, free disposal box or bags and pickup service exists for printer toners and ink cartridges
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Maintenance		

[17] http://www.batteryrecycling.org.au/home

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Spent smoke detectors[18] - some commercial varieties	Hazardous waste	Disposal to landfill, or off-site disposal at licensed facility
Spent smoke detectors - others	General solid (non-putrescible) waste,	
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	General solid (non-putrescible) waste	Off-site recycling or disposal, contact FluoroCycle[19] or Lamp Recyclers[20] for more information
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups that were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming.	Hazardous waste	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups that have been cleaned by washing or vacuuming.	General solid waste (non-putrescible)	
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

10.3 Waste quantities

For estimating the type and quantities of waste generated from the operational activities of the Development, SLR has adopted the 'office' waste generation rates from the CDCP. These are shown below in Table 8.

Table 8 Operational waste generation rates

Type of Premises	CDCP Classification	General Waste Generation (L/100 m^2/day)	Recycling Generation (L/100 m^2/day)
Meeting room, security, storage/offices, office	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 calculated based on the assumptions below:

- The floor areas shown in the drawings:
  - *240028-GBA-XX-DR-AR-0000020-X - OVERALL GROUND FLOOR PLAN.pdf*
  - *240028-GBA-XX-DR-AR-0000021-R - OVERALL LEVEL 1 FLOOR PLAN.pdf*
- A week comprising seven days of operation.

[18] The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's Code of practice for the near-surface disposal of radioactive waste in Australia (1992) must be met.

[19] https://www.fluorocycle.org.au/

[20] https://www.lamprecyclers.com.au/

- 95% of the office recycling stream is paper and cardboard and 5% is recyclable containers.[21]

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

Table 9 Estimated quantities of operational general waste and recycling

Level	Use Type	GFA (m^2)	Litres per day		Litres per week		
			Garbage	Recycling	Garbage	Paper and Cardboard	Recyclable Containers
Ground	Meeting Room	111	11	11	78	74	3.9
Ground	Security	114	11	11	80	76	4.0
1	Storage/Offices	1,192	119	119	834	793	41.7
1	Office	1,781	178	178	1,247	1,184	62
Total		**3,198**	**320**	**320**	**2,239**	**2,127**	**112**

E-waste will be collected and recycled under special arrangements with suppliers and does not require bins for regular collection.

10.4 Waste Storage Area Size

10.4.1 Garbage and Recycling Bins

The waste storage areas for the Development must be 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 rear lift waste collection service is the most likely using 240 L bins and these have been assumed when calculating bin numbers and storage space.

All waste storage area calculations have used typical bin dimensions as shown in Table 10.

Table 10 Dimensions and approximate footprint of bins

Bin Capacity	Height (mm)	Depth (mm)	Width (mm)	Footprint (m^2)
240 L	1080	730	585	0.43

To allow for ready movement of bins into and out of the bin storage area, the bin storage area is to provide a floor area of at least 200% of the total minimum bin footprint. This can also act as a contingency in the event of spikes in waste generation. This has been considered in the calculation of the waste storage area for each of the units in the Development.

The recommended storage areas do not include storage of bulky waste. For additional storage space for bulky waste, refer to Section 10.5.

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

- The estimated quantities of operational waste and recycling shown in Table 9

[21] Industry fact sheets - Commercial offices EPA 2012/0341 November 2012 ISBN 978-1-74293-876-9

- Bin dimensions shown in Table 10.

Table 11 Recommended number of bins and storage area

Bin Capacity (L)			Collections per Week			Number of Bins			Bin Storage Area Required (m^2)				
Garbage	Paper and Cardboard	Recyclable Containers	Garbage	Paper and Cardboard	Recyclable Containers	Garbage	Paper and Cardboard	Recyclable Containers	Garbage	Paper and Cardboard	Recyclable Containers	Total	Total Including Manoeuvring
240	240	240	3	3	0.5[22]	4	3	1	1.7	1.3	0.4	3.4	6.8

10.5 Bulky Waste

Bulky waste includes waste materials that because of their size and shape may be difficult to dispose of in the garbage or recycling bins. Typically, this could be items such as broken pallets, broken furniture, e-waste and other damaged, disused or obsolete materials. The CDCP makes no requirements or specifications for bulky waste.

SLR recommends 4 m^2 be allocated for bulky waste storage. Therefore, in addition to the recommended waste storage area shown in Table 11, the total waste storage area recommended for the Development is that in Table 12 below.

Table 12 Total recommended waste storage areas

Recommended Storage Area (m^2)		
Waste and Recycling Bins	Bulky waste	Total Storage Area
6.8	4	10.8

10.6 E-waste

Although the data halls are not expected to regularly produce much waste, from time-to-time significant quantities of e-waste will be generated. E-waste may include broken or upgraded computer hardware, circuits and electrical components and their associated packaging. Some e-waste contains toxic chemicals, such as lead, mercury and arsenic, but can also contain precious metals that can be recycled.

A 100 MVA data centre like that proposed could, over its life time, generate the quantities of materials from e-waste shown in Table 13 below.[23]

Table 13 Life time quantities of materials

Material	Quantities (t)
Plastics	1,197

[22] Fortnightly

[23] https://www.simslifecycle.com/resources/white-paper-data-center/

Material	Quantities (t)
Aluminium	2,649
Steel	13,680

Where possible, facility operators will extend the life of equipment and hardware by implementing a regular maintenance schedule and adopting other proactive care measures such as monitoring the efficiency of cooling solutions to reduce the risk of equipment being discarded before its time. Smart thermostats and in-built sensors may be used to balance temperature maintenance with energy efficiency.

Equipment will be re-used by implementing circular models for servers, and re-purposing older hardware as back-up equipment.

Disposal of e-waste will be the responsibility of equipment suppliers who will collect obsolete equipment when new equipment is installed. Bulk bins, or other methods for transporting large quantities of e-waste, will be used at those times to remove it. Suppliers will use the loading dock as required. Once removed from the site it is expected that suppliers will sell-on any suitable hardware or recycle it lawfully through an approved recycler.

10.7 Space allowed for waste storage

The drawings show a waste storage room on the Ground level of 11 m^2. This is adequate for the calculated waste generated. The location of waste storage room is shown in Figure 4 below.

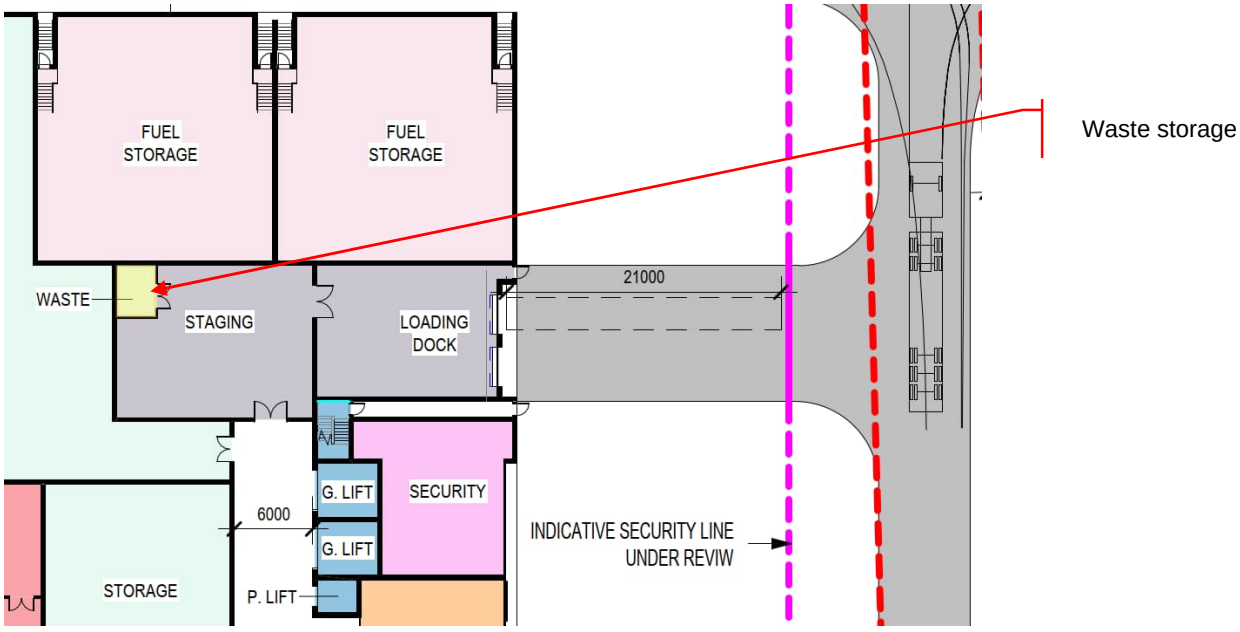


Figure 4 - Ground Level showing location of waste storage

10.8 Waste Vehicle Access

The following access provisions will apply for collections:

- Collection vehicles will be able to enter and exit the site in a forward direction.

- Unobstructed access, adequate driveways and ramps of sufficient strength to support waste collection vehicle have been allowed for.

Waste collection contractors will take bins from the waste storage room to the loading dock where they will be emptied into the collection vehicle and then returned to the waste storage room.

10.9 Waste Avoidance, Reuse and Recycling

10.9.1 Waste avoidance

Waste avoidance measures include:

- Returning packaging materials like cardboard to the suppliers through the services of the supplier delivery trucks, allowing the reduction of waste further along the supply chain.
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items.
- Bulk purchasing and the purchasing of items that use minimal packaging.
- Presenting all waste reduction initiatives to staff and tenants as part of their induction program, and
- Leasing equipment and machinery rather than outright purchase and disposal.

10.9.2 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.

10.9.3 Recycling

Recycling opportunities include:

- Collecting and recycling e-wastes.
- Printer toners and ink cartridges, if purchased, are collected in allocated bins for appropriate contractor recycling.
- Paper recycling trays provided in communal and staff areas for scrap paper collection and recycling.
- Providing separate receptacles for general waste, recycling and paper and cardboard throughout public areas, as well as within staff areas, to encourage source-separation of waste streams.
- Work with tenants to investigate opportunities for the use of recycled paper bags or reusable bags in place of plastics bags.
- Separating, by a reasonable distance, the storage areas for recyclables from the general waste storage areas to avoid cross contamination, and
- Development of ‘buy recycled’ purchasing policy.

10.10 Communication Strategies

Education and communication on waste management initiatives and measures will be regularly and clearly conveyed to staff, cleaners and visitors. 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 which can incur a collection contractor penalty fee.
- Increased recovery of recyclables and organics material, if implemented, and
- Greater contribution to state-wide targets for waste reduction and resource recovery.

To realise these benefits, the following communications strategies are recommended for the Facilities Manager:

- Use consistent signage and colour coding throughout the Development.
- Ensure all staff are informed of correct waste separation and management procedures.
- Provide directional signage to show locations and routes to waste storage areas.
- Repair signs and labels promptly to avoid a breakdown in communication.
- Clearly label general and comingled waste bins to ensure no cross contamination and to identify the types of waste that may be disposed of in each bin, and
- Educate all staff and contractors associated with the Development, ensuring they adhere to this WMP.

10.11 Signage

Signs which clearly identify waste management procedures and provisions to contractors, staff and visitors will be posted at the Development as appropriate.

The design and use of safety signs will comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describe the types of materials designated for each bin.

Colour-coded and labelled bin lids are necessary for identifying bins and the Australian Standard AS 4123.7-2006 (R2017) Mobile waste containers Part 7: Colours, markings, and designation requirements provides recommendations for the designated colours for waste bins depending on the type of waste the bins are to receive.

All bin signage should also follow the NSW EPA’s standard signage.

Other key signage considerations include:

- 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 5 below
- 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 that complies with AS 4123, and a system for signs throughout the Development, and
- Emergency contact information for reporting issues associated with waste or recycling management.

Figure 5 - Example NSW EPA labels for ongoing waste

10.12 Roles and Responsibilities

It is the responsibility of the Facilities Manager, or equivalent role, to implement this WMP and a responsibility of all tenants and staff to follow the waste management procedures set out by the WMP. A summary of recommended roles and responsibilities are provided in Table 14.

Table 14 Suggested operational waste-related roles and responsibilities

Responsible Person	General Tasks
Facilities Manager or equivalent role	Ensure the WMP is implemented throughout the life of the development.
	Update the WMP as needed to ensure the plan remains applicable to the site.
	Undertake liaison and management of contracted waste and recycling collections with contractors and any relevant authorities.
	Regularly conduct waste audits to review system performance and identify any additional materials that could be recovered.
	Manage any complaints and non-compliances reported through waste audits and other sources.
	Ensure all monitoring and audit results are well documented and conducted as specified in this WMP.
	Conduct regular waste sorting, physical condition and cleanliness inspections of bins, waste storage rooms and all other waste management equipment for functionality, hygiene and safety.
	Organise cleaning and maintenance requirements for waste management equipment as required.
	Ensure waste and recycling storage rooms are kept tidy.

Responsible Person	General Tasks
	Monitor bins to ensure no overfilling occurs and manage unexpected waste quantities to mitigate waste overflow in storage areas
	Ensure effective signage, communication and education is provided to alert visitors, employees, site management staff 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.
	Manage ongoing education on correct source separation and waste management at least every three months.
	Ensure that regular cleaning and daily transfer of bins is correctly being undertaken by the cleaners.
	Ensure any waste compactors and balers, if in use, are maintained and operational.
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
Cleaners and caretakers	Transfer general waste and recyclables from meeting rooms and break out space to the waste and recycling storage areas each day or as required.
	Maintain and operate compactors and balers, if in use, and ensure no overfilling occurs.
	Cleaning of all bins and waste and recycling area as per the direction of the site manager, or equivalent role.
	Monitor bins to ensure no overfilling occurs.
	Ensure bins and waste storage areas are kept tidy and clean.
	Compliance with the provisions of this WMP.
Staff	Place waste, recyclables, cardboard waste in bins and store in designated waste storage area.
	Adhere to all waste management directions and comply with the Development's waste management provisions as outlined by the Facilities Manager.

11.0 Assessment and findings

11.1 Vehicle movements

The WMP establishes that during ongoing operation of the data centre, three collections for waste and three for cardboard and paper per week, and one for recyclable containers every two weeks, will be provided. This amounts to six vehicle movements per week, and seven every second week.

The WMP also establishes that the amount of space allowed for waste and recycling on-site is adequate to store the amounts projected to be generated.

11.2 Compliance with the CDCP

The waste management requirements of the CDCP 2023 are detailed in Section 8.1 above. As far as it is possible to say, based on the proposed plans, the development complies with the DCP.

11.3 Cumulative impacts

The projected quantities of waste and recyclables, a total of 4.4 m^3 combined per week, are insignificant compared to the quantities of waste and recyclables generated in Sydney every day. Allowance has been made for the separation of recyclables as much as possible, guided by the waste generation rates in the CDCP. It is possible that further separation and recovery of waste materials will be made during the operational phase of the development.

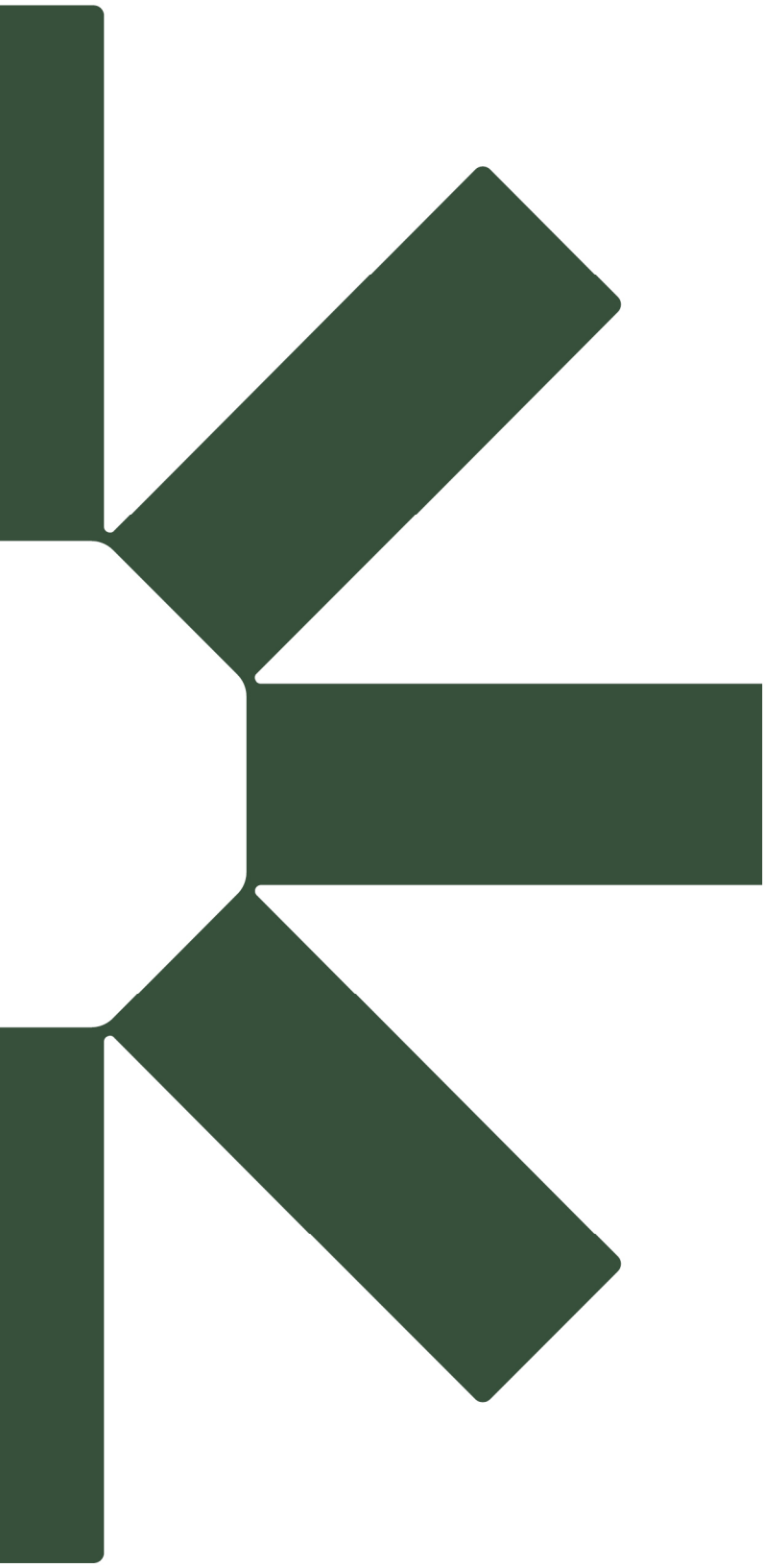
Several projects have been identified as potentially of relevance to the cumulative impact assessment. These include:

- Smithfield Recycling Centre – Smithfield - SSD-19425495
- Smithfield Battery Energy Storage System – 6 Herbert Place, Smithfield - DA94/165-Mod-3
- Woolworths WDC - 250 Victoria Street, Wetherill Park - SSD-15221509
- Cobra Waste Solutions Resource Recovery Facility - SSD-9320662
- Waste transfer station - 68 Victoria Street, Smithfield - PPSSWC-390.

These facilities will be accepting thousands of loads of waste and other vehicle movements each week. This is on top of the thousands of other vehicle movements in the existing Smithfield industrial area, the largest in the Southern Hemisphere. The six vehicles collecting waste and recyclables from the proposed data centre each week, plus one more every second week, are insignificant compared to the total numbers of vehicle movements in the area.

11.4 Mitigation measures

As the waste-related impact of the data centre is zero or negligible, no mitigating measures are proposed beyond those for the separation of recyclables already detailed.



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