Waste Management Plan

NEXTDC S4, Sydney

16 Johnston Crescent, Horsley Park, NSW

Rev_2

Project No. 23-1428

Client: NEXTDC Limited

26 March 2024

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Revision	Drafted by	Reviewed by	Date issued
Rev_0	J Ferguson / K Oliver	J Campbell	29 February 2024
Rev_1	K Oliver	J Ferguson	5 March 2024
Rev_2	J Ferguson	J Campbell	25 March 2024

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1 Development details

This Waste Management Plan (WMP) has been prepared for the following project:

Project name / address	**NEXTDC S4, Sydney** **16 Johnston Crescent, Horsley Park, New South Wales** The site is legally described as Lot 305 in Deposited Plan 1275011
Client	NEXTDC
Client main contacts	Neil Donald, AREA3 and Angus Barron, NEXTDC
Architect	Andre Heng, HDR
Planning status	State Significant Development Application (SSDA) Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-63741210).
Sustainability objectives	Target goal of at least 90% diversion of solid waste from its operation, with ongoing commitment to prevention, elimination or reduction of wasteful practices, and recycling in all facilities.
Overview of development	New development of the NEXTDC S4 site consisting of one main NEXTDC Retail Enterprise building A and four additional data hall buildings, consisting of three Hyperscale 2 buildings (B, C and D) and one Hyperscale 1 extendable building (Building E) for customers that will be staged and developed as required.
Architectural plans / area schedule / development information	Architectural plans and area schedule received from HDR on 2 February 2024. Swept paths, construction waste laydown drawings and bin store plans, received from AREA3 on 23 February 2024 Secretary's Environmental Assessment Requirements (SEARs) for the NEXTDC S4 Data Centre Horsley Park received from HDR on 30 October 2023.
Local Government Authority	City of Fairfield

1.1 Purpose

This Waste Management Plan (WMP) has been prepared on behalf of NEXTDC Limited in support of a State Significant Development Application SSD-63741210 (SSDA) submitted to the Department of Planning, Housing and Infrastructure (DPHI) under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act 1979).

The SSDA relates to a proposal at the site known as 16 Johnston Crescent, Horsley Park, New South Wales. The site is legally described as Lot 305 in Deposited Plan 1275011.

The subject proposal relates to a new data centre facility spread over 5 buildings, shown in Figure 2, which will operate 24 hours a day, 7 days a week.

Source: Nearmap (2023)

Figure 1: Site aerial photograph

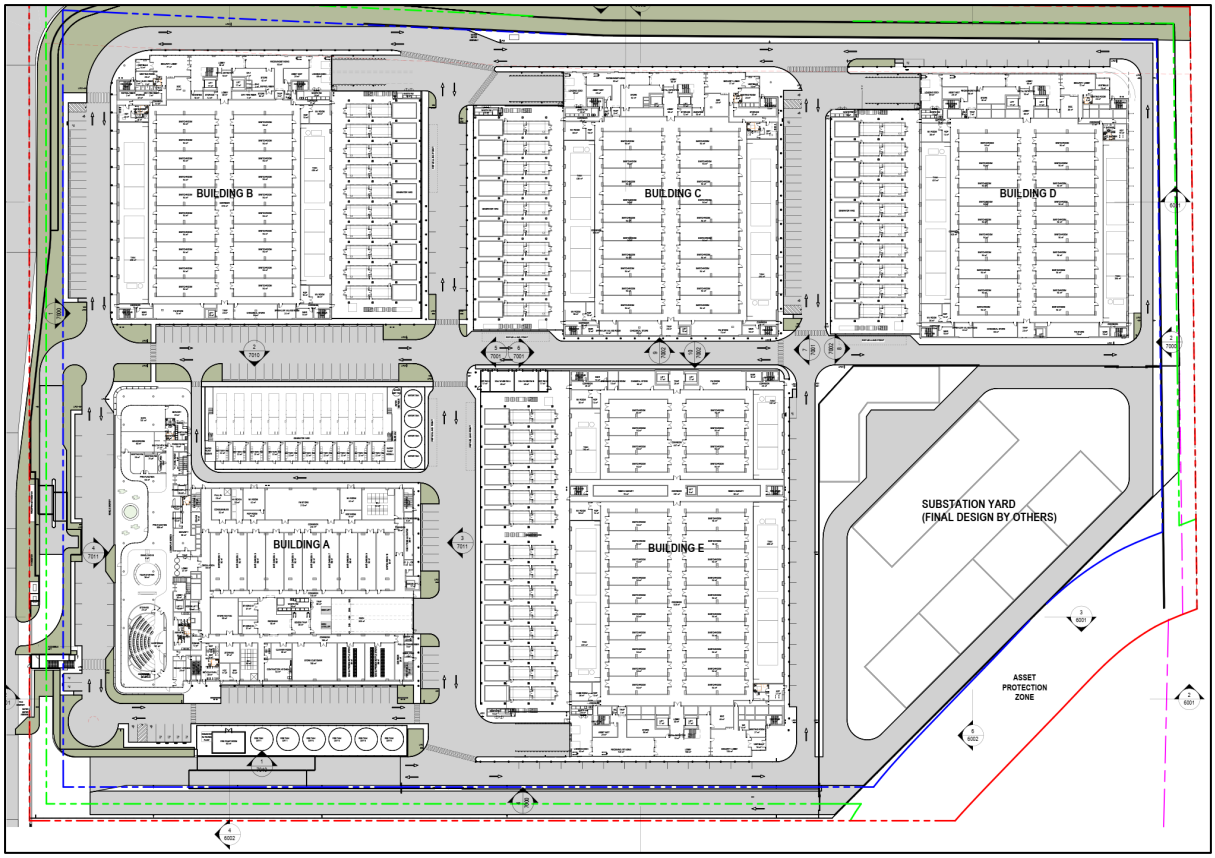


Figure 2: Data centre site plan for proposed development

1.2 Requirements, guidelines and discussions

The following have been used in the development of this report:

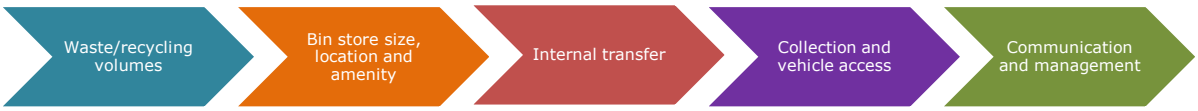
- City of Sydney Guidelines for Waste Management in New Developments (2018)
- Fairfield Citywide Development Control Plan 2013, Amendment 23, Chapter 8
- Meeting with Joshua Romeo, Waste and Cleansing and Sustainable Resource Centre, City of Fairfield, regarding council waste management requirements, 15 November 2023
- Aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- Secretary's Environmental Assessment Requirements (SEARs) issued by DPHI on 27 October 2023 (SSD-63741210). An outline of the SEARs relevant to this waste management assessment, and how they have been responded to, are summarised in Table 1.

Table 1: SEARs relevant to the waste management assessment

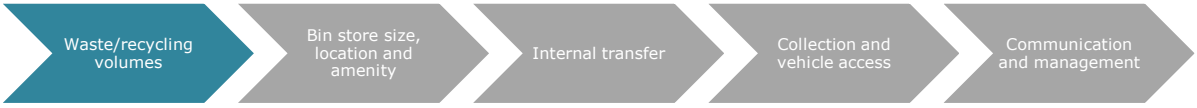
Issue and Assessment Requirements	Response
Identify, quantify and classify the likely waste streams to be generated during construction and operation	Details of quantities and classification of all waste streams to be generated on site during the development are addressed in Section 2 of this report
Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste	Details of waste handling storage and disposal are addressed in Sections 2 and 3 of this report
Identify appropriate servicing arrangements for the site	Details of waste servicing are addressed in Section 5 of this report
If buildings are proposed to be demolished or altered, provide a hazardous materials survey	Note: Refer to the Hazardous Material Survey completed by Aurecon

1.3 Key components of the Waste Management Plan

This Waste Management Plan (WMP) consists of five core components. It presents detailed information on each of the following components.



2 Waste and recycling generation



Management of waste and recycling has been considered for the following:

1. Demolition works
2. Construction works
3. Operational buildings

2.1 Demolition works

Minimal demolition is required, which will primarily be of some of the perimeter retaining walls due to level differences. These walls will be dismantled and realigned as part of the construction stage. As such, there will be no demolition stage.

2.2 Construction works

The construction elements will consist of pre-cast concrete columns and sheer walls, and post tensioned reinforced concrete slabs, with only level one of the administration area having steel columns and steel roof framing.

Managing contractor, Multiplex Constructions, will engage a licensed waste contractor to service the construction site and manage all waste streams. Data from Bingo for the construction of another data centre demonstrated a 93% recovery rate. It is expected that a similar recovery rate will be achieved as the same approach will apply. The approach is that all construction waste is placed into skips, which are sorted at a resource recovery facility. This waste management approach when implemented will exceed the 80% target within the NSW Waste and Sustainable Materials Strategy 2041.

The appropriate types of receptacles for waste/recyclables will be leased from the waste contractor by Multiplex as needed throughout the construction stage.

Multiplex will develop a detailed project specific waste management plan for the construction stage prior to commencement of construction. These plans incorporate details of waste disposal and storage areas, strategies for waste avoidance / reduction / reuse / recycling, personnel inductions, and guidance to contractors for reducing packaging. Broad guidelines for waste disposal and storage areas include the provision of strategically located bins in places that do not affect the community and are not close to any surrounding premises. Separation of waste for recycling will be investigated and where practicable implemented onsite.

This project does not yet have cost estimates or a quantity surveyor engaged. Estimates of waste generation have been calculated based on Multiplex and Bingo's previous data centre experience in Australia. Data from other data centres has been used to estimate the quantity of construction waste that will be generated and the anticipated recovery rate.

Table 2 shows the estimated volume, tonnes and destination of waste anticipated to be generated from the construction stage of the project.

Table 2: Estimated volume (m^3) and destination of materials from the construction stage

Material type	Estimated volume (m^3)	Estimated Tonnage (t)	Recycling (on-site) (m3)	Recycling (off-site) (m^3)	Waste disposal (m^3)
Hard material	3650	4380	0	3650	0
Timber	1970	590	0	1970	0
Plastics	1230	160	0	1230	0
Cement sheet	740	370	0	740	0
Plasterboard	490	100	0	490	0
Metals	490	440	0	490	0
Paper / cardboard	330	30	0	330	0
Vegetation	250	40	0	250	0
Soil	80	130	0	80	0
General waste	20	10	0	0	30
TOTAL	9250	6250	0	9230	30

2.3 Operational waste and recycling

2.3.1 Project parameters

The development when operational will include five data centre buildings, with an overall GFA of 63,654 m^2 broken down as follows:

- Building A 10,810 m^2
- Building B 11,502 m^2
- Building C 11,502 m^2
- Building D 11,699 m^2
- Building E 18,140 m^2

Areas occupied by plant / equipment, corridors, storage areas, water closets and void spaces are considered non-waste generating areas and have been excluded from the waste calculations. When operational the data centre buildings will consist of the following waste generating areas:

1. Building A (Enterprise Building), consisting of individual areas indicated below.
    - 3 floors in total consisting of:
        - Office areas (3,295 m^2)

- A café (130 m^2)
- Technical building areas, including 2 floors of data halls (5,000 m^2)

2. Buildings B, C and D (Hyperscale 2), consisting of:
   - Office areas over 4 floors (1,407 m^2)
   - Data halls over 3 floors (8,178 m^2)
3. Building E (Hyperscale 1), consisting of:
   - Office areas over 4 floors (2,065 m^2)
   - Data halls over 3 floors (11,376 m^2)

2.3.2 Waste generation rates

There are no standard generation rates for data centres. The City of Sydney[1] waste generation rates have been considered for office areas and cafe, while for the data halls, estimated waste generation has been based on operational data from similar sized data centres provided by NEXTDC, and also Encycle experience of other data centres operating in Australia.

Specifically, the City of Sydney rates used are presented below. The rates do not include a breakdown of material streams included in the 'recycling' stream. The final column presents Encycle Consulting's in-house estimate of the material streams present in the recycling stream based on our working experience of operational buildings within Australia.

Premises type	Waste generation rate	Recycling generation rate	Food waste generation rate	Percentage breakdown of recycling stream by material
Commercial offices **9,581 m^2**	15 L / 100m^2 / day	25 L / 100m^2 / day	5 L / 100m^2 / day	7% commingled 93% paper and cardboard 10% soft plastics (additional)
Pubs / clubs (applied to café) **130 m^2**	100 L / 100m^2 / day	150 L / 100m^2 / day	40 L / 100m^2 / day	40% commingled 50% cardboard 10% soft plastics 40% of waste is organics

The majority of the waste at data centres is derived from unpacking servers and equipment in the unpacking and staging rooms adjacent to the loading dock. Waste generation from the process of unpacking and installing servers is determined by the rate and quantity of servers being installed. This fluctuates day to day, week to week and month to month. The bin systems proposed have the capacity to accommodate higher waste generation through increasing the collection frequencies on an as-needs basis.

[1] Guidelines for Waste Management in New Developments, City of Sydney (2018)

2.3.3 Number of bin stores required

Six bin stores and one interim bin store will be required to service the individual buildings separately:

i) Building A – Retail Enterprise NEXTDC (refer section 2.3.5)
ii) Building A – Cafe bin store for café private operator (refer section 2.3.6)
iii) Buildings B, C and D (three) (refer section 2.3.7)
iv) Building E (refer section 2.3.8)

Space and bin allowances for additional recycling systems are included in this Waste Management Plan in order to futureproof the building and increase resource recovery as opportunities arise.

The number of bins to be stored in the bin stores are set out in Tables 3 to 6 below.

2.3.4 Number of bins required – Building A – NEXTDC bin store

The total number of bins to be stored in the Building A bin store are set out in Table 3.

Table 3: Number of bins to be stored in the Building A NEXTDC bin store

Waste stream	Bin size (L)	Number of bins	Collection frequency	Code
General waste (excluding food waste)	1100	3	Weekly	**W**
Commingled recycling	660	1	Weekly	**CM**
Cardboard recycling	660	3	Weekly	**CB**
CDS recycling	240	1	Weekly	**CDS**
Soft plastics recycling (plastic pallet wrapping film)	660	1	As required	**SP**
Organic waste (food)	120	2	Weekly	**FO**
Expanded Polyethylene	660	1	As required	**EP**
Electronic waste (e-waste)	660	1	As required	**E**
Bulk general waste - Including timber/metal	Space has been provided for the temporary storage of separated bulk waste streams for recycling			

2.3.5 Number of bins required – Building A - Café bin store

The number of bins to be stored in the bin store for the cafe is set out in Table 4.

Table 4: Number of bins to be stored in the Building A café bin store

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code
General waste (excluding food waste)	240	2	Weekly	**W**
Commingled recycling	240	2	Weekly	**CM**
Cardboard recycling	660	1	Weekly	**CB/P**
CDS recycling	240	3	As required	**CDS**
Organic waste (food)	120	3	Weekly	**FO**
Bulky waste and a*d hoc* recyclables	Space has been provided for the temporary storage of bulky waste and returnable items provided by suppliers			

2.3.6 Number of bins required – Buildings B, C and D– NEXTDC bin stores

The number of bins to be stored in the bin store of each of the three buildings are set out in Table 5.

Table 5: Number of bins to be stored in each NEXTDC bin store - Buildings B, C and D

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code
General waste (excluding food waste)	660	3	Weekly	**W**
Commingled recycling	660	1	Fortnightly	**CM**
Cardboard recycling	660	2	Weekly	**CB/P**
CDS recycling	240	1	As required	**CDS**
Soft plastics recycling (plastic	660	1	As required	**CDS**

pallet wrapping film)				
Organic waste (food)	120	2	Weekly	**FO**
Expanded Polyethylene	660	1	As required	**EP**
Electronic waste (e-waste)	660	1	As required	**E**
Bulk general waste - Including timber/metal	Space has been provided for the temporary storage of separated bulk waste streams for recycling			

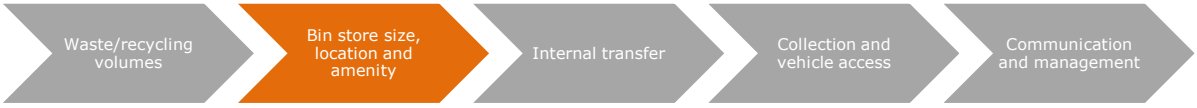
2.3.7 Number of bins required – Building E NEXTDC bin store

The number of bins to be stored in the Building E bin store are set out in Table 6. These bin numbers include estimated waste generated from the future extension.

Table 6: Number of bins to be stored in the Building E NEXTDC bin store

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code
General waste (excluding food waste)	660	3	Weekly	**W**
Commingled recycling	660	1	Fortnightly	**CM**
Cardboard recycling	660	2	Weekly	**CB/P**
CDS recycling	240	1	As required	**CDS**
Soft plastics recycling (plastic pallet wrapping film)	660	1	As required	**CDS**
Organic waste (food)	120	2	Weekly	**FO**
Expanded Polyethylene	660	1	As required	**EP**
Electronic waste (e-waste)	660	1	As required	**E**
Bulk general waste - Including timber/metal	Space has been provided for the temporary storage of separated bulk waste streams for recycling			

3 Bin store size, location and amenity



3.1 Construction waste and recycling

Bins, skips and other site receptacles and storage areas will be planned and located around the site according to the construction stage and the materials types and quantities being generated. Construction waste storage areas will be located at the development site as required as shown in Figure 3.

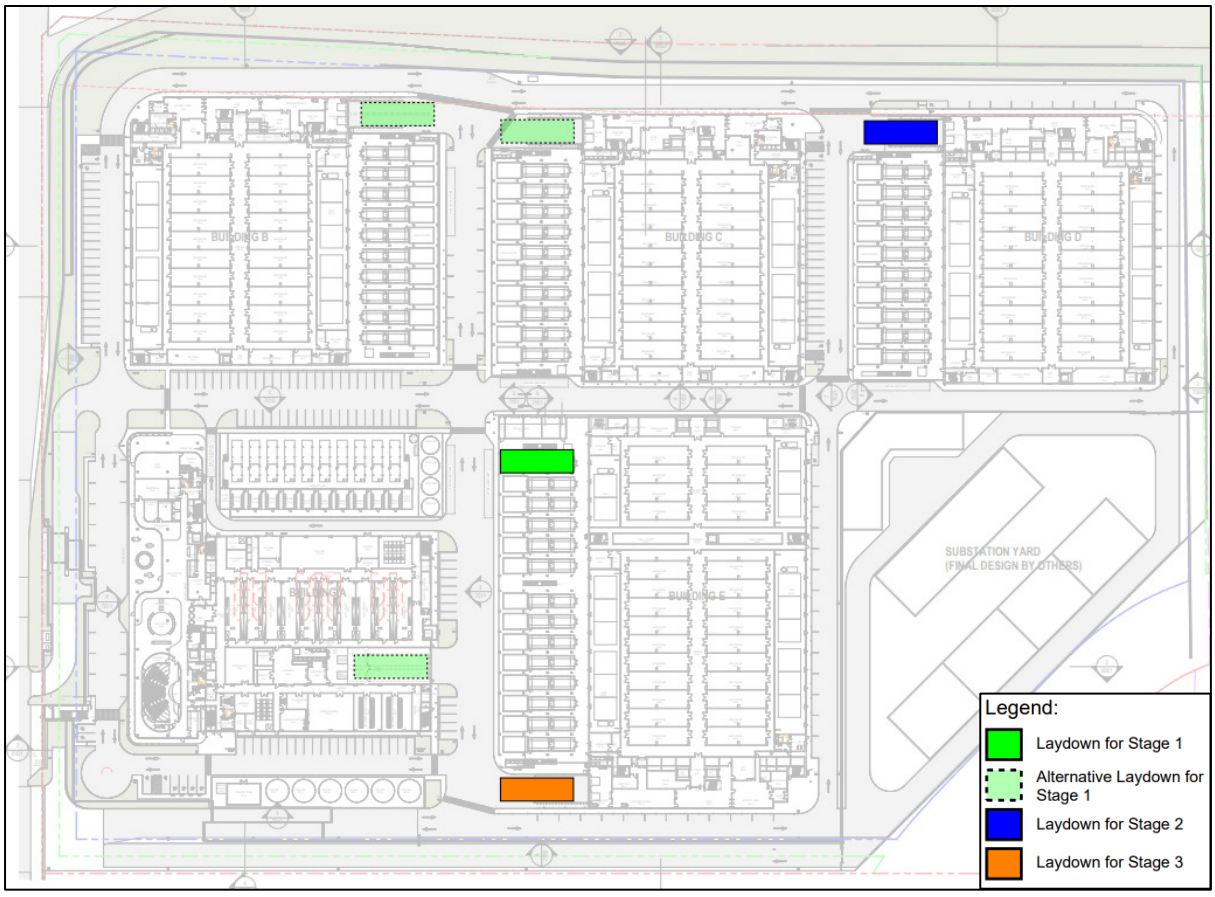


Figure 3: Site plan showing waste laydown areas for the construction stages

3.2 Operational waste and recycling

3.2.1 Bin store locations

Six (6) bin stores will service the five (5) buildings as shown in Figure 4.

The bin stores are located adjacent to the loading bay in each building (A-E) and allow easy internal access for facility staff from the lifts, the main staging and waste generating areas, as well as waste service providers collecting waste from the bin stores. The layouts of the bin stores are shown in Figure 5, Figure 7 and Figure 8.

The café bin store in Building A, situated next to the collection point, facilitates convenient internal access for café staff and waste service providers collecting waste. It is segregated to accommodate external operators while restricting access to the secured data centre. The layout of the bin store is shown in Figure 6.

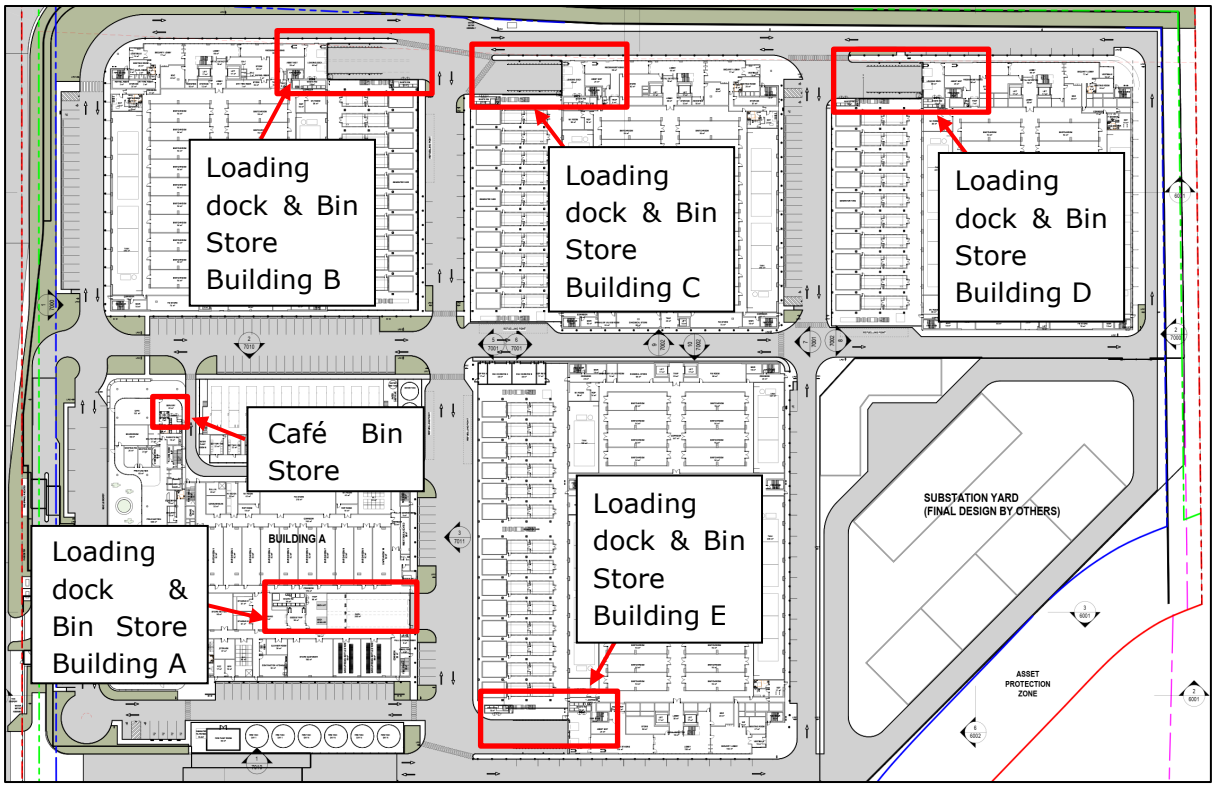


Figure 4: Level 1 (ground) floor plan showing the bin store locations and loading dock

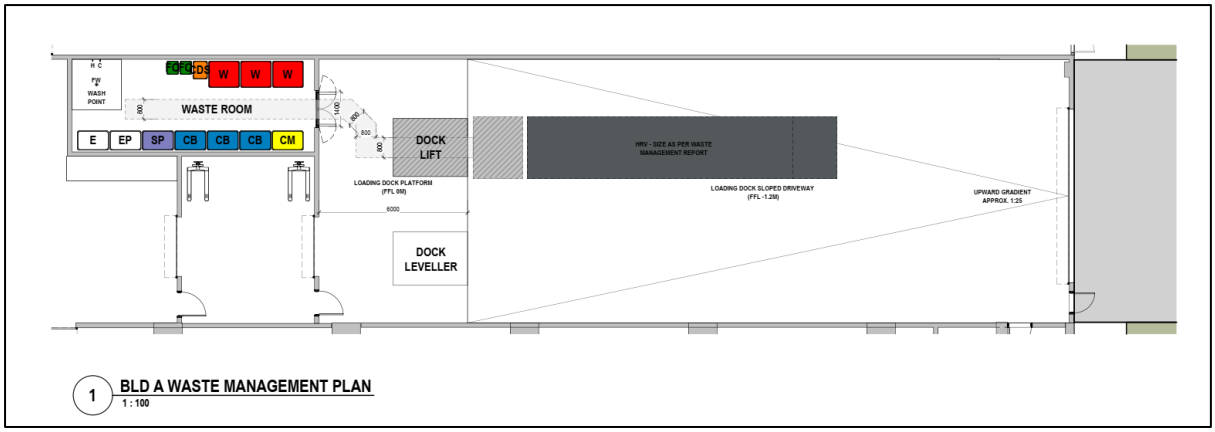


Figure 5: Building A NEXTDC bin store layout

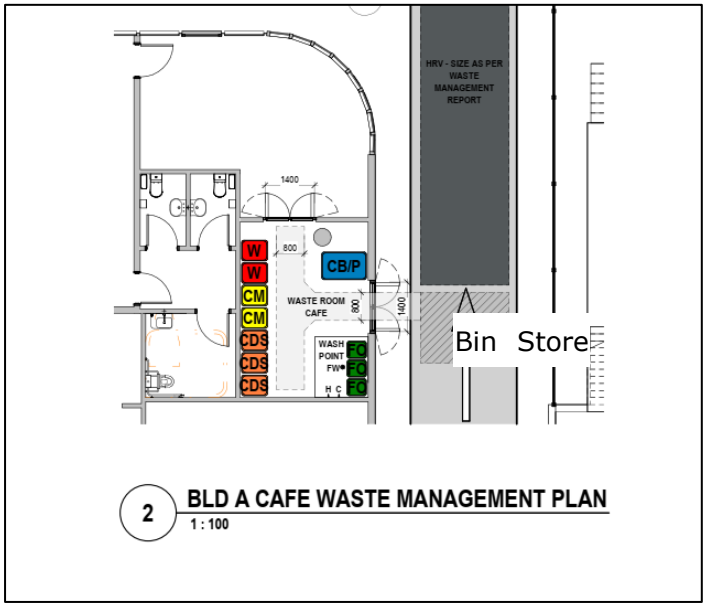


Figure 6: Building A cafe bin store layout

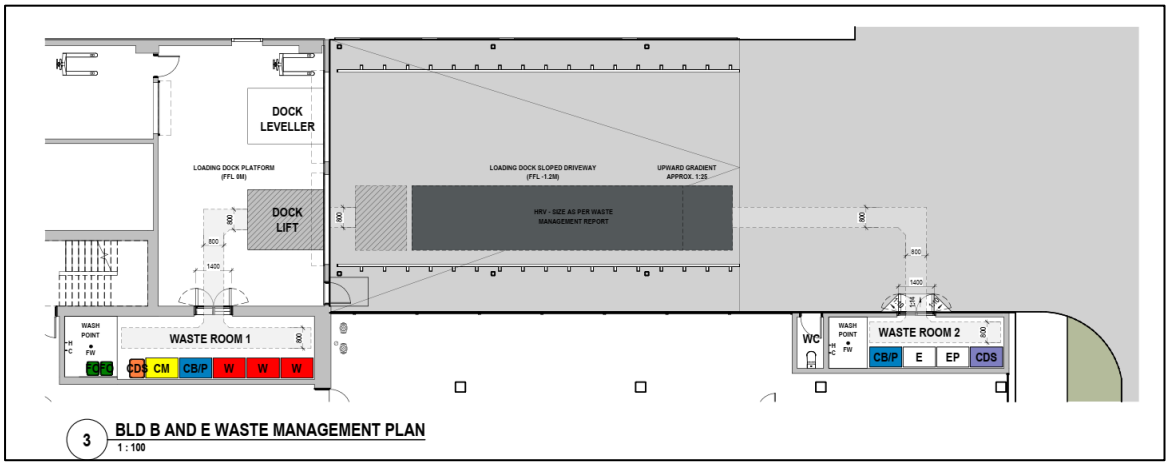


Figure 7: Building B and E NEXTDC bin store layouts

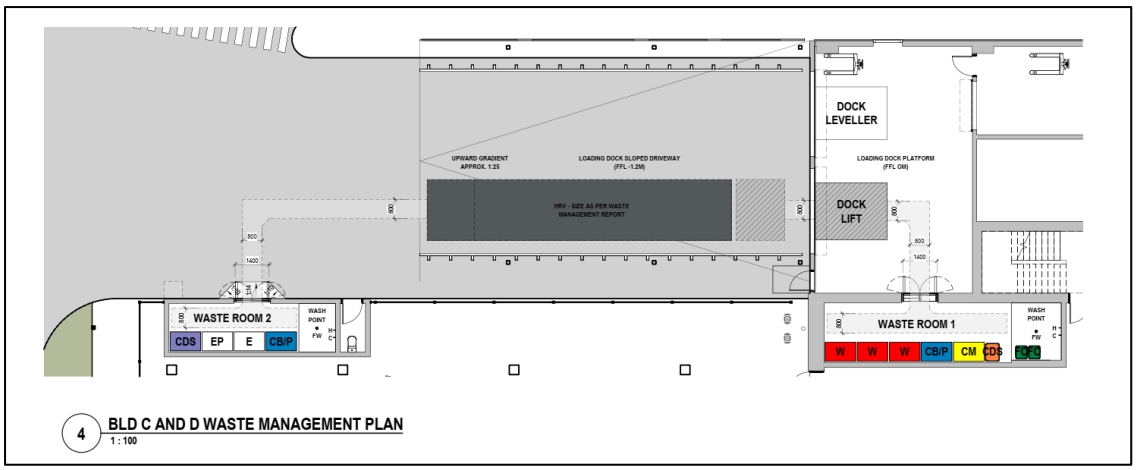


Figure 8: Building C and D NEXTDC bin store layouts

3.2.2 Bin store amenity

The bin stores have been designed to include the following requirements:

Aesthetics	The bin store is consistent with the overall aesthetics of the development.
Fully enclosed	The bin stores are fully enclosed and weatherproof, and only accessible by authorised tenants/clients, cleaners, facility management and waste service providers.
Spatial requirements	The bin stores allow sufficient space to accommodate, manoeuvre and wash the bins and equipment specified. Bins are stored in single rows (bins will not be double stacked against the wall). Space for personnel access is included.
Bin wash	The bin stores have impermeable walls and floors grading to an industrial floor waste (including a charged 'water-trap' connected to sewer/an approved septic system), with a hose cock to enable bins and/or the enclosures to be washed out. A 100 mm floor waste gully to waste outlet is included. Both hot and cold water is available.
Contingency	Additional areas within the loading bay and the temporary store rooms have been identified to accommodate additional bins resulting from missed collections (e.g. on some public holidays).
Doors	Ventilated doors are specified both internally and externally. Self-closing doors are installed to the bin stores to eliminate access to vermin. Doors are designed to be locked open for servicing and to fit the largest bin, enabling bins to be easily wheeled into and out of the bin stores.
Security	Security measures are designed to limit access to the bin stores (e.g. PIN code that can be easily changed and reduces loss of key cards etc.)

Walls and ceilings	Internal bin store walls are cement rendered (solid and impervious) to enable easy cleaning. Ceilings are finished with a smooth faced, non-absorbent material that can be easily cleaned. Walls and ceilings are finished or painted in a light colour.
Floors	Floors are constructed in concrete in accordance with AS 2870. Floors are evenly graded to an approved liquid refuse disposal system. Slab thickness is a minimum of 100 mm, impervious and with a brush finish treatment.
Ventilation and odour	The design of the bin stores provide for adequate separate ventilation with a system that complies with Australian Standard 1668 (AS1668). The ventilation outlet is not in the vicinity of windows or intake vents associated with other ventilation systems.
Lighting	Bin stores are provided with artificial lighting, with sensor or switch controls both internal/external to the rooms. Artificial lighting in loading bays and access walkways to bin stores will ensure staff safety.
Noise	Noise is minimised through considering the location of the bin stores and collection point and the timing of collections to prevent disruption to occupants or neighbours.
Signage	Visual aids and signage will be provided when the bin stores are operational to ensure that the area works as intended.

4 Internal transfer

4.1 Transfer of waste to bin store room

The facilities management team will be responsible for transferring full internal bins from within each building to the bins in the relevant bin store via the pathways as shown in Figure 9, Figure 11 and Figure 12 . The majority of waste and recycling generated will be with the unpacking/staging rooms which will be transferred a short distance to the bin stores within the loading dock. Waste and recycling from other levels will be transferred by the cleaners via cleaning trolleys down to the bin stores. The bins will be taken via internal service corridors and the lift (upper floors) to the bin stores and decanted or swapped out for empty bins (see Figure 5).

Organic food waste from the internal kitchenettes will be collected in small caddies and emptied on a daily basis into a larger 120 L bin in the relevant bin store by cleaners.

The café operator will be responsible for transferring full internal bins to the café bin store as shown in Figure 10.

Clear, safe access between internal waste generating areas and the bin stores is provided.

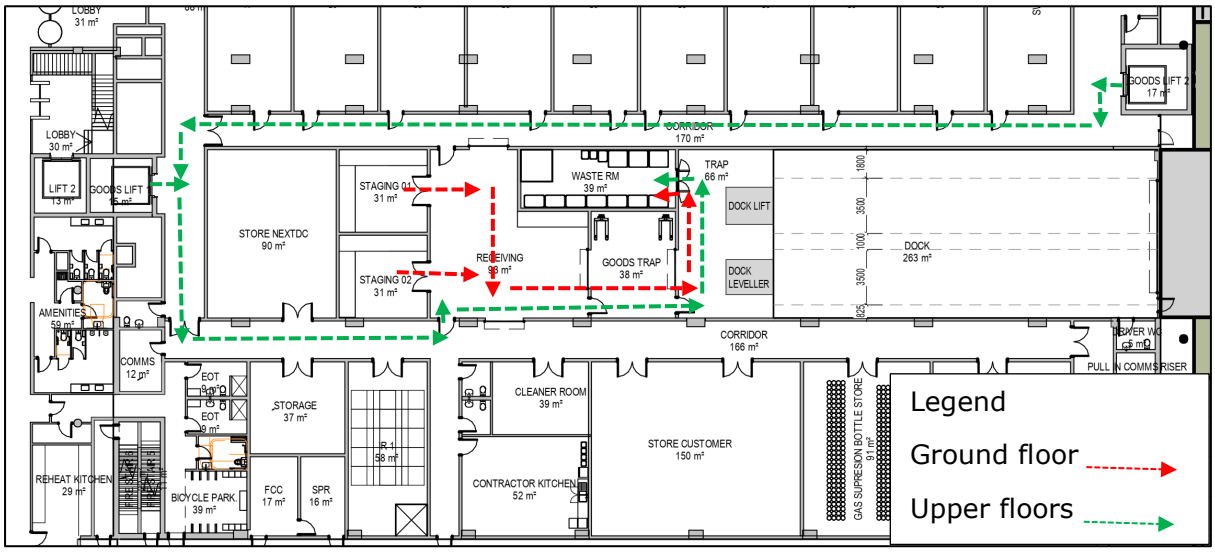


Figure 9: Building A - Internal transfer of waste and recycling from ground floor and upper floors

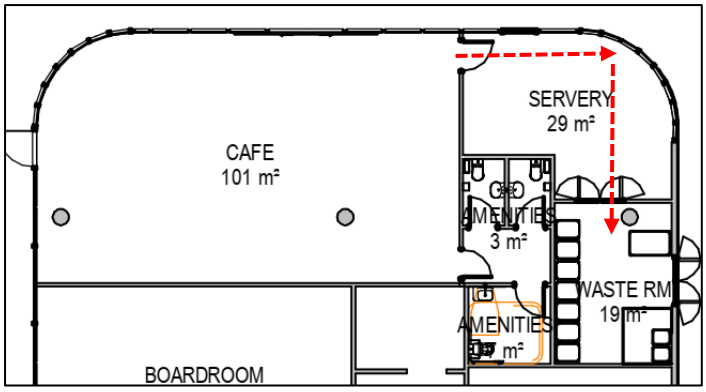


Figure 10: Building A cafe - internal transfer of waste and recycling

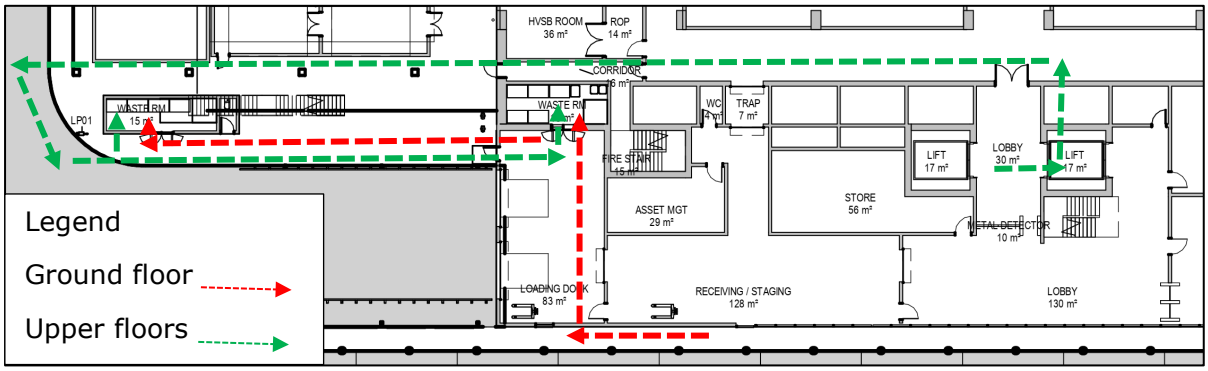


Figure 11: Buildings B and E - internal transfer of waste and recycling from ground floor and upper floors

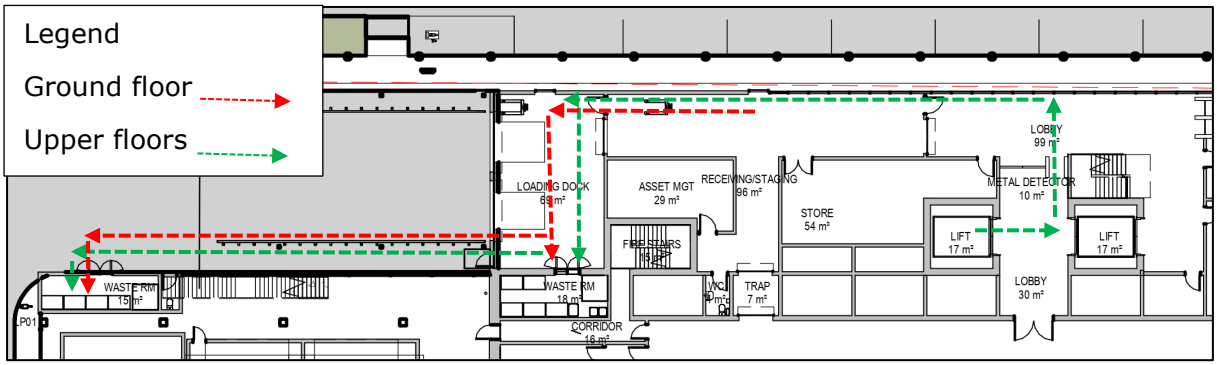


Figure 12: Buildings C and D - internal transfer of waste and recycling from ground floor and upper floors

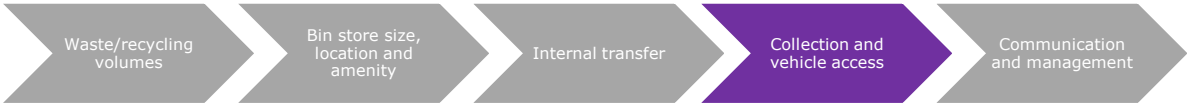
4.2 Bin transfer requirements

All bin transfer routes have been designed to include the following requirements in Table 7.

Table 7: Bin transfer requirements

Bin transfer requirements	
User access route	Waste transfer routes avoid stairs/steps and steep ramps (grade of slope <1:14) and other potential hazards between points of waste generation, storage and collection. Waste transfer routes are designed to ensure that bins (particularly when full) are not moved over any significant distances.
Manual handling	Manual handling of waste in garbage bags is excluded from the waste management systems wherever possible.
Transfer route width	All doors, corridors and lifts on the transfer route are designed to fit the largest bin.
Walkways	Safe access to waste collection vehicles have been provided to reduce the risk of accidents.

5 Collection and vehicle access



5.1 Construction waste and recycling vehicle access

The internal road network will be completed as part of the construction stage, providing access for vehicles up to the size of an Articulated Vehicle (AV). The waste storage areas throughout the construction stages correspond with each building's loading bays as shown in Figure 13. The swept paths for waste collection vehicles to access each loading bay are detailed in Section 5.2 below.

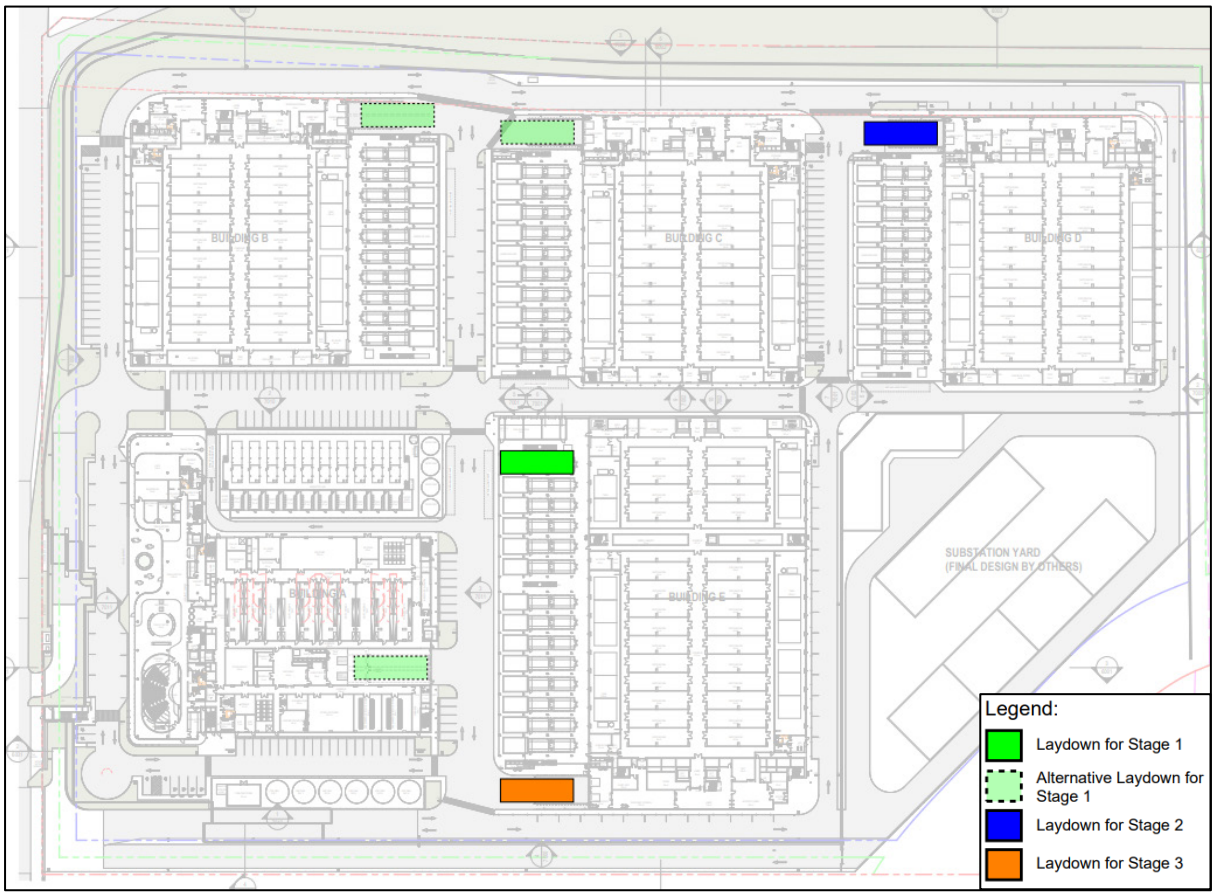


Figure 13: Site plan showing waste storage and collection areas for the construction stages

5.2 Operational waste and recycling vehicle access

Private service providers will undertake the waste, recycling and organic waste collections at the data centres when the development becomes operational.

Collections for a number of waste streams may be more frequent during peak periods, as and when required. The collection frequencies for several recycling streams will be on an as needs basis and will be coordinated between facilities management and the waste service provider.

The collection point for waste and recycling vehicles to service the bins in the bin stores will be the loading bays. Rear-lift vehicles will enter and exit the development via the secured entry on Johnston Crescent (see Figure 15) and drive to each building for servicing. The vehicles will drive in a forwards motion and reverse into each loading bay on ground level (see Figures 16, 17, 18, 19 and 20). The facility manager will transfer bins down to the loading dock via the dock lift for servicing and return to bin store. . The vehicles will exit each loading bay in a forwards motion. Access to the site and individual buildings will be facilitated by permanent security staff.

Swept path analysis for vehicle ingress and egress has been completed by Taylor Thomson Whitting taking into consideration the specifications of an Articulated Vehicle (AV) as shown in Figure 14, as these are the largest vehicles anticipated and larger than a Heavy Rigid Vehicle (HRV) or waste servicing vehicle. The loading bays have a 4.7 m head clearance, with no access issues anticipated for commonly used waste service vehicles.

Access to the grease trap located on ground level is from outside the café located at Building A, via an internal road as shown in Figure 21.

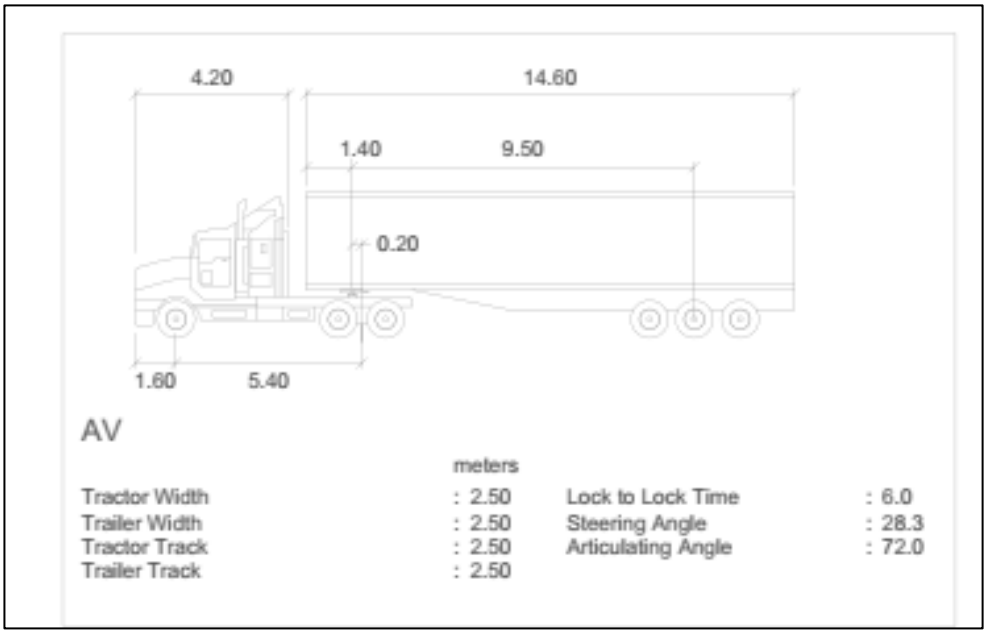


Figure 14: Articulated vehicle specifications

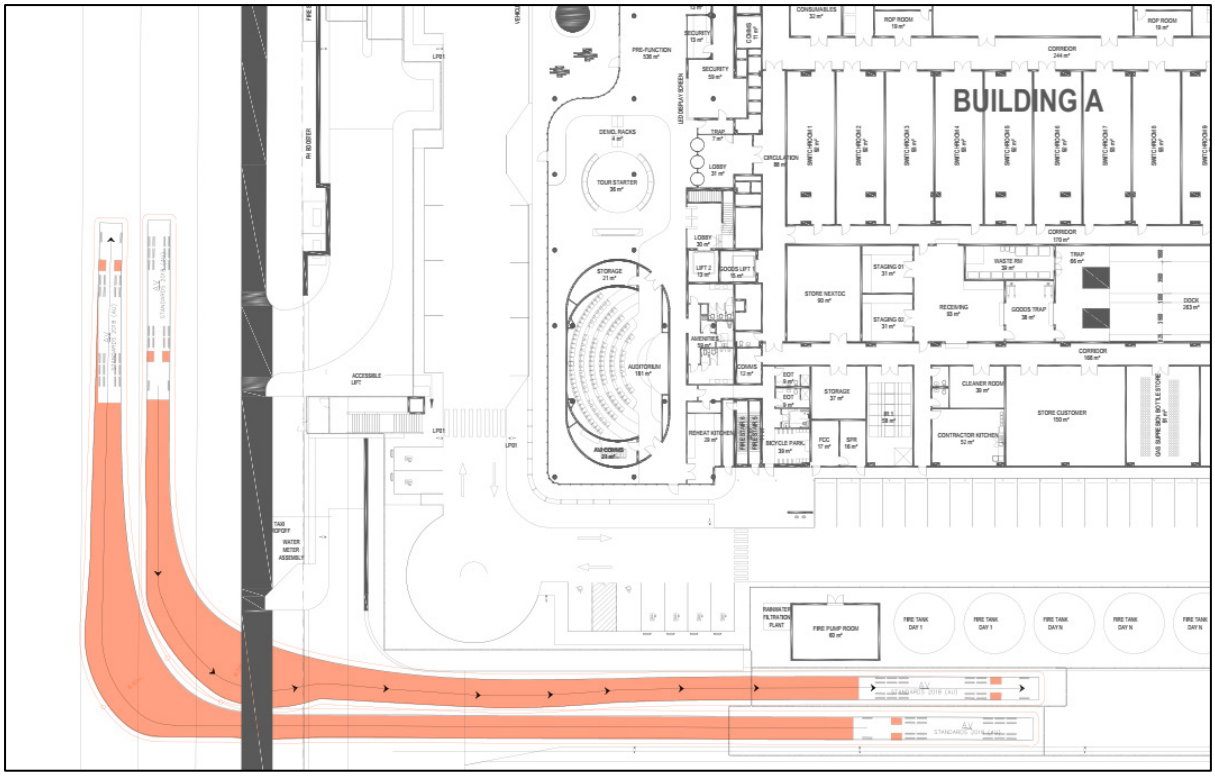


Figure 15: Swept path analysis showing access for waste collection vehicles entry and exit of site

Figure 16: Building A - Swept path analysis showing loading dock entry and exit for waste collection vehicles

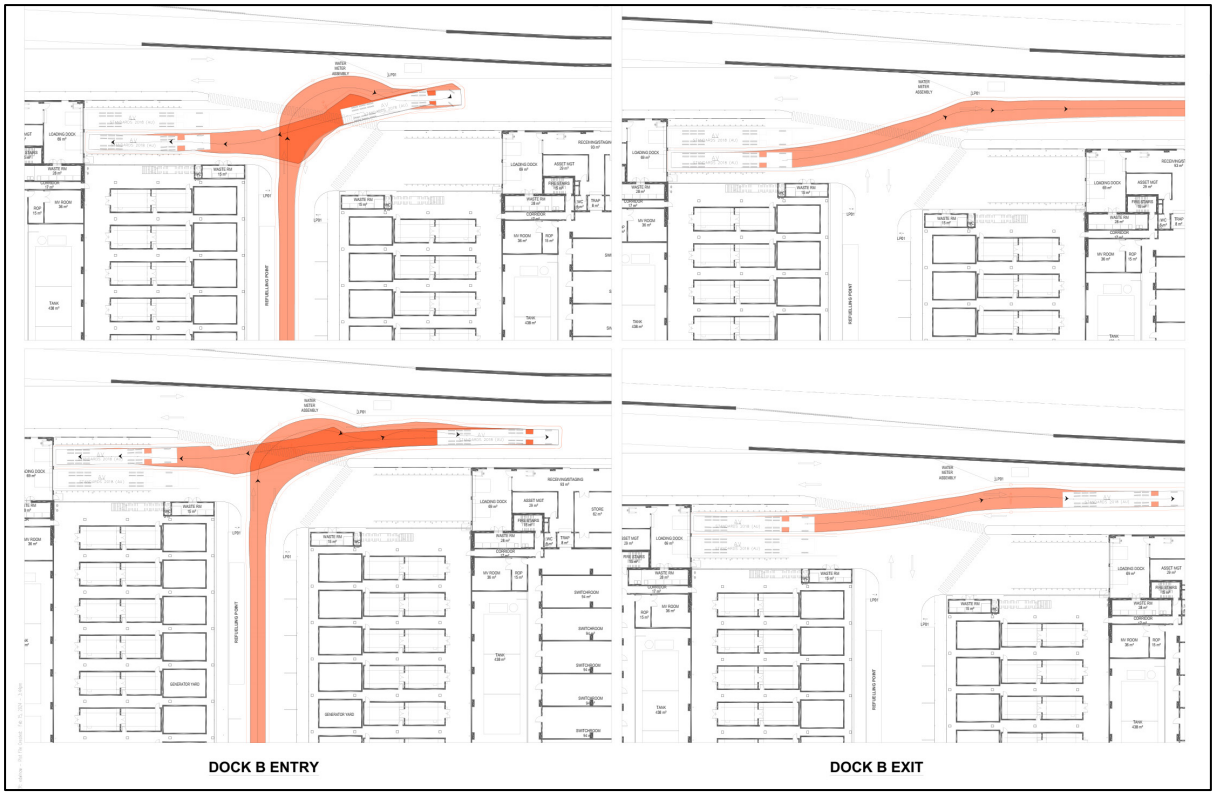


Figure 17: Building B - Swept path analysis showing loading dock entry and exit for waste collection vehicles

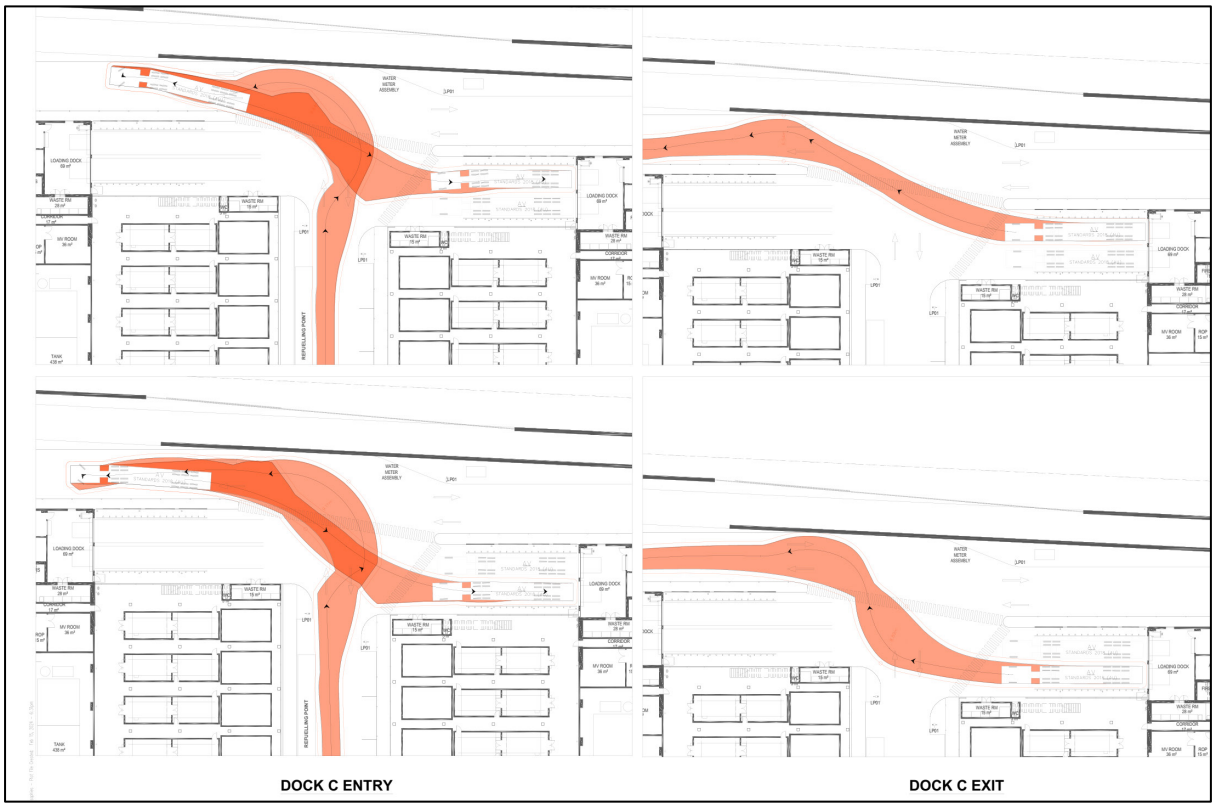


Figure 18: Building C - Swept path analysis showing loading dock entry and exit for waste collection vehicles

Figure 19: Building D - Swept path analysis showing loading dock entry and exit for waste collection vehicles

Figure 20: Building E - Swept path analysis showing loading dock entry and exit for waste collection vehicles

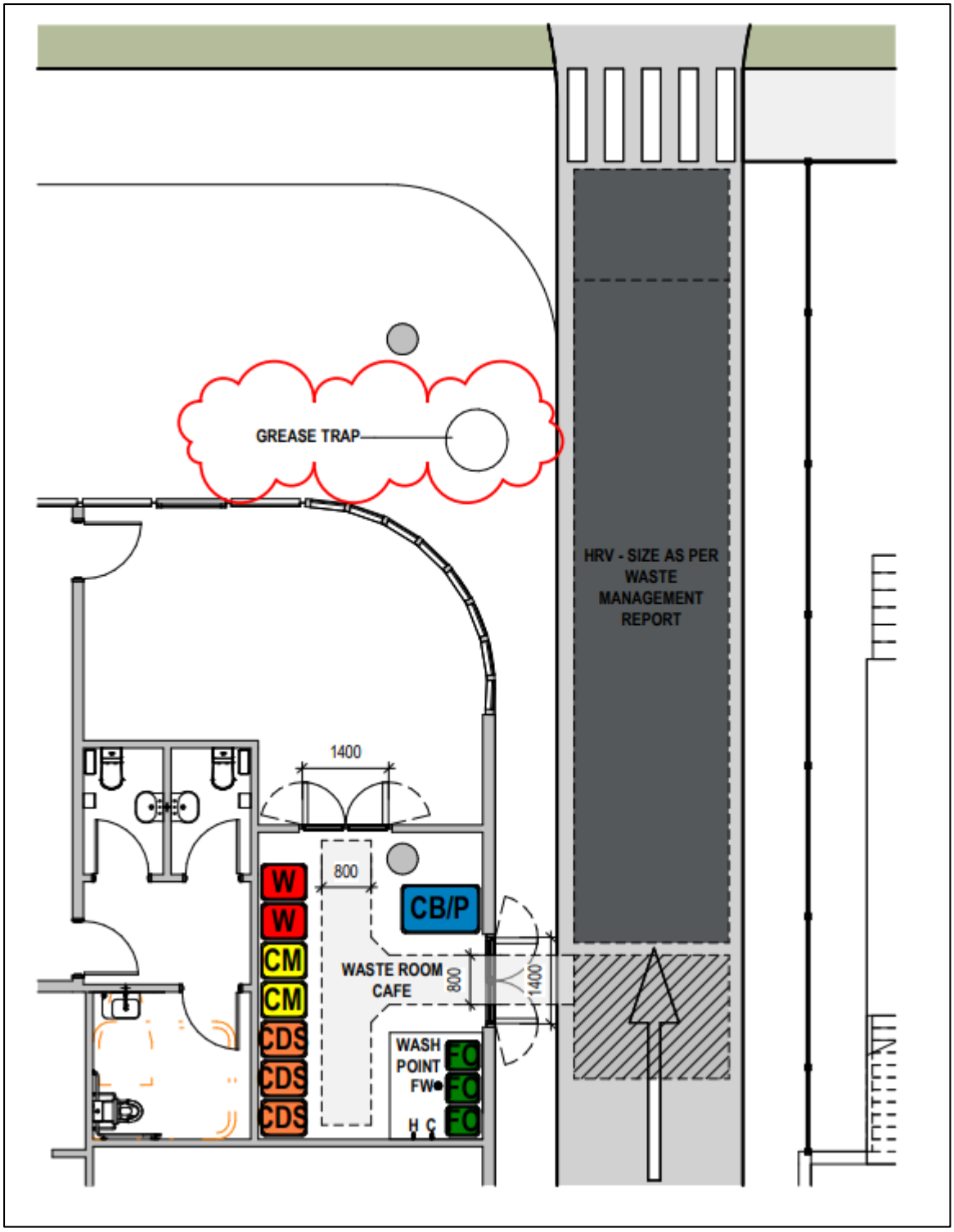
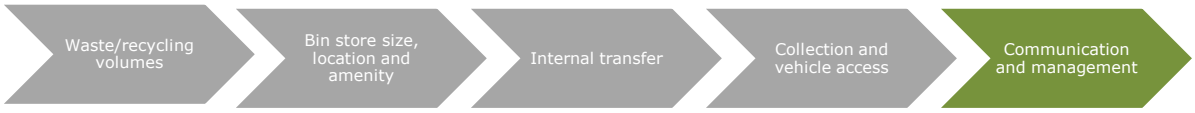


Figure 21: Building A – Location and access to café grease trap for a HRV vehicle

6 Ongoing communication and management



6.1 Management of construction site waste

Multiplex will be responsible for managing the waste throughout the construction stage. They will be responsible for establishing appropriate waste storage areas, making sure waste and recycling is removed from site, and taken to an appropriate processor/disposal site.

All staff working at the site will be made aware of the correct use of the skips and bin systems. Ongoing reporting and awareness of the systems will be included in site 'toolbox' meetings and personnel inductions.

6.2 Management of operational data centre waste

The Facilities Manager will be responsible for overseeing the waste management systems. The Facilities Manager will be trained and informed about their responsibility to work closely with the private service providers regarding the schedule for collection and presentation of bins in the bin stores. The Facilities Manager will be responsible for maintaining the bin stores in a clean and tidy condition at all times and ensuring bins are washed regularly.

All relevant staff and clients will be made aware through a building users guide (or equivalent) of the waste and recycling systems and how they should be used. An Operational Waste Management Plan suitable for presenting to building users will be developed and implemented and will include information relevant to both the initial occupation and ongoing management of the building and also the strategy for communicating the plan to relevant staff and stakeholders. This document will include waste objectives/targets, behaviour change principles, monitoring and evaluation so as to align with the aims, objectives and guidance in the NSW Waste and Sustainable Materials Strategy 2041.

7 Appendix A: Glossary of terms and acronyms

Bulky waste storage	An area designed to store any unwanted bulky waste items from residential, retail, commercial or industrial developments.
Collection point	The permitted area on a footpath, roadway or private property (where applicable) that waste, recyclables and bulky waste are loaded into collection vehicles.
Commingled recycling	Common recyclables, mostly packaging; such as glass, plastics, aluminium, steel, liquid paper board (milk cartons). Commingled recycling may include paper but often, and particularly in offices, paper and cardboard are collected separately.
Container Deposit Scheme (CDS)	Where 'eligible containers' (usually for soft and alcoholic drinks) have a 10 cent deposit which can be refunded when the container is redeemed at a refund facility.
Demolition and construction waste	Materials excavated from or on the site, such as: • rock and soil • waste asphalt, bricks, concrete, plasterboard, timber and • vegetation • asbestos containing material, hazardous materials and • contaminated soil.
E-waste	Discarded electronic appliances such as mobile phones, computers, and televisions.
Food organics	Waste food in commercial kitchen/food service settings, generated from preparation (peelings etc.), storage (out of date) or service (leftovers) that can be separated from the general waste stream for a more beneficial use.
General waste	Material that is intended for disposal to landfill (or in some States, incineration), normally what remains after the recyclables have been collected separately.
Grease trap	Collection of solid greases and oils in a tanker system to remove this material from water discharged to sewer from commercial kitchens or food processing facilities. Grease trap collection vehicle requirements can be included in the Waste Management Plan where relevant. Encycle are not hydraulics engineers and do not specify or advise on grease trap systems.
Organic waste	Waste derived from material that was once living (excluding petroleum-based materials).
Recyclable	Material that can be collected separately from the general waste and sent for recycling. The precise definition will vary, depending upon location (i.e. systems exist for the recycling of some materials in some areas and not in others).

Recycling	Where a material or product undergoes a form of processing to produce a feedstock suitable for the manufacture of new products.
Reuse	Replacing a 'disposable' or single-use item with one which can be used again (without needing to be processed or dismantled – i.e. 'recycled') e.g. using a washable ceramic coffee mug or travel cup in place of disposable cups.
Waste avoidance	Changing a service or process so that a waste that was previously generated can be eliminated from the system. An example would be changing from printed forms/tickets/invoices etc. to an online system that does not need any paper.