Macquarie

Sydney Metro Martin Place integrated station development

North Tower, SSD DA Stage 2: Stormwater Management & Flooding Report

CSWSMP-MAC-SMN-CE-REP-999901

Revision 01 | 23 August 2018

Job number 247838

Arup
Arup Pty Ltd ABN 18 000 966 165

Arup
Level 10 201 Kent Street
PO Box 76 Millers Point
Sydney 2000
Australia
www.arup.com

ARUP

Contents

1 Introduction

This report supports a State Significant Development (SSD) Development Application (DA) (SSD DA) submitted to the Minister for Planning (Minister) pursuant to Part 4 of *the Environmental Planning and Assessment Act 1979* (EP&A Act) on behalf of Macquarie Corporate Holdings Pty Limited (Macquarie), who is seeking to create a world class transport and employment precinct at Martin Place, Sydney.

The SSD DA seeks approval for the detailed design and construction of the **North Site** Over Station Development (OSD), located above and integrated with Metro Martin Place station (part of the NSW Government's approved Sydney Metro project). The northern entrance to Metro Martin Place station will front Hunter Street, Elizabeth Street and Castlereagh Street, with the North Site OSD situated above.

This application follows the approval granted by the Minister for a Concept Proposal (otherwise known as a Stage 1 SSD DA) for two OSD commercial towers above the northern and southern entrances of Metro Martin Place station (SSD 17_8351). The approved Concept Proposal establishes building envelopes, land uses, Gross Floor Areas (GFA) and Design Guidelines with which the detailed design (otherwise known as a Stage 2 SSD DA) must be consistent.

This application does not seek approval for elements of the Metro Martin Place Precinct (the Precinct) which relate to the Sydney Metro City and Southwest project, which is subject to a separate Critical State Significant Infrastructure (CSSI) approval. These include:

- Demolition of buildings on the North Site and South Site;
- Construction of rail infrastructure, including station platforms and concourse areas;
- Ground level public domain works; and
- Station related elements in the podium of the North Tower.

However, this application does seek approval for OSD areas in the approved Metro Martin Place station structure, above and below ground level, which are classified as SSD as they relate principally to the OSD. These components are within the Sydney Metro CSSI approved station building that will contain some OSD elements not already approved by the CSSI Approval. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.

This report provides technical content for stormwater management and flooding to support the SSDA. It sets out the strategy for the proposed development in the context of the existing site specific conditions and relevant City of Sydney Council planning requirements as described in the *Sydney Development Control Plan, 2012* (DCP) in addition to the relevant Metro Requirements.

This report covers:

- Flood risk management
- Stormwater drainage from the development including on site detention, WSUD and groundwater

Context

The New South Wales (NSW) Government is implementing Sydney's Rail Future (Transport for NSW, 2012), 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. The Sydney Metro network consists of Sydney Metro Northwest (Stage 1) and Sydney Metro City and Southwest (Stage 2).

Stage 2 of Sydney Metro entails the construction and operation of a new metro rail line from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham and onto Bankstown through the conversion of the existing line to metro standards. The project also involves the delivery of seven (7) new metro stations, including Martin Place.

This step-change piece of public transport infrastructure once complete will have the capacity for 30 trains an hour (one every two minutes) through the CBD in each direction catering for an extra 100,000 customers per hour across the Sydney CBD rail lines.

On 9 January 2017 the Minister approved the Stage 2 (Chatswood to Sydenham) Sydney Metro application lodged by Transport for NSW (TfNSW) as a Critical State Significant Infrastructure (CSSI) project (reference SSI 15_7400). Work is well underway under this approval, including demolition of buildings at Martin Place.

The OSD development is subject to separate applications to be lodged under the relevant provisions of the EP&A Act. One approval is being sought for the North Site – this application – and one for the South Site via a separate application.

Site Description

The Metro Martin Place Precinct relates to the following properties (refer to Figure 1):

- 50 Martin Place, 9 – 19 Elizabeth Street, 8 – 12 Castlereagh Street, 5 Elizabeth Street, 7 Elizabeth Street, and 55 Hunter Street (North Site);
- 39 – 49 Martin Place (South Site); and
- Martin Place (that part bound by Elizabeth Street and Castlereagh Street).

This application relates **only to the North Site**, being the city block bounded by Hunter Street, Castlereagh Street, Elizabeth Street, and Martin Place (refer to Figure 1).
The South Site (39 – 49 Martin Place) is the subject of a separate Stage 2 SSD DA.

Figure 1: Aerial Photo of the North and South Site of the Metro Martin Place Precinct

Background

Sydney Metro Stage 2 Approval (SSI 15_7400)

The Sydney Metro CSSI Approval approves the demolition of existing buildings at Martin Place, excavation and construction of the new station (above and below ground) along with construction of below and above ground structural and other components of the future OSD, although the fit-out and use of such areas are the subject of separate development approval processes.

On 22 March 2018, the Minister approved Modification 3 to the Sydney Metro CSSI Approval. This enabled the inclusion of Macquarie-owned land at 50 Martin Place and 9-19 Elizabeth Street within Metro Martin Place station, and other associated changes (including retention of the opening to the existing MLC pedestrian link).

Concept Proposal (SSD 17_8351)

On 22 March 2018, the Minister approved a Concept Proposal (SSD 17_8351) relating to Metro Martin Place Precinct. The Concept Proposal establishes the planning and development framework through which to assess the detailed Stage 2 SSD DAs.

Specifically, the Concept Proposal encompassed:

- Building envelopes for OSD towers on the North Site and South Site comprising:
  - 40+ storey building on the North Site (see Figure 2)
  - 28+ storey building on the South Site
  - Concept details to integrate the North Site with the existing and retained 50 Martin Place building (the former Government Savings Bank of NSW)
- Predominantly commercial land uses on both sites, comprising office, business and retail premises
- A maximum total GFA of 125,437m^2 across both sites
- Design Guidelines to guide the built form and design of the future development
- A framework for achieving design excellence
- Strategies for utilities and services provision, managing drainage and flooding, and achieving ecological sustainable development
- Conceptual OSD areas in the approved Metro Martin Place Metro station structure, above and below ground level[1]

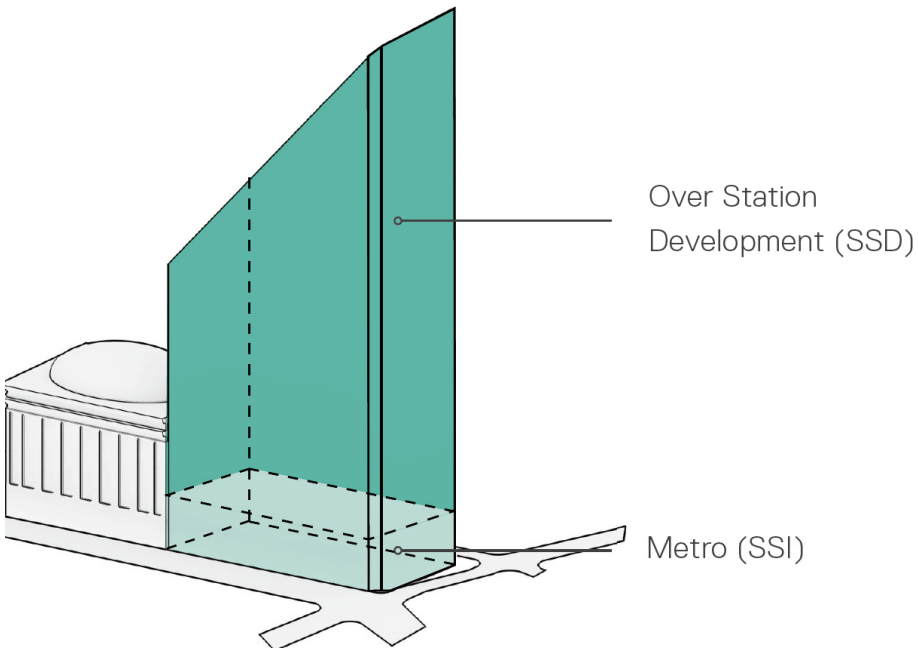


Figure 2: North Site Approved OSD Building Envelope

[1] *Refers to those components within the Metro CSSI approved station envelope that will contain some OSD elements not approved in the CSSI consent. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.*

Planning Proposal (PP_2017_SYDNE_007_00) - Amendment to Sydney LEP 2012

The Planning Proposal (PP_2017_SYDNE_007_00) sought to amend the development standards applying to the Metro Martin Place Precinct through the inclusion of a site-specific provision in the Sydney Local Environmental Plan (LEP) 2012. This site-specific provision reduced the portion of the **South Site** that was subject to a 55 metre height limit from 25 metres from the boundary to Martin Place, to 8 metres, and applies the Hyde Park North Sun Access Plane to the remainder of the South Site, forming the height limit of the tower. It also permits a revised FSR of 22:1 on the South Site and 18.5:1 on the North Site. These amendments were gazetted within Sydney LEP 2012 (Amendment No. 46) on 8 June 2018 and reflect the new planning controls applying to the Precinct.

Overview of the Proposed Development

The subject application seeks approval for the detailed design, construction and operation of the North Tower. The proposal has been designed as a fully integrated station and OSD project that intends to be built and delivered as one development, in-time for the opening of Sydney Metro City and Southwest in 2024. This application seeks consent for the following:

- The design, construction and operation of a new 39 storey commercial OSD tower (plus rooftop plant) within the approved building envelope for the North Site, including office space and retail tenancies.
- Physical connections between the OSD podium and the existing 50 Martin Place building, to enable the use of the North Site as one integrated building.
- Vehicle loading areas within the basement levels.
- Extension and augmentation of physical infrastructure / utilities as required.
- Detailed design and delivery of 'interface areas' within both the approved station and Concept Proposal envelope that contain OSD-exclusive elements, such as end of trip facilities, office entries, office space and retail areas not associated with the rail infrastructure.

Planning Approvals Strategy

The *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD) identifies development which is declared to be State Significant. Under Schedule 1 and Clause 19(2) of SEPP SRD, development within a railway corridor or associated with railway infrastructure that has a capital investment value of more than $30 million and involves commercial premises is declared to be State Significant Development (SSD) for the purposes of the EP&A Act.

The proposed development (involving commercial development that is both located within a rail corridor and associated with rail infrastructure) is therefore SSD.
Pursuant to Section 4.22 of the EP&A Act a Concept DA may be made setting out concept proposals for the development of a site (including setting out detailed proposals for the first stage of development), and for which detailed proposals for the site are to be the subject of

subsequent DAs. This SSD DA represents a detailed proposal and follows the approval of a Concept Proposal on the site under Section 4.22 of the EP&A Act.

Submitted separately to this SSD DA is a SSD DA for the South Site (Stage 2 South Site SSD DA). A Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA) has also been submitted that has the effect of aligning the approved South Site envelope with the new planning controls established for the South Site (achieved through the site specific amendment to the Sydney LEP 2012).

Figure 3 below is a diagrammatic representation of the suite of key planning applications undertaken or proposed by Macquarie and their relationship to the subject application (the subject of this report).

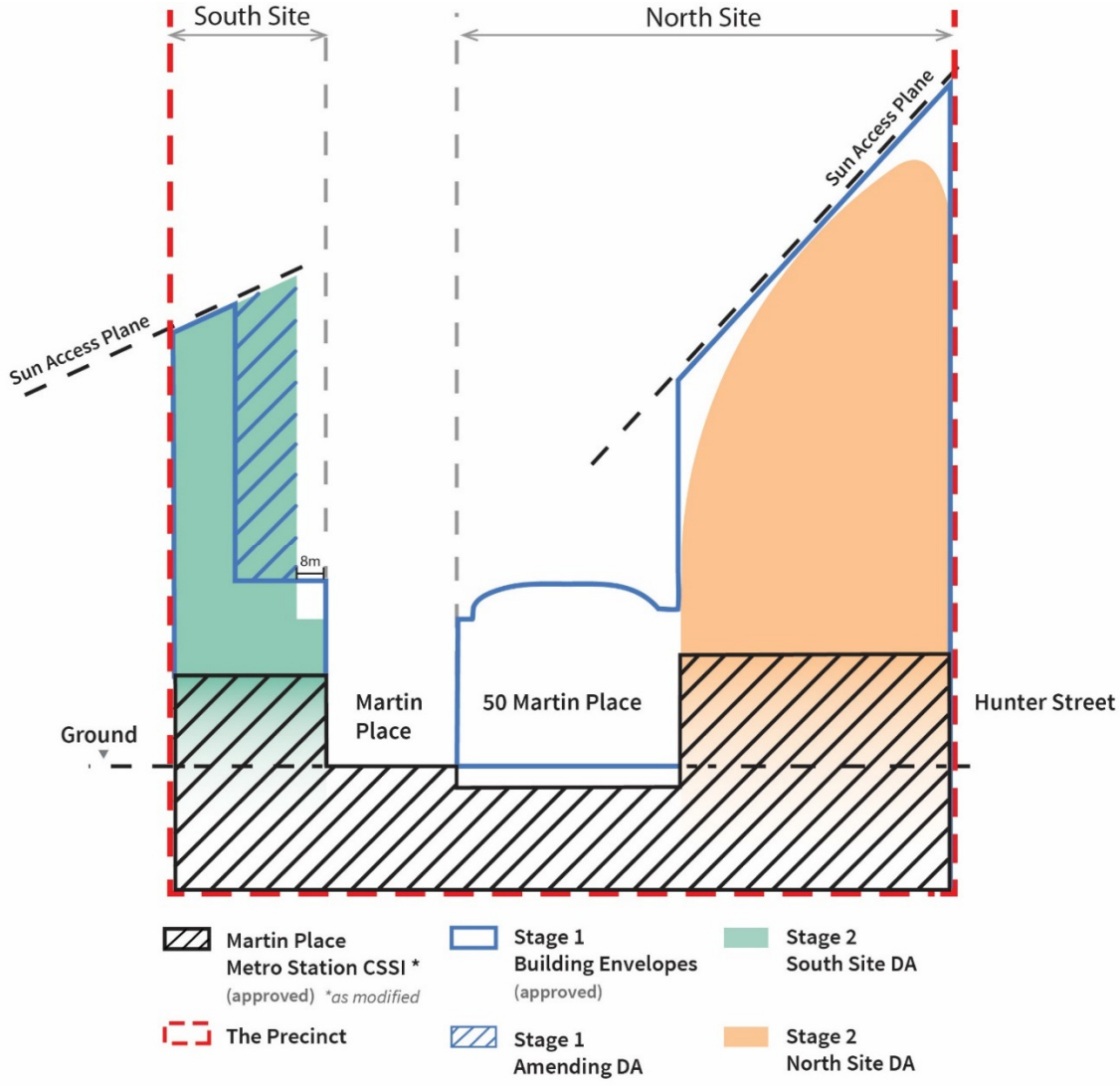


Figure 3: Relationship of key planning applications to the Stage 2 North Site DA (this application)

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

The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the EP&A Regulation 2000. Provide these as part of the EIS rather than as separate documents.

In addition, the EIS must include the following:

- Flood assessment / stormwater management plan (where relevant).

Furthermore, Condition B16 of the Development consent, Section 4.38 of the Environmental Planning and Assessment Act 1979, states:

- B16. Future Development Application(s) shall include a Flood Impact Assessment report.

2 Executive Summary

This report covers:

- Flood risk management
- Stormwater drainage from the development including on site detention, WSUD and groundwater

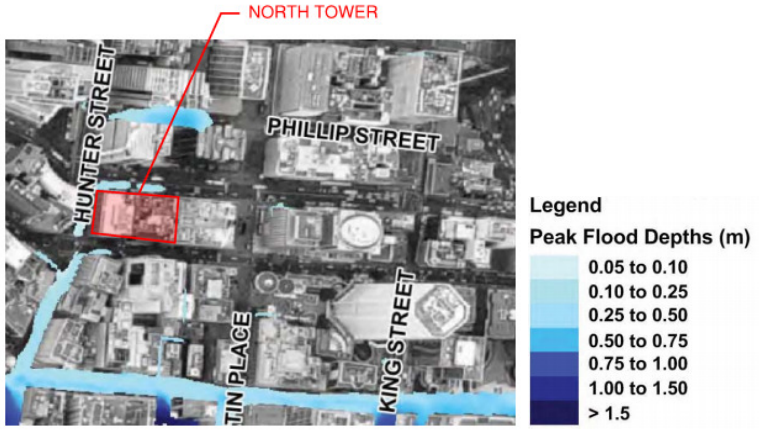
A summary of these issues and the proposed engineering responses are listed Table 1

Table 1: Summary of stormwater and flooding issues and proposed outcomes

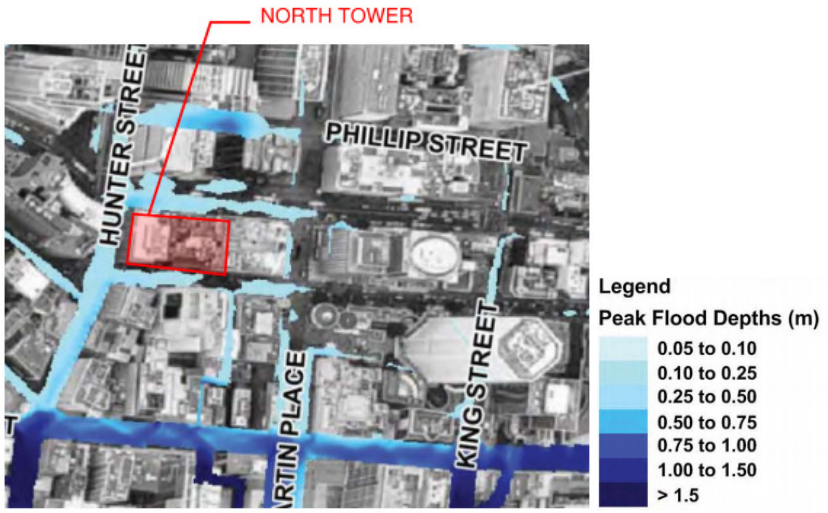
Item	Summary
Flood planning requirements & Flood risk management	Flood modelling has been completed to determine flood levels in accordance with flood planning levels for the site are in accordance with the higher of *Interim Floodplain Management Policy* (City of Sydney, May 2014) and Sydney Metro 'System Requirements'. Flooding modelling suggests there are no significant impacts to overland flow, flooding or stormwater management.
Stormwater drainage, OSD and WSUD	Stormwater from the development will be discharged into the existing Sydney Water infrastructure surrounding the site. Current investigations suggest existing infrastructure will not be altered by the development, with connections made to existing pits along the street. Sydney Water/City of Sydney require on site detention for the site, which has been accommodated onsite with OSD tanks within the buildings. City of Sydney require all new developments to include WSUD measures to reduce to prescibed water quality targets. Currently the North Tower development does not meet this requirement. Discussion with council needs to be held about this particular non-conformance to City of Sydney standards on pollutant removal.

3 Existing Flooding

The City of Sydney "*City Area Catchment Floodplain Risk Management Study, Final Draft, May 2016"* provides information and flood maps which indicate that some areas of the proposed development site are impacted by flooding. This is shown in Figure 4:



1 in 100yr flood



Probable Maximum Flood (PMF)

Figure 4: Existing flood extents and depths (greater depth indicated by deeper shades of blue) during both the 100yr and PMF flood (excerpt from City Area Catchment Flood Study, October 2014)

As shown on the excerpt, generally flooding is isolated to Hunter Street with some minor flooding (generally isolated to the road corridor) along both Elizabeth Street and Castlereagh Street surrounding the proposed North Tower.

Noting this, TUFLOW modelling was completed for the specific site, with the process and results discussed in Section 3.2, and have been used for setting threshold levels for the proposed development.

3.1 Flood Planning Requirements

Flood planning requirements for the North Tower are as follows, in line with both the City of Sydney Interim Floodplain Management Policy requirements:

- For all entrances/ accesses into the North Tower (without access to underground levels), the requirement that dictates levels is the City of Sydney Interim Floodplain Management Policy 'Industrial and Commercial'- Business and Retail Flood Level. This policy requires the threshold level to be at the 1:100yr flood level or higher. These floors must not have any connections to Metro Martin Place station (louvers, doors or otherwise).
- For other entrances/ access with access to underground levels the higher of 1:100yr flood level + 0.5m or Probable Maximum Flood (PMF) levels (City of Sydney Interim Floodplain Management Policy 'Below ground garage') should be used.
- All of the above requirements have included consideration of the effect of 'worse case' climate change (where applicable).

Note that all openings and entrances to Metro Martin Place station (lifts, basement entrances, pedestrian entrances, louvers, grates etc.) have been designed in accordance with the Sydney Metro Scope of Work and Technical Criteria (SWTC) and requirements of the approved Sydney Metro Environmental Impact Statement (EIS), however details are not included in this report as all station design is addressed under separate CSSI approval.

3.1.1 Freeboard Criteria at North Tower Entrances

Freeboard for all North Tower Entrances (with no access to underground levels) in line with other commercial buildings within City of Sydney's Local Government Area (LGA) must satisfy:

a) City of Sydney Interim Floodplain Management Policy

    a. 100yr Average Return Interval (ARI)

Freeboard for all North Tower Entrances (with access to underground levels) in line with other commercial buildings within City of Sydney's LGA must satisfy:

a) City of Sydney Interim Floodplain Management Policy (must comply with both):

    a. PMF

    b. 100 ARI + 0.5m

3.1.2 Climate Change

The potential impacts of climate change are discussed in City of Sydney's 'City Area Catchment Flood Study, October 2014' with respect to both rainfall intensity increases and rising sea levels. In the worst case scenario for rainfall intensity (30% increase, no sea level rise), the increase of flood levels is at a maximum 0.1m along Hunter Street compared to the existing case. Refer to Figure 5 to observe predicted increases in flood levels for this scenario.

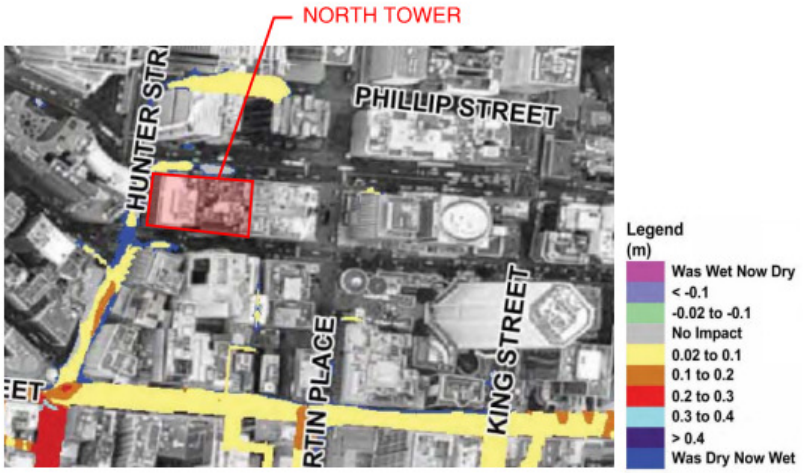


Figure 5: Climate Change Impacts, excerpt from City Area Catchment Flood Study

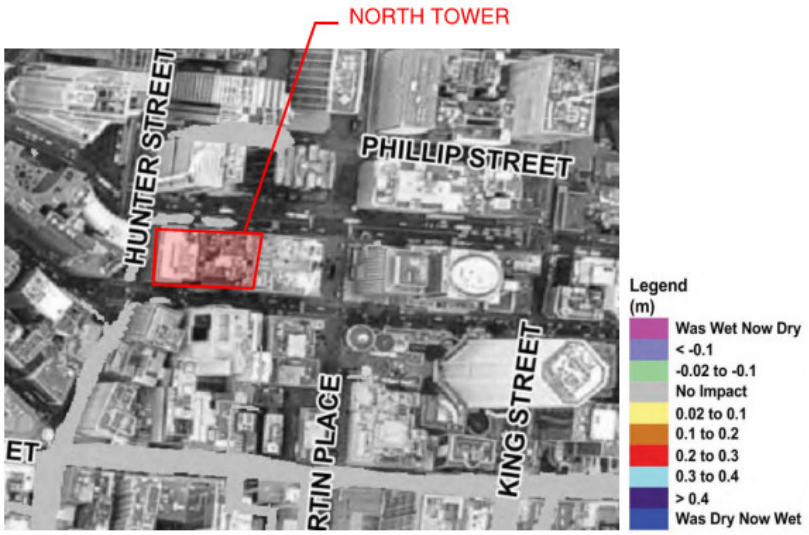


Figure 6: Sea Level Rise, excerpt from City Area Catchment Flood Study

The flood study also suggests that the proposed site will not be impacted by an increase in sea level rise, which is likely due to the elevation of this development relative to sea level.

3.2 Flood Modelling

Flood modelling has been undertaken to determine appropriate flood planning levels and to demonstrate the likely impact on existing flooding from the proposed development. The City of Sydney has provided the City Area Catchment Flood Model[3] to undertake this assessment. Flood modelling undertaken considers the impact of the integrated development including the North Tower and Metro Martin Place station.

This SSDA submission does not consider the specific impacts of Metro Martin Place station which are covered under separate CSSI approval, however are referenced in this report for context.

[3] City of Sydney Catchment Flood Model (Sydney Light Rail, Stage 3, October 2016). This model was provided by council to allow Arup to complete flood modelling; it incorporated changes made to flooding from the Sydney Light Rail development.

A two-step process has been undertaken to assess flood impacts as a result of the proposed development (notably the re-grading of footpaths and level changes around the north-east corner of the proposed tower completed as part of the separate CSSI approval):

> **Surveyed existing case – 'base case':** The detailed survey (NWRLSRT-RPS-SMP-SR-DWG-000041_MARTIN_PLACE-A) of the existing site has been incorporated into the supplied TUFLOW model to provide a more detailed baseline to assess existing flood impacts on the site and inform flood planning levels. The survey included road kerbs, gutters and building footprints. The model has been run to establish the base case scenario.
>
> **Proposed case:** The changes listed above have been incorporated into the TUFLOW model to establish the 'proposed case' and determine any flood impacts as a result of the proposed works.

The following design flood events were investigated for this flood assessment:

- 100 year ARI + Climate Change Scenario (30% rainfall increase); and
- PMF

The events used for modelling were both 15 and 30 minute storms, as they are critical for this area.

The following elements of the proposed development have the potential to impact the floodplain:

- Change of footpath grades (CSSI works, where applicable)
- Change to building façade lines and footpath grading within the property boundary.
- Introduction of kerb extension at Martin Place along Castlereagh Street and new drainage to address the introduced sag (with potential kerb extension in front of proposed bicycle lifts on Castlereagh Street subject to further development and discussion with the City of Sydney and the TfNSW Central Business District (CBD) coordination office) (CSSI works, where applicable).

Flood modelling results indicate negligible isolated increases in peak flood levels locally. The increase in peak flood levels does not exceed 0.05m. Changes in flooding characteristics are isolated to the road corridor and largely due to works associated with Metro Martin Place station. These works include the kerb extension proposed along Martin Place and adjusted levels of Martin Place due to the proposed regrading of Castlereagh Street footpath along Martin Place Precinct to meet the City of Sydney Council's maximum cross fall requirement. Refer to Appendix B for flood mapping and afflux maps for both flood events.

3.3 Flood Level Results

The attached marked-up sketches (Appendix D) show the location of all entrances surrounding the proposed development, the various flood planning level criteria that apply and whether they are currently achieved.

4 Stormwater Drainage

4.1 Existing Drainage

The existing site is occupied by Martin Place, buildings of varying heights and basement car parks. Information available shows that the existing building connections to the stormwater network are along Castlereagh Street, Hunter Street and Elizabeth Street.

Figure 7 illustrates the stormwater infrastructure in the streets surrounding the development site from the Dial Before You Dig (DBYD) request, which is owned by either Sydney Water or the City of Sydney. This figure shows that there are existing stormwater pits and pipes on Castlereagh Street, Hunter Street and Elizabeth Street.

Figure 7: Existing stormwater around the site (City of Sydney 2017)

According to the information provided from Dial Before You Dig (DBYD) logs and surveys, there are no known Sydney Water or City of Sydney drainage pipes below the building footprint. It is likely however, that there are existing development drains serving the existing buildings and connecting into the surrounding streets. This will require further investigation which may only become possible once demolition of the site commences.

4.2 Proposed Development Drainage

The proposed development involves the construction of a multi-storey OSD building which will occupy the majority of the combined existing properties. The North Tower will have roof and canopy drainage systems which will collect and convey water through the building and into a rainwater harvesting tank, and an onsite detention tank. Any bypass will fall onto the canopies surrounding the tower and drain via downpipes to the street kerb.

Any overflow from the rainwater tank will drain by gravity down to the Sydney Water drainage network at existing connections along Castlereagh Street. This approach is proposed because Castlereagh Street is the lowest of the streets surrounding both towers and provides the best opportunity for a gravity connection from the basement. No works are proposed to be undertaken on the Bennelong heritage stormwater oviform.

The design of the proposed off-site connections into the Sydney Water system will be undertaken in the future stages of design development in conjunction with a Sydney Water Services Coordinator and in consultation with the City of Sydney. This will be driven by the internal hydraulic design and reticulation, which will establish the proposed pipe invert levels within the basement.

It is currently assumed that all existing building in-ground stormwater (except for 9-19 & 7 Elizabeth Street buildings) drains out to the lower Castlereagh Street. With the proposed North Tower having on site detention, even with the increased area draining to Castlereagh Street (area on 9-19 & 7 Elizabeth Street) the flows compared to the existing condition will be less in all storms up to the 100yr ARI event. Flows will also be concentrated to one connection for the North Tower, which will lead to a local increase in flows within the stormwater network although any change to flooding would be nothing to negligible.

4.3 On-Site Detention

Roof drainage for the proposed development in excess of that stored by the rainwater harvesting tanks flows in a detention tank within the extents of the building, and discharged to the street drainage system. Discharge from the detention tank will be directed to Sydney Water stormwater infrastructure through an appropriately sized pipe designed in accordance with Sydney Water requirements. Correspondence from Sydney Water advises they require the North Tower to meet these parameters. The email correspondence from Sydney Water is included in Appendix C.

- On Site Detention: 16 cubic meters for every 1000 square meters of site area
- Permissible Site Discharge: 36 L/s for every 1000 square meters of site area

Due to the shape of the façade there are bypass flows not directed to on-site detention tanks internal into the building. Storages will be sized (using DRAINS and AR&R 1987) to accommodate these bypass flows while still meeting the Permissible Site Discharge (PSD) for events up to the 100yr ARI event.

4.4 Water Quality

4.4.1 Criteria

The City of Sydney DCP provides targets for large re-developments to incorporate Water Sensitive Urban Design (WSUD) measures and satisfy water quality targets. The DCP also makes provision for a merit-based approach where water quality targets are difficult to attain.

City of Sydney Council requirements have been assumed to apply to the North Tower. In addition, as part of the development there is a desire to apply for Green Star credit for the Emi-05- Stormwater criteria.

The various water quality targets applicable to this development are summarised in .

Table 2: Stormwater pollutant reduction targets applicable to the development

	City of Sydney	SWTC	Green Star Reductions
Stormwater pollutant	***Large redevelopments***	***Station (Underground station with oversight development over)***	***(Target B)***
Gross pollutants	90%	No specific requirement	90%
Suspended solids (TSS)	85%	No specific requirement	80%
Phosphorus (TP)	60%	No specific requirement	60%
Nitrogen (TN)	45%	No specific requirement	45%
Oil & Grease	-	No specific requirement	90%

With regards to gross pollutants, oil and grease do not normally occur on rooftop spaces, hence these elements should be excluded from pollutant reduction calculations associated for the tower developments. This is consistent with previous rulings from the Green Buildings Council of Australia for similar projects.

4.4.2 Water Quality Management

As with the approach to stormwater drainage, the proposed strategy for water quality improvements has been tailored to the specific catchment areas of the site and the type of surface water runoff expected.

To assess the effectiveness of the tower water quality strategy, conceptual water quality modelling has been completed using industry standard software (MUSIC by eWater).

4.4.3 Water Quality Strategy

4.4.3.1 North Tower (Over Station Development)

Within the tower, the majority of collected rainwater from roofs is used by the OSD cooling towers. This rainwater is filtered using ionic exchange cartridges before entering the cooling towers to remove the majority of solids. The strategy is illustrated in Figure 8.

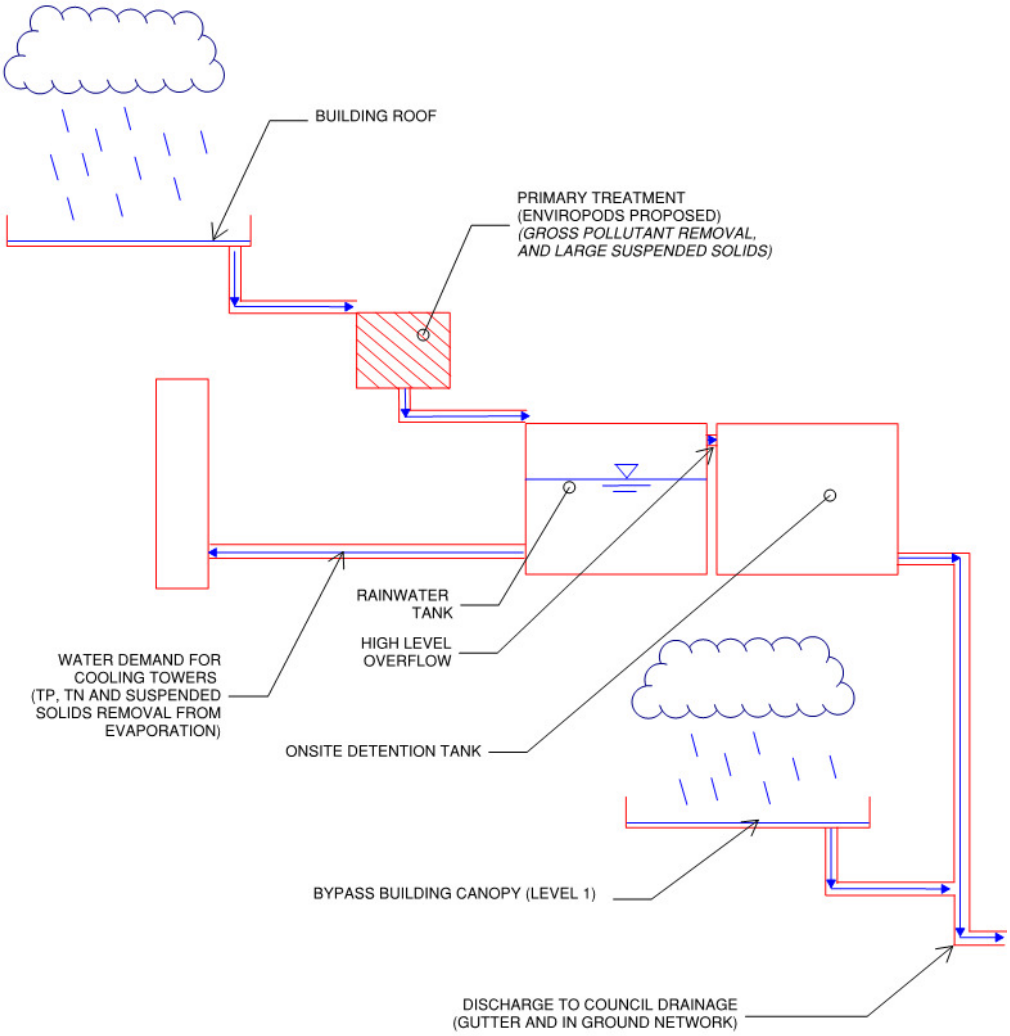


Figure 8: North Tower (Over Station Development) WSUD Line Diagram

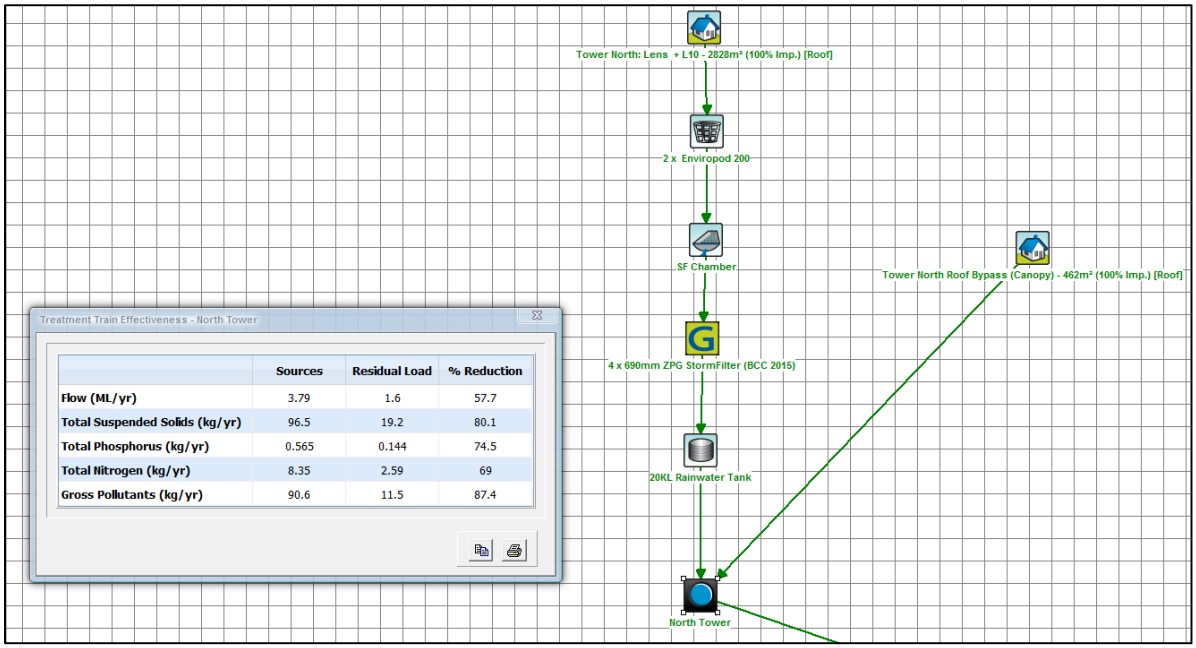
4.4.4 Footpaths

No WSUD is proposed for public domain areas in line with current City of Sydney practice for existing roads.

4.4.5 Performance

The MUSIC assessment demonstrates that the pollutant reduction targets in are achievable. Outputs from the modelling are illustrated in Figure 9.

Due to the shape of the North Tower façade, there is more bypass than a typical building with a flat roof and therefore the achieved TSS removal falls short of the 85% removal target. Further development of the tower during detailed design will look to capture and treat additional flows to meet the required treatment targets. Please note this discussion is to be held with the City of Sydney to seek dispensation for WSUD targets for this building if the design cannot accommodate collection of enough property catchment. In addition, due to the changes through detailed design there may be a requirement to change the treatment strategy and devices to meet the required targets.



North Tower (OSD)

Figure 9: MUSIC Results for North Tower

4.5 Erosion and Sediment Control

In order to maintain the quality of stormwater discharge from the site during the construction stage, an erosion and sediment control plan is to be prepared. Surface water management measures will be in accordance with the Landcom guidelines – Managing Urban Stormwater Runoff: Soils and Construction ("Blue Book") and the City of Sydney DCP.

Potential erosion and sediment control measures for the development may include, but are not limited to, the following:

- Settling basins/ sumps;
- Surface water collection systems, i.e. drains to collected constructed site runoff and convey flows to control and treatment systems;
- Shaker grid and wash down areas at vehicle entry points; and
- Sediment protection devices on existing and proposed inlet pits.

The sediment and erosion control plan will be further developed to align with staging of works.

5 Agency consultations

The Metro Martin Place team met with City of Sydney on 3 July 2018 to provide a brief on the upcoming SSDA stage 2 submission. The contents of this report were discussed and a technical memo was presented which outlined the approach taken in the design to address both City of Sydney and Sydney Metro flooding requirements for respective entrances to the site. City of Sydney requested the contents of the technical memo be incorporated in this report. Please refer Section 2 and Appendix D which are provided to address this request.

6 Conclusion

The North Tower design has been modelled against existing flood conditions in the Site area. The flood modelling identified minimal increases to modelled flood levels (<0.05m localised flood level increases) which are considered negligible and do not increase risk to the surrounding area.

Freeboard has been assessed at all North Tower entrances in accordance with criteria identified in the City of Sydney Interim Floodplain Management Policy. The design incorporates thresholds at or above the required level to eliminate flood risk.

Stormwater discharge into the Sydney Water network will be managed through incorporation of On-Site Detention in the design, with due consideration of WSUD, to Sydney Water's requirements.

Appendix A: Civil Drawings

METRO MARTIN PLACE

CIVIL PACKAGE
UPDATED GUARANTEED MAXIMUM PRICE (GMP)

CIVIL PACKAGE			
DRAWING NUMBER	SHEET NAME	SHEET	REVISION
CSWSMP-MAC-SMP-CE-DRG-009801	COVER SHEET & DRAWING LIST	SHEET 1 OF 1	E
CSWSMP-MAC-SMP-CE-DRG-009802	GENERAL NOTES - SHEET 1	SHEET 1 OF 2	E
CSWSMP-MAC-SMP-CE-DRG-009803	GENERAL NOTES - SHEET 2	SHEET 2 OF 2	E
CSWSMP-MAC-SMP-CE-DRG-308801	EXTERNAL UTILITY PLAN - ZONE 1	SHEET 1 OF 2	E
CSWSMP-MAC-SMP-CE-DRG-308802	EXTERNAL UTILITY PLAN - ZONE 2	SHEET 2 OF 2	E
CSWSMP-MAC-SMP-CE-DRG-308901	CIVIL WORKS AND DRAINAGE PLAN - ZONE 1	SHEET 1 OF 2	E
CSWSMP-MAC-SMP-CE-DRG-308902	CIVIL WORKS AND DRAINAGE PLAN - ZONE 2	SHEET 2 OF 2	E
CSWSMP-MAC-SMP-CE-DRG-309001	SEDIMENT & EROSION CONTROL PLAN	SHEET 1 OF 1	E
CSWSMP-MAC-SMP-CE-DRG-309002	SEDIMENT & EROSION CONTROL DETAILS	SHEET 1 OF 1	E

CITY OF SYDNEY STANDARD DRAWINGS

REFER CITY OF SYDNEY - SYDNEY STREET TECHNICAL SPECIFICATION
VERSION 4:JUNE 2016

KERB AND GUTTER
- 1.1.1 STONE KERB WITH CONCRETE GUTTER
- 1.1.12 STONE LINTEL
- 1.1.14 KERB STORMWATER OUTLETS
- 1.1.16 KERB AND GUTTER, ROAD RESTORATION ADJACENT TO KERB/GUTTER WORKS

GENERAL FOOTPATH
- 2.2.1 PEDESTRIAN RAMPS IN RELATION TO INTERSECTIONS
- 2.1.2 TYPICAL ONE PART PIT COVER
- 2.1.3 TYPICAL MULTI PART PIT COVER
- 2.1.4 SEWER & STORMWATER PIT INFILL COVER
- 2.1.5 SERVICE VALVE COVER DETAIL
- 2.1.6 SERVICE PIT EDGE DETAIL
- 2.1.7 STRUCTURAL SOIL
- 2.1.8 PROPERTY OWNERSHIP INTERFACE LOCATION

GRANITE PAVING
- 2.2.1 GENERAL ARRANGEMENT PLAN
- 2.2.3 CORNER ARRANGEMENT PLAN (TYPICAL)
- 2.2.4 JUNCTIONS
- 2.2.5 JOINTS
- 2.2.6 PEDESTRIAN RAMP (TYPICAL)
- 2.2.9 PAVING AROUND LIGHT POLES AND SMARTPOLES
- 2.2.10 VEHICULAR CROSSING
- 2.2.18 PREFERRED TREE PITS ARRANGEMENT
- 2.2.19 ALTERATIVE TREE PITS ARRANGEMENT

TGST
- 2.7.1 TYPICAL LAYOUT FOR NARROW FOOTPATH
- 2.7.2 TYPICAL LAYOUT FOR WIDE FOOTPATH
- 2.7.3 TYPICAL LAYOUT WITH SKEWED BUILDING LINE
- 2.7.4 MATERIALS AND INSTALLATION DETAILS

ROAD PAVEMENTS
- 3.1.1 TYPICAL PAVEMENT DETAILS
- 3.1.9 STONE SETT PAVEMENT

PAVEMENT RECONSTRUCTION
- 3.3.2 TYPICAL PERMANENT TRENCH RESTORATION - ASPHALT AND CONCRETE
- 3.3.4 TYPICAL PAVEMENT TRENCH RESTORATION

FIXTURES
- 4.1.1 FIXTURES, TYPICAL LAYOUTS - FIXTURE ALIGNMENTS

GENERAL
- 5.1.1 CONDUITS IN FOOTWAY AND CARRIAGEWAY
- 5.1.5 CONDUITS ARRANGEMENT AT POWER POLE
- 5.1.6 GENERAL LIGHTING PIT ARRANGEMENT

SIGNAGE
- 6.2.2 SIGN POST INSTALLATION

DRAINAGE

PITS & PIPES
- 7.1.2 STANDARD GULLY PIT WITH STONE INLET
- 7.1.7 STANDARD JUNCTION PIT
- 7.1.9 TYPICAL PIPE TRENCH BACKFILL
- 7.1.11 JUNCTION PIT WITH INFILL LID
- 7.1.18 BOUNDARY DOWNPIPE RODDING PIT
- 7.1.19 STANDARD STEP IRONS

ROADS AND MARITIME SPECIFICATIONS

- R11 STORMWATER DRAINAGE
- R15 KERBS AND GUTTERS
- R23 PLASTIC FLEXIBLE PIPES
- R33 TRENCH DRAINS
- R37 INTRA-PAVEMENT DRAINS
- R41 CLEARING AND GRUBBING
- R44 EARTHWORKS
- R53 CONCRETE (FOR GENERAL USE), MORTAR AND GROUT
- R71 UNBOUND AND MODIFIED PAVEMENT COURSE
- R101 COLD MILLING OF ROAD PAVEMENT MATERIALS
- R141 PAVEMENT MARKING

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE
F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	LM/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	LM/06.09.17	NS/06.09.17
B	SPACE PROOFED SET - DRAFT	NR/04.08.17	LM/04.08.17	NS/04.08.17

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: NOT TO SCALE

NSW GOVERNMENT | Transport for NSW

ARUP

ARUP

JOB # 247838 | ARUP CIVIL SERVICES

DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

METRO MARTIN PLACE
SYDNEY METRO
STATION
CIVIL SERVICES
COVER SHEET & DRAWING LIST

FILE No. | SHEET: 1 OF 1 | A0

STATUS: GATE 4 ©

DRG No. CSWSMP-MAC-SMP-CE-DRG-009801 | F | EDMS No.

DF 1149*801

Plot Date & Time 4/19/2018 2:47 PM

Plotted by JOSH.EATON

GENERAL

1. REFER TO COS SYDNEY STREET DESIGN CODE FOR STANDARD DETAILS AND ENGINEERING SPECIFICATION. ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THIS CODE UNO.
2. ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS IN mAHD UNO.
3. NO DIMENSIONS ARE TO BE OBTAINED BY SCALING FROM DRAWINGS.
4. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS.
5. IN PREPARING THESE DRAWINGS WE HAVE RELIED ON THE ACCURACY AND COMPLETENESS OF INFORMATION PROVIDED BY THE UTILITY PROVIDERS AND SURVEYORS REGARDING ONSITE LOCATION OF ASSETS. WE ACCEPT NO LIABILITY FOR ANY ERROR OR OMISSION IN THESE DRAWINGS TO THE EXTENT THE SAME RESULTS FROM ERROR OR EMISSION IN THE INFORMATION PROVIDED.
6. ANY DISCREPANCIES OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE SUPERINTENDENT PRIOR TO PROCEEDING WITH THE WORKS.
7. ALL WORKS TO BE IN ACCORDANCE RELEVANT STANDARDS UNLESS NOTES OTHERWISE.

   RELEVANT STANDARDS INCLUDE:
   - CoS STANDARDS
   - RMS STANDARDS
   - AUSTRALIAN STANDARDS
8. THE CONTRACTOR SHALL OBTAIN ALL LEVELS FROM ESTABLISHED BENCH MARKS ONLY AS SUPPLIED BY A REGISTERED SURVEYOR.
9. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS, EXISTING LEVELS AND PROPOSED SET-OUT ON SITE PRIOR TO THE COMMENCEMENT OF WORKS. ANY DISCREPANCIES OR OMMISIONS ARE TO BE REPORTED TO THE SUPERINTENDENT.
10. THE SUPERINTENDENT IS TO BE GIVEN 48 HOURS NOTICE OF ANY INSPECTION REQUESTS.
11. ALL EXISTING STRUCTURES, SERVICES AND UTILITIES ARE TO BE LOCATED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. THE LOCATION OF EXISTING SERVICES SHOWN ON PLANS ARE INDICATIVE ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT. THE RESPONSIBILITY FOR LOCATING, AVOIDANCE AND WHERE NECESSARY, TEMPORARY AND PERMANENT PROTECTION OF THESE EXISTING SERVICES IS THAT OF THE CONTRACTOR. ANY DAMAGE TO EXISTING STRUCTURES, SERVICES AND UTILITIES IS TO BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY.
12. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND CODES OF PRACTICE EXCEPT WHERE VARIED BY THE DRAWINGS. THE APPLICABLE STANDARDS SHALL BE THE REFERENCED STANDARDS CURRENT AT DATE OF DRAWING ISSUE.
13. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED OUT BY OTHERS, (e.g. ADJUSTMENT OF SERVICES) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF ANY THIRD PARTY WORKS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE WORKS AND SURROUNDING AREA UNTIL PROJECT COMPLETION AND SHALL ENSURE THAT NO PART OF THE WORKS ARE OVERSTRESSED BY CONSTRUCTION LOADING.
15. ALL TESTING IS TO BE CARRIED OUT BY A NATA REGISTERED LABORATORY. TESTING METHODS ARE TO BE IN ACCORDANCE WITH THE APPLICABLE AUSTRALIAN STANDARD.
16. ON COMPLETION OF THE WORKS THE CONTRACTOR SHALL PROVIDE AN AS-CONSTRUCTED SURVEY OF THE SITE.
17. WHERE PROPRIETARY PRODUCTS ARE SPECIFIED ON THE DRAWING, THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE PRODUCT TO THE SUPERINTENDENT FOR APPROVAL. THE CONTRACTOR SHALL PROVIDE SUFFICIENT INFORMATION TO DEMONSTRATE TO THE SUPERINTENDENT'S SATISFACTION THAT THE ALTERNATIVE PROPOSED IS OF EQUIVALENT QUALITY TO THE PRODUCT SPECIFIED.
18. EXISTING SURVEY WAS COMPLETED BY RPS. PLAN SHOWING DETAIL & LEVELS OF PART OF MARTIN PLACE, ELIZABETH STREET, HUNTER STREET AND CHIFLEY SQUARE, SYDNEY (31/08/17) FOR MACQUARIE GROUP.
19. ALL SERVICE PIT COVERS TO BE RECESSED AND IN-FILLED WITH PAVERS TO SUIT SURROUNDING FINISH. EXISTING DAMAGED PAVERS TO BE REPLACED.

PAVEMENTS

1. PAVEMENTS EXTERNAL TO SITE BOUNDARY TO BE IN ACCORDANCE WITH COS STANDARD DETAILS. PAVEMENT FINISHES INTERNAL TO SITE BOUNDARY TO ARCHITECT'S SPECIFICATION.
2. REFER COS DRG. No's 2.2.4 AND 2.2.5 FOR DETAILS AND REQUIRED LOCATIONS FOR PAVEMENT JOINTS EXTERNAL TO SITE BOUNDARY.
3. EXISTING PIT COVERS TO BE ADJUSTED TO SUIT PROPOSED ROAD AND FOOTPATH SURFACE LEVELS. COVERS TO BE ADJUSTED / REPLACED IN ACCORDANCE WITH COS STANDARD DETAILS 2.1.2, 2.1.3, 2.1.4, 2.1.5 AND 2.1.6. AND RELEVANT UTILITY AUTHORITY REQUIREMENTS.
4. REFER TO ARCHITECT'S DRAWINGS FOR DETAILS AND LOCATIONS PROPOSED TREE PLANTINGS, SECURITY BOLLARDS AND STREET FURNITURE (DRINKING FOUNTAINS, RUBBISH BINS, BENCH SEATS, MAIL BOXES).

KERB, FOOTWAYS AND ANCILLARY ITEMS

1. KERB, GUTTERS, PEDESTRIAN RAMPS AND VEHICLE CROSSINGS TO BE PROVIDED IN ACCORDANCE WITH COS STANDARD DETAILS.
2. THE SUPPLY, PLACING, FINISHING AND CURING OF IN-SITU CONCRETE FOR PAVEMENTS SHALL COMPLY WITH AS 3600. ALL CONCRETE TO BE MIN N25 AT 28 DAY COMPRESSIVE STRENGTH UNO.
3. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 100mm GRANULAR BASE COURSE COMPACTED TO MINIMUM 98% MODIFIED DRY DENSITY (AS 1289 5.2.1), UNO.
4. GUTTERS TO BE STEEL FLOAT FINISHED.
5. AT TIE INS WITH EXISTING KERBS, CONCRETE TO BE SAWCUT AND EJ IS TO BE PROVIDED.
6. IN THE REPLACEMENT OF KERB AND GUTTER; EXISTING ROAD PAVEMENT IS TO BE SAW CUT 600mm FROM THE LIP OF GUTTER, UNO. UPON COMPLETION OF THE NEW KERB AND GUTTER, NEW PAVEMENT TO BE PROVIDED IN ACCORDANCE WITH COS DRG. 1.1.16.
7. SAWCUTTING MUST PROCEED WITHIN 24 HOURS OF PLACING CONCRETE.
8. SUBSOIL DRAINS ARE TO BE PROVIDED BEHIND ALL KERBS. FLUSHING POINTS ARE TO BE PROVIDED AT MAXIMUM 30m SPACING AND END OF PIPES.

DRAINAGE

1. THE LOCATION AND LEVEL OF ALL SERVICES WHICH CROSS PROPOSED DRAIN LINES MUST BE CONFIRMED PRIOR TO CONSTRUCTION AND BE CHECKED FOR CONFLICT. ANY CONFLICTS TO BE RESOLVED PRIOR TO COMMENCING WORKS.
2. WHERE A CONNECTION IS TO BE MADE TO AN EXISTING DRAINAGE PIPE OR STRUCTURE, THE LEVEL OF THAT PIPE OR STRUCTURE MUST BE CONFIRMED PRIOR TO THE CONSTRUCTION OF THE NEW DRAIN LINE.
3. ALL PIPES 375mm OR GREATER ARE TO BE SRCP, RRJ AND PIPE CLASS 4, UNO. PIPE CLASSES ARE TO BE CHECKED FOR THE PERMANENT DESIGN CASE AND FOR CONSTRUCTION LOADING AND ADJUSTED IF NECESSARY.
4. ALL PIPES LESS THAN 375mm TO BE UPVC, SEWER GRADE, SOLVENT WELDED UNO.
5. DRAINAGE LINES ARE TO BE LAID AT A MINIMUM GRADE OF 1.0% UNO.
6. INSTALLATION, BEDDING AND BACKFILLING OF ALL DRAINAGE PIPES SHALL BE IN ACCORDANCE WITH ROADS AND MARITIME MD.R11.A01.B HS3 UNO.
7. PIPES SHALL BE CONNECTED TO PITS SUCH THAT THE PIPE IS HORIZONTALLY CENTRED ON THE PIT FACE.
8. SURFACE LEVELS FOR PITS AND MANHOLES SHALL BE THE CENTRE OF THE STRUCTURES, UNLESS SHOWN OTHERWISE ON DETAIL PLANS OR ROADS AND MARITIME/ COUNCIL STANDARD DRAWINGS.
9. GRATE FRAME MUST PROVIDE FIRM SUPPORT TO ALL SIDES ENSURING GRATES ARE SECURE.
10. ALL PIT COVERS IN ROADWAYS ARE TO BE CLASS D. ALL GRATES IN FOOTWAYS ARE TO BE CLASS C AND HEELSAFE, UNO.
11. ALL PITS TO BE CONSTRUCTED TO AS 3500.3, BENCHED AND STREAMLINED, UNO. PITS OVER 1.2m IN DEPTH TO BE PROVIDED WITH STEP IRONS IN ACCORDANCE WITH AS 1657. INSTALL PIPEWORK WITH MINIMUM 20mm FALL ACROSS PITS. MAXIMUM PIT DEPTH 3500mm.
12. PIPE JOINT TO BE PROVIDED 600mm FROM EXTERNAL FACE OF STORMWATER PITS FOR PIPES ≤ 450mm. FOR PIPES > 450mm, PIPE JOINT IS TO BE PROVIDED 1200mm FROM FACE OF STORMWATER PITS.
13. PROVIDE 150mm DIA. SLOTTED SUBSOIL PIPE CONNECTION TO STORMWATER PITS. THE PIPE IS TO BE 3.0m LONG ENCLOSED IN TUBULAR FILTER FABRIC AND LAID ADJACENT TO INLET PIPE/S.
14. ALL GRATED DRAINS, PITS AND PROPRIETARY PRODUCTS ARE TO BE INSTALLED TO THE MANUFACTURER'S SPECIFICATIONS. DESIGNATED PRODUCTS CAN BE SUBSTITUTED WITH EQUIVALENT PRODUCTS, BUT MUST FIRST BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL.

EROSION AND SEDIMENT CONTROL

1. THE EROSION AND SEDIMENT CONTROL PLAN ADDRESSES THE MANAGEMENT OF ON SITE STORMWATER RUNOFF DURING CONSTRUCTION. IT DOES NOT ADDRESS BASEMENT EXCAVATION, GROUND WATER MANAGEMENT/ DEWATERING REQUIREMENTS. IT IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT GEOTECHNICAL, ENVIRONMENTAL AND STRUCTURAL DOCUMENTATION.
2. THE PLAN IS CONCEPT ONLY. SITE CONDITIONS AND PHASING OF WORKS ARE LIKELY TO INFLUENCE CONTROL MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AMENDING THE SCHEME TO SUIT CONDITIONS AT THE TIME OF WORKS AND CONSTRUCTION PROGRAM AND TSE CONTRACT.
3. THE CONTRACTOR IS TO INFORM ALL BUILDERS AND SUBCONTRACTORS OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO ROADWAYS AND WATERWAYS.
4. THE CONTRACTOR IS TO IMPLEMENT AN APPROPRIATE ENVIRONMENTAL MANAGEMENT PLAN INCLUDING SPILL/ POLLUTION CONTAINMENT AND TREATMENT PROCEDURES. THE CONTRACTOR IS TO ENSURE THAT ANY SPILL/POLLUTION COLLECTED IN THE STORMWATER SUMP IS IMMEDIATELY TREATED.
5. WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM
6. ALL SOIL AND WATER CONTROL MEASURES ARE TO BE PROVIDED IN ACCORDANCE WITH THE GUIDELINES FOR EROSION AND SEDIMENT CONTROL ON BUILDING SITES (COS, 2004), LANDCOM SOIL AND CONSTRUCTION MANUAL VOLUME 1, MARCH 2004. ('BLUE BOOK') AND THE NSW PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997, CoS STANDARDS, SPECIFICATIONS AND PROJECT EIS.
7. STOCKPILE LOCATIONS TO BE DEPENDENT ON THE LOAD OUT LOCATION AND THE POINT OF EXCAVATION. STOCKPILE LOCATIONS TO BE MARKED ON THE SITE PLAN AT THE SITE OFFICE AS THE PROJECT PROGRESSES.
8. SHOULD ANY MATERIAL BE WASHED FROM EQUIPMENT, SUCH AS CONCRETE SLURRIES FROM CONCRETE TRUCKS, A WASHING/CLEANING AREA WITH APPROPRIATE SEDIMENT CONTROL MEASURES IS TO BE SET UP ON A FLAT AREA OF THE SITE.
9. THE CONTRACTOR SHALL MAINTAIN A LOG BOOK DETAILING:
   - RECORDS OF ALL RAINFALL (I.E. DAILY RAINFALL)
   - CONDITION OF SOIL AND WATER MANAGEMENT CONTROL MEASURES
   - ANY ADDITIONAL REMEDIAL WORKS REQUIRED
   - THE LOG BOOK SHALL BE MAINTAINED ON A WEEKLY BASIS AND BE MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. THE ORIGINAL LOG BOOK SHALL BE ISSUED TO THE PROJECT MANAGER AT THE COMPLETION OF THE WORKS.
10. DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONTINUOUSLY DURING CONSTRUCTION WORKS TO THE SATISFACTION OF THE SUPERINTENDENT.
11. CONTROL MEASURES AFFECTED BY WORKS ARE TO BE RE-ESTABLISHED PRIOR TO THE COMPLETION OF EACH DAYS WORK.
12. ALL CONTROL MEASURES ARE TO BE CLEANED AND MAINTAINED AT LEAST WEEKLY OR AFTER EVERY RAINFALL EVENT.
13. FOLLOWING THE COMPLETION AND RESTORATION OF SITE, THE CONTRACTOR IS TO REMOVE ALL CONTROL MEASURES.
14. PERMANENT DRAINAGE STRUCTURES INCLUDING PIPES AND PITS ARE TO BE HANDED OVER IN A CLEAN CONDITION AT THE COMPLETION OF A CLEAN CONDITION AT THE COMPLETION OF THE CONTRACT MAINTENANCE PERIOD.
15. TEMPORARY STORMWATER SUMPS (LOCATIONS TO SUIT SITE PHASING).
   - DISCHARGE PUMP NOM. FLOW RATE 3l/s
   - RUNOFF COEFFIENT = 1.00
   - SIZING OF SUMPS BASED ON STORAGE REQUIRED FOR A 3 MONTH ARI STORM EVENT UP TO 12 HOURS IN DURATION INTENSITIES FROM AUSTRALIAN BUREAU OF METEROLOGY IFD DATA SYSTEM.
16. PRIOR TO DISCHARGING COLLECTED WATER TO STORMWATER DRAINAGE, IT IS TO BE TESTED TO ENSURE COMPLIANCE WITH WATER QUALITY REQUIREMENTS. SHOULD TESTING GIVE RESULTS THAT DO NOT COMPLY WITH THE ABOVE, TREATMENT MEASURES (SUCH AS THE APPLICATION OF A pH NEUTRAL FLOCCULANT) AND SUBSEQUENT RETESTING ARE REQUIRED. DOCUMENTARY RESULTS OF WATER QUALITY TESTING PRIOR TO DEWATERING ARE TO BE KEPT.

    A FILE IS TO BE KEPT ONSITE OF ALL WATER TESTING/DEWATERING EVENTS. FOLLOWING DEWATERING THE SUMP IS TO BE CLEARED OF SEDIMENT AND THE GEOTEXTILE ON THE PUMP WELL IS TO BE REPLACED.
17. ALL STORMWATER PITS TO BE COVERED OR DROP INLET SEDIMENT TRAPS SHALL BE PROVIDED. KERB INLET TRAPS ARE TO BE INSTALLED AFTER COMPLETION OF PAVING.
18. ALL SERVICE TRENCHES MUST BE FILLED IN AND COMPACTED IMMEDIATELY AFTER SERVICES HAVE BEEN LAID.
19. ROADS AND FOOTPATHS AFFECTED BY THE WORKS MUST BE SWEPT CLEAN DAILY. SOILS MUST BE RETAINED BEHIND CONTROL DEVICES.
20. CONTRACTOR MUST ENSURE THAT ALL VEHICLES LEAVING SITE ARE HOSED DOWN (OR SIMILAR) TO REMOVE SEDIMENT.

ABBREVIATIONS

AHD	AUSTRALIAN HEIGHT DATUM
ARI	AVERAGE RECURRENCE INTERVAL
AR&R	AUSTRALIAN RAINFALL AND RUNOFF
AS	AUSTRALIAN STANDARD
BE	BULK EARTHWORKS LEVEL
COS	CITY OF SYDNEY
DWG	DRAWING
IL	INVERT LEVEL
IFD	INTENSITY FREQUENCY DURATION
NOM	NOMINAL
NTS	NOT TO SCALE
OSD	ON SITE DETENTION
RL	REDUCED LEVEL
SWC	SYDNEY WATER CORPORATION
TBC	TO BE CONFIRMED
TSE	TUNNEL AND STATION EXCAVATION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VOL	VOLUME

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE
F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	LM/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	LM/06.09.17	NS/06.09.17
B	SPACE PROOFED SET - DRAFT	NR/04.08.17	LM/04.08.17	NS/04.08.17

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: NOT TO SCALE

NSW GOVERNMENT Transport for NSW

ARUP

ARUP

JOB # 247838 ARUP CIVIL SERVICES

DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

METRO MARTIN PLACE
SYDNEY METRO
STATION
CIVIL SERVICES
GENERAL NOTES - SHEET 1

FILE No. | SHEET: 1 OF 2 | A0

STATUS: GATE 4 | ©

DRG No. CSWSMP-MAC-SMP-CE-DRG-009802 | F | EDMS No.

DF 1149*801

Plot Date & Time 4/19/2018 2:47 PM

Plotted by JOSH.EATON

GENERAL SERVICES NOTES

1. ALL SERVICES CONNECTIONS FROM PROPOSED BUILDINGS TO EXISTING IN-GROUND SERVICES TO BE CONFIRMED WITH RELAVENT AUTHORITIES, ASSET OWNERS AND EXISTING IN-GROUND CONSTRAINTS (I.E. EXISTING SERVICES, FOOTINGS, ROOT ZONES).
2. CONSTRUCTION OF SERVICES AND TRENCHING TO BE IN ACCORDANCE WITH RELAVENT AUTHORITY REQUIREMENTS AND/ OR CITY OF SYDNEY TECHNICAL SPECIFICATION.
3. EXISTING SERVICES AND TREES TO BE PROTECTED DURING CONSTRUCTION OF NEW SERVICES IN ACCORDANCE WITH RELAVENT AUTHORITY REQUIREMENTS. ARBORIST TO BE ONSITE DURING TRENCH EXCAVATION. RELAVENT AUTHORITY PERSONEL TO BE ONSITE AS REQUIRED.
4. EXISTING PAVEMENT / FOOTPATH TO BE MADE GOOD IN ACCORDANCE WITH CITY OF SYDNEY STANDARD DRAWINGS FOR 'PAVEMENT RESTORATIONS' FOR TRENCHES OUTSIDE OF THE PROPOSED FOOTPATH RECONSTRUCTION AREA.
5. THE LOCATION OF UTILITIES SHOWN ON THE DRAWINGS HAS BEEN DETERMINED FROM VARIOUS SOURCES, PRIMARILY DIAL BEFORE YOU DIG (DBYD) AND RPS SURVEY. THE TYPE AND EXTENT OF UTILITIES SHOWN IS FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SUPPLIED. THE HORIZONTAL AND VERTICAL POSITION OF ANY UTILITY SHOWN IS INDICATIVE AND WILL NEED TO BE CONFIRMED DURING SUBSEQUENT PROJECT STAGES.
6. NEED FOR RELOCATION OF UTILITIES DUE TO PROPOSED STREET FURNITURE, BOLLARDS AND STREET TREES IS SUBJECT TO CONFIRMATION OF UTILITY LOCATION AND CONSULTATION WITH RELEVANT UTILITY ASSET OWNERS.
7. UNMAPPED UTILITIES, INCLUDING PRIVATE PROPERTY CONNECTIONS, MAY EXIST. THESE MAY REQUIRE TREATMENT AND / OR AFFECT THE FEASIBILITY OF THE PROPOSED MEASURES SHOWN.
8. UNDERGROUND OBSTRUCTIONS MAY EXIST THAT REQUIRE WORKS IN ADDITION TO THOSE SHOWN, OR MAY IMPACT ON THE VIABILITY OF THE PROPOSED MEASURES.
9. CONDITION OF EXISTING UTILITIES, PARTICULARLY MANHOLES / CHAMBERS, IS NOT KNOWN. UTILITIES ARE ASSUMED TO BE IN A CONDITION THAT WILL NOT REQUIRE IMPROVEMENT / RECONSTRUCTION WORKS TO ACCOMMODATE THE LIGHT RAIL PROPOSALS.
10. THE PRESENCE OF ASBESTOS ASSOCIATED WITH EXISTING UTILITIES IS UNKNOWN AND WILL NEED TO BE ADDRESSED IN FUTURE PROJECT STAGES.
11. ASSESSMENT OF IMPACT ON EXISTING UTILITIES HAS FOCUSED ON THOSE UTILITIES UNDERNEATH CAVERNS AND WITHIN THE PROXIMITY OF THE BASEMENT CONSTRUCTION.
12. IT IS ASSUMED THAT EXISTING TREES CAN BE REMOVED TO INSTALL UTILITIES WORKS (BUT ONLY AS A LAST RESORT).
13. PROPOSED ALTERATIONS TO STORMWATER DRAINAGE ASSETS ARE DETAILED ON THE CIVIL DRAWINGS.
14. IMPACT OF PROPOSALS ON CATHODIC PROTECTION ASSOCIATED WITH EXISTING GAS MAINS HAS NOT BEEN ASSESSED TO DATE AND WILL NEED TO BE ADDRESSED IN FUTURE PROJECT STAGES.
15. HERITAGE LISTED UTILITIES ARE PRESENT WITHIN THE PROXIMITY OF THE STATION CAVERN AND SHAFT EXCAVATION. THE DETAILS OF THESE ARE BEING SOURCED THROUGH ONGOING CONSULTATION. THIS INFORMATION WILL FEED INTO THE DESIGN DEVELOPMENT OF FUTURE PROJECT STAGES.
16. UTILITIES TUNNELS ARE PRESENT WITHIN THE PROXIMITY OF PROPOSED DEVELOPMENT AREA. THE DETAILS OF THESE ARE BEING SOURCED THROUGH ONGOING CONSULTATION. THIS INFORMATION WILL FEED INTO THE DESIGN DEVELOPMENT OF FUTURE PROJECT STAGES. BOTH TELSTRA AND AUSGRID TUNNELS WITHIN THE SCOPE OF TUNNEL EXCAVATIONS HAVE BEEN IDENTIFIED. PROTECTION REQUIREMENTS WILL NEED REVIEW IN FUTURE PROJECT STAGES WITH BOTH AUTHORITIES.
17. TOWERS AND STATION COMMUNICATIONS CONNECTIONS TO BE CONFIRMED SUBJECT TO FINAL REQUIREMENTS FOR STATION AND TOWER COMMUNICATIONS REQUIREMENTS. IT IS BE ASSUMED NBN WILL BE ALONG EITHER/BOTH CASTLEREAGH AND ELIZABETH STREET BY MARCH 2018.
18. CONTRACTOR IS RESPONSIBLE FOR ALL INTERFACE AND CO-ORDINATION WITH AUTHORITIES AND UTILITY PROVIDERS.

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE
F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	BH/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	BH/06.09.17	N/06.09.17
B	SPACE PROOFED SET - DRAFT	NR/04.08.17	BH/04.08.17	NS/04.08.17

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: NOT TO SCALE

NSW GOVERNMENT Transport for NSW

ARUP

ARUP

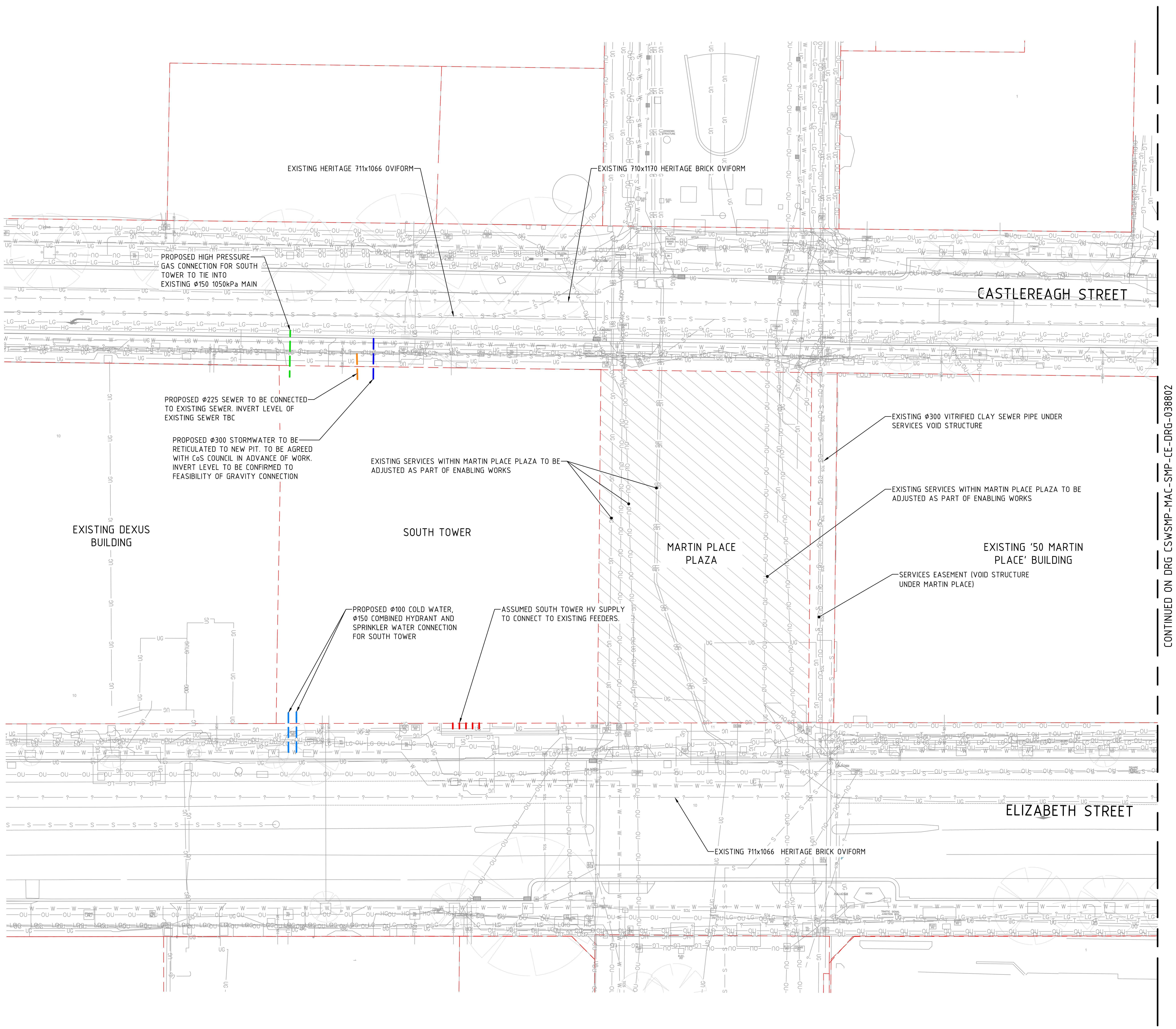
JOB # 247838 ARUP CIVIL SERVICES

DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

METRO MARTIN PLACE
SYDNEY METRO
STATION
CIVIL SERVICES
GENERAL NOTES - SHEET 2

FILE No. | SHEET: 2 OF 2 | A0
STATUS: GATE 4 | ©
DRG No. CSWSMP-MAC-SMP-CE-DRG-009803 F | EDMS No.

DF 1149*801



CONTINUED ON DRG CSWSMP-MAC-SMP-CE-DRG-038802

NOTES

1. FOR GENERAL NOTES REFER TO CSWSMP-MAC-SMP-CE-DRG-009803.
2. ALL PROPOSED CONNECTIONS AND WORKS ARE INDICATIVE ONLY AND ARE SUBJECT TO DETAILED DESIGN AND AGREEMENT WITH RELEVANT UTILITY AUTHORITIES AND ASSET OWNERS.
3. FULL EXTENT OF EXISTING SERVICES IS NOT SHOWN ON THIS PLAN. REFER TO RPS DRAWING - PLAN SHOWING DETAIL & LEVELS OF PART OF MARTIN PLACE, ELIZABETH STREET, HUNTER STREET AND CHIFLEY SQUARE, SYDNEY NWRLSRT-RPS-SMP-SR-DWG-000041 MARTIN PLACE-A

LEGEND

PROPOSED

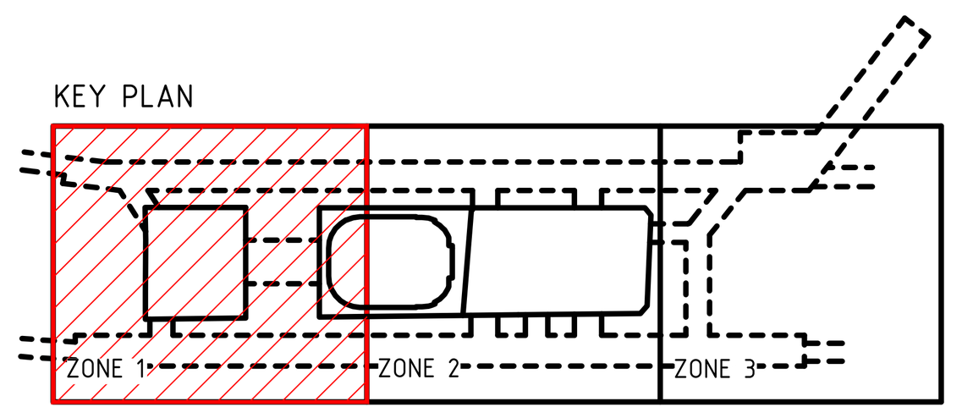
- PROPERTY / EASEMENT BOUNDARY
- PROPOSED STORMWATER
- PROPOSED SEWER
- PROPOSED WATER SUPPLY
- PROPOSED GAS SUPPLY
- PROPOSED HV SUPPLY

EXISTING

- OU — EXISTING OPTICAL FIBRE
- T — EXISTING TELECOMMUNICATIONS
- EXISTING ELECTRICAL HV
- EXISTING ELECTRICAL UNDERGROUND
- HG — EXISTING HIGH PRESSURE GAS
- LG — EXISTING LOW PRESSURE GAS
- S — EXISTING SEWER
- WH — EXISTING WATER
- W — EXISTING WATER HOUSE CONNECTION
- EXISTING GRATED PIT
- EXISTING SEWER MANHOLE
- SERVICE WATER
- EXISTING TRAFFIC LIGHT
- EXISTING TREE

1:200(A0)/1:400(A2)

KEY PLAN



DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE
F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	BH/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	BH/06.09.17	NS/06.09.17
B	SPACE PROOFED SET - DRAFT	NR/04.08.17	B/ 04.08.17	NS/04.08.17

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: 1:200

NSW GOVERNMENT | Transport for NSW

ARUP

ARUP

JOB # 247838

ARUP CIVIL SERVICES

DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

NOT FOR CONSTRUCTION

METRO MARTIN PLACE

SYDNEY METRO

STATION

CIVIL SERVICES

EXTERNAL UTILITIES PLAN - ZONE 1

FILE No. | SHEET: 1 OF 2 | A0

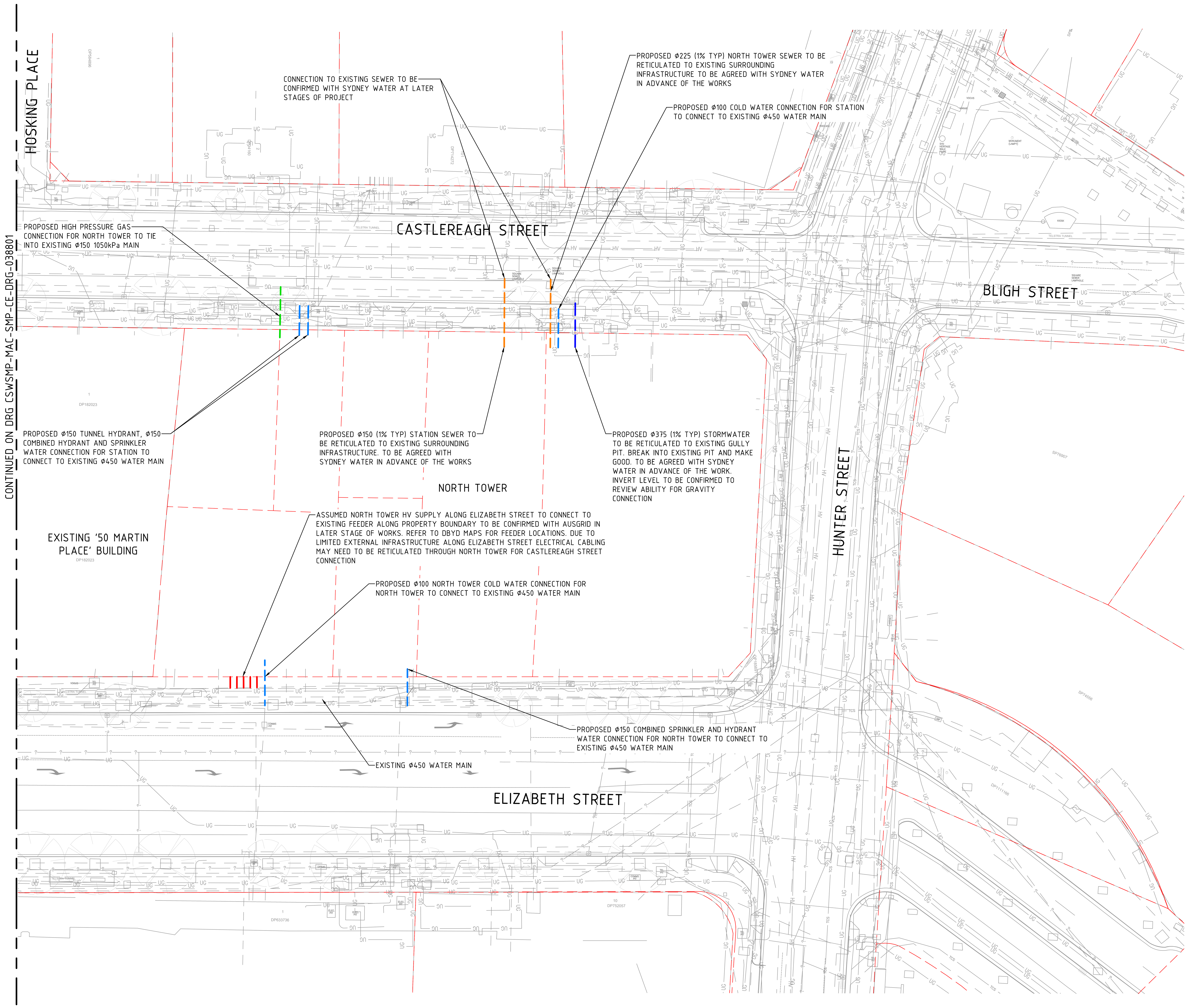
STATUS: GATE 4 | ©

DRG No. CSWSMP-MAC-SMP-CE-DRG-308801 | F | EDMS No.

Plot Date & Time 4/19/2018

Plotted by JOSH.EATON

DF 1149*801

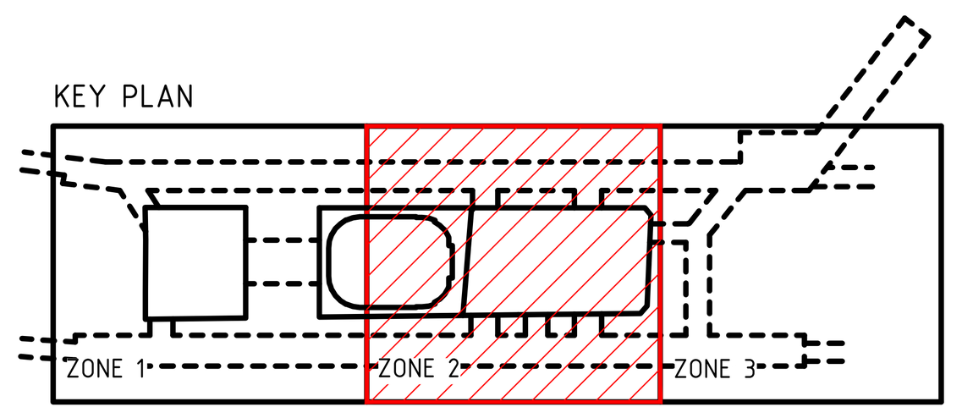


NOTES

1. FOR GENERAL NOTES REGARDING EXTERNAL WORKS REFER TO CSWSMP-MAC-SMP-CE-DRG-009803.
2. ALL PROPOSED CONNECTIONS AND WORKS ARE INDICATIVE ONLY AND ARE SUBJECT TO AGREEMENT WITH RELEVANT UTILITY AUTHORITIES AND ASSET OWNERS.
3. FULL EXTENT OF EXISTING SERVICES IS NOT SHOWN ON THIS PLAN. REFER TO RPS DRAWING - PLAN SHOWING DETAIL & LEVELS OF PART OF MARTIN PLACE, ELIZABETH STREET, HUNTER STREET AND CHIFLEY SQUARE, SYDNEY NWRLSRT-RPS-SMP-SR-DWG-000041 MARTIN PLACE-A

1:200(A0)/1:400(A2)

KEY PLAN



DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE
F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	BH/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	BH/06.09.17	NS/06.09.17
B	SPACE PROOFED SET - DRAFT	NR/04.08.17	BH/04.08.17	NS/04.08.17

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: 1:200

NSW GOVERNMENT Transport for NSW

ARUP

ARUP

JOB # 247838 | ARUP CIVIL SERVICES

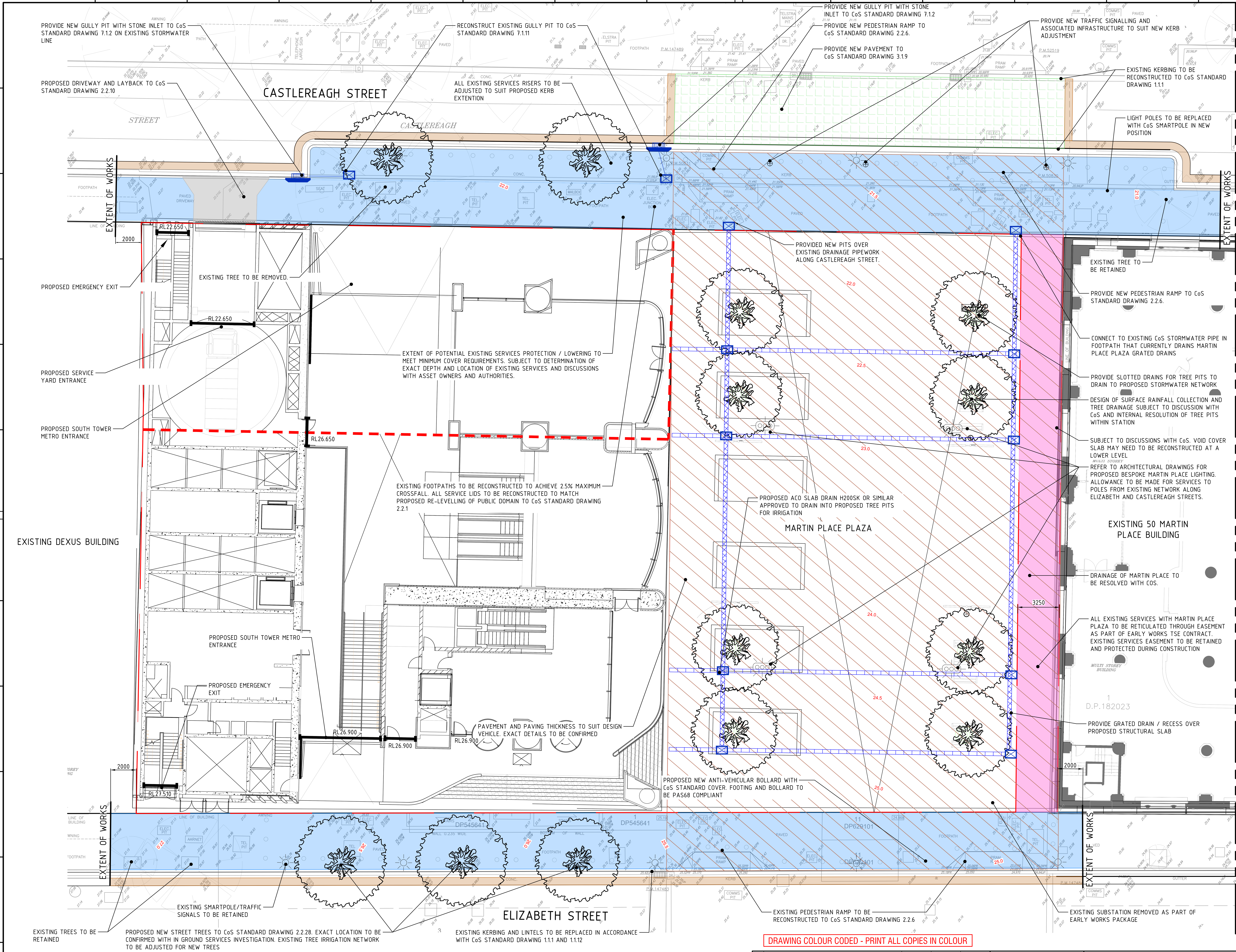
DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

METRO MARTIN PLACE
SYDNEY METRO
STATION
CIVIL SERVICES
EXTERNAL UTILITIES PLAN - ZONE 2

FILE No. | SHEET: 2 OF 2 | A0
STATUS: GATE 4 | ©
DRG No. CSWSMP-MAC-SMP-CE-DRG-308802 | F | EDMS No.

Plot Date & Time 4/19/2018 2:46 PM
Plotted by JOSH.EATON

DF 1149*801



NOTES

1. REFER TO HYDRAULIC DRAWINGS FOR DOWNPIPE LOCATION. DOWNPIPES TO DRAIN VIA 100x150mm GALVANISED RECTANGULAR COLUMN SECTIONS TO THE KERB AND RODDING POINT AT BUILDING FACE. REFER TO CoS STANDARD DRAWINGS 7.1.8 AND 1.1.14 FOR DETAILS.
2. REFER TO EXTERNAL SERVICES PLANS FOR TRUNK STORMWATER FROM NORTH AND SOUTH TOWER TO EXISTING STORMWATER NETWORK.
3. STAINLESS EDGES TO CoS STANDARD DRAWING 2.18 TO BE PROVIDED ON NORTH AND SOUTH TOWER AND STATION BOUNDARIES.

LEGEND

EXISTING

- EXISTING DRAIN PIT
- EXISTING SEWER MANHOLE
- EXISTING SERVICE WATER
- EXISTING TRAFFIC LIGHT
- EXISTING TREE

PROPOSED

- PROPERTY / EASEMENT BOUNDARY
- PROPOSED STREET TREES
- PROPOSED GRATED PIT
- PROPOSED GULLY PIT
- PROPOSED STORMWATER DRAINAGE
- RELOCATED TRAFFIC LIGHT
- PROPOSED STEEL BOLLARD
- PROPOSED LIGHTING
- PROPOSED FLOOD GATE
- PROPOSED GRATED DRAIN
- PROPOSED CHANNEL DRAIN WITH TILED COVER
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- GROUND/LOWER GROUND SPLIT DELINEATION
- PROPOSED DRIVEWAY/LAYBACK
- EXTENT OF POTENTIAL SERVICES PROTECTION / LOWERING / PAVEMENT RECONSTRUCTION AND ADJUSTMENT SUBJECT TO DETAILED SERVICES SEARCH / POTHOLING AND DISCUSSIONS WITH AUTHORITIES / ASSET OWNERS
- PROPOSED STONE SET PAVEMENT
- TRANSITION PAVEMENT
- SERVICES EASEMENT
- FOOTPATH PAVEMENT TO SUIT DESIGN VEHICLES

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE
G	DRP UPDATED LAYOUT	NR/27.07.18	LM/27.07.18	DH/27.07.18
F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	LM/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	LM/06.09.17	NS/06.09.17

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: 1:200

NSW GOVERNMENT Transport for NSW

ARUP

ARUP

JOB # 247838 — ARUP CIVIL SERVICES

DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

METRO MARTIN PLACE
SYDNEY METRO
STATION
CIVIL SERVICES
CIVIL WORKS & DRAINAGE PLAN - ZONE 1

FILE No. | SHEET: 1 OF 2 | A0
STATUS: GATE 4
DRG No. CSWSMP-MAC-SMP-CE-DRG-308901 G | EDMS No.

Plot Date & Time 7/27/2018 9:43 AM
Plotted by NICHOLAS.ROUGGOS
DF 1149*801

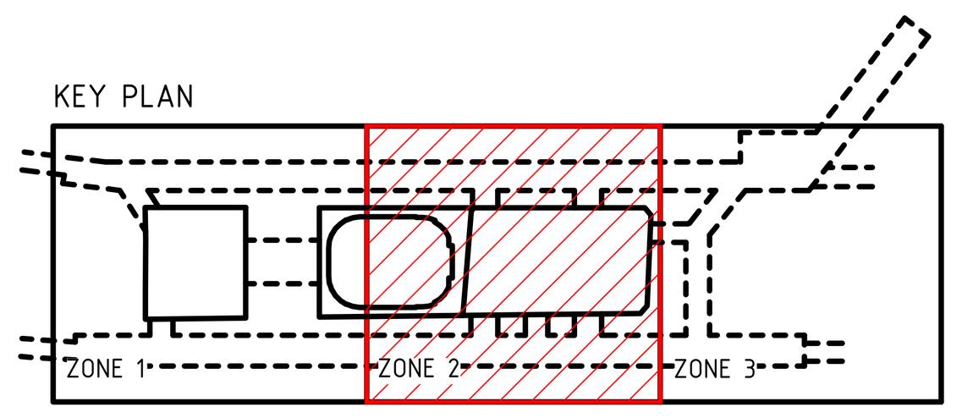

CASTLEREAGH STREET
BLIGH STREET
HUNTER STREET
ELIZABETH STREET
EXISTING 50 MARTIN PLACE BUILDING
CONTINUED ON DRG CSWSMP-MAC-SMP-CE-DRG-038901
EXTENT OF WORKS
EXISTING TREE TO BE RETAINED
EXISTING LIGHPOLE TO BE REPLACE WITH CoS TYPE S1 SMARTPOLE IN NEW POSITION
PROPOSED DRIVEWAY AND LAYBACK TO CoS STANDARD DRAWING 2.2.10
EXISTING TREE TO BE REMOVED
EXISTING TREES TO BE RETAINED
EXISTING LIGHPOLE TO BE REPLACE WITH CoS TYPE S1 SMARTPOLE IN NEW POSITION
PROPOSED NEW TYPE S1 SMARPOLES. EXACT LOCATION TO BE CONFIRMED WITH LIGHTING CO-ORDINATOR FOR NEW LIGHTS
EXISTING PEDESTRIAN RAMPS TO BE RECONSTRUCTED TO CoS STANDARD DRAWING 2.2.6
EXISTING TREES TO BE RETAINED
EXISTING SMARTPOLE/TRAFFIC SIGNAL TO BE RETAINED
PROPOSED NEW STREET TREES TO CoS STANDARD DRAWING 2.2.28. EXACT LOCATION TO BE CONFIRMED WITH IN GROUND SERVICES INVESTIGATION. EXISTING TREE IRRIGATION NETWORK TO ADJUSTED FOR NEW TREES
PROPOSED NEW STREET TREES TO CoS STANDARD DRAWING 2.2.28. EXACT LOCATION TO BE CONFIRMED WITH IN GROUND SERVICES INVESTIGATION. EXISTING TREE IRRIGATION NETWORK TO ADJUSTED FOR NEW TREES
EXISTING TREE TO BE REMOVED
PROPOSED NEW ANTI-VEHICULAR BOLLARD WITH CoS STANDARD COVER. FOOTING AND BOLLARD TO BE PAS68 COMPLIANT
EXISTING TREES TO BE RETAINED
PROPOSED NEW STREET TREES TO CoS STANDARD DRAWING 2.2.28. EXACT LOCATION TO BE CONFIRMED WITH IN GROUND SERVICES INVESTIGATION. EXISTING TREE IRRIGATION NETWORK TO ADJUSTED FOR NEW TREES
EXISTING SMARTPOLE/TRAFFIC SIGNAL TO BE RETAINED
PROPOSED NEW TYPE S1 SMARPOLES. EXACT LOCATION TO BE CONFIRMED WITH LIGHTING CO-ORDINATOR FOR NEW LIGHTS
EXTENT OF POTENTIAL EXISTING SERVICES PROTECTION / LOWERING TO MEET MINIMUM COVER REQUIREMENTS. SUBJECT TO DETERMINATION OF EXACT DEPTH AND LOCATION OF EXISTING SERVICES AND DISCUSSIONS WITH ASSET OWNERS AND AUTHORITIES.
PROPOSED EMERGENCY EXIT
PROPOSED RETAIL ENTRANCE
PROPOSED EMERGENCY EXIT
EXISTING TREE TO BE RETAINED
EXISTING FOOTPATHS TO BE RECONSTRUCTED TO ACHIEVE 2.5% MAXIMUM CROSSFALL. ALL SERVICE LIDS TO BE RECONSTRUCTED TO MATCH PROPOSED RE-LEVELLING OF FOOTPATH TO CoS STANDARD DRAWING 2.2.1
EXISTING SMARTPOLE/TRAFFIC SIGNALS TO BE RETAINED
PROPOSED NEW STREET TREES TO CoS STANDARD DRAWING 2.2.28. EXACT LOCATION TO BE CONFIRMED WITH IN GROUND SERVICES INVESTIGATION. EXISTING TREE IRRIGATION NETWORK TO BE ADJUSTED FOR NEW TREES
EXISTING TREE TO BE RETAINED
EXISTING KERBING AND LINTELS TO BE REPLACED IN ACCORDANCE WITH CoS STANDARD DRAWING 1.1.1
PROPOSED NORTH TOWER METRO ENTRANCE
EXISTING SMARTPOLE/TRAFFIC SIGNAL TO BE RETAINED
EXISTING PEDESTRIAN RAMPS TO BE RECONSTRUCTED TO CoS STANDARD DRAWING 2.2.6
RL20.240
RL20.000
RL20.000
RL20.700
RL20.700
RL25.000
RL25.000
RL25.000
RL24.250
RL24.600
RL24.500
RL24.300
2000
2000

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

NOT FOR CONSTRUCTION

1:100(A1)/1:200(A2)

KEY PLAN



AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE
G	DRP UPDATED LAYOUT	NR/27.07.18	LM/27.07.18	DH/27.07.18
F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	LM/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	LM/06.09.17	NS/06.09.17

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: 1:200

NSW GOVERNMENT Transport for NSW

ARUP

ARUP

JOB # 247838 | ARUP CIVIL SERVICES

DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

METRO MARTIN PLACE

SYDNEY METRO
STATION
CIVIL SERVICES
CIVIL WORKS & DRAINAGE PLAN - ZONE 2

FILE No. | SHEET: 2 OF 2 | A0

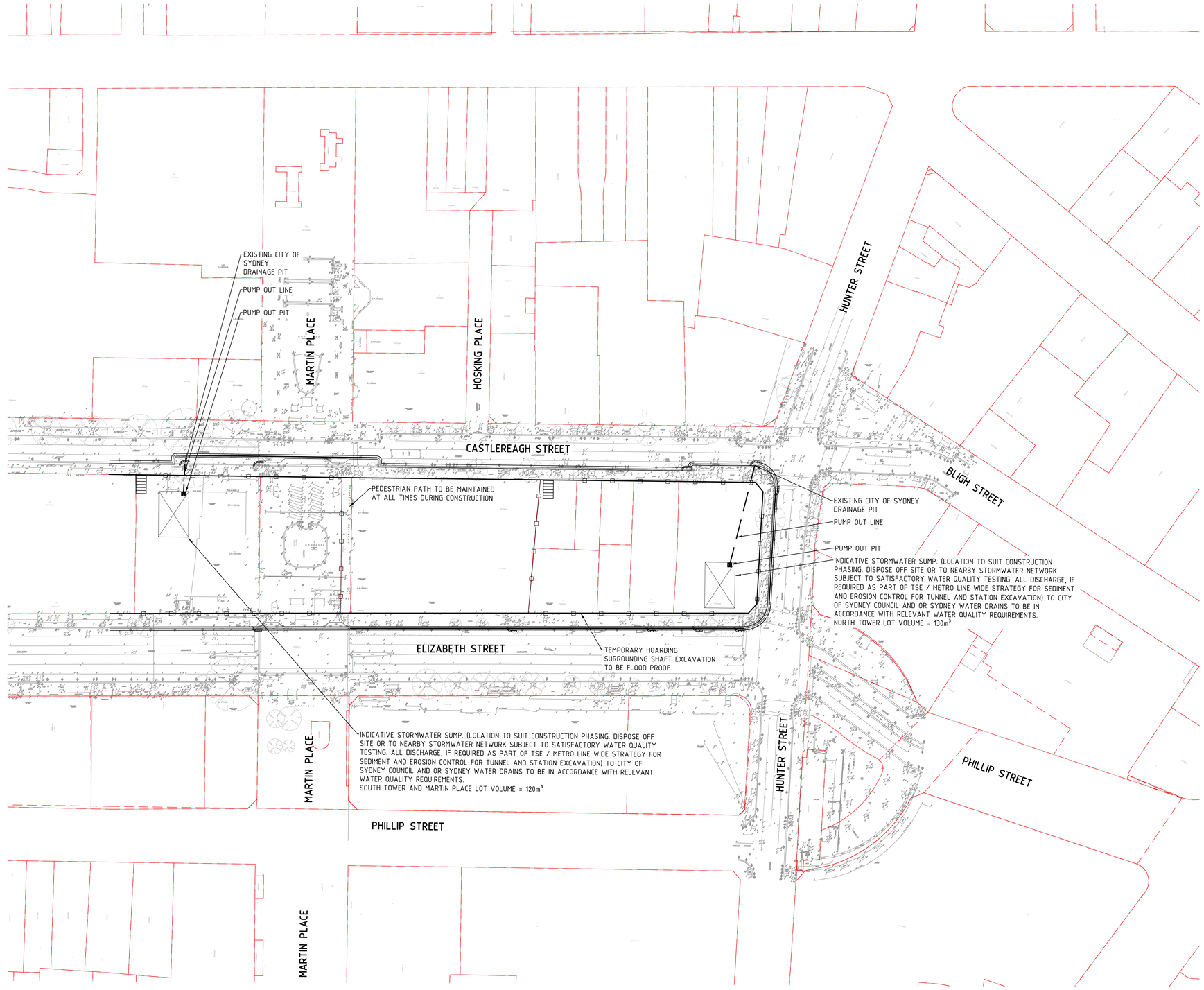
STATUS: GATE 4

DRG No. CSWSMP-MAC-SMP-CE-DRG-308902 | G | EDMS No.

Plot Date & Time 7/27/2018 9:46 AM

Plotted by JOSH.EATON

DF 1149*801

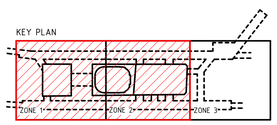


LEGEND

- TEMPORARY FLOOD PROOF HOARDING
- TEMPORARY CONSTRUCTION ENTRY / EXIT
- TEMPORARY SEDIMENT TRAP
- TEMPORARY STORMWATER SUMP

0 5 10 20m
1:500(A1)/1:1000(A3)

KEY PLAN



DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

F	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/20.04.18	LM/20.04.18	DH/20.04.18
E	UPDATED GUARANTEED MAXIMUM PRICE (GMP)	NR/16.03.18	LM/16.03.18	16.03.18
D	CCB2 SUBMISSION	NR/03.10.17	LM/03.10.17	NS/03.10.17
C	CCB2 DRAFT SUBMISSION	NR/06.09.17	LM/06.09.17	NS/06.09.17
B	SPACE PROOFED SET - DRAFT	NR/04.08.17	LM/04.08.17	NS/04.08.17
AMD	DESCRIPTION	DESIGNER SIGN./DATE	VERIFIED SIGN./DATE	APPROVED SIGN./DATE

CO-ORDINATE SYSTEM: MGA | HEIGHT DATUM: AHD | SCALE: 1:500

NSW GOVERNMENT Transport for NSW

ARUP

NOT FOR CONSTRUCTION

METRO MARTIN PLACE
SYDNEY METRO
STATION
CIVIL SERVICES
SEDIMENT & EROSION CONTROL PLAN

ARUP
ARUP CIVIL SERVICES
JOB # 247838

DRAWN	CHARLIE FANNER	20.04.18
DESIGNED	NICHOLAS ROUGGOS	20.04.18
DRG CHECK	KANE ELLIS	20.04.18
DESIGN CHECK	LOUISE MILLWARD	20.04.18
APPROVED	DAVID HARDING	20.04.18

FILE No. | SHEET: 1 OF 1 | A0
STATUS: GATE 4 | ©
DRG No. CSWSMP-MAC-SMP-CE-DRG-309001 | F | EDMS No.

DF 1149*901

File Plotted:C:\Users\josh.patterd\Desktop\PRINTS\CSWSMP-MAC-SMP-CE-DRG-309001.dwg
Plot Date & Time:19/2018 2:44 PM
Plotted by:DSH15470N