Sydney Metro

PITT STREET SOUTH OVERSTATION DEVELOPMENT

S.2 Stormwater Management Plan

State Significant Development, Development Application (SSD DA)

Prepared for **Pitt Street Developer South Pty Ltd.**

19/05/2020

Revision C
Issue for Stage 2 SSD DA
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CJ ARMS

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1. INTRODUCTION

This report has been prepared to accompany a detailed State Significant Development (SSD) development application (DA) for a residential Over Station Development (OSD) above the new Sydney Metro Pitt Street South Station. The detailed SSD DA is consistent with the Concept Approval (SSD 17_8876) granted for the maximum building envelope on the site, as proposed to be modified.

The Minister for Planning, or their delegate, is the consent authority for the SSD DA and this application is lodged with the NSW Department of Planning, Industry and Environment (NSW DPIE) for assessment.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 28 October 2019.

The detailed SSD DA seeks development consent for the construction and operation of

- New residential tower with a maximum building height of RL 171.6, including residential accommodation and podium retail premises, excluding station floor space
- Use of spaces within the CSSI 'metro box' building envelope for the purposes of:
  - Retail tenancies;
  - Residential communal facilities, residential storage, bicycle parking, and operational back of house uses
  - Shared vehicle loading and service facilities on the ground floor
  - Landscaping
  - Utilities and services provision.
  - Stratum subdivision (Station/OSD).
- Integration with the approved CSSI proposal including though not limited to:
  - Structures, mechanical and electronic systems, and services; and
  - Vertical transfers;

1.1 THE SITE

The site is located within the Sydney CBD, on the corner of Bathurst Street and Pitt Street. It has two separate street frontages, Pitt Street to the west and Bathurst Street to the north. The area surrounding the site consists of predominantly residential high-density buildings and some commercial buildings, with finer grain and heritage buildings dispersed throughout.

The site has an approximate area of 1,710sqm and is now known as Lot 10 in DP 1255507. The street address is 125 Bathurst Street, Sydney.

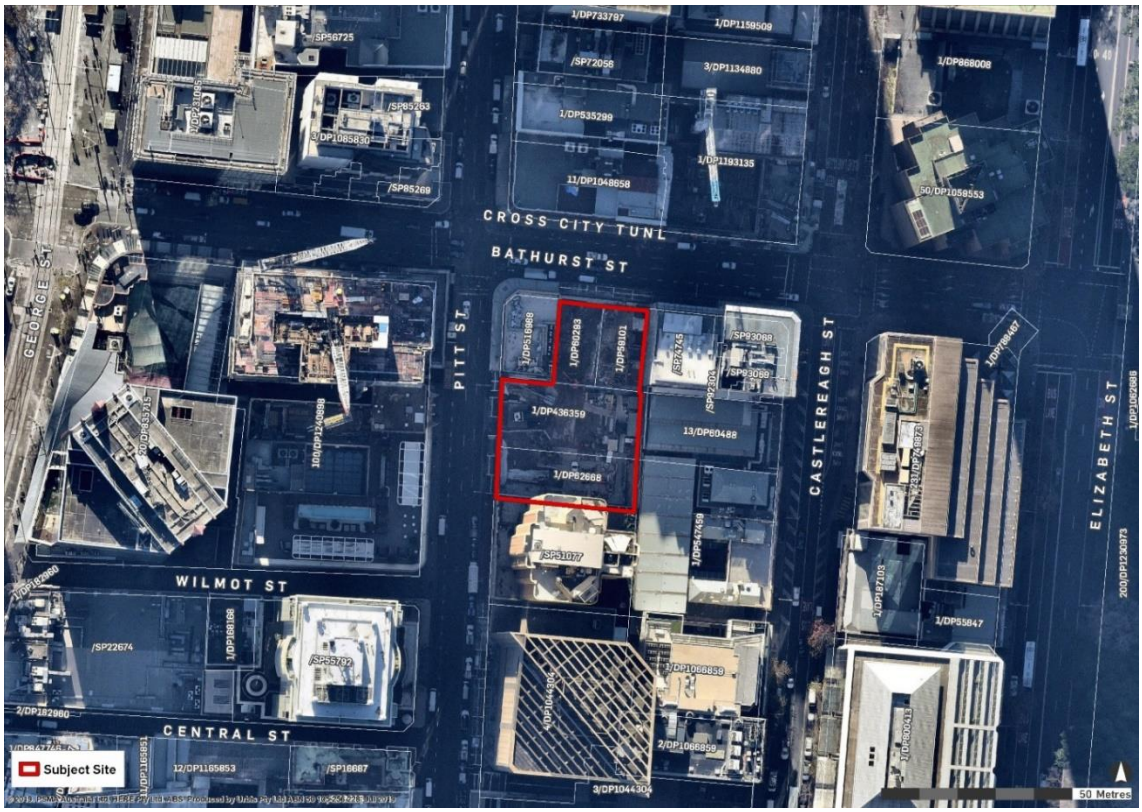


Figure 1 Location Plan

1.2 Sydney Metro Description

Sydney Metro is Australia's biggest public transport program. A new standalone railway, this 21st century network will revolutionise the way Sydney travels.

There are four core components:

1.2.1 Sydney Metro Northwest (formerly the 36km North West Rail Link)

This project is now complete and passenger services commenced in May 2019 between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and $1 billion under budget.

1.2.2 Sydney Metro City & Southwest

Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of Metro Northwest at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

In 2024, customers will benefit from a new fully-air conditioned Sydney Metro train every four minutes in the peak in each direction with lifts, level platforms and platform screen doors for safety, accessibility and increased security.

1.2.3 Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs.

The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

The NSW Government is assessing an optional station at Pyrmont and further planning is underway to determine the location of a new metro station in the Sydney CBD.

1.2.4 Sydney Metro Greater West

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service. The Australian and NSW governments are equal partners in the delivery of this new railway

The Sydney Metro Project is illustrated in the figure below.

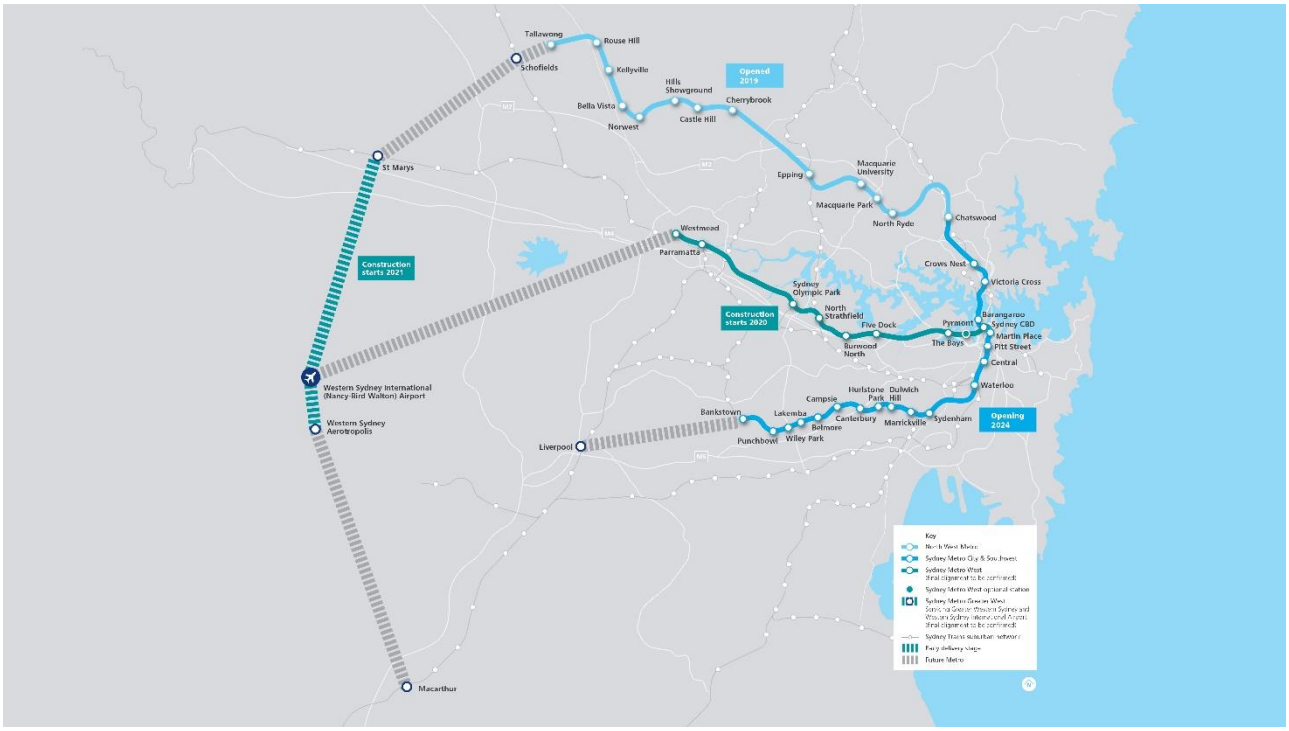


Figure 2 Sydney Metro Alignment Map, Source: Sydney Metro

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a Critical State Significant Infrastructure project (reference SSI 15_7400) (CSSI Approval). The terms of the CSSI Approval includes all works required to construct the Sydney Metro Pitt Street Station, including the demolition of existing buildings and structures on both sites (north and south). The CSSI Approval also includes construction of below and above ground works within the metro station structure for appropriate integration with over station developments.

The CSSI Approval included Indicative Interface Drawings for the below and above ground works at Pitt Street South Metro Station site. The delineation between the approved Sydney Metro works, generally described as within the “metro box”, and the Over Station Development (OSD) elements are illustrated below. The delineation line between the CSSI Approved works and the OSD envelope is generally described below or above the transfer slab level respectively.

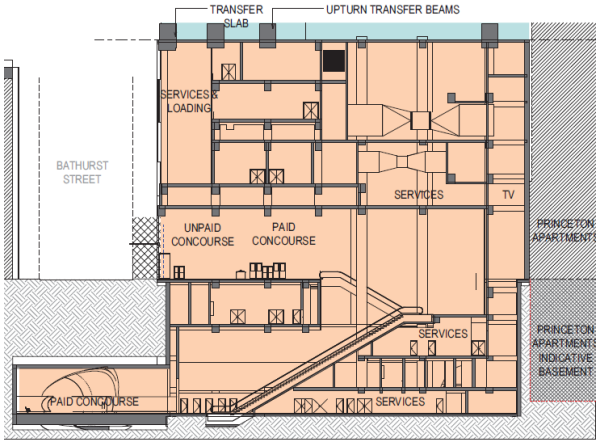


Figure 3 Pitt Street Station (North-South Section)

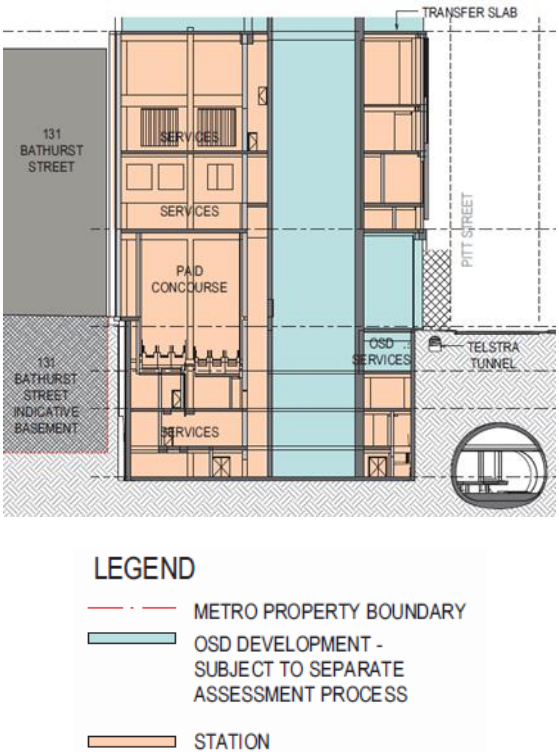


Figure 4 Pitt Street Station (East-West Section)

(Source: CSSI Preferred Infrastructure Report (TfNSW))

The Preferred Infrastructure Report (PIR) noted that the integration of the OSD elements and the metro station elements would be subject to the design resolution process, noting that the detailed design of the "metro box" may vary from the concept design assessed within the planning approval.

As such in summary:

- The CSSI Approval provides consent for the construction of all structures within the approved "metro box" envelope for Pitt Street South.

- The CSSI Approval provides consent for the fit out and use of all areas within the approved "metro box" envelope that relate to the ongoing use and operation of the Sydney Metro.

- The CSSI Approval provides consent for the embellishment of the public domain, and the architectural design of the "metro box" envelope as it relates to the approved Sydney Metro and the approved Pitt Street South Station Design & Precinct Plan.

- Separate development consent however is required to be issued by the NSW DPIE for the use and fit-out of space within the "metro box" envelope for areas related to the OSD, and notably the construction and use of the OSD itself.

As per the requirements of clause 7.20 of the Sydney Local Environmental Plan 2012, as the OSD exceeds a height of 55 metres above ground level (among other triggers), development consent is first required to be issued in a Concept (formerly known as Stage 1) DA. This is described below.

1.3 PITT STREET SOUTH OVER STATION DEVELOPMENT (OSD)

Development consent was granted on 25 June 2019 for the Concept Development Application (SSD 8876) for Pitt Street South OSD including:

- A maximum building envelope, including street wall and setbacks for the over station development.

- A maximum building height of RL171.6.

- Podium level car parking for a maximum of 34 parking spaces.

- Conceptual land use for either one of a residential or commercial scheme (not both). NO maximum Gross Floor Area was approved as part of SSD 8876.

The building envelope approved within the Concept SSD DA provides a numeric delineation between the CSSI Approval "metro box" envelope and the OSD building envelope. As illustrated in the figures below, the delineation line between the two projects is defined at RL 58.25 (Level 7).

For the purposes of the Detailed (Stage 2) SSD DA, it is noted that while there are two separate planning applications that apply to the site (CCSI and SSD DA), this report addresses the full development across the site to provide contextual assessment. Where items fall outside of the SSD DA scope (for instance landscaping in the public domain) and are regulated through the CSSI

Approval, this is to be noted in the consultant report to provide guidance to the NSW DPIE that this is outside the scope of the OSD application.

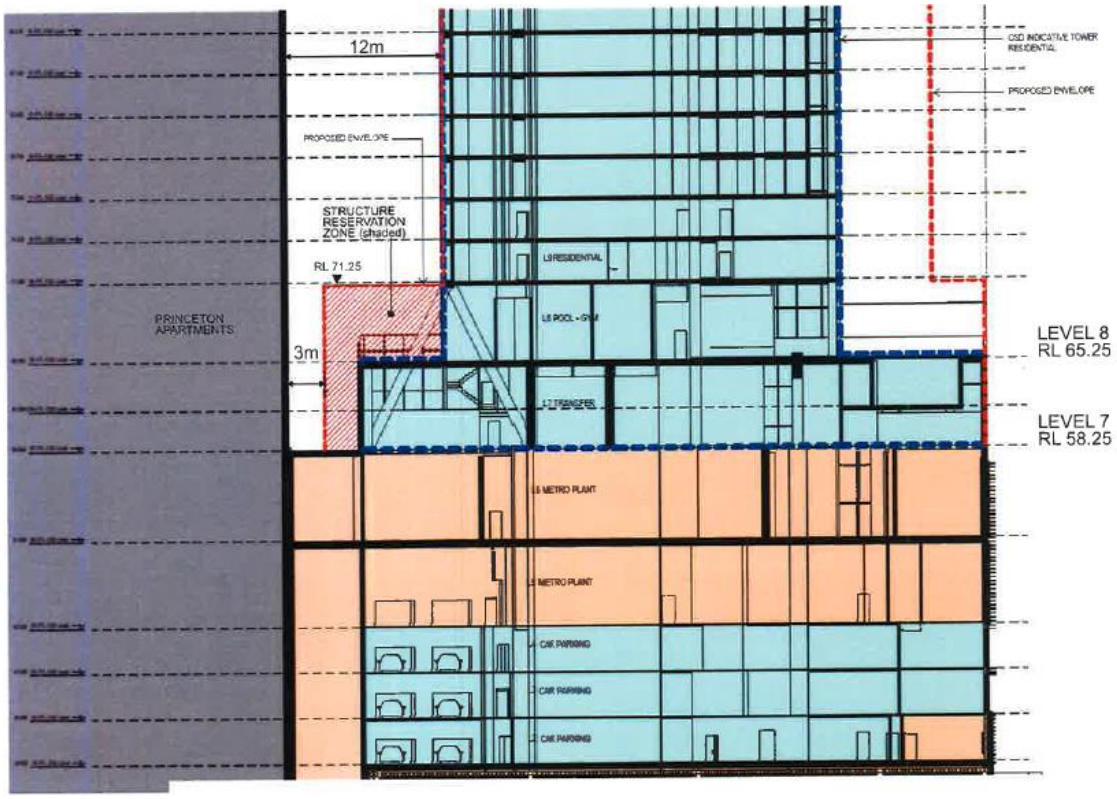


Figure 5 Pitt Street South Concept SSD DA – Building Section

(Source: SSD 8876 Concept Stamped Plans)

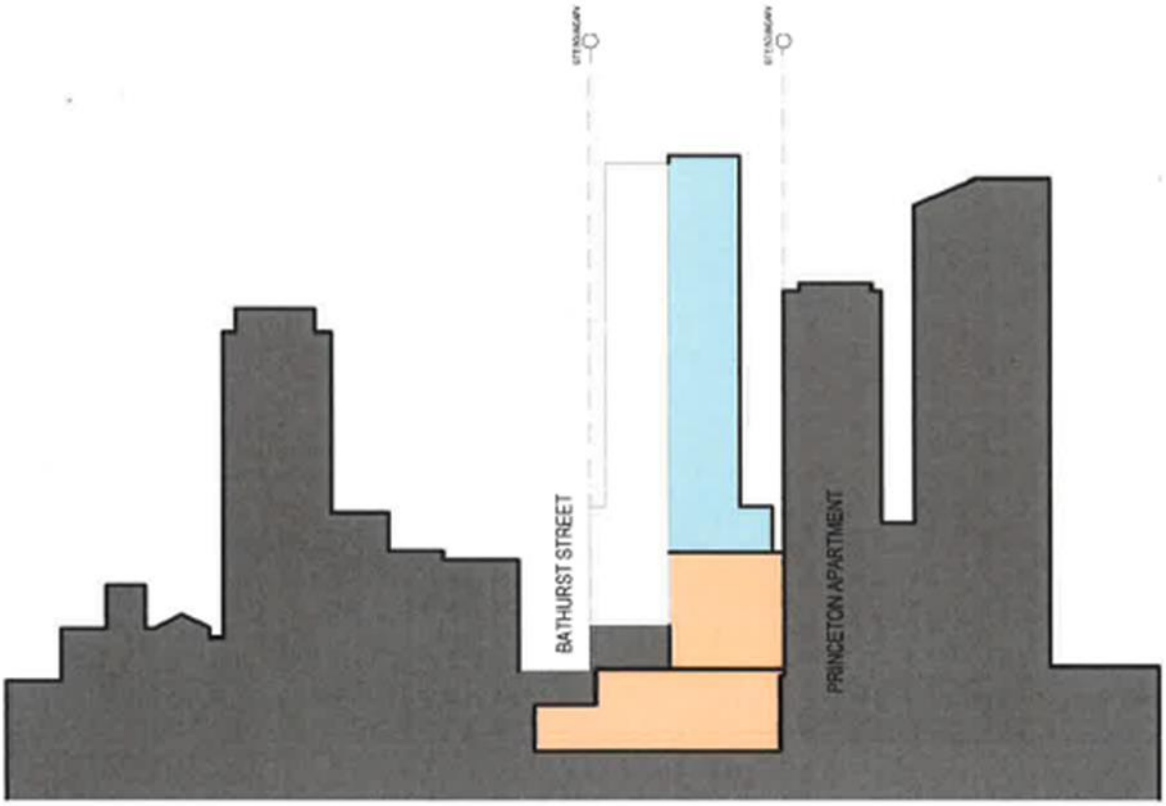


Figure 6 Pitt Street South Concept SSD DA – North South Section

Source: SSD 8876 Concept Stamped Plans

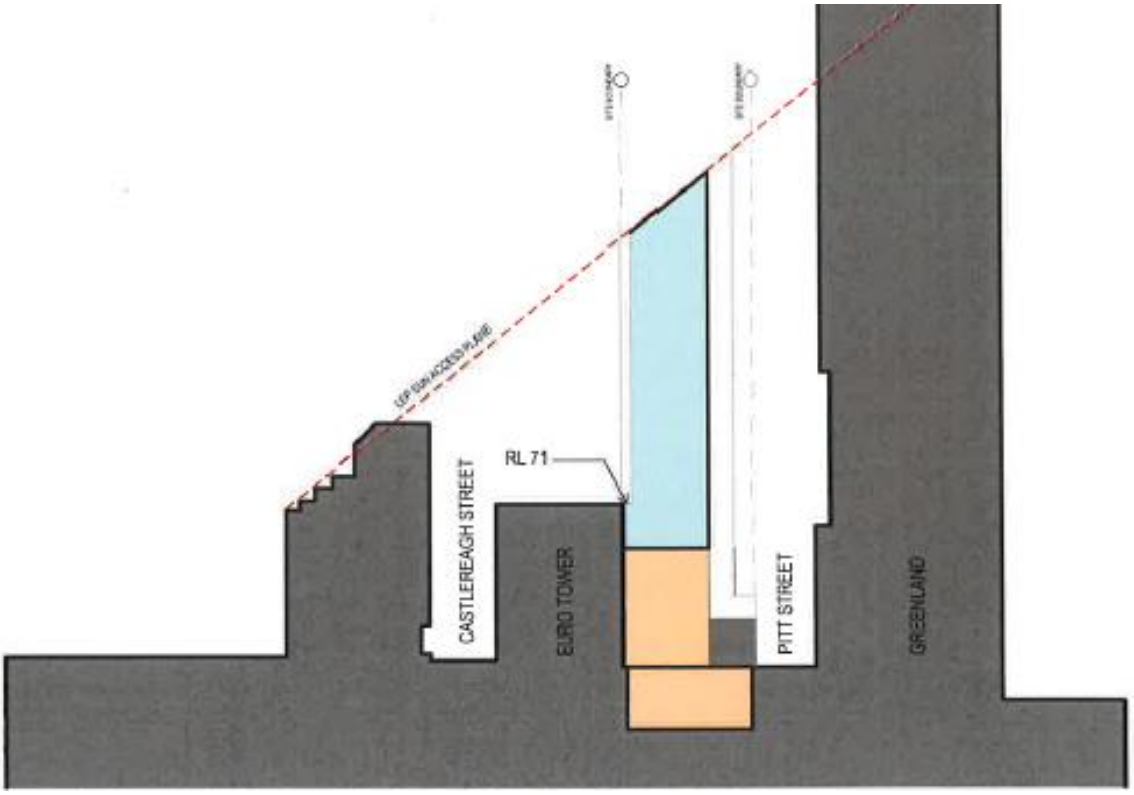


Figure 7 Pitt Street South Concept SSD DA – East West Section

(Source: SSD 8876 Concept Stamped Plans)

EXECUTIVE SUMMARY

This report has been prepared in response to the following Condition of Consent for the State Significant Development Concept (SSD 8876) for the OSD summarised in the table below:

Item	Description of Requirement	Section Reference (this report)
B22 - Flooding and Stormwater	Flood Impact Assessment addressing the conclusions and recommendations of the concept stage Flooding and Stormwater Management Plan dated August 2018 prepared by Cardno and providing the following: (a) Compliance with the City of Sydney's Interim Floodplain Management Policy including detailed reasoning for any non-compliances.	Refer to Sections 4& 5 of this report: Stormwater Infrastructure & Flooding.
B22 - Flooding and Stormwater	(b) Detailed stormwater and drainage design documentation including overland flow assessment and maintenance.	**Refer to Section 4 and Appendix A7 for preliminary stormwater plans relating to the OSD area. For overland flow refer Aurecon Civil Design Report *'SMCSWSPS-AUR-STA-CE-REP-000001[A] 07/02/2020'***

Table 1 Concept approval of Conditions of Consent

2. EXISTING CONDITIONS

The existing site (prior to station demolition works) consisted of a hotel tower (metro hotel) and commercial buildings. The existing site is considered fully hardstand ($C_v = 1$) for the purposes for the SMP.

The site is bound by:

- Commercial buildings, apartments and the NSW Fire Brigade to the east and south of the site
- Pitt Street to the west and Bathurst Street to the north.
- The development is also bordered by the existing Edinburgh Castle Hotel to the North West of the site (refer Figure 8) which is remaining (not included in the site).

Figure 8 Building Area

The site falls to the north at a shallow grade. Refer Aurecon's '*Civil Design Report SMCSWSPS-AUR-STA-CE-REP-000001'* for details of the surrounding pavement levels.

3. STORMWATER INFRASTRUCTURE

3.1 EXISTING INFRASTRUCTURE

Existing drainage for the Metro Hotel and other properties consists of a series of kerb connections (refer Figure 9) along Pitt and Bathurst Street which discharges along the kerb to the nearest council stormwater pit.

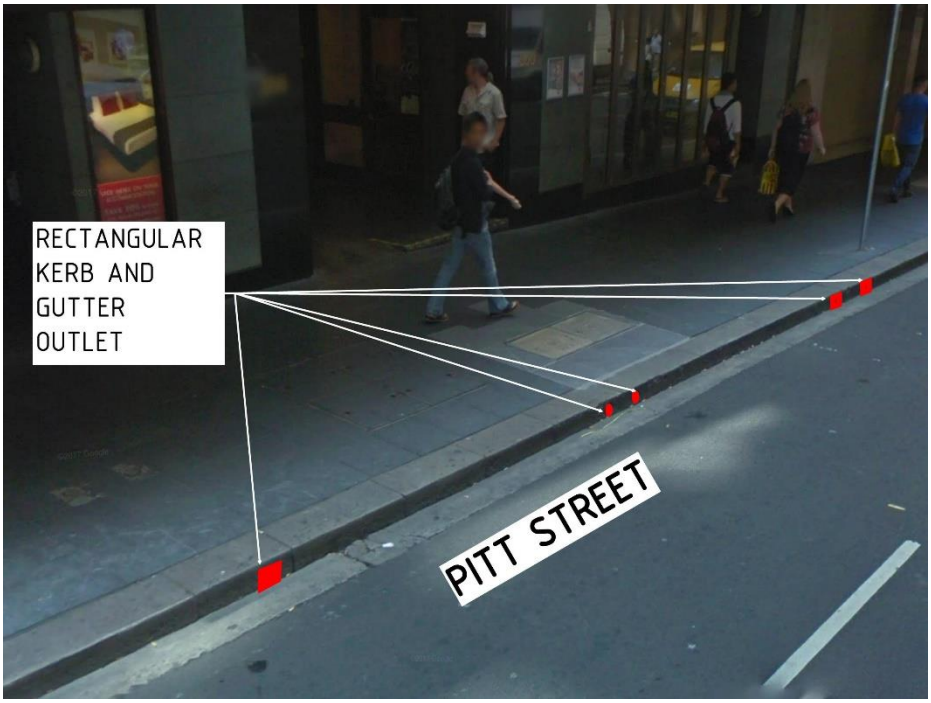


Figure 9 Kerb and Gutter Outlets Pitt St (Google StreetView 16/12/19)

The nearest in-ground infrastructure is an existing 910 x 1370mm Sydney Water Heritage Culvert along Bathurst Street to the north of the site which subsequently drains along Pitt Street towards Sydney Harbour. Refer to figure 10 for further details.

There are also 2 no. City of Sydney Council stormwater pits that sit to the northern side of the Edinburgh Castle Hotel. Refer to figure 10 for further details.

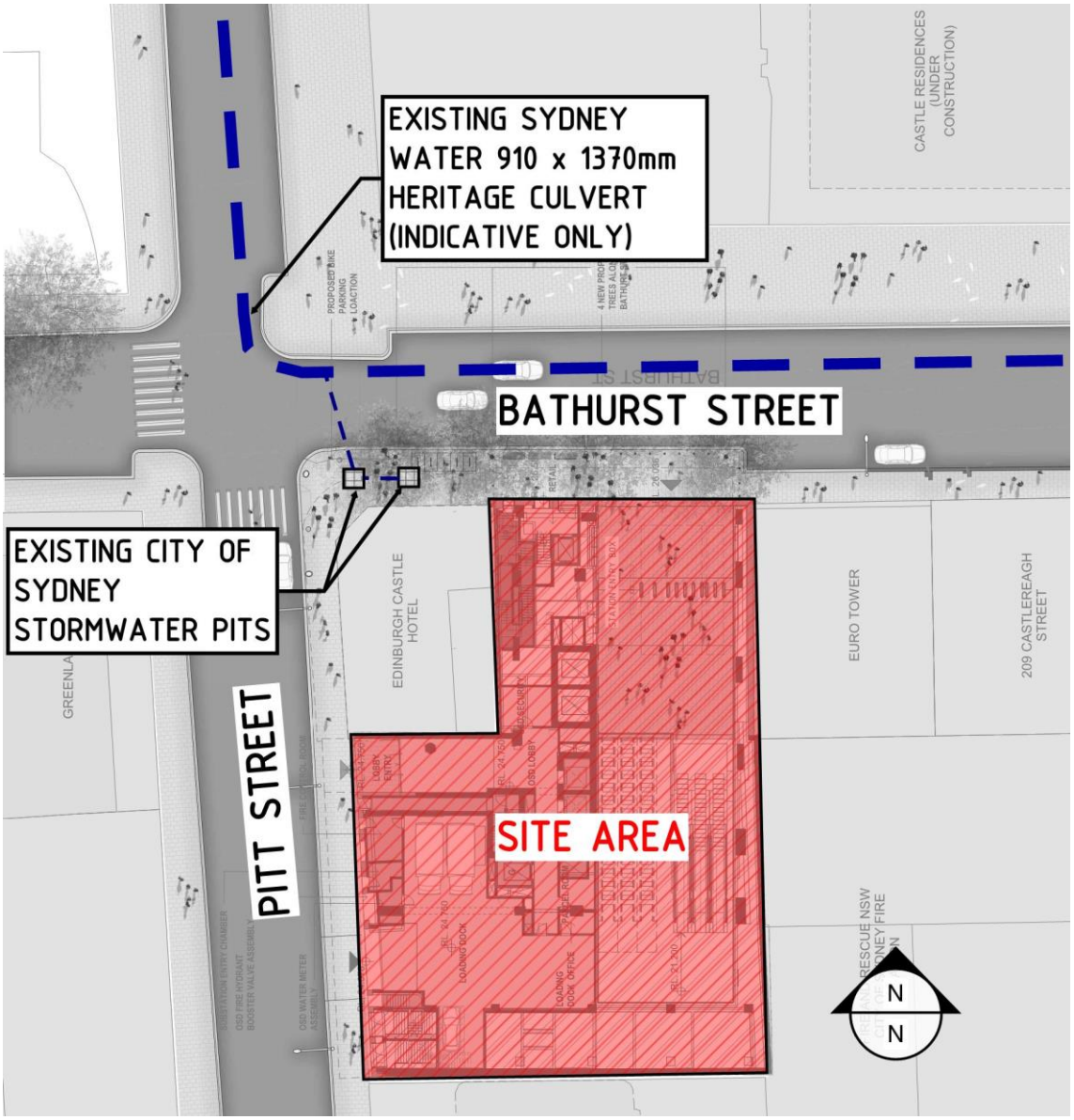


Figure 10 Inground Stormwater Infrastructure (adapted from DBYD plans 16/12/19)

3.2 Legal Point of Discharge (LPOD)

3.2.1 Existing LPoD

The Legal Point of Discharge for the existing lots is via the kerb on Pitt Street. It is understood that each lot has its own kerb and gutter set of outlets. There is no existing in ground stormwater infrastructure on Pitt Street immediately west of the site. Refer Figure 11 for details.

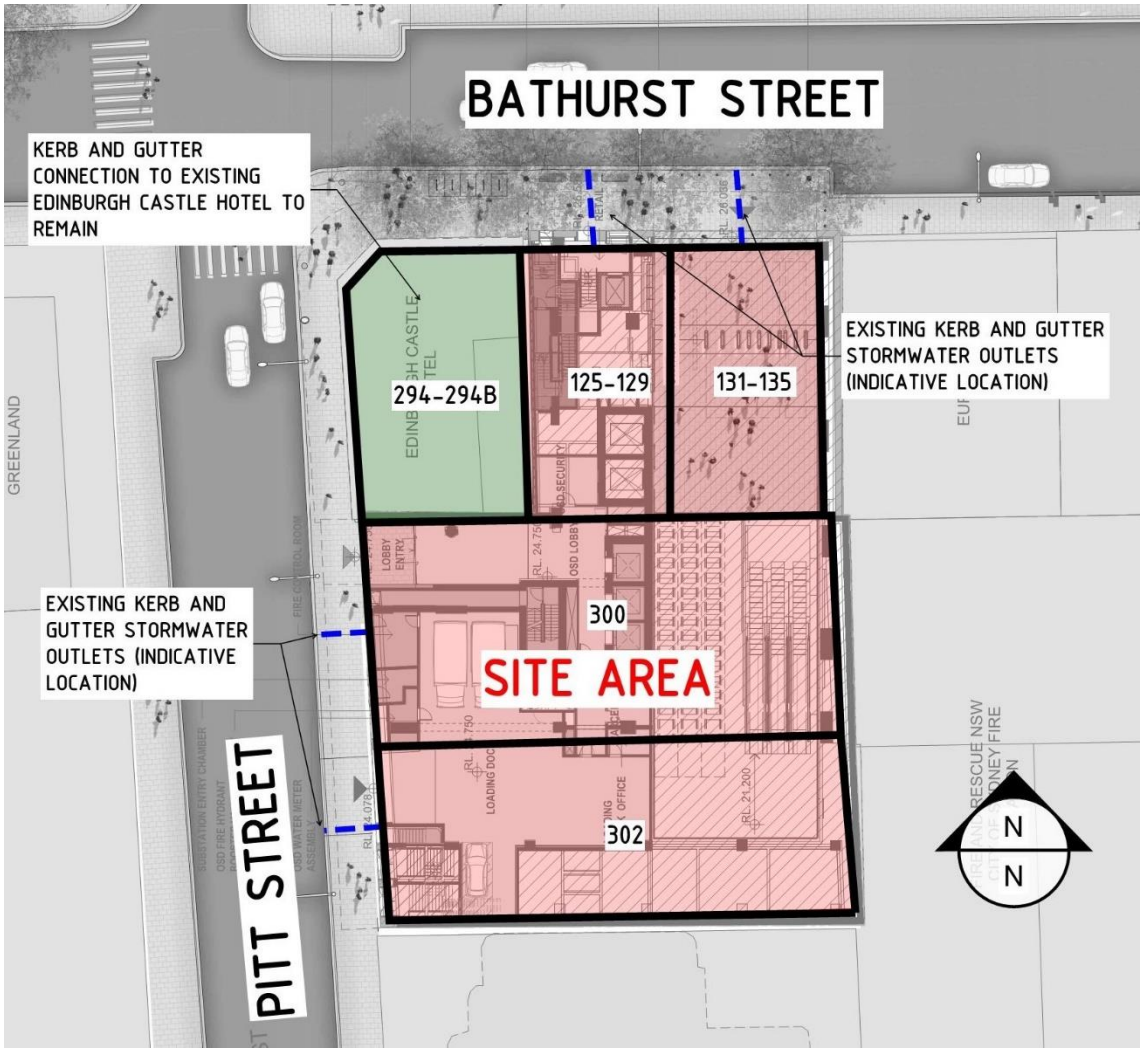


Figure 11 Existing Legal Point of Discharge Arrangement

3.2.2 Proposed LPoD

As part of the OSDworks, the new Legal Point of Discharge is to a new 900 x 900mm City of Sydney stormwater pit on Bathurst Street, refer below. The new pit is to connect to an existing City of Sydney stormwater pit on the corner of Pitt Street and Bathurst Street and is to be designed to City of Sydney requirements and specifications. The new connection is subject to detailed survey information of the existing pit and associated piped outlet. CPB as the head contractor are currently in the process of having the existing asset surveyed with the information expected by the end of February. Refer Figure 12 for details.

All existing kerb and gutter connections serving the site are no longer being used and are to be made redundant once their associated drainage has been disconnected during the demolition process.

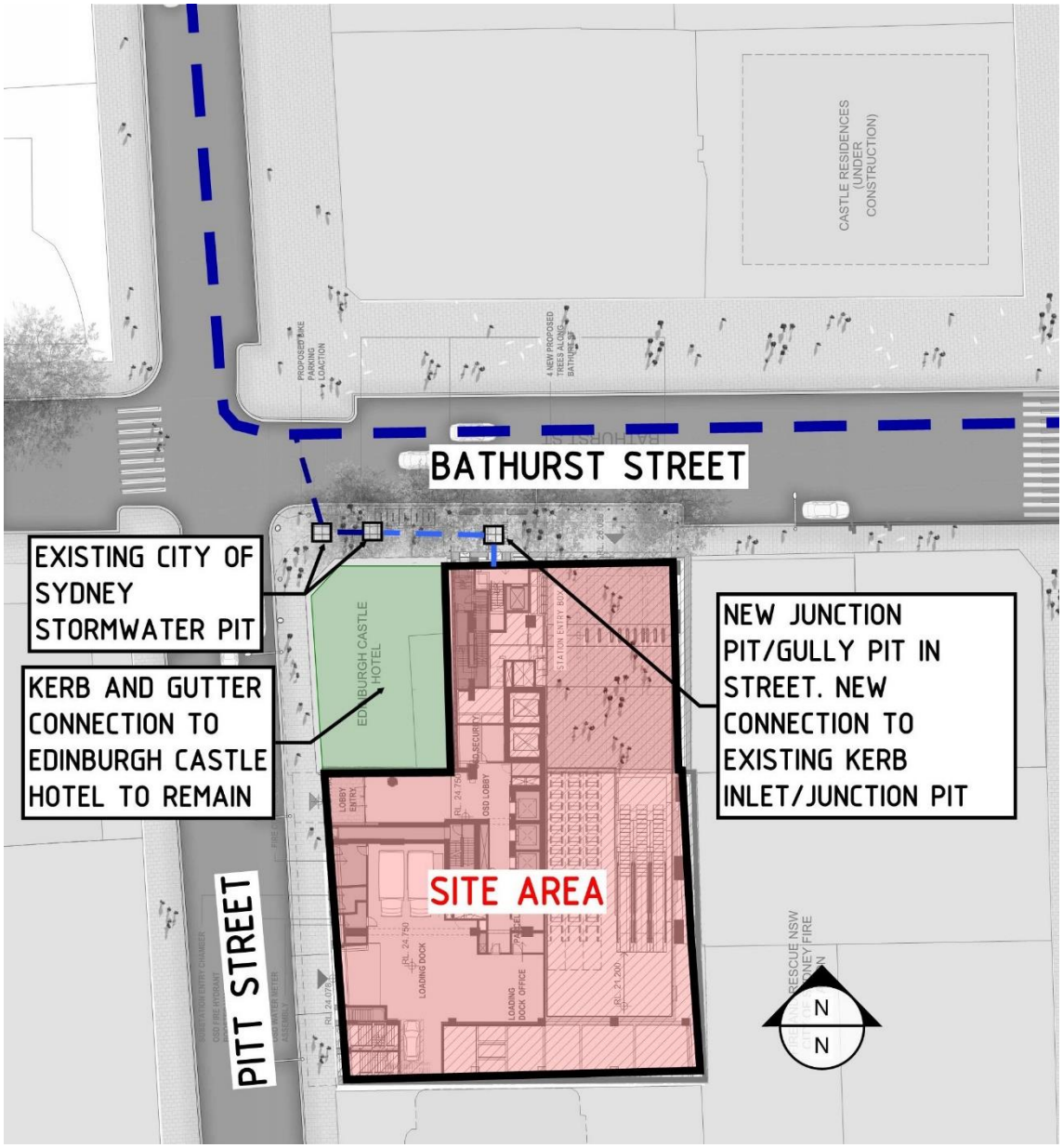


Figure 12 Proposed Legal Point of Discharge Arrangement

4. FLOODING

4.1 BACKGROUND

As part of the Condition of Consent B22, an assessment is required to address the conclusions and recommendations of the concept stage Flooding and Stormwater Management Plan dated August 2018 prepared by GHD to demonstrate compliance with City of Sydney's Interim Floodplain Management Policy.

4.2 FLOODING AND STORMWATER MANAGEMENT PLAN (GHD) RECOMMENDATIONS

In summary, the report completed by GHD makes the following conclusions and recommendations relevant to the Pitt Street South OSD:

- The maximum possible flood level shows that the site may be subject to flooding along Bathurst Street, but not Pitt Street.
- No risk of water ingress on Pitt Street entrance, as not flood affected.
- Potential exit on Bathurst Street to have flood mitigation measures.
- Development is not affected by the Probable Maximum Flood (PMF) event.

4.2.1 Compliance with Recommendations

The report highlights that the residential entrance on Pitt Street is not at risk of flood water ingress. The main entrance is graded away from the building to prevent risk of any localised stormwater draining into the building.

The exit on Bathurst Street is to be at a level above the PMF flood level to ensure no water ingress to the building.

The proposed stormwater drainage solution is to include the provision of a non-return valve to ensure that floodwater in the PMF event does not enter the OSD stormwater system.

This strategy ensures that the General Requirements of the City of Sydney's Interim Floodplain Management Policy is met for residential properties as it is:

- Free from flooding up to and including the 1% AEP flood and meets the Flood Planning Level Requirements
- Does not increase the likelihood of flooding on other developments, properties or infrastructure.

For further information on entrance levels, refer to Aurecon '*Civil Design Report SMCSWSPS-AUR-STA-CE-REP-000001[A] 07/02/2020*'

5. STORMWATER QUANTITY ASSESSMENT

The aim of the stormwater quantity assessment is to ensure that the development shall impose no adverse effects on downstream properties or receiving water bodies and that the conveyance of flows will be in a safe manner with minimal risk of human endangerment as well as the following objectives:

- Address the need for stormwater quantity control measures.
- Ensure there is no increase in peak discharges from the subject site for events up to and including the 1 in 100 year Average Recurrence Interval (ARI) event.

5.1 PROPOSED DEVELOPMENT AND ASSOCIATED ISSUES

The Permissible Site Discharge and On-Site Detention requirements have been determined by Sydney Water. These are the constraints that the stormwater design is governed by, and are seen in Table 2:

Site Area (sqm)	On-Site Detention Volume (cbm)	Permissible Site Discharge (PSD) (L/s)
1710	27	63

Table 2 Pitt Street South OSD Sydney Water Requirements

Subsequently, Council have advised that a kerb connection is allowable for all awning areas to take flows up to the Q20 event.

5.2 FLOW RATE METHODOLOGY

5.2.1 Design Storm Events

Based on recommendations within AS/NZ 3500.3 and City of Sydney standards the major and minor storm events were selected as follows:

- Minor Event: 1 in 20 year ARI
  - Surface drainage infrastructure sized for a 1 in 20 year ARI through to point of discharge.
- Major Event: 1 in 100 year ARI
  - Roof water capture system is to capture all flows up to and including the 1 in 100 year ARI.
  - Surface drainage overflows in events up to and including the 1 in 100 year ARI will not present a hazard to people or cause significant damage to property.

Pipe sizing will be reviewed during detailed design and increased as required to ensure a safe depth verse velocity is maintained at all times during the major event.

5.2.2 Rational Method for Peak Flow Rate

The peak flow rate for the site has been obtained using the Rational Method in accordance with Australian Rainfall and Runoff (ARR). Summaries of the hydrology calculations can be seen in Table 3 and Table 4 for the pre and post-development scenarios respectively.

$Q = (2.78 \times 10^{-3}) C_y I_y A$

Q = Peak flow rate (m3/s) for average recurrence interval

C_y = Co-efficient of runoff for ARI of y years (dimensionless)

A = Catchment area (ha)

I_y = Average rainfall intensity (mm/hr) for a design duration of t hours and an ARI of y years

5.2.3 Catchment Area (A)

Catchment areas were measured using AutoCAD 2020, contour surface data and known cadastral boundaries.

5.3 Pre-Development Hydrology

The hydrology of the pre-developed catchment has been assessed using the Rational Method. The theoretical calculated peak discharge for storm events ranging from the 1 in 1 year to 1 in 20 year ARIs have been calculated and a summary of the results is presented in **Appendix D** (Rational Method Calculations).

The subject site has a total area of 1,710m^2 and currently comprises entirely of hardstand areas associated with the existing commercial and hotel buildings.

Please refer to **Appendix D** for a summary of the Rational Method calculations and all parameters used.

Table 3 Pre-Development Hydrology

Catchment I.D	Area (m^2)	C_{20}	C_{100}	I_{20}	Time of Concentration (tc)	I_{100}	Q_{20} (m^3/s)	Q_{100} (m^3/s)
EX1	1,720	0.900	0.900	201	10	262	0.096	0.125
Total	**1,720**	**0.900**	**0.900**	**201**	**10**	**262**	**0.096**	**0.125**

5.4 Post-Development Hydrology

The total land area considered for the post-development was 1,710m^2. A catchment plan for the post-developed site was determined based on preliminary SSDA drawings (*refer Bates Smart Architectural Drawing Issue Revision P1 (29/11/2019)).* The roof area associated with the proposed development was not included in the post-development calculations as all roofwater (up to Q100 storm event) is intended to be captured within rainwater tanks via box gutters for

potable uses as the site is not serviced by potable water reticulation. Refer to **Appendix B** for further information.

Please refer to **Appendix D** for a summary of the Rational Method calculations and all parameters used.

Table 4 - Post-development Catchment Details

Catchment I.D	Area (m^2)	C_{20}	C_{100}	Time of Concentration (tc)	I_{20}	I_{100}	Q_{20} (m^3/s)	Q_{100} (m^3/s)
C1	1,720	0.900	0.900	10	201	262	0.096	0.125
Total	**1,720**	**0.900**	**0.900**	**10**	**201**	**262**	**0.096**	**0.125**

5.5 Detention Analysis and Strategy

Site stormwater storage is driven by Sydney Water requirements for Permissible Site Discharge to not exceed 63L/s up to and including a 1 in 100 year event.

In order to meet this requirement, an On-Site Detention system installed as part of enabling works is needed to capture, store and controllably discharge the difference between the Q100 flow (118L/s) and the Permissible Site Discharge (63L/s). Sydney Water has determined that the minimum detention volume is 27kL. An additional 5kL is provided (total 32kL) to account for a lower Level 02 roof area that bypasses the tank system which is located on Level 04 of the development.

All flows beyond the 1 in 100 year event is to be via a piped overflow to discharge to atmosphere at high level in loading dock, which drains onto Pitt Street and into the culvert to the west of the site on Pitt Street.

5.5.1 Recommendation

The On-site detention determined by Sydney Water ensures that City of Sydney's peak discharge requirements are not exceeded while ensuring there is no increase in peak discharges from the subject site for events up to and including the 1 in 100 year ARI event.

6. Stormwater Quality Assessment

6.1 Treatment Objectives

This assessment identifies issues relating to stormwater quality runoff and assesses possible methods of treatment if required. The aim of this section of the report is to determine practical approaches to achieving improvements in the quality of the stormwater run-off from the site that can be readily implemented.

City of Sydney Council DCP 2013 Section 3.7.3 specifies stormwater quality control measures that must be implemented for any new development. Section 3.7 of DCP states that the stormwater management system should be designed to:

- Ensure an integrated approach to water management across the City through the use of water sensitive urban design principles
- Encourage sustainable water use practices
- Assist in the management of stormwater to minimise flooding and reduce the effects of stormwater pollution on receiving waterways.

In line with the City of Sydney Development Control Plan 2012 (DCP), the stormwater management strategy for the Pitt St South OSD incorporates a treatment train designed to meet the set treatment targets. Stormwater treatment targets are summarised as follows in Table 6 Objectives for Environmental Management of Stormwater:

Table 5 – Objectives for Environmental Management of Stormwater

Total Suspended Solids (TSS)	Total Phosphorus (TP)	Total Nitrogen (TN)	Gross Pollutants >5mm
85% Reduction	65% Reduction	45% Reduction	90% Removal

6.2 SITE CONSIDERATIONS

The stormwater treatment train has been designed with consideration of the characteristics, constraints, and opportunities of the site and the development proposal. The entire site is primarily a building which presents an excellent opportunity for rainwater harvesting and reuse from the roof catchment. Therefore, roofwater capture, with nonpotable reuse, are maximised. Rainwater reuse is an excellent way of reducing the potable water demand of the development, while also being a valid means by which stormwater can be sustainably managed.

The site is spatially constrained in terms of both area (available space at ground level) and vertical height (given the Metro station beneath). Given this, we have selected treatment devices for their relative compactness and efficiency.

The developed treatment train includes:

- Roofwater capture, which reuse for toilet flushing in public amenities and landscape irrigation.
- Banks of media filter cartridges (Ocean Protect Stormfilter™).

6.2.1 MUSIC Model

The Stormwater Quality was assessed for the development using MUSIC modelling to demonstrate compliance with the City of Sydney Development Control Plan 2012 (DCP), refer to figure 7 MUSIC model results.

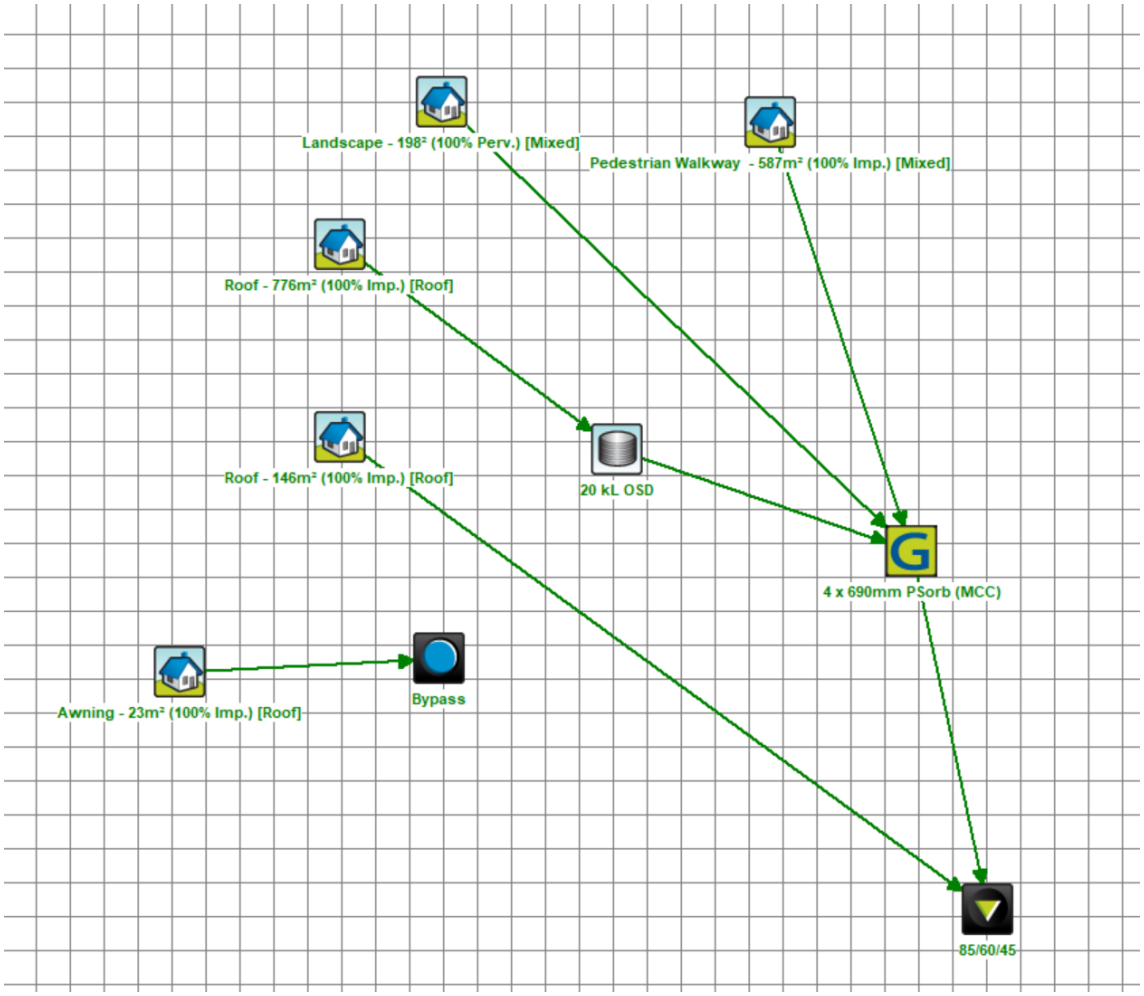


Figure 13 MUSIC Model Results

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.88	1.53	18.4
Total Suspended Solids (kg/yr)	165	25.1	84.8
Total Phosphorus (kg/yr)	0.391	0.0881	77.5
Total Nitrogen (kg/yr)	4.09	1.77	56.6
Gross Pollutants (kg/yr)	42.8	4.51	89.5

Figure 14 Treatment Train Summary

6.3 MAINTENANCE SCHEDULE

As part of the site's Water Sensitive Urban Design (WSUD) strategy, regular maintenance will need to be undertaken to ensure the systems continued operations. The maintenance of the devices will be as per the schedule below.

6.3.1 On-site detention and retention systems (where applicable)

Maintenance Action	Frequency	Responsibility	Procedure
Outlets			
Inspect & remove any blockage of orifice plates	Six Monthly	Owners Contractor	Remove grate & screen to inspect orifice. See plan for location of outlets
Check attachment of orifice plates to wall of chamber and/or outlet (gaps less than 5 mm)	Annually	Maintenance Contractor	Remove grate and screen. Ensure plates are mounted securely, tighten fixings if required. Seal gaps as required.
Check orifice diameters are correct and retain sharp edges	Five yearly	Maintenance Contractor	Compare diameter to design (see Work-as-Executed) and ensure edge is not pitted or damaged.
Inspect screen and clean	Six monthly	Owner	Remove grate(s) and screens if required to clean them.
Check attachment of screens to wall of chamber, pit or RWO	Annually	Maintenance Contractor	Remove grate(s) and screen(s). Ensure screen fixings are secure. Repair as required.
Check trash screen(s) for corrosion	Annually	Maintenance Contractor	Remove grate(s) and examine screen(s) for rust or corrosion, especially at corners or welds.
Inspect outlet sumps & remove any sediment/sludge	Six monthly	Owner	Remove grate(s) and screen(s). Remove sediment/sludge build-up and check orifices are clear.
Inspect grate(s) for damage or blockage	Six monthly	Owner	Check both sides of a grate for corrosion, (especially corners and welds) damage or blockage.
Inspect outlet pipe & remove any blockage	Six monthly	Maintenance Contractor	Remove grate(s) and screen(s). Check orifices and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/debris on upstream side of return line.
Inspect walls (internal and external)	Annually	Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required.

Check access ladder for corrosion	Annually	Maintenance Contractor	Remove grate. Examine ladder and repair any corrosion or damage.
Check access ladder is secure	Six monthly	Maintenance Contractor	Remove grate(s) and ensure fixings are secure prior to placing weight on ladder.

Maintenance Action	Frequency	Responsibility	Procedure
Storage			
Inspect storage & remove any sediment/sludge in pit	Six monthly	Owner	Remove grate(s) and screen(s). Remove sediment/sludge build-up.
Inspect internal walls and external walls of storage for cracks or spalling	Annually	Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect & remove any debris/litter/mulch etc blocking grates	Six monthly	Owner	Remove blockages from grate(s) and check if storage is blocked.
Inspect areas draining to the storage(s) & remove debris/mulch/litter etc likely to block screens/grates	Six monthly	Owner	Remove debris and floatable material likely to be carried to grates.
Compare storage volume to volume approved. (Rectify if loss >5%)	Annually	Maintenance Contractor	Compare actual storage available with Work-as Executed plans. If volume loss is greater than 5%, arrange for reconstruction to replace the lost volume. Council to be notified of the proposal.
Inspect storages for subsidence near pits	Annually	Maintenance Contractor	Check along drainage lines and at pits for subsidence likely to indicate leakages.
Inspect OSD Overflow Weir	Six Monthly	Owner	Check that the overflow weir slot is free of obstructions to allow emergency overflow of the OSD storage system.

6.3.2 First Flush Devices

Maintenance Action	Frequency	Responsibility	Procedure

Inspect & remove any blockage or silt build up in the first flush diverter systems.	Monthly	Owner	Remove diverter filtration screens and clean first flush diverter of all silt or debris build up in diverter tailpipe

6.3.3 Gross Pollutant Trap

Maintenance Action	Frequency	Responsibility	Procedure
Pump out all debris from pollutant trap	Three monthly	Owner	Remove grate(s) and screens as required. Pump out contents of collection trap into collection truck.
Inspect trash screen and clean	Six monthly	Owner	Remove grate(s) and screens if required to clean them.
Check attachment of screens to wall of chamber or pit	Annually	Owner	Remove grate(s) and screen(s). Ensure screen fixings are secure. Repair as required.
Check trash screen(s) for corrosion	Annually	Owner	Remove grate(s) and examine screen(s) for rust or corrosion, especially at corners or welds.
Inspect outlet sumps & remove any sediment/sludge	Six monthly	Owner	Remove grate(s) and screen(s). Remove sediment/sludge build-up and check orifices are clear.
Inspect grate(s) for damage or blockage	Six monthly	Owner	Check both sides of a grate for corrosion, (especially corners and welds) damage or blockage.
Inspect outlet pipe & remove any blockage	Six monthly	Owner	Remove grate(s) and screen(s). Ventilate underground storage if present. Check outlet and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/debris on upstream side of return line.

6.3.4 StormFilter Equipment

Maintenance Action	Frequency	Responsibility	Procedure
Unit Inspection/Minor Maintenance	Six Monthly	Owner	Remove grate(s) and screens as required. Pump out contents of collection trap into collection truck. Inspect all inlets and outlets for blockages and general degradation. Remove grate(s) and screens if required to clean them.
Major Maintenance	Annually	Owner	Replacement of filter cartridges – To be undertaken in accordance with manufacturers requirements

7. CONCLUSION

As outlined in **Section 4** of this report, the proposed development results in a decrease to peak flows due to design of on-site detention measures to limit discharge up to and including the 1 in 100 year storm event to the existing Council stormwater network on Bathurst Street.

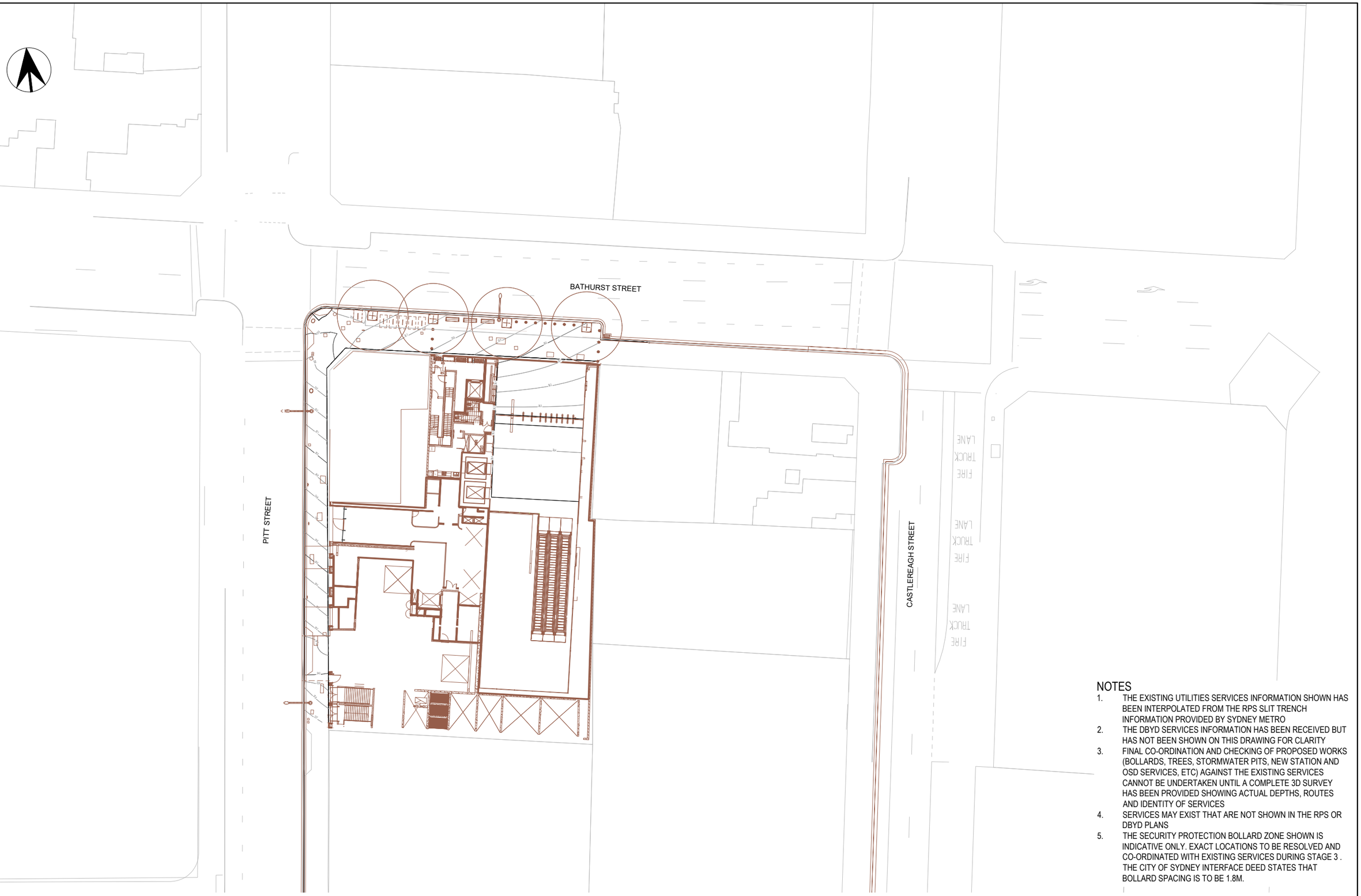
To achieve stormwater quality best management guidelines for this development, CJ Arms recommends the use of the following treatment devices:

- Roofwater capture
- Banks of media filter cartridges (Ocean Protect Stormfilter™).

Detailed engineering diagrams and management requirements for the proposed development will be submitted to City of Sydney Council for approval prior to any works commencing on site with design certification prepared by a qualified stormwater engineer or scientist.

8. APPENDICIES

A.1. EXISTING CONDITIONS SURVEY PLAN



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SYDNEY METRO CITY & SOUTHWEST

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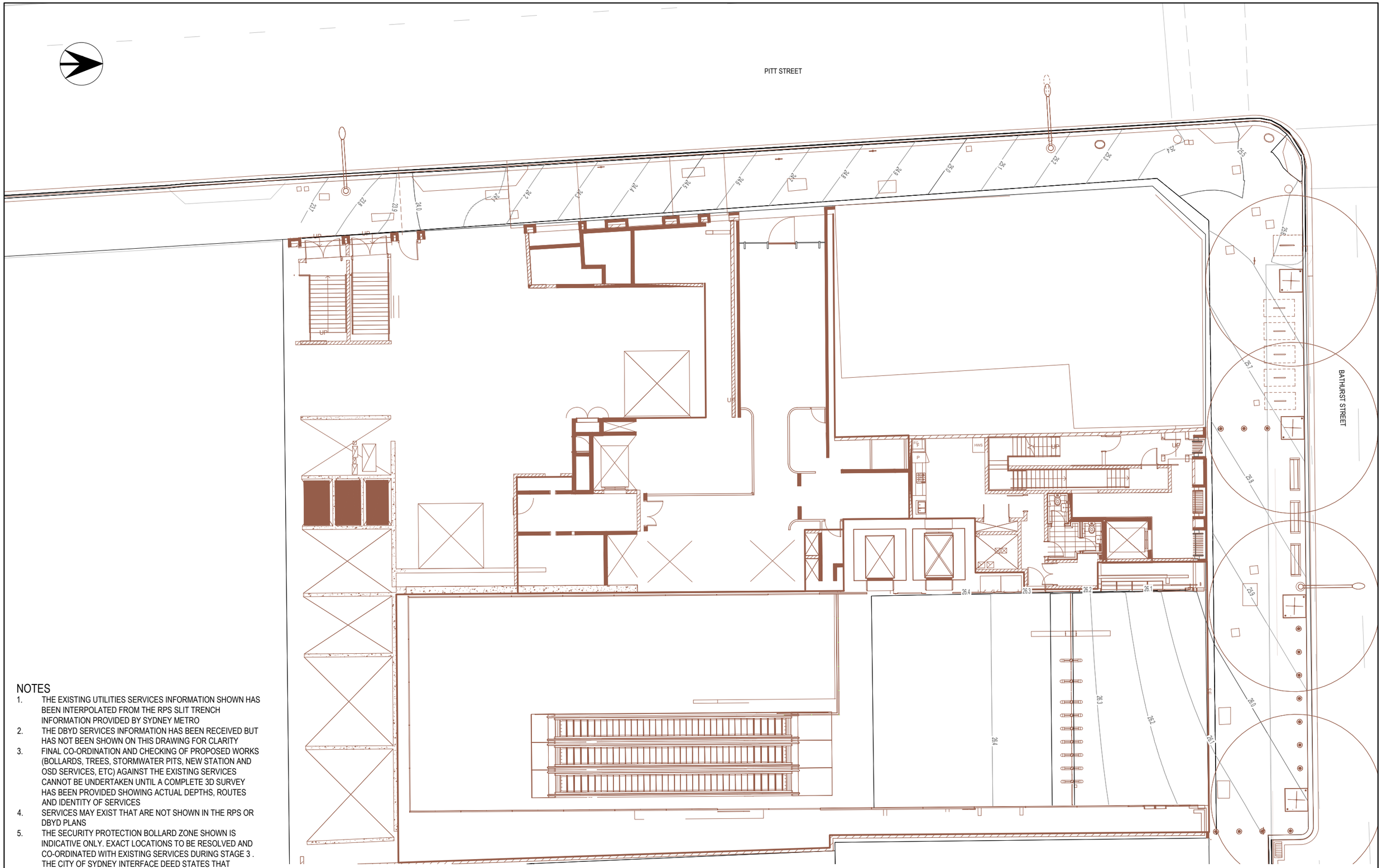

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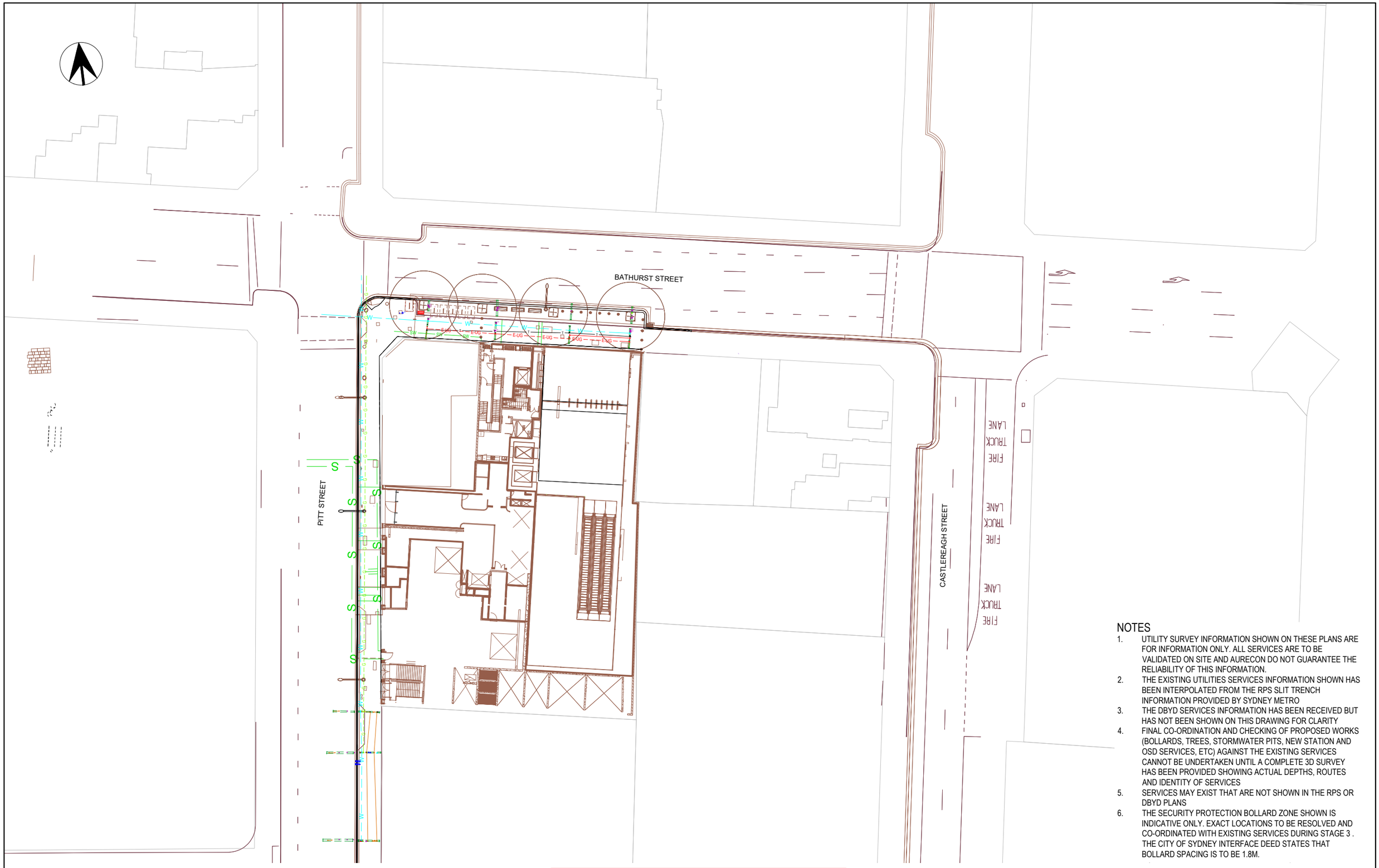

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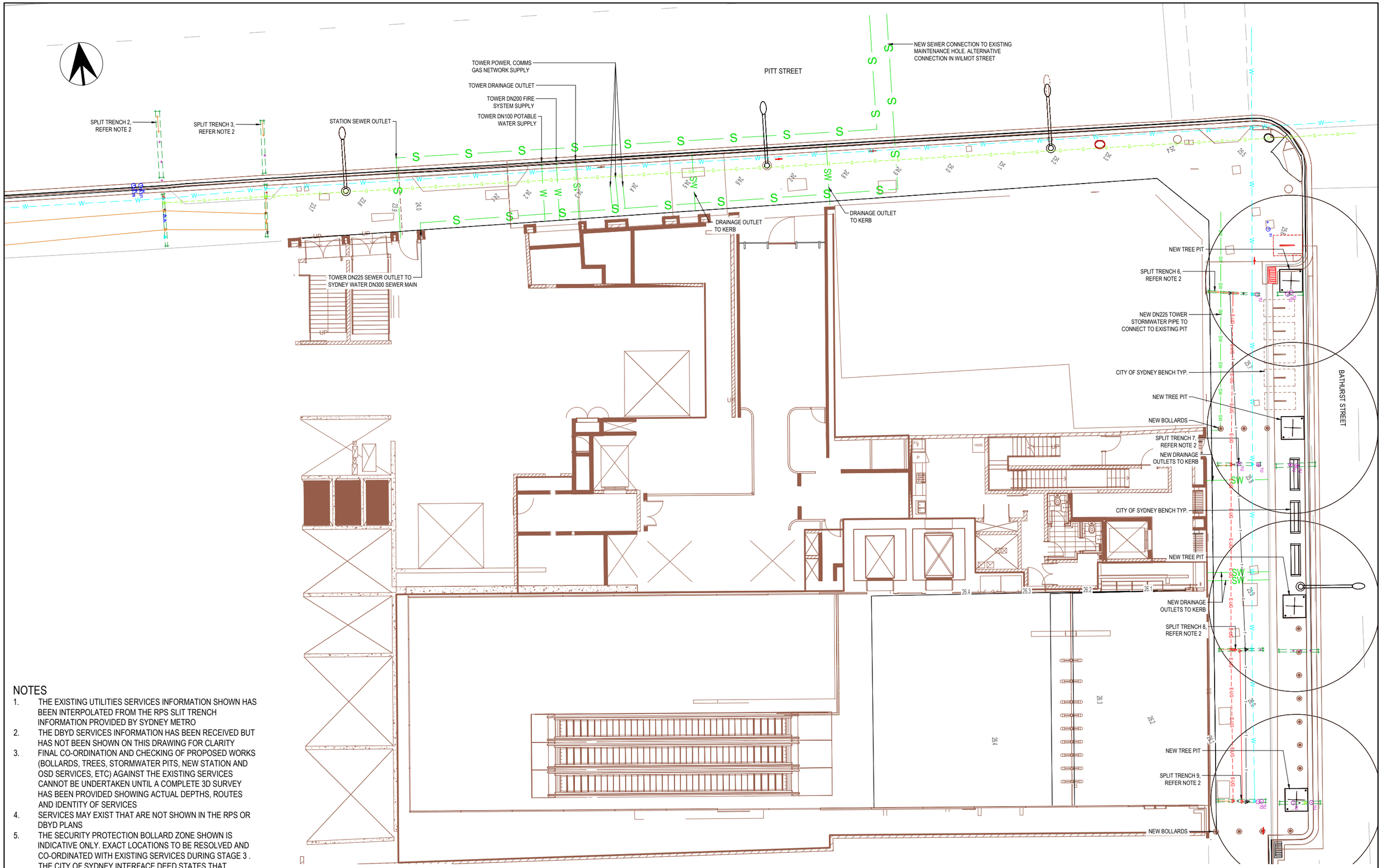

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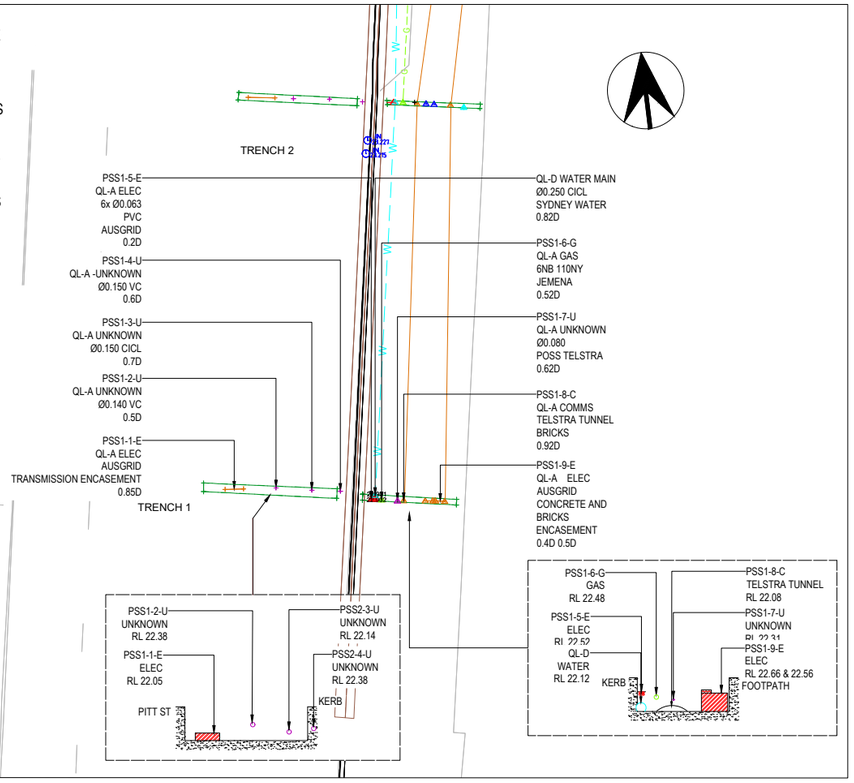

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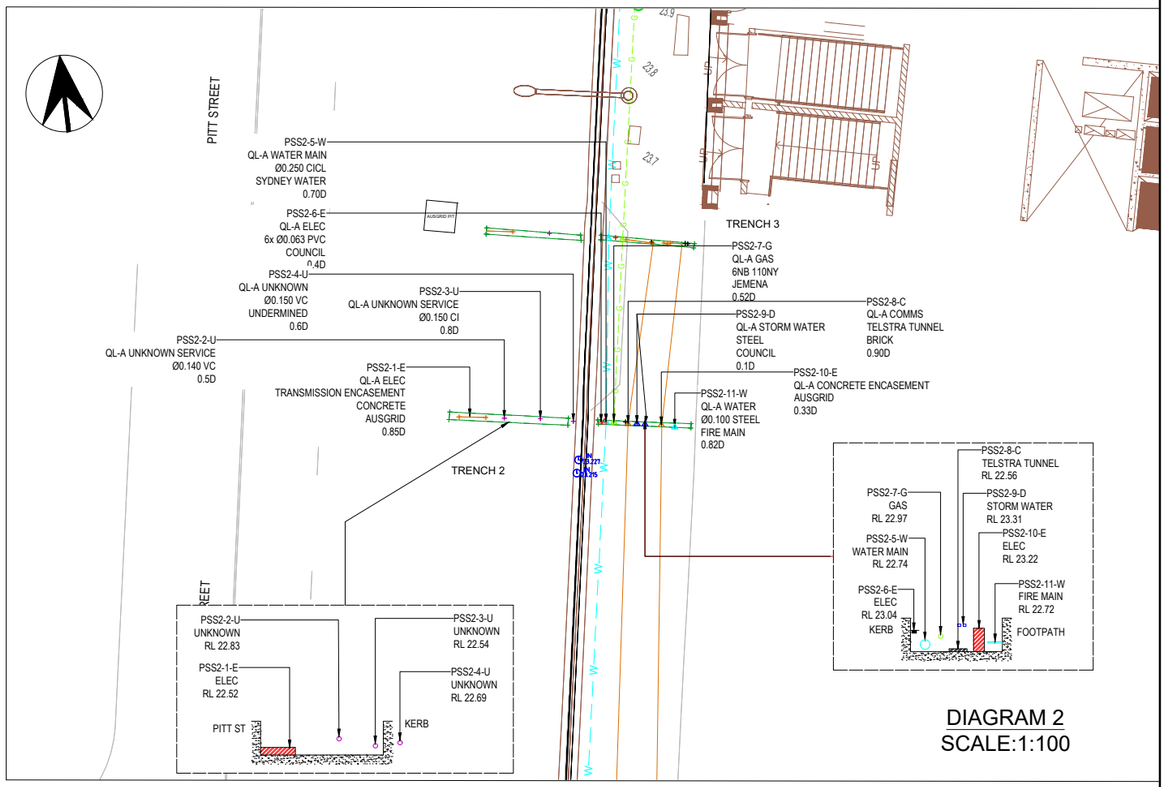

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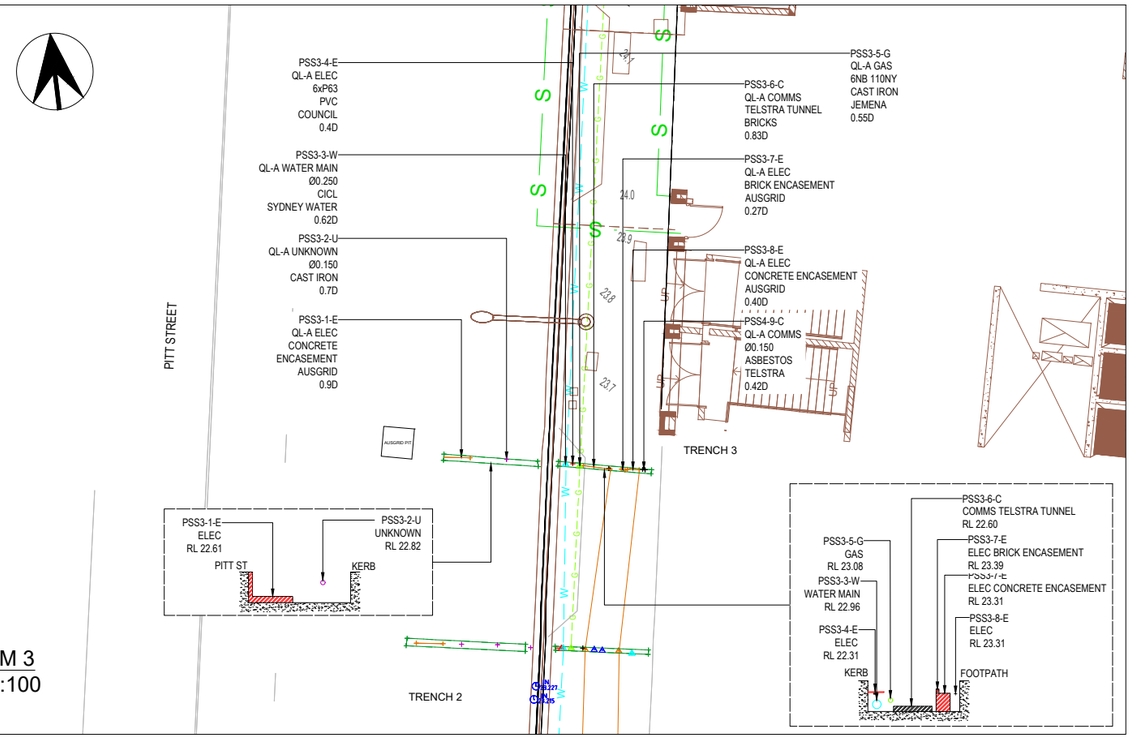

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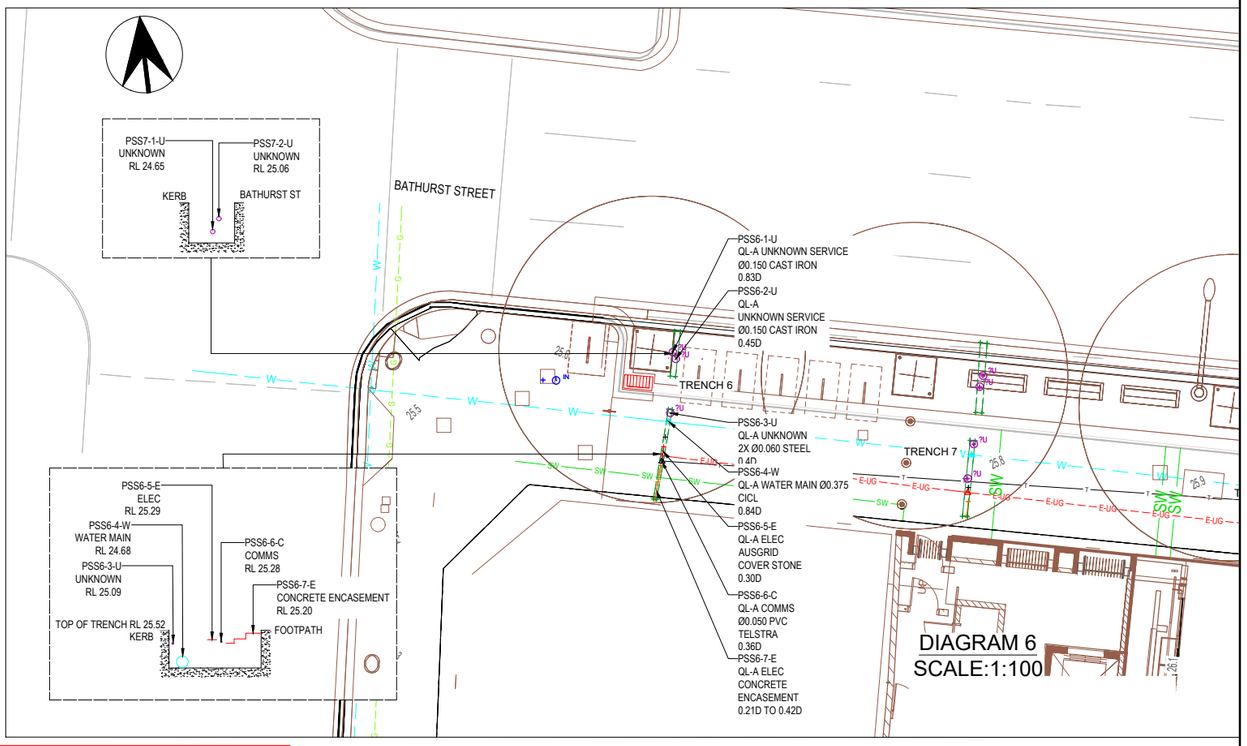

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SOUTH GROUND FLOOR PLAN

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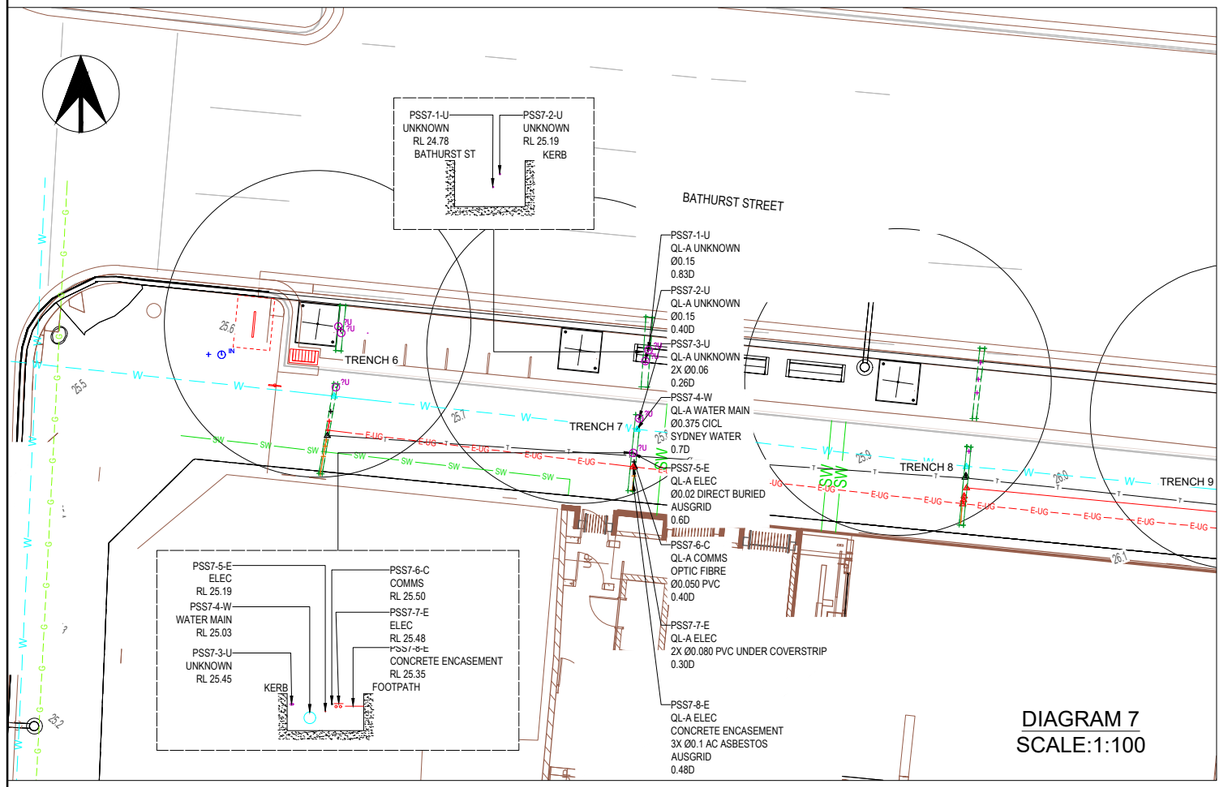

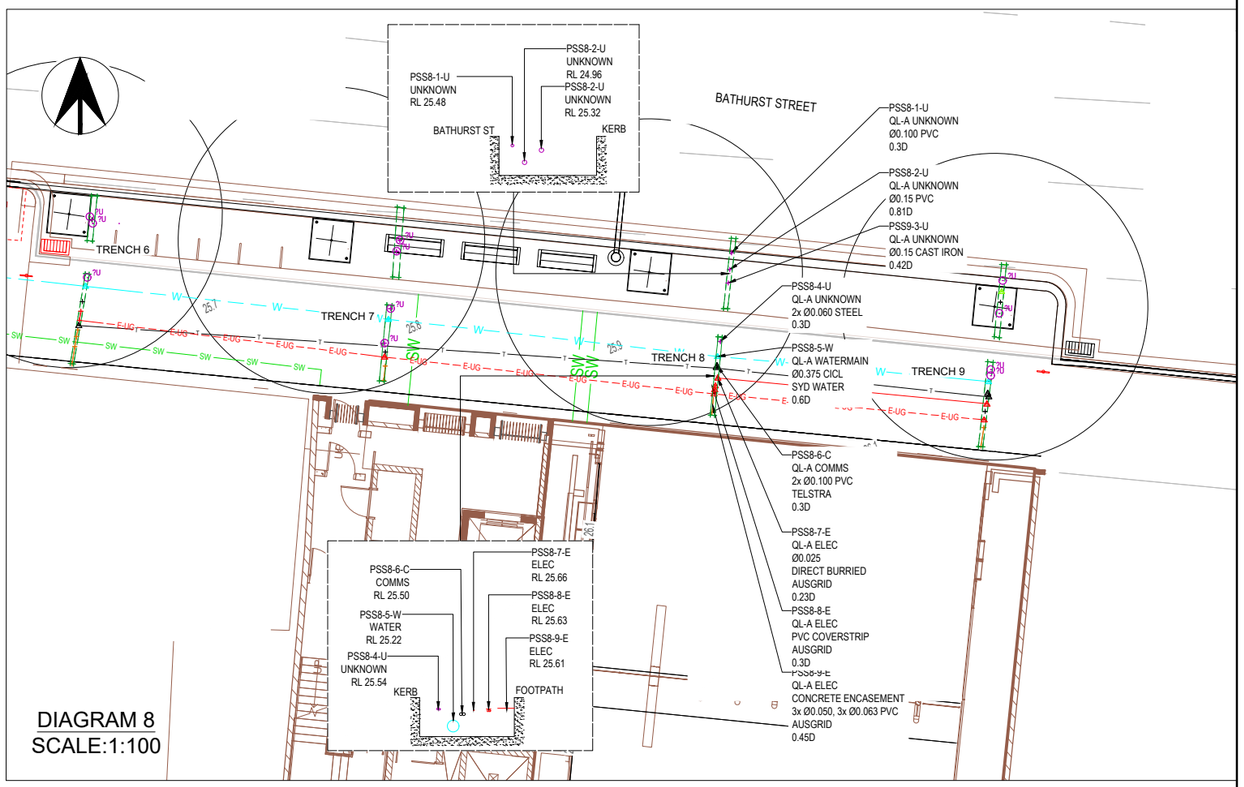

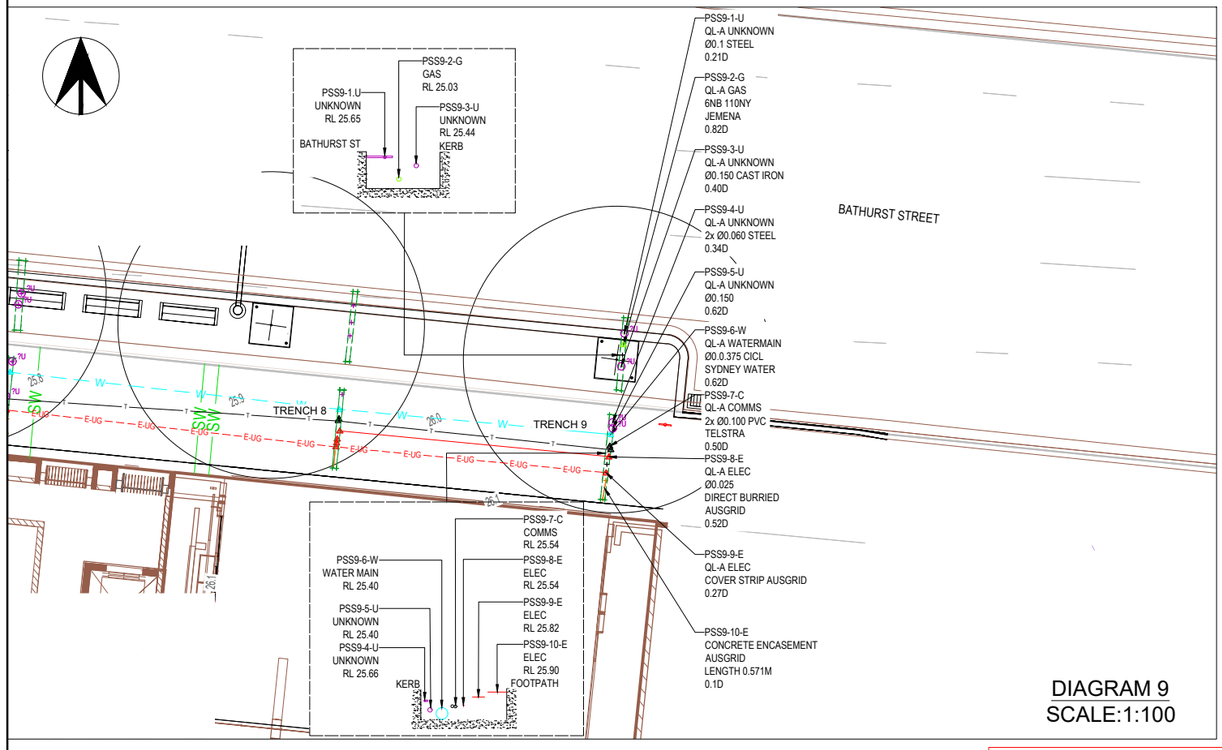

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A.2. ARCHITECTURAL DRAWINGS

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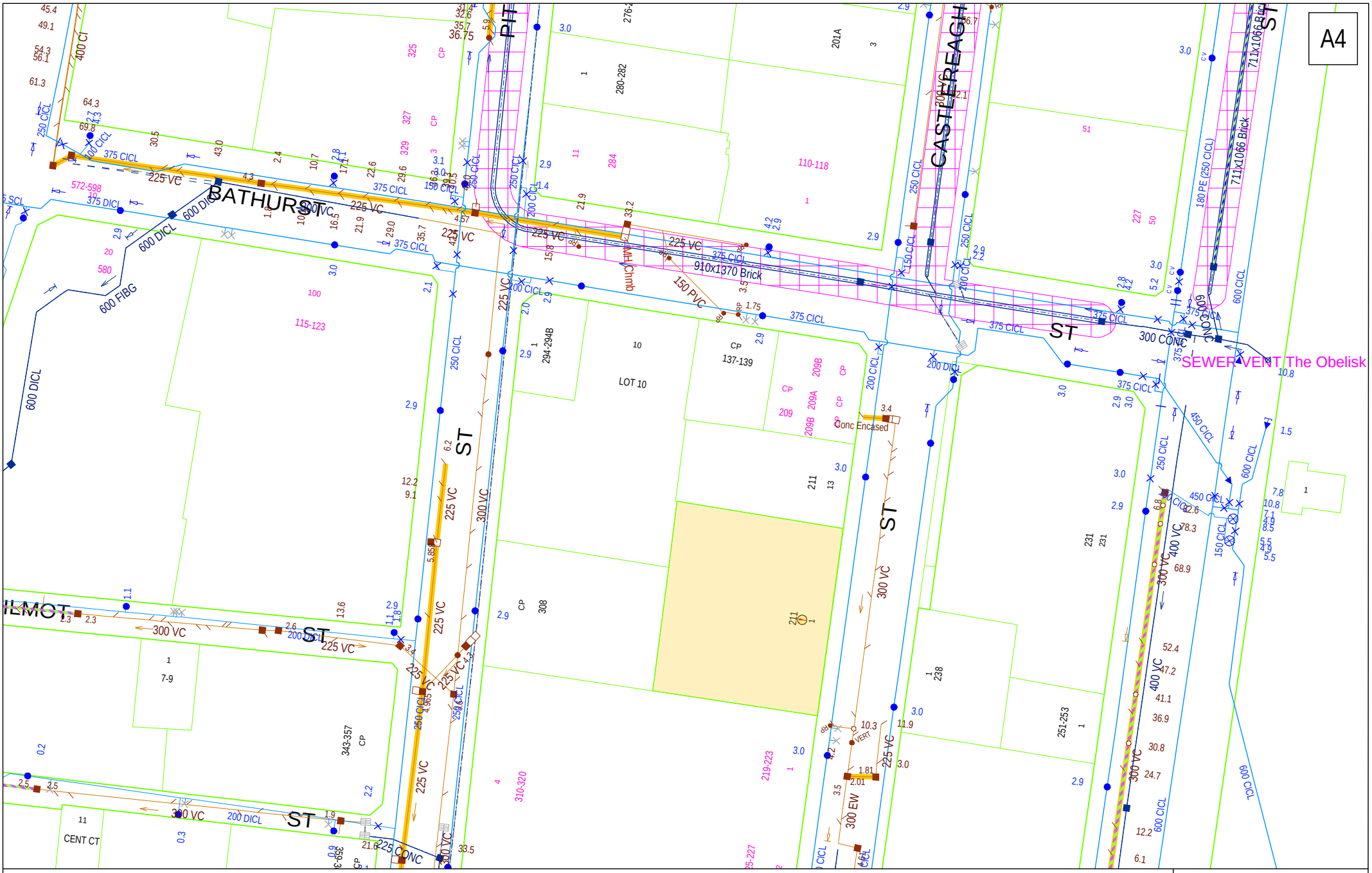
SMCSWSPS-BAT-OSS-AT-DWG-930641	L06 - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-930642	L06 MEZZANINE - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-930741	L07 - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-930841	L08 - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-930941	L09-13 - TYPICAL LOWRISE GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-931441	L14-34 - TYPICAL HIGHRISE GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-932841	L28-34 S OSD - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-933541	L35 - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-933641	L36 - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-933741	L37 PLANT - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019

SMCSWSPS-BAT-OSS-AT-DWG-933841	L38 PLANT - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-933941	L39 ROOF - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019
SMCSWSPS-BAT-OSS-AT-DWG-939542	B01 MEZZ - GENERAL ARRANGEMENT PLAN	P1	Bates Smart Pty Ltd	29/11/2019

A.3. DBYD INFORMATION



DBYD Address:
n/a Pitt Street
Sydney NSW 2000

DBYD Job No: 18461624

DBYD Sequence No: 91493048

SYDNEY WATER CORPORATION

Scale: 1:1000

Date of Production: 28/10/2019

Plan 1 of 1

N

0m 5m 10m 15m 20m

A.4. SYDNEY WATER CORRESPONDENCE

B.1-Sydney Water Requirements

Shafqat Hossain

From: JEYADEVAN, JEYA <JEYA.JEYADEVAN@sydneywater.com.au>
Sent: Wednesday, 14 June 2017 10:51 AM
To: Shafqat Hossain
Cc: Greg Ives; Rhys Harvey
Subject: RE: Sydney Water/City of Sydney OSD Requirements

Follow Up Flag: Follow up
Flag Status: Flagged

Shafqat,

Followings are the On Site Detention requirements for the different sites associated with the Metro Rail

Cnr Pitt & Bathurst Street, Sydney (Site Area 1710 square meter)

- On Site Detention 27 Cubic meter
- Permissible Site Discharge 63 L/s

Cnr Pitt Street and Park Road, Sydney (Site Area 3150 square meter)

- On Site Detention 49 Cubic meter
- Permissible Site Discharge 116 L/s

Cnr Martin Place and Castlereagh Street, Sydney (Site Area 1900 square meter)

- On Site Detention 30 Cubic meter
- Permissible Site Discharge 70 L/s

Cnr Castlereagh Street and Hunter Street, Sydney (Site Area 2820 square meter)

- On Site Detention 44 Cubic meter
- Permissible Site Discharge 103 L/s

Best Regards

Jeya Jeyadevan | Senior Capability Assessor

Customer Delivery | Sydney Water
Level 7, 1 Smith St Parramatta NSW 2150
PO Box 399 Parramatta NSW 2124
T 8849 6118 | **Mobile** 0409 318 827 | **Email** jeya.jeyadevan@sydneywater.com.au
sydneywater.com.au

From: Shafqat Hossain [mailto:Shafqat.Hossain@arcadis.com]
Sent: Wednesday, 14 June 2017 10:14 AM
To: JEYADEVAN, JEYA <JEYA.JEYADEVAN@sydneywater.com.au>

Cc: Greg Ives <Greg.Ives@arcadis.com>; Rhys Harvey <Rhys.Harvey@arcadis.com>
Subject: RE: Sydney Water/City of Sydney OSD Requirements

Hi Jeya,

I just wanted to touch base with you regarding the email below to see how you were tracking.

Do you require anything further from us? Are we able to receive a response COB tomorrow?

Thank you.

Kind regards,

Shafqat Hossain | Metron Civil Engineer | BEng(Hons)/BComm MIEAust |
shafqat.hossain@arcadis.com
METRON | Level 39, 680 George Street, Sydney | NSW 2000 | Australia
T. + 61 2 8907 8215 | M. + 61 4 31 745 578

From: Shafqat Hossain
Sent: Friday, 9 June 2017 1:40 PM
To: 'JEYADEVAN, JEYA' <JEYA.JEYADEVAN@sydneywater.com.au>
Cc: Greg Ives <Greg.Ives@arcadis.com>; Rhys Harvey <Rhys.Harvey@arcadis.com>
Subject: RE: Sydney Water/City of Sydney OSD Requirements

Hi Jeya,

Following the meeting with Sydney Water, I just wanted to touch base with you regarding the assessment of OSD requirements for the Sydney city stations and Marrickville stabling yards.

Please advise if you require anything further.

Kind regards,

Shafqat Hossain | Metron Civil Engineer | BEng(Hons)/BComm MIEAust |
shafqat.hossain@arcadis.com
METRON | Level 39, 680 George Street, Sydney | NSW 2000 | Australia
T. + 61 2 8907 8215 | M. + 61 4 31 745 578

From: JEYADEVAN, JEYA [mailto:JEYA.JEYADEVAN@sydneywater.com.au]
Sent: Monday, 5 June 2017 12:41 PM
To: Shafqat Hossain <Shafqat.Hossain@arcadis.com>
Cc: Greg Ives <Greg.Ives@arcadis.com>
Subject: RE: Sydney Water/City of Sydney OSD Requirements

Shafqat,

I spoke to Greg Ives about this, few minutes ago. Greg will discuss this matter further with the Sydney Water's representative for this Sydney Metro Project.

Best Regards

Jeya Jeyadevan | Senior Capability Assessor

Customer Delivery | Sydney Water
Level 7, 1 Smith St Parramatta NSW 2150
PO Box 399 Parramatta NSW 2124
T 8849 6118 | **Mobile** 0409 318 827 | **Email** jeya.jeyadevan@sydneywater.com.au
sydneywater.com.au

From: Shafqat Hossain [mailto:Shafqat.Hossain@arcadis.com]
Sent: Wednesday, 31 May 2017 2:03 PM
To: JEYADEVAN, JEYA <JEYA.JEYADEVAN@sydneywater.com.au>
Cc: Greg Ives <Greg.Ives@arcadis.com>
Subject: Sydney Water/City of Sydney OSD Requirements

Hi Jeya,

I am currently working with Greg Ives on the Sydney Metro project and we would like some clarification regarding Sydney Water requirements around stormwater drainage.

Please find attached two PDFs for Pitt Street and Martin Place station footprints and proposed over station developments. The information we are essentially seeking is OSD volume and PSD advise as per the attached email. Are we able to receive this information by COB Friday 02-06-17?

If you require anything further please do not hesitate to contact me.

Thank you.

Kind regards,

Shafqat Hossain | Metron Civil Engineer| BEng(Hons)/BComm MIEAust |
shafqat.hossain@arcadis.com
METRON | Level 39, 680 George Street, Sydney | NSW 2000 | Australia
T. + 61 2 8907 8215 | M. + 61 4 31 745 578
Be green, leave it on the screen.

A joint venture of Arcadis and Mott MacDonald, with principal sub-consultants Robert Bird Group, Foster + Partners, Architectus, WT Partnership and McKenzie Group

A.5. CITY OF SYDNEY CORRESPONDENCE

CJ ARMS

MEMORANDUM

Meeting No:	1-2019	Date:	18/12/2019
Project:	Pitt St North/South	Sent Via:	Email
Subject:	**PSS/PSN Site Connections**	#Pages:	3
Location:	**City of Sydney Office**	Reference:	14365 CoS Meeting 01

Attendees:	Name	Company	Contact
	Will Barlow (WB)	CJ Arms	Will.Barlow@cjarms.com
	Sandeep Thorat (ST)	City of Sydney	SThorat@cityofsydney.nsw.gov.au
	Emma Thorburn (ET)	City of Sydney	EThorburn@cityofsydney.nsw.gov.au
	Nick Bogias (NB)	CPB	Nick.Bogias@cpbcon.com.au
	Boris Petrovic (BP)	Aurecon	Boris.Petrovic@aurecongroup.com

Distribution – All present

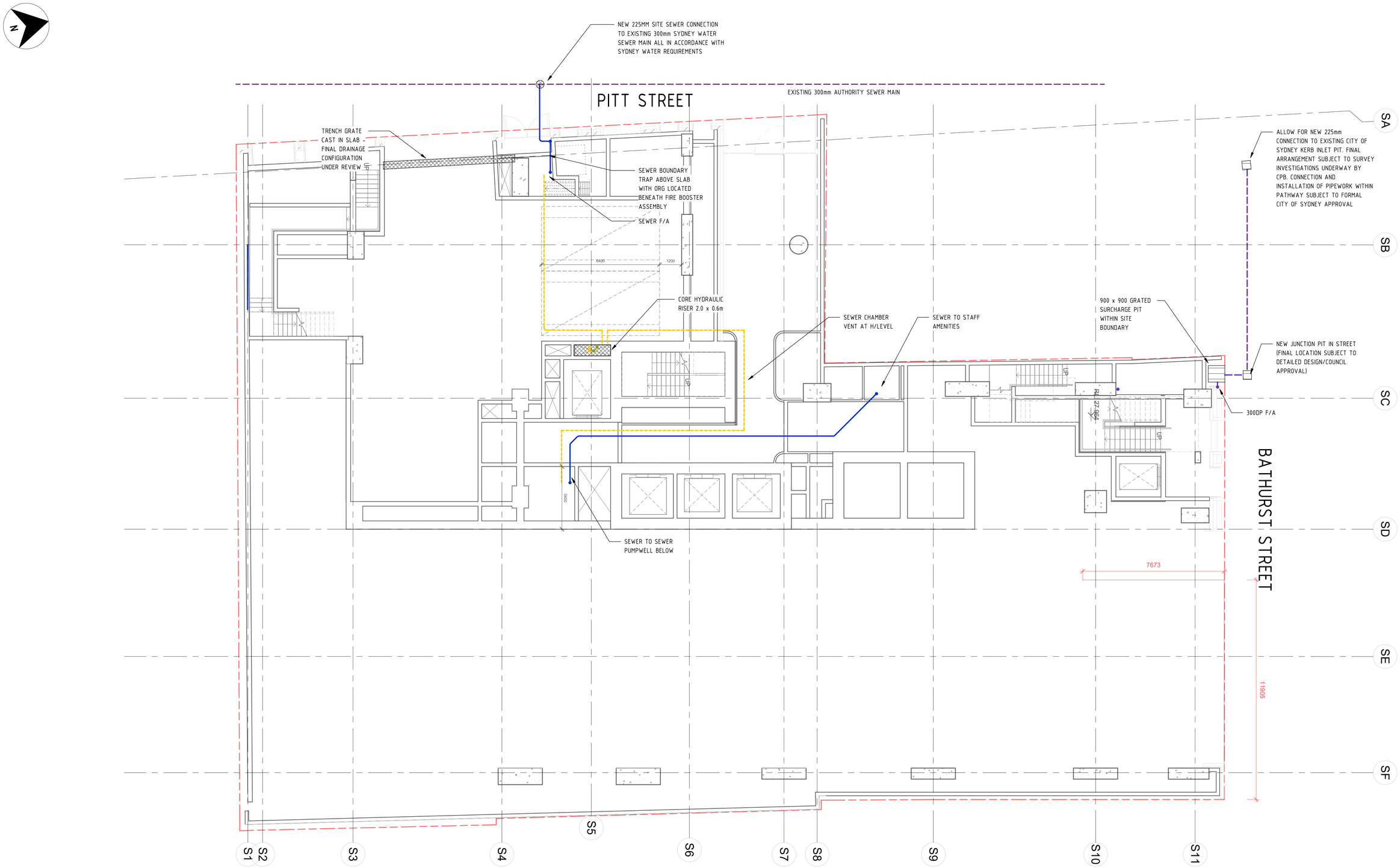
Item #	Item	Action	Date
1.	**<u>Overview</u>** a) CJA (WB) provided overview of PSN/PSS sites including surrounding infrastructure and stormwater reference design b) CJA (WB) advised Sydney Water will not allow connection to existing heritage infrastructure surrounding both sites. Connections required to Council infrastructure c) CoS (ST) advised direct connection for entire site to kerb not permitted for major drainage flow (only minor) d) CoS (ST) advised detention (OSD)/permissible site discharge (PSD) rates determined by Sydney Water (refer attached SW correspondence) ○ Pitt St South ▪ PSD – 63L/s ▪ OSD – 27kL ○ Pitt St North ▪ PSD – 116L/s ▪ OSD – 49kL e) CoS (ST) advised street awnings can connect directly to road kerb. Maximum 3 no. connections per site frontage.	Note Note Note Note Note	

	Total 1 in 20yr flow rate from all kerb connections must not exceed 25L/s. ○ Note flow rate restriction to kerb does not impact discharge rate to Council asset as per 1.d) f) CJA/Aurecon/CPB to provide combined markup detailing drainage proposal for CoS (ST) review.	WB/NB/ BP	
2.	**<u>Pitt St South</u>** a) CoS (ST) advised drainage connection feasible to Council asset DRA9978 (existing KI). b) CoS (ST) advised existing KI to be replaced in accordance with Council standards c) CoS (ST) advised existing outlet pipe from KI will not need to be upsized provided discharge flow rates do not exceed pipe capacity. ○ CPB to provide survey of existing pipe to verify location and size ○ CJA to review and confirm ○ Pipe may require replacement if non-compliant with CoS standards (ST) d) Surcharge pit required within site boundary to discharge difference between 1 in 100yr storm and nominated PSD (refer 1.d) e) CoS (ST) advised street awnings can connect directly to road kerb. Maximum 3 no. connections per site frontage. Total 1 in 20yr flow rate from all kerb connections must not exceed 25L/s. ○ Maximum 3 no. awning connections to Council kerb on Pitt St frontage ○ Maximum 3 no. awning connections to Council kerb on Bathurst St frontage ○ Council recommendation to minimise awning connections where feasible	Note Note Note NB WB Note WB/NB BP	
3.	**<u>Pitt St North</u>** a) CoS (ST) advised drainage connection feasible to Council asset DRA9250 (existing KI) b) CoS (ST) advised existing KI to be replaced in accordance with Council standards c) CoS (ST) advised pipe from existing pit to Sydney Water asset owned by CoS. Subsequently no works proposed involving existing Sydney Water asset d) Surcharge pit required within site boundary to discharge difference between 1 in 100yr storm and nominated PSD (refer 1.d)	Note Note Note	

	e) CoS (ST) advised street awnings can connect directly to road kerb. Maximum 3 no. connections per site frontage. Total 1 in 20yr flow rate from all kerb connections must not exceed 25L/s. • Maximum 3 no. awning connections to Council kerb on Pitt St frontage • Maximum 3 no. awning connections to Council kerb on Park St frontage • Maximum 3 no. awning connections to Council kerb on Castlereagh St frontage • Council recommendation to minimise awning connections where feasible	NB/WB BP	

Next meeting – Not proposed

A.6. PRELIMINARY STORMWATER PLANS



PRELIMINARY

REV.	BY	DATE	DESCRIPTION	APPD.
A	WB	05.02.19	30% DESIGN DEVELOPMENT	WB

WORK IN PROGRESS

1:100 @ A1 0 1 2 3 4 5 m

A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale from this drawing.

CLIENT: NSW GOVERNMENT | sydney METRO

ISDP: OXFORD | CPB CONTRACTORS

SERVICE PROVIDERS: Foster + Partners | COX | CJ ARMS | BATESSMART | LCI | aurecon | TTW

DRAWN	JP
DESIGNED	WB
DRG CHECK	WB
DESIGN CHECK	WB
APPROVED	WB

DRG No. SMCSWSPS-CJA-OSS-BS-DWG-200100

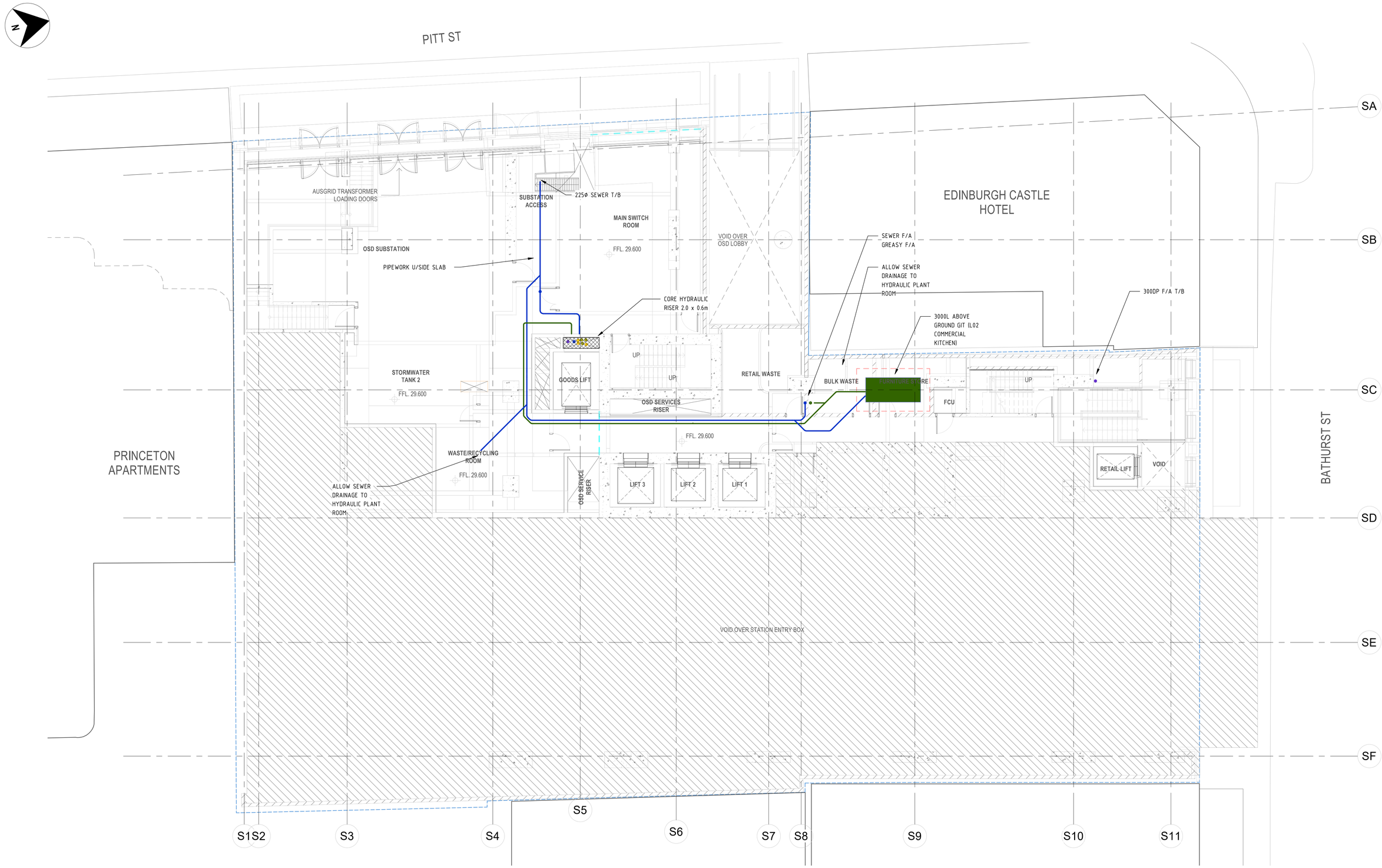
SYDNEY METRO CITY & SOUTHWEST

SEWER & ROOF DRAINAGE - GROUND FLOOR PITT ST

STATUS: ISSUED FOR REVIEW | SHEET OF | ©

METRO DRG No. | REV. A

100mm AT FULL SIZE Plot Date & Time 05/02/2020 16:30:28



PRELIMINARY

REV.	BY	DATE	DESCRIPTION	APPD.
A	WB	05.02.19	30% DESIGN DEVELOPMENT	WB

WORK IN PROGRESS

1:100 @ A1 0 1 2 3 4 5 m

A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale from this drawing.

CLIENT: NSW GOVERNMENT | sydney METRO

ISDP: OXFORD | CPB CONTRACTORS

SERVICE PROVIDERS: Foster + Partners | COX | CJ ARMS | BATESSMART. | LCI | aurecon | TTW

DRAWN	JP
DESIGNED	WB
DRG CHECK	WB
DESIGN CHECK	WB
APPROVED	WB

DRG No. SMCSWSPS-CJA-OSS-BS-DWG-200200

SYDNEY METRO CITY & SOUTHWEST

SEWER & ROOF DRAINAGE - LEVEL 01

STATUS: ISSUED FOR REVIEW | SHEET OF | ©

METRO DRG No. | REV. A

100mm AT FULL SIZE Plot Date & Time 05/02/2020 16:30:30

PITT ST

TERRACE DRAINAGE OUTLET SIZE AND LOCATION SUBJECT TO ARCHITECTURAL REQUIREMENTS

ROOF DRAINAGE (WITH SLOTS) FROM TERRACE

TERRACE DRAINAGE OUTLET SIZE AND LOCATION SUBJECT TO ARCHITECTURAL REQUIREMENTS

BALCONY

MEETING ROOM 1

RESIDENT LOUNGE AND CO-WORKING

VOID OVER ENTRY LOBBY

EDINBURGH CASTLE HOTEL

MEETING ROOM 2

PIPEWORK U/SIDE SLAB

LEASING OFFICE

CORE HYDRAULIC RISER 2.0 x 0.6m

BLDG MANAGERS OFFICE

300DP F/A T/B

UP

GOODS LIFT

DP U/SIDE SLAB

GREASY T/B
OSD PLANT SEWER T/B
GREASY VENT T/A
SEWER VENT T/A

OSD SERVICES RISER

CORRIDOR

PRINCETON APARTMENTS

STORE

BIN CHUTE

OSD SERVICE RISER

LIFT 3

LIFT 2

LIFT 1

RETAIL LIFT

VOID

BATHURST ST

FEMALE WC

SEWER TO CLEANERS SINK

RESTAURANT

CLEANER

LOCATION OF SEWER AND GREASY DRAINAGE TO LEVEL 02 RESTURANT INDICATIVE ONLY. SUBJECT TO FINAL TENANCY LAYOUT

GAMES ROOM

KITCHEN STORE ROOM/ BOH

MALE WC

STORE

VOID OVER STATION ENTRY

GREASY AND SEWER DRAINAGE LOCATED ABOVE LEVEL 03 STATION AREA SEPARATED BY SUSPENDED SLAB UNDERNEATH

KITCHEN

SEWER AND GREASY SERVICES TO RESTURANT

CINEMA

SEWER AND GREASY SERVICES TO BOH/ AMENITIES

SA SB SC SD SE SF

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10

PRELIMINARY

REV.	BY	DATE	DESCRIPTION	APPD.
A	WB	05.02.19	SSW DESIGN DEVELOPMENT	WB

WORK IN PROGRESS

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A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale from this drawing.

CLIENT: NSW GOVERNMENT | sydney METRO

ISDP: OXFORD | CPB CONTRACTORS

SERVICE PROVIDERS: Foster + Partners | COX | CJ ARMS | BATESSMART | LCI | aurecon | TTW

DRAWN JP
DESIGNED WB
DRG CHECK WB
DESIGN CHECK WB
APPROVED WB

DRG No. SMCSWSPS-CJA-OSS-BS-DWG-200300

SYDNEY METRO CITY & SOUTHWEST

SEWER & ROOF DRAINAGE - LEVEL 02

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100mm A1 FULL SIZE Plot Date & Time 05/02/2020 16:30:32

PITT ST

SKYLIGHT TO BALCONY BELOW

EDINBURGH CASTLE HOTEL

PRINCETON APARTMENTS

BATHURST ST

CORE HYDRAULIC RISER 2.0 x 0.6m TO TRANSFER TO AT H/LEVEL

HYDRANT

OSD EGRESS STAIR

GOODS LIFT

UP

OSD SERVICES RISER

LIFT LOBBY

FFL. 39.600

24 CLASS 2 BIKE SPACES VISITOR

FFL. 39.600

BICYCLE REPAIR ROOM

SEWER AND GREASY VENT F/B

UP

300DP F/A T/B

300DP FOR FIRE TANK OVERFLOW F/A

BIN CHUTE

OSD SERVICE RISER

LIFT 3

LIFT 2

LIFT 1

WASH ROOM

RESIDENT STORAGE AND BICYCLE PARKING
181 CLASS 1 BIKE PARKING LOCKERS
157 STORAGE LOCKERS

FFL. 39.600

300DP F/A

300D/P U/SIDE SLAB

SA

SB

SC

SD

SE

SF

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11

PRELIMINARY

Plot Date & Time 05/02/2020 16:30:34

100mm AT FULL SIZE

WORK IN PROGRESS

REV.	BY	DATE	DESCRIPTION	APPD.
A	WB	05.02.19	30% DESIGN DEVELOPMENT	WB

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A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale from this drawing.

CLIENT

NSW GOVERNMENT | sydney METRO

ISDP

OXFORD | CPB CONTRACTORS

SERVICE PROVIDERS

Foster + Partners | COX | CJ ARMS | BATESSMART. | LCI | aurecon | TTW | Tonkin Zulaikha Greer Consulting

DRAWN	JP
DESIGNED	WB
DRG CHECK	WB
DESIGN CHECK	WB
APPROVED	WB

DRG No. SMCSWSPS-CJA-OSS-BS-DWG-200400

SYDNEY METRO CITY & SOUTHWEST

SEWER & ROOF DRAINAGE - LEVEL 03

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METRO DRG No. | REV. A

PITT ST

EDINBURGH CASTLE HOTEL

BATHURST ST

PRINCETON APARTMENTS

STORMWATER TREATMENT TANK 3 x 3 x 2m HIGH, SITS ON 0.4m PLINTH

COMBINED RW/OSD TANK
COMBINED STAINLESS STEEL DETENTION TANK COMPLETE WITH EMERGENCY OVERFLOW, ORIFICE PLATE AND TRASH SCREEN COMPRISING OF
32kL DETENTION TANK
20kL RAINWATER TANK

OSD PLANTROOM

OSD TANK STORMWATER DRAINAGE PIPE TO RUN AT LOW LEVEL ABOVE SLAB

OSD TANK STORMWATER DRAINAGE PIPE DROP U/SIDE SLAB

CORE HYDRAULIC RISER 2.0 x 0.6m TRANSFER U/SIDE SLAB

HYDRANT

GOODS LIFT

UP

OSD SERVICES RISER

CLEANER'S STORE

BIN CHUTE

OSD SERVICE RISER

LIFT 3

LIFT 2

LIFT 1

BUILDING MAINTENANCE ROOM

BOH CORRIDOR
FFL. 43.100

OSD PLANTROOM
FFL. 43.100

CAPPED 300DP FOR FIRE TANK OVERFLOW

OSD TANK STORMWATER DRAINAGE PIPE T/B

OSD TANK STORMWATER DRAINAGE PIPE U/SIDE SLAB

SA SB SC SE SF

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11

PRELIMINARY

Plot Date & Time 05/02/2020 16:30:35

100mm AT FULL SIZE

REV.	BY	DATE	DESCRIPTION	APPD.
A	WB	05.02.19	30% DESIGN DEVELOPMENT	WB

WORK IN PROGRESS

1:100 @ A1 0 1 2 3 4 5 m

A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | This sheet may be prepared using colour and may be incomplete if copied

NOTE: Do not scale from this drawing.

CLIENT: NSW GOVERNMENT | sydney METRO

ISDP: OXFORD | CPB CONTRACTORS

SERVICE PROVIDERS: Foster + Partners | COX | CJ ARMS | BATESSMART. | LCI | aurecon | TTW

DRAWN	JP
DESIGNED	WB
DRG CHECK	WB
DESIGN CHECK	WB
APPROVED	WB

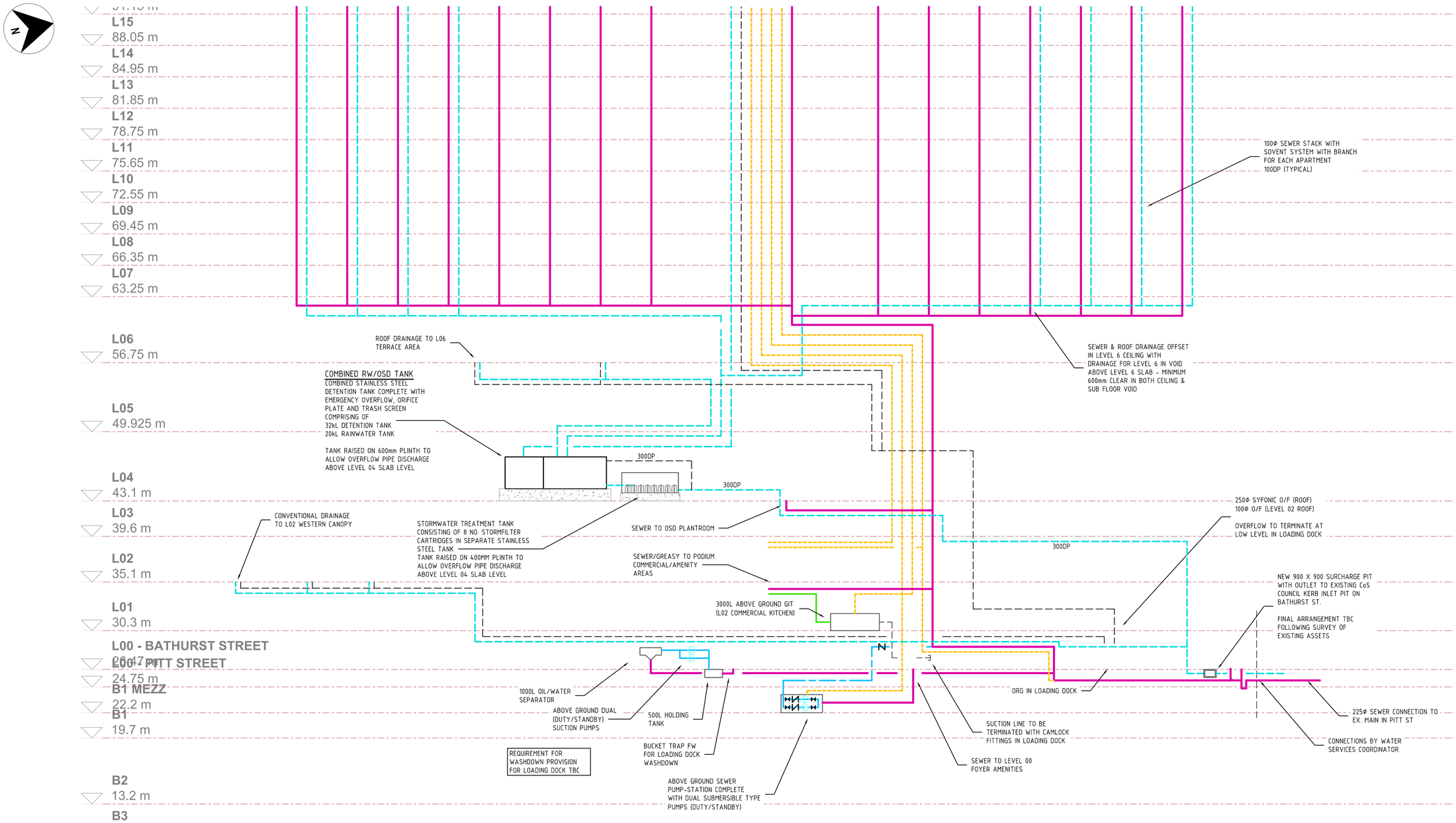
DRG No. SMCSWSPS-CJA-OSS-BS-DWG-200500

SYDNEY METRO CITY & SOUTHWEST

SEWER & ROOF DRAINAGE - LEVEL 04

STATUS: ISSUED FOR REVIEW | SHEET OF | ©

METRO DRG No. | REV. A



FOR INFORMATION

REV.	BY	DATE	DESCRIPTION	APPD.
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1:100 @ A1 0 1 2 3 4 5 m

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NOTE: Do not scale from this drawing.

CLIENT: NSW GOVERNMENT | sydney METRO

ISDP: OXFORD | CPB CONTRACTORS

SERVICE PROVIDERS: Foster + Partners | COX | CJ ARMS | BATESSMART | LCI | aurecon | TTW

DRAWN JP
DESIGNED WB
DRG CHECK WB
DESIGN CHECK WB
APPROVED WB

DRG No. SMCSWSPS-CJA-OSS-BS-DWG-100000

SYDNEY METRO CITY & SOUTHWEST

SCHEMATICS - SEWER AND ROOF DRAINAGE PAGE 01

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METRO DRG No. | REV. A

100mm AT FULL SIZE Plot Date & Time 05/02/2020 17:29:22