

WASTE STRATEGY REPORT

APPENDIX Y





Sydney Metro City & Southwest

Pitt Street South Over Station

Development:

Waste Management Plan

Applicable to:	Sydney Metro City & Southwest
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Table of Contents

1.0	Purpose of this report	3
1.1.	Background	3
1.2.	Overview of the Sydney Metro in its context	3
1.3.	Planning relationship between Pitt Street Station and the OSD	6
1.4.	The Site	8
1.5.	Overview of the proposed development.....	9
1.6.	Staging and framework for managing environmental impacts	12
1.7.	Over station development (OSD) Pitt Street South	14
1.8.	Purpose and scope of this report	14
1.9.	Limitations	14
2.0	Policy and legislation	16
2.1.	Protection of the Environment Operations Act 1997.....	16
2.2.	Waste Avoidance and Resource Recovery Act 2001	16
2.3.	NSW Government Resource Efficiency Policy	17
2.4.	City of Sydney Policy for Waste Minimisation in New Developments 2005	17
3.0	Operational waste	19
3.1.	Disposal, storage and collection system	19
3.1.1	Residential option	19
3.1.2	Commercial option.....	19
3.2.	Waste generation and storage requirements	19
3.2.1	Residential option	20
3.2.2	Commercial option.....	20
3.3	Space requirements.....	21
3.4	Access and waste collection	22
3.5	Management.....	24
3.5.1	Responsibilities.....	24
3.5.2	Signage	25
4.0	Construction waste	26
4.1	Construction waste generation.....	26
4.2	Construction waste management.....	27
4.2.1	Waste planning	27
4.2.2	Onsite controls.....	27
5.0	Conclusion	28

1.0 Purpose of this report

1.1. Background

This report supports a concept State Significant Development Application (concept SSD Application) submitted to the Department of Planning and Environment (DPE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The concept SSD Application is made in accordance with Section 4.22 of the EP&A Act.

Sydney Metro is seeking to secure concept approval for a building envelope above the southern portal of Pitt Street Station, otherwise known as the over station development (OSD). The concept SSD Application seeks consent for a building envelope, maximum building height, land use options, pedestrian and vehicular access, circulation arrangements and associated car parking as well as the strategies and design parameters for the future detailed design of development.

Sydney Metro proposes to procure the construction of the OSD as part of an integrated station development package, which would result in the combined delivery of the station, OSD and public domain improvements. The station and public domain elements form part of a separate planning approval for Critical State Significant Infrastructure (CSSI) approved by DPE on 9 January 2017.

As the development is associated with railway infrastructure and is for residential or commercial premises with a Capital Investment Value of more than \$30 million, the project is State significant development (SSD) pursuant to Schedule 1, Clause 19(2)(a) of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). The full extent of the proposed development can also be considered to be SSD by virtue of Clause 8(2) of the SRD SEPP.

This report has been prepared to specifically respond to the Secretary's Environmental Assessment Requirements (SEARs) issued for the concept SSD Application for Pitt Street South on 30th November 2017 which state that the Environmental Impact Statement (EIS) is to address the following requirements:

Waste Strategy

1.2. Overview of the Sydney Metro in its context

The New South Wales (NSW) Government is implementing *Sydney's Rail Future*, a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers in the future. Sydney Metro is a new standalone rail network identified in *Sydney's Rail Future*.

Sydney Metro is Australia's biggest public transport project, consisting of Sydney Metro Northwest, which is due for completion in 2019 and Sydney Metro City & Southwest, which is due for completion in 2024.

Sydney Metro West is expected to be operational in the late 2020s (refer to **Figure 1**).



Figure 1: Sydney Metro alignment map

Sydney Metro City & Southwest includes the construction and operation of a new metro rail line from Chatswood, under Sydney Harbour through Sydney’s Central Business District (CBD) to Sydenham and on to Bankstown through the conversion of the existing line to metro standards.

The project also involves the delivery of seven new metro stations, including at Pitt Street. Once completed, Sydney Metro will have capacity for 30 trains an hour (one every two minutes) through the CBD in each direction - a level of service never seen before in Sydney.

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham application lodged as a Critical State Significant Infrastructure project (reference SSI 15_7400), hereafter referred to as the CSSI Approval.

The CSSI Approval includes all physical work required to construct the CSSI, including the demolition of existing buildings and structures on each site. Importantly, the CSSI Approval also includes provision for the construction of below and above-ground structures and other components of the future integrated station development (including building infrastructure and space for future lift cores, plant rooms, access, parking and building services, as relevant to each site). The rationale for this delivery approach, as identified within the CSSI

Application, is to enable the integrated station development to be more efficiently built and appropriately integrated into the metro station structure.

The EIS for the Chatswood to Sydenham component of the Sydney Metro City & Southwest project identified that the OSD would be subject to a separate assessment process.

Since the CSSI Approval was issued, Sydney Metro has lodged four modification applications to amend the CSSI Approval as outlined below:

- Modification 1- Victoria Cross and Artarmon Substation which involves relocation of the Victoria Cross northern services building from 194-196A Miller Street to 50 McLaren Street together with inclusion of a new station entrance at this location referred to as Victoria Cross North. 52 McLaren Street would also be used to support construction of these works. The modification also involves the relocation of the substation at Artarmon from Butchers Lane to 98 – 104 Reserve Road. This modification application was approved on 18 October 2017.
- Modification 2- Central Walk which involves additional works at Central Railway Station including construction of a new eastern concourse, a new eastern entry, and upgrades to suburban platforms. This modification application was approved on 21 December 2017.
- Modification 3 - Martin Place Station which involves changes to the Sydney Metro Martin Place Station to align with the Unsolicited Proposal by Macquarie Group Limited (Macquarie) for the development of the station precinct. The proposed modification involves a larger reconfigured station layout, provision of a new unpaid concourse link and retention of the existing MLC pedestrian link and works to connect into the Sydney Metro Martin Place Station. This modification application was approved on 22 March 2018.
- Modification 4 - Sydenham Station and Sydney Metro Trains Facility South which incorporated Sydenham Station and precinct works, the Sydney Metro Trains Facility South, works to Sydney Water's Sydenham Pit and Drainage Pumping Station and ancillary infrastructure and track and signalling works into the approved project. This modification application was approved on 13 December 2017.

Given the modifications, the CSSI Approval is now approved to operate to Sydenham Station and also includes the upgrade of Sydenham Station.

The remainder of the City & Southwest project (Sydenham to Bankstown) proposes the conversion of the existing heavy rail line and the upgrade of the existing railway stations along this alignment to metro standards. This portion of the project, referred to as the Sydenham to Bankstown Upgrade, is the subject of a separate CSSI Application (No. SSI 17_8256) for which an Environmental Impact Statement was exhibited between September and November 2017 and a Response to Submissions and Preferred Infrastructure Report was submitted to the NSW Department of Planning & Environment (DPE) in June 2018 for further exhibition and assessment.

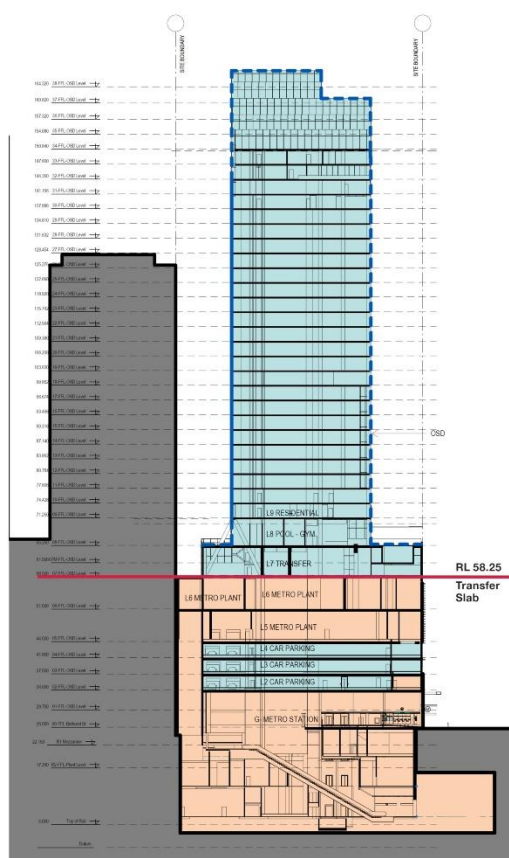
1.3. Planning relationship between Pitt Street Station and the OSD

While the southern portal of Pitt Street Station and the OSD will form an integrated station development, the planning pathways under the *Environmental Planning and Assessment Act 1979* involve separate approval for each component of the development. In this regard, the approved station works (CSSI Approval) are subject to the provisions of Part 5.1 of the EP&A Act (now referred to as Division 5.2) and the OSD component is subject to the provisions of Part 4 of the EP&A Act.

For clarity, the approved station works under the CSSI Approval included the construction of below and above ground structures necessary for delivering the station and also enabling construction of the integrated OSD. This included but is not limited to:

- demolition of existing development
- excavation
- station structure including concourse and platforms
- lobbies
- retail spaces within the station building
- public domain improvements
- station portal link (between the northern and southern portals of Pitt Street Station)
- access arrangements including vertical transport such as escalators and lifts
- structural and service elements and the relevant space provisioning necessary for constructing OSD, such as columns and beams, space for lift cores, plant rooms, access, parking, retail and building services.

The vertical extent of the approved station works above ground level is defined by the 'transfer slab' level (which for Pitt Street South is defined by RL 58.25), above which would sit the OSD. This delineation is illustrated in **Figure 2:** below.



Section North-South - CSSI Podium Approval below RL 58.25

Figure 2: Delineation between station and OSD

The CSSI Approval also establishes the general concept for the ground plane of Pitt Street Station including access strategies for commuters and pedestrians. In this regard, pedestrian access to the station would be from Bathurst Street and the OSD lobby would be accessed from Pitt Street.

Since the issue of the CSSI Approval, Sydney Metro has undertaken sufficient design work to determine the space planning and general layout for the station and identification of those spaces within the station area that would be available for the OSD. In addition, design work has been undertaken to determine the technical requirements for the structural integration of the OSD with the station. This level of design work has informed the concept proposal for the OSD. It is noted that ongoing design development of the works to be delivered under the CSSI Approval would continue with a view to developing an Interchange Access Plan (IAP) and Station Design Precinct Plan (SDPP) for Pitt Street Station to satisfy Conditions E92 and E101 of the CSSI Approval.

The public domain improvement works around the site would be delivered as part of the CSSI Approval.

1.4. The Site

The Pitt Street South OSD site is located near the corner of Pitt Street and Bathurst Street, comprising four individual allotments but excluding the Edinburgh Castle Hotel, above the southern portal of the future Pitt Street Station. The context of the site is demonstrated at **Figure 3** below.

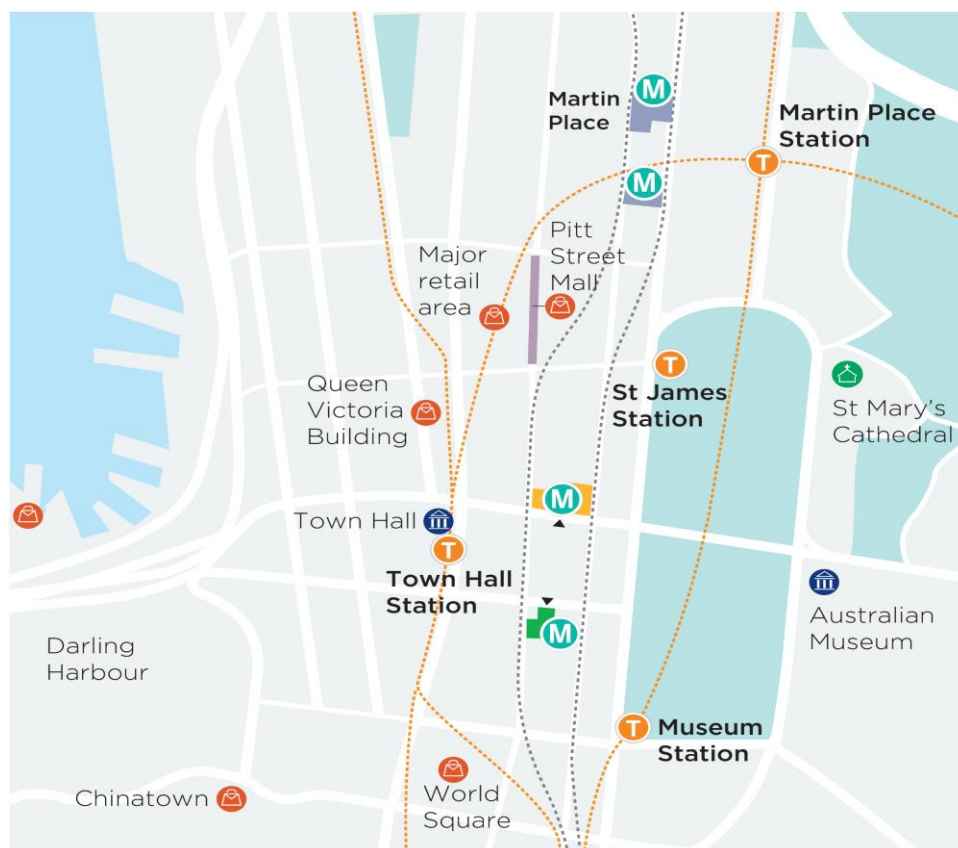


Figure 3: Pitt Street Station location plan

The site is located in the City of Sydney Local Government Area. The site (refer to **Figure 4** below) is irregular in shape, has a total area of approximately 1,708 square metres and has street frontages of approximately 32 metres to Pitt Street and 24 metres to Bathurst Street.

The Pitt Street South site comprises a number of individual properties which front Bathurst Street and Pitt Street. Specifically, the site comprises the following:

- 125-129 Bathurst Street, Sydney (Lot 1 in DP60293)
- 131-135 Bathurst Street, Sydney (Lot 1 in DP59101)
- 296-300 Pitt Street, Sydney (Lot 1 in DP436359)
- 302 Pitt Street, Sydney (Lot 1 in DP62668)

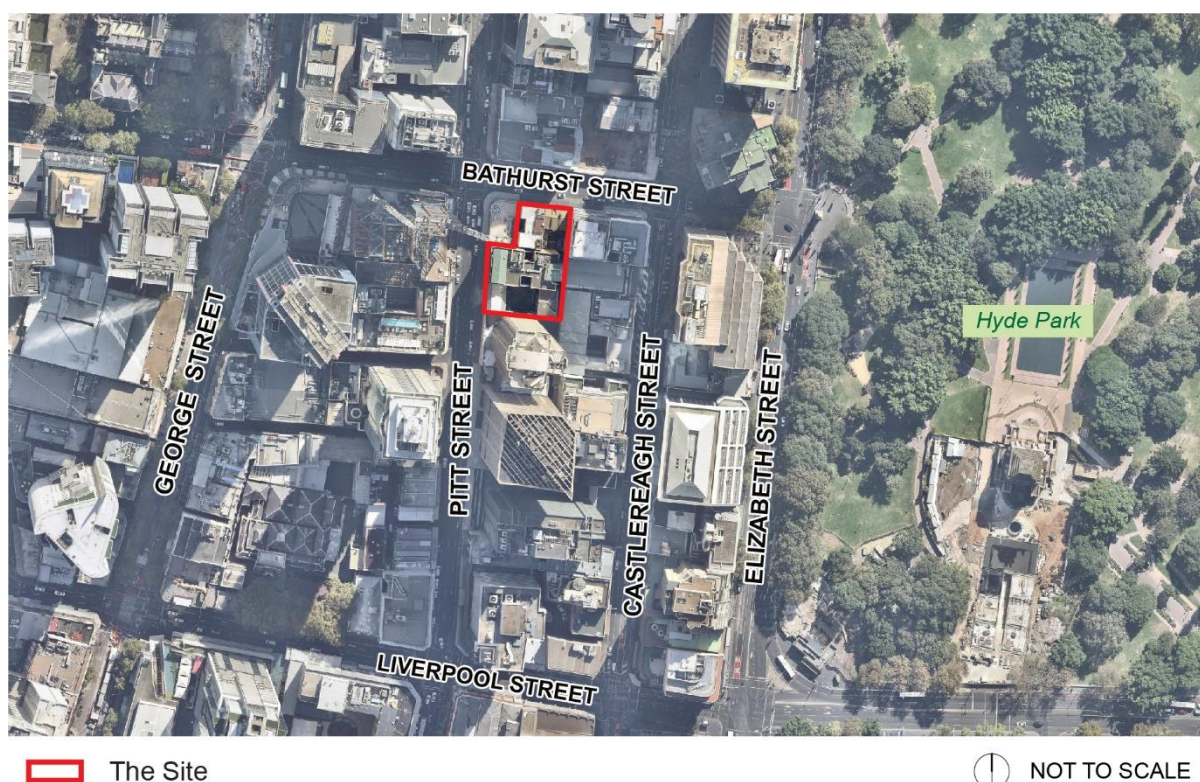


Figure 4: Aerial photo of Pitt Street South

1.5. Overview of the proposed development

This concept SSD Application comprises the first stage of the Pitt Street South OSD project. It will be followed by a detailed SSD Application for the design and construction of the OSD to be lodged by the successful contractor who is awarded the contract to deliver the integrated station development.

This concept SSD Application seeks approval for the planning and development framework and strategies to inform the future detailed design of the OSD. It specifically seeks approval for the following:

- a building envelope
- a maximum envelope height of Relative Level (RL 171.6) which equates to approximately 35 storeys, including the podium height of RL 71.0 which equates to approximately 8 storeys above ground
- use for the OSD component of the development for uses, subject to further detailed applications, which could include:
 - residential accommodation; or
 - commercial premises

- use of the conceptual OSD space provisioning within the footprint of the CSSI Approval (both above and below ground), including the OSD lobby areas, podium car parking, storage facilities, services and back-of-house facilities
- car parking for a maximum of 34 spaces located across three levels of the podium
- loading, vehicular and pedestrian access arrangements from Pitt Street
- strategies for utilities and service provision
- strategies for the management of stormwater and drainage
- a strategy for the achievement of ecologically sustainable development
- indicative future signage
- a strategy for public art
- a design excellence framework
- the future subdivision of parts of the OSD footprint (if required)

As this concept SSD Application is a staged development pursuant to section 4.22 of the EP&A Act, future approval would be sought for detailed design and construction of the OSD. Concept indicative designs showing potential residential and commercial building form outcomes at the site have been provided as part of this concept SSD Application at Appendix E and Appendix F, respectively.

Pitt Street Station is to be a key station on the future Sydney Metro network, providing access to the Sydney CBD. The proposal combines the metro station with an OSD component. The OSD would assist in strengthening the role of Central Sydney as the key centre of business in Australia and would contribute to the diversity, amenity and sustainability of the CBD.

It is noted that Pitt Street Station northern portal OSD is subject to a separate application, and does not form part of this concept SSD Application.

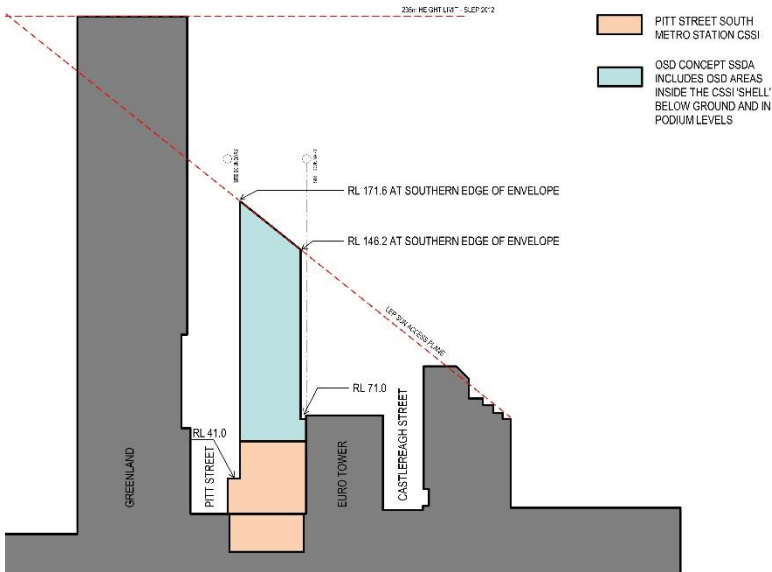


Figure 5: Pitt Street South OSD envelope, including OSD components (Blue) and station box (Orange)

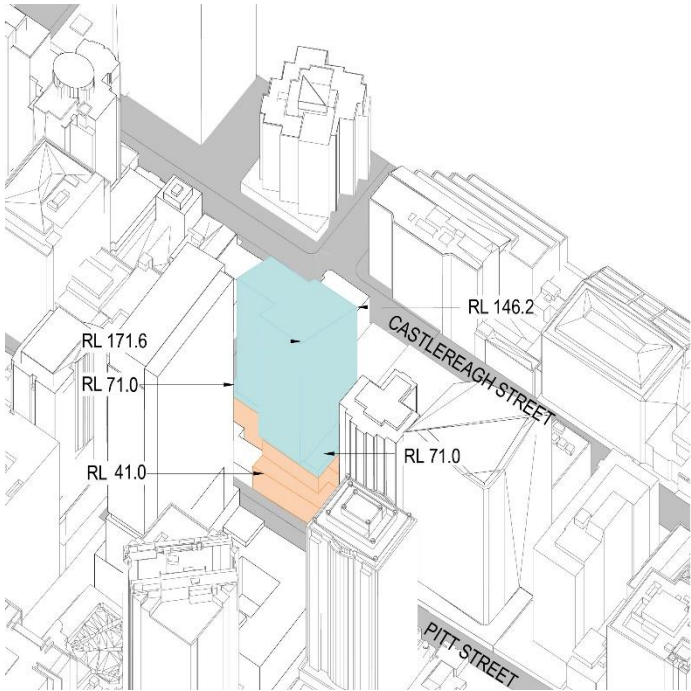


Figure 6: Pitt Street South OSD axonometric diagram, as seen from the south-west

1.6. Staging and framework for managing environmental impacts

Sydney Metro proposes to procure the delivery of the Pitt Street South integrated station development in one single package, which would entail the following works:

- station structure
- station fit-out, including mechanical and electrical
- OSD structure
- OSD fit-out, including mechanical and electrical.

Separate delivery packages are also proposed by Sydney Metro to deliver the excavation of the station boxes/shafts ahead of the integrated station development delivery package, and line-wide systems (e.g. track, power, ventilation) and operational readiness works prior to the Sydney Metro City & Southwest metro system being able to operate.

Three possible staging scenarios have been identified for delivery of the integrated station development:

1. Scenario 1 – the station and OSD are constructed concurrently by constructing the transfer slab first and then building in both directions. Both the station and OSD would be completed in 2024.
2. Scenario 2 – the station is constructed first and ready for operation in 2024. OSD construction may still be incomplete or soon ready to commence after station construction is completed. This means that some or all OSD construction is likely to still be underway upon opening of the station in 2024.
3. Scenario 3 – the station is constructed first and ready for operation in 2024. The OSD is built at a later stage, with timing yet to be determined. This creates two distinct construction periods for the station and OSD.

Scenario 1 represents Sydney Metro's preferred option as it would provide for completion of the full integrated station development and therefore the optimum public benefit at the site at the earliest date possible (i.e. on or near 2024 when the station is operational). However, given the delivery of the OSD could be influenced by property market forces, Scenarios 2 or 3 could also occur, where there is a lag between completion of the station component of the integrated station development (station open and operational), and a subsequent development.

The final staging for the delivery of the OSD would be resolved as part of the detailed SSD Application(s).

For the purposes of providing a high level assessment of the potential environmental impacts associated with construction, the following have been considered:

- Impacts directly associated with the OSD, the subject of this SSD Application
- Cumulative impacts of the construction of the OSD at the same time as the station works (subject of the CSSI Approval)

Given the integration of the delivery of the Sydney Metro City & Southwest metro station with an OSD development, Sydney Metro proposes the framework detailed in **Figure 7** to manage the design and environmental impacts, consistent with the framework adopted for the CSSI Approval.

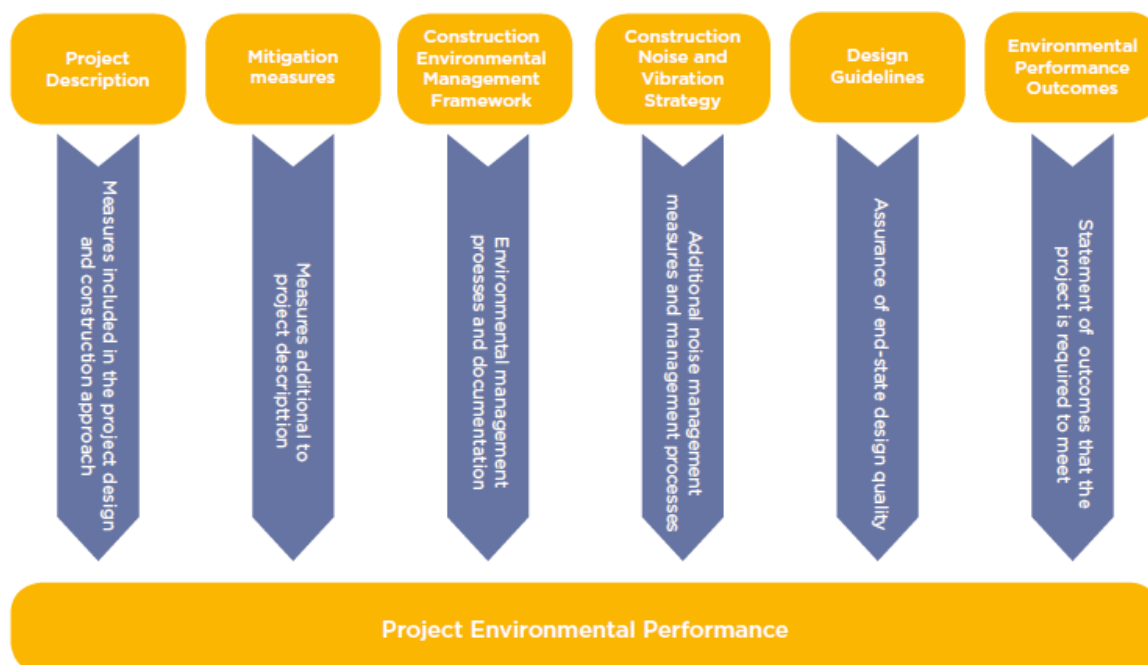


Figure 7: Project approach to environmental mitigation and management

Sydney Metro proposes to implement a similar environmental management framework where the integrated delivery of the CSSI station works and the OSD occur concurrently. This would ensure a consistent approach to management of design interface and construction-related issues.

Sydney Metro proposes this environmental management framework would apply to the OSD until completion of the station and public domain components of the integrated station development delivery contract (i.e. those works under the CSSI Approval). Should the OSD be constructed beyond the practical completion and opening of the station, standard practices for managing construction related environmental impacts would apply in accordance with the relevant guidelines and Conditions of Approval for the detailed SSD Application(s).

1.7. Over station development (OSD) Pitt Street South

The proposed development is up to 35 levels in total including:

- podium levels, with lobby, car parking and mechanical plant
- residential apartments or commercial levels above the podium.

The main waste storage room for the OSD would be located on Podium level 01. Access by waste collection vehicles would be from Ground Level (with bins to be transferred via vehicle or service lifts from the main waste storage room) loading dock. The loading dock will be accessed from Pitt Street. There will no waste collection or removal for the station at Pitt Street South, this will happen from Pitt Street North.

1.8. Purpose and scope of this report

This Waste Management Plan describes the proposed construction and operational waste management of the OSD and is based on addressing the requirements for up to 35 levels of residential apartments or up to 25 levels of commercial offices. Demolition works will be undertaken as part of the CSSI Approval and therefore construction waste associated with OSD will be minimised. Therefore, demolition waste is not considered in this Waste Management Plan.

The Department of Planning and Environment has provided the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement for the proposed development. This report has been prepared having regard to the SEARs as relevant.

1.9. Limitations

This report: has been prepared by GHD for Sydney Metro and may only be used and relied on by Sydney Metro for the purpose agreed between GHD and Sydney Metro.

GHD otherwise disclaims responsibility to any person other than Sydney Metro arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Sydney Metro and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

2.0 Policy and legislation

2.1. Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) governs the requirements for waste generators in terms of storage and lawful disposal of waste. The POEO Act establishes the waste generator as having responsibility for the correct management of waste, including final disposal.

2.2. Waste Avoidance and Resource Recovery Act 2001

The objects of the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) are:

- (a) to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of Ecologically Sustainable Development (ESD),
- (b) to ensure that resource management options are considered against a hierarchy of the following order:
 - i. avoidance of unnecessary resource consumption,
 - ii. resource recovery (including reuse, reprocessing, recycling and energy recovery),
 - iii. disposal
- (c) to provide for the continual reduction in waste generation
- (d) to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,
- (e) to ensure that industry shares with the community the responsibility for reducing and dealing with waste,
- (f) to ensure the efficient funding of waste and resource management planning, programs and service delivery,
- (g) to achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis,
- (h) to assist in the achievement of the objectives of the *Protection of the Environment Operations Act 1997*.

A waste management plan is a requirement for new developments in NSW and must be written with reference to the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*, made under the WARR Act.

2.3. NSW Government Resource Efficiency Policy

The NSW Government Resource Efficiency Policy includes a requirement for NSW Government agencies to report on their top three waste streams by total volume and by total cost and encourages agencies to continually improve their waste efficiency through:

- using the integrated waste management contracts
- creating an agency-specific waste reduction plan to target key waste streams that can be reduced or redirected from landfill
- improving separation of recyclable materials out of the general waste stream (e.g. organics, clean natural excavated material)
- introducing paper reduction targets and electronic file management systems
- recycling waste products where there is access to a national voluntary stewardship scheme.

Agencies are also encouraged to help drive growth and innovation in the market for recycled and sustainably sourced material by purchasing:

- construction materials with recycled content to comply with relevant Environment Protection Authority exemptions and reference design specifications for re-use (such as the specifications from the Institute of Public Works Engineering Australia for pavements, earthworks and drainage)
- copy, stationery and print publication paper with post-consumer recycled content as defined under AS14021 or certified as lifecycle carbon reduced under the National Carbon Offset standard
- non-recycled paper from sustainable sources accredited under the PEFC, FSC or equivalent.

2.4. City of Sydney Policy for Waste Minimisation in New Developments 2005

Council of the City of Sydney 'Policy for Waste Minimisation in New Developments' (the City of Sydney Waste Policy) provides guidance on waste minimisation and resource recovery and requirements for waste management for developments in the City. The objectives of the policy are:

- Waste minimisation and resource recovery –
 - To avoid waste through design and ordering correct material quantities.
 - To encourage improved environmental outcomes through increased source separation of materials.
 - To ensure more efficient management of waste and recyclable materials.
 - To maximise reuse and recycling of building construction materials, household generated waste and industrial commercial waste.
- Access – to ensure waste systems are easy to use and that collection vehicles are able to access buildings to remove waste safely and easily;

- Safety – to ensure safe practices for storage, handling and collection of waste and recycling;
- Pollution prevention – to prevent stormwater pollution that may occur as a result of poor waste storage and management practices;
- Ecologically Sustainable Development (ESD) – to promote the principles of ESD through resource recovery and recycling leading to a reduction in the consumption of finite natural resources;
- Hygiene – to ensure health and amenity for residents, visitors and workers in the City Of Sydney; and
- Noise minimisation – to minimise noise during use by residents and collection of waste and recyclables.

Section A: *All Developments* and Section B: *Residential Developments* or Section C: *Commercial Developments* apply to the proposed development.

3.0 Operational waste

3.1. Disposal, storage and collection system

The operational waste assessment is based on an indicative design prepared for the concept proposal, in order to demonstrate that the integrated development can satisfactorily accommodate the waste services requirements for residential or commercial use.

3.1.1 Residential option

Should the development be residential, residents will dispose of both their garbage and recyclables by way of a chute system. One chute will be provided for each waste stream. The chutes will run through floors in the building. Access to the chutes will be from the waste room on each floor. Chutes will be designed in accordance with Appendix G of the Council of the City of Sydney Policy for Waste Minimisation in New Developments.

At the base of the chutes, two linear track systems are proposed for use with 1100 L bins. A compactor will be fitted at the base of the residual waste chute. The central waste storage room on Podium Level 01 is large enough to contain the compaction equipment and spare 1100 L bins. A bulky waste/e-waste storage room is also provided.

When full, or as often as required, the 1100 L garbage bins under the compactors will be replaced by empty bins. Similarly, the 1100 L recycling bins (not compacted) under the recycling chute will be replaced by empty bins when full, or as often as required. The full bins will be transported by the cleaners to the loading dock on Ground Level for collection via either the service lift or the vehicle lift.

3.1.2 Commercial option

Should the development be commercial, commercial tenants/cleaners will dispose of garbage and recyclables to a waste storage area on each floor. A central waste storage room would also be provided on Podium Level 01 which is large enough to contain the compaction equipment and bins. Bins from each level will be transferred to the central waste storage room bins on a daily basis. A bin lifter would be used to empty the smaller bins into the large 1100 L bins in the central storage room.

When full, or as often as required, the 1100 L garbage bins under the compactors will be replaced by empty bins. Similarly, the 1100 L recycling bins (not compacted) will be replaced by empty bins when full, or as often as required. The full bins will be transported by the cleaners to the loading dock on Ground Level for collection via either the service lift or the vehicle lift.

3.2. Waste generation and storage requirements

The City of Sydney Waste Policy provides guidance on waste minimisation and resource recovery and requirements for waste management for developments in the City including waste storage requirements.

3.2.1 Residential option

The City of Sydney Waste Policy requires provision of 80 L of residual waste capacity and 40 L of recycling capacity per dwelling per week. Based on a total of 159 apartments, the estimated waste and recycling generation is:

- Residual waste – 12,720 L/week
- Recyclables – 6,360 L/week

Table 1 shows the number of bins required to store this waste and the amount of space needed to accommodate these bins based on the following assumptions:

- Residual waste is compacted 2:1 at the base of the chutes
- Recyclables are not compacted
- Both garbage and recyclables are collected three times per week

Table 1 Waste storage requirements - residential

Waste storage area	Infrastructure required	Storage required
Storage within each dwelling	Bins to be provided by residents	<1 m ³
Central waste storage room	Residual waste bins (2x 1100 L bins)	2,200 L
	Recyclable bins (2x 1100 L bins)	2,200 L
	Bulky waste and electronic goods storage cage (including 50-90 L crate for small electronic waste)	8 m ³
	2 waste chute hoppers and 1x 2 bin linear track and 1x compactor (for 1100 L bins)	

3.2.2 Commercial option

The City of Sydney Waste Policy requires provision of 10 L/100 m²/day of residual waste capacity and 10 L/100 m²/day of recycling capacity for commercial offices. Based on a gross floor area of 19,031 m² for commercial offices, the estimates waste and recycling generation is:

- Residual waste – 1,903 L/day
- Recyclables – 1,903 L/day

Table 2 shows the number of bins required to store this waste and the amount of space needed to accommodate these bins based on the following assumptions:

- Residual waste is compacted 2:1
- Recyclables are not compacted
- Both garbage and recyclables are collected daily

Table 2 Waste storage requirements - commercial

Waste storage area	Infrastructure required	Storage required
Storage area on each floor	Residual waste bins (1x 240 L bin)	240 L
	Recyclable bins (1x 240 L bin)	240 L
Central waste storage room	Residual waste bins (2x 1100 L bins)	2,200 L
	Recyclable bins (2x 1100 L bins)	2,200 L
	1x 2 bin linear track and 1x compactor (for 1100 L bins)	
	Bin lifter	

3.3 Space requirements

Table 3 outlines the space requirements for residual waste and recycling to accommodate the number of bins outlined in **Table 1** and **Table 2**. A minimum of approximately 33 m² plan area is required for these two streams in both residential and commercial options. In addition, a minimum of 8 m³ is required for the e-waste and bulky waste in the case of a residential development.

Table 3 Residual waste and recycling space requirements

Waste stream	Minimum storage area required	
	Bins only	Including linear tracks, access and manoeuvring
Residual waste	3.5 m ²	16.2 m ²
Recycling	3.5 m ²	16.2 m ²
Sub-total	7 m²	32.4 m²
E-waste and bulky goods (residential only)	-	8 m ³

The proposed central waste storage room on Podium Level 01 layout is shown in **Figure 8**, which provides space for the linear track systems, compactor, spare bins and manoeuvring. This figure also shows the storage area provided for e-waste and bulky waste (residential development only). The total space provided exceeds the minimum space/storage required as outlined above.

Cleaners/building management will be responsible for moving the bins from the central waste storage room to the waste collection point on the Ground Level. The service lifts and/or vehicle lift will be used for this purpose.

Collection vehicles required to service each waste stream are outlined in the following table, with associated dimensions and clearance requirements.

Table 5 Collection vehicle details

Waste stream	Bin type	Collection vehicle	Dimensions and clearance
Residual waste	1100 L bins	Rear loading compactor	Length – 9.54 m Width – 2.6 m Operational height – 4 m Travel height – 3.8 m Weight (payload) 26 t
Recyclables	1100 L bins	Rear loading compactor	As above
E-waste (residential only)	50-90 L crates	Medium rigid vehicle	Length – 8.8 m Width – 2.5 m Operational height – 4.5 m
Bulky waste (residential only)	n/a	Rear loading compactor or medium rigid vehicle	As above

The loading dock at Ground Level would be the waste collection point. The loading dock will contain an 8 m turntable with 10 m clearance. This clearance is suitable for the largest sized collection vehicles proposed. **Figure 9** shows the loading dock, proposed temporary storage location for bins and the turntable for collection vehicles.

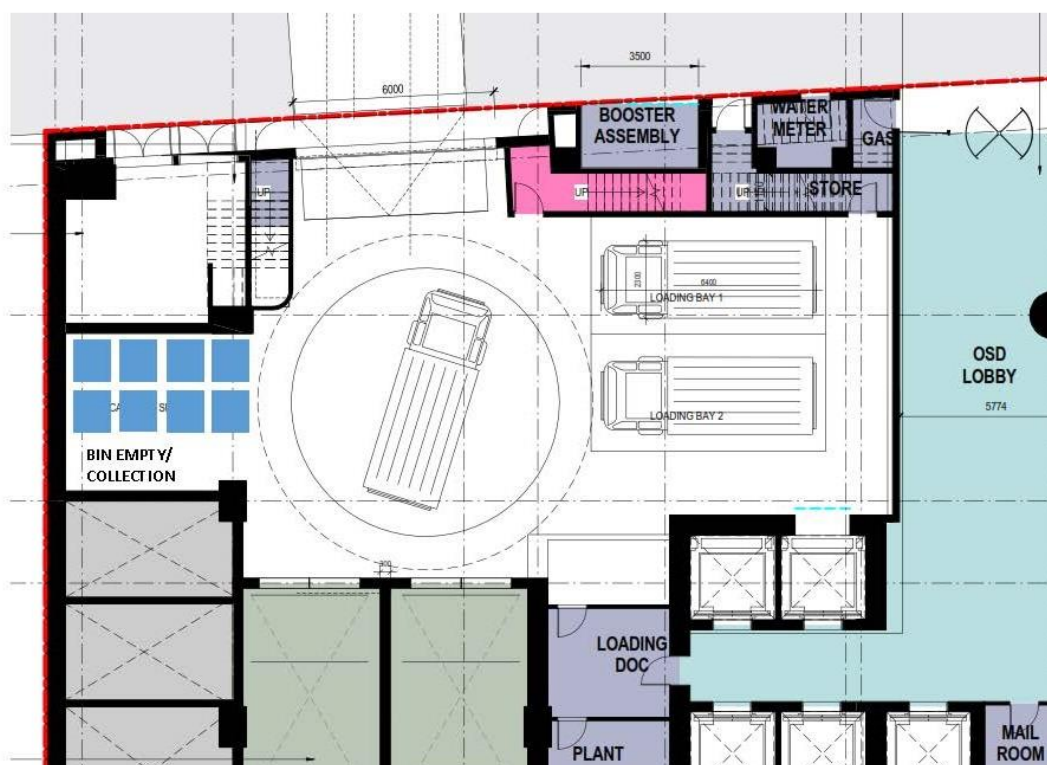


Figure 9 Plan showing access for collection vehicles

3.5 Management

3.5.1 Responsibilities

Should the development be residential, residents will be responsible for arranging the disposal of their own waste to the nearest residual waste or recycling chute as required.

Should the development be commercial offices, tenants or their contracted cleaners will be responsible for arranging the disposal of waste to the waste area on each level and also for transferring waste to the central waste room on a daily basis.

Building management will be responsible for safe and efficient management of waste including:

- Cleaning and maintenance of bins, chutes, compaction equipment and the central waste storage room and e-waste and bulky waste storage room
- Preventing ingress of pests and vermin
- Providing signage (refer Section 3.5.2)
- Ensuring the central waste storage room and equipment is protected from theft and vandalism
- Transferring bins from the central waste storage room to the loading dock on the Ground Level for collection via the service lifts or vehicle lift

A bin wash area in or adjacent to the central waste storage room will be provided to enable cleaning of bins.

3.5.2 Signage

Clear and easy to read standard signage on how to use the waste management system and what materials are acceptable in the recycling will be posted in the waste room on each floor where the chutes are located.

Adequate signage identifying the central waste storage room and e-waste/bulky waste room are also to be prominently displayed (residential development only).

All waste and recycling chutes and receptacles are to be clearly and correctly labelled to identify which materials are to be placed in which chute. Refer **Figure 10** for example signage.



Figure 10 Standard waste signage

Safety signs will be provided in the central waste storage room and other waste rooms/enclosures including “NO STANDING” signs and “DANGER” warning signs for children to be fixed to the external face of the rooms where appropriate.

4.0 Construction waste

4.1 Construction waste generation

There are no specific estimation factors available for the City of Sydney. However, the Hills Shire Council DCP 2012 Appendix A provides guidance on typical quantities of construction wastes for residential flat buildings, broken down by material types. These are shown below in **Table 6**. These figures are related to the construction phase and do not account for any demolition works. Demolition works will be undertaken as part of the CSSI Approval.

Once the main contractor has been appointed, a detailed construction waste statement would be prepared in accordance with City of Sydney requirements.

Table 6 Estimation factors for construction wastes

Building type	Timber	Concrete	Bricks	Gyprock	Sand/Soil	Metal	Other
Block of flats (assumed to be tonnes per 1,000 m ²)	0.7	6.7	3.2	1.3	28.7	1.3	0.6

Table 7 provides details of waste estimates and waste management measures proposed for the construction phase, based on a gross floor area of the proposed development of 23,000 m².

Table 7 Construction waste estimates and measures

Materials on-site		Destination		
Waste type	Estimated quantity (tonnes)	Reuse and recycling		Disposal
		On-site	Off-site	
Excavated materials	660	0	0	660
Garden organics	0	0	0	0
Bricks	74	0	74	0
Timber	16	0	16	0
Concrete	154	0	0	154
Plasterboard	30	0	0	30

Materials on-site		Destination		
Metal	30	0	30	0
Other	14	0	2	12

4.2 Construction waste management

During construction, waste generated on site would be managed and minimised by a combination of waste planning and on site controls.

4.2.1 Waste planning

Waste planning activities would include:

- Designing the building to minimise on site cutting of components, and maximising on site assembly tasks
- Careful ordering of materials such as sand and building products to match quantities with amounts required, and on time ordering rather than having materials stored on site for months before being used
- Segregating materials and providing weather protection for stored materials on site, to maximise their fitness for use
- Encouraging bulk handling and use of reusable and returnable containers
- At the time of tendering, advise contractors and sub-contractors and suppliers of the requirements to minimise waste on site
- Include provision in the tender documentation for the client to monitor the use of waste and recycling bins on site
- Development of a Construction Waste Management Plan by the main site contractor, which includes all of the above elements

4.2.2 Onsite controls

On site controls would include:

- Implementation by the main site contractor of the Construction Waste Management Plan
- Segregating wastes generated on site, using different skip bins for recycling and waste, with separate bins for different recyclable materials
- Discussion about the site's waste management and recycling policies and practices with employees and subcontractors during site inductions and tool box talks
- Ensuring all waste disposal bins are clearly marked
- Keeping records of quantities of waste and recycled materials disposed of, and the destinations of these materials
- Ensuring that wastes are only disposed to licenced facilities

5.0 Conclusion

This Waste Management Plan shows that the development envelope and its integration with the station can comply with relevant City of Sydney and legislative requirements for waste management. This Waste Management Plan forms the framework for the provision of waste management measures for the future detailed design and planning stages of the development.

This Waste Management Plan has assessed both residential and commercial use options, and concluded that both uses are capable of being suitable for the purposes of the Concept stage.