



SYDNEY INTERNATIONAL CONVENTION, EXHIBITION AND ENTERTAINMENT PRECINCT  
DARLING SQUARE PRECINCT – PDA WORKS

# SERVICES INFRASTRUCTURE REPORT

FOR SSDA2 (5752-2012) SECTION 96 APPLICATION



# DARLING HARBOUR LIVE

## SICEEP – DARLING SQUARE

### SERVICES INFRASTRUCTURE REPORT FOR SSDA2 SECTION 96 APPLICATION

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#### Sewer, Water, Gas, Telecommunications, Electrical & Stormwater

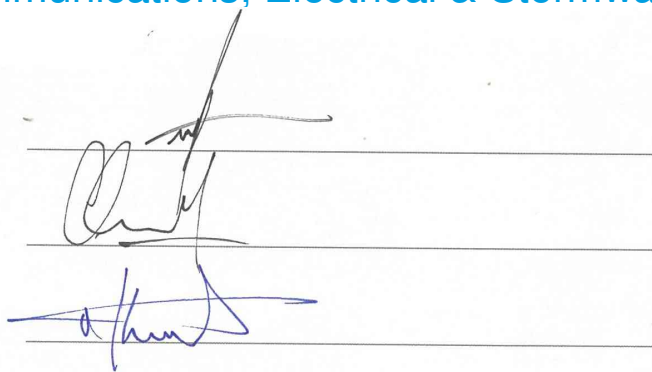
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**Report No** DN00339/NWS96

**Date** 08/09/2015

Three handwritten signatures are present, each on a horizontal line. The first signature is in black ink, the second is in black ink, and the third is in blue ink.

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# 1 EXECUTIVE SUMMARY

Hyder Consulting has been engaged by Lend Lease to provide civil infrastructure advice to support a Modification Application to the SSDA2 for an increase in the maximum non-residential Gross Floor Area (GFA) by 2,575 m<sup>2</sup>.

This report has been prepared to address the Director-General Requirements (DGR's) that have been issued for this project and details the investigation of existing utilities in the vicinity of the development in the context of the proposed development scheme, the likely points of future connection to the utilities and the associated potential upgrades or augmentation works that may be required. This report also has regard to the approved SSDA's on the South West (SW), North West (NW), North East (NE) and W1 plots.

This report focuses on the increase in GFA. The proposed modification to the GFA is considered to have minimal impact on the existing and proposed service networks within and around the precinct.

# 2 INTRODUCTION

This report supports an application made under Section 96 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to modify Development Consent, SSD 13-5878 relating to the concept proposal for Darling Square (formerly known as The Haymarket), the new urban neighbourhood at the southern end of the Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP).

Development Consent SSD 13-5878 was granted on 5 December 2013 and approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots, development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
- A maximum total gross floor area (non-residential and residential GFA);
- Above ground car parking including public car parking;
- Residential car parking rates;
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

This section 96 application (the Modification Application) constitutes the first modification to the consent. This Modification Application follows the approval and current assessment of a number of SSDAs and s96s within the SICEEP site, including:



- SSDA1 which secured approval for the core convention, exhibition and entertainment facilities of the SICEEP Project;
- SSDA2, a staged application that established a Concept Proposal for a new mixed use neighbourhood at Darling Harbour known as Darling Square;
- SSDA3, SSDA4, and SSDA5 which related to three detailed proposals for use of the development plots within Darling Square;
- SSDA 6 which secured approval for the construction of the ICC Sydney Hotel; and
- SSDA7 which secured approval for the construction and use of a mixed use development on the North-East Plot of Darling Square.

### 3 OVERVIEW OF PROPOSED MODIFICATIONS

This Modification Application seeks approval for an increase in the maximum non-residential Gross Floor Area by 2,575m<sup>2</sup>. This is proposed to be split between 2,300m<sup>2</sup> of commercial office area and 275m<sup>2</sup> of public car park storage.

The proposed additional GFA is to be allocated to the North-West Plot and is a response to design development associated with ongoing feedback from agents and potential tenants.

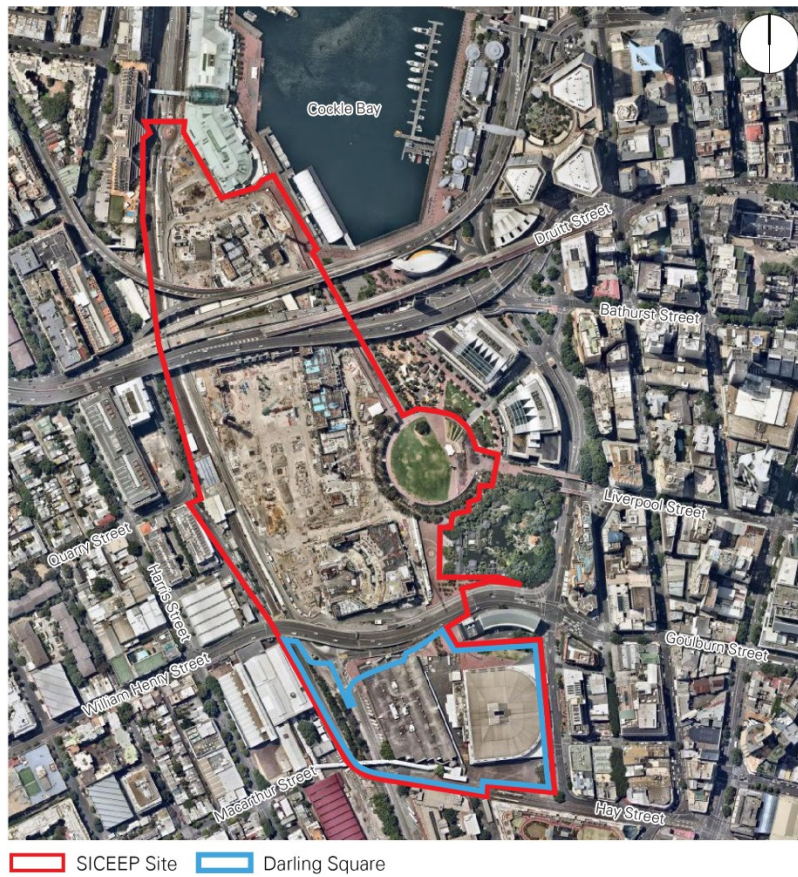
### 4 SITE DESCRIPTION

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

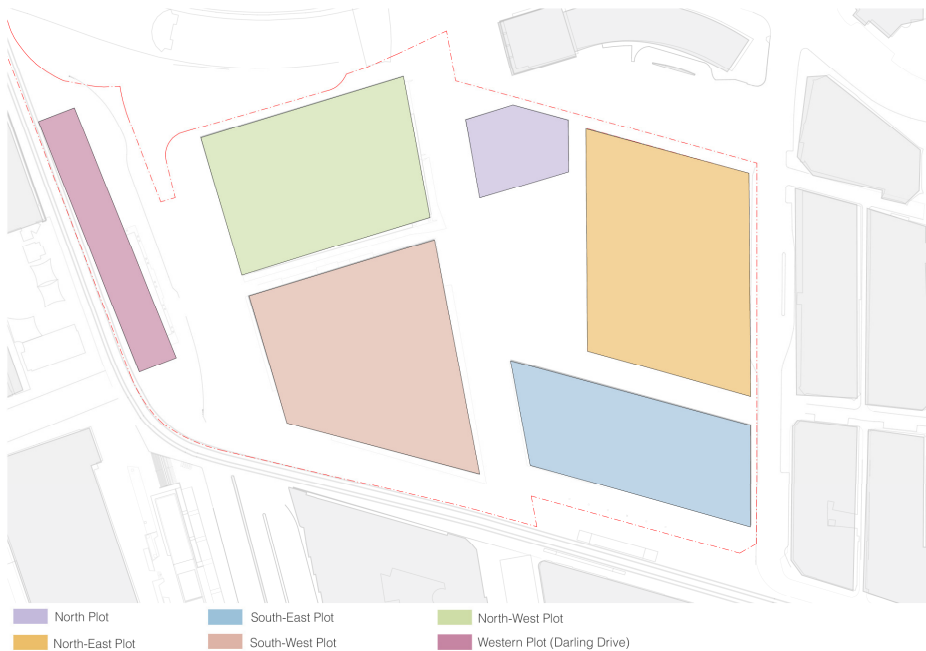
With an area of approximately 20 hectares, the SICEEP Site is generally bound by the Light Rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (refer to Figure 1).

The Darling Square Site (refer to Figure 1 and Figure 2) the subject of this modification application is:

- located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket;
- bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and
- irregular in shape and occupies an area of approximately 37,700m<sup>2</sup>.



**Figure 1: Aerial Photograph of the SICEEP Site**



**Figure 2 – Concept Proposal Development Plots illustrating NW Plot in green**

## 5 PURPOSE OF THIS REPORT

This report has been prepared to accompany a Modification Application to the SSDA2 Concept Proposal consent. It addresses the relevant requirements of the SEAR's for the project, issued on the 21<sup>st</sup> of January 2013. Requirement 11: Utilities states:

- *"In consultation with relevant agencies, the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure shall be addressed; and*
- *Details of how infrastructure assets of various utility stakeholders will be protected during the demolition and construction phase of the project."*

This report details the likely impact of the proposed modifications to the Concept Proposal will have on the existing and proposed utility services in the vicinity of the development.

The basis for the investigation of the existing utilities in the vicinity of the site was a 'Dial Before You Dig' enquiry that was undertaken on 10th June 2014. Figure 2 depicts the area subject to the DBYD enquiry. This report does not consider any utility infrastructure outside the enquiry boundary and its' potential relationship to, or impact on the supply of utility services to the site.

For greater clarity, this report relates only to the portion of the site south of Pier Street where Darling Square development is located (refer Figure 3). Separate reports cover the PPP and The ICC Hotel complex components of the SICEEP development.

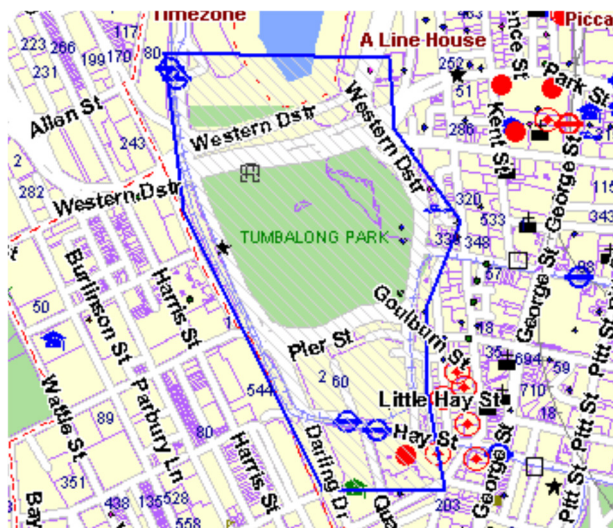


Figure 2: DBYD Enquiry Area (DBYD, 2014)

The following entities were identified as having an interest in the DBYD enquiry area:

- |   |                  |
|---|------------------|
| - Roads and Maritime Services (RMS), (formerly RTA) | - Jemena         |
| - Verizon Business                                  | - Sydney Water   |
| - RailCorp  | - AARNet Pty Ltd |
| - Visionstream                                      | - Primus Telecom |
| - AAPT / PowerTel                                   |                  |
| - PIPE Networks                                     |                  |
| - NBNCo   |                  |
| - Ausgrid   |                  |
| - Telstra   |                  |
| - Optus and/or Ucomm                                |                  |

This report only details the investigations undertaken in relation to the services infrastructure belonging to Ausgrid, Telstra, NBNCo/Telstra, Jemena, Sydney Water and RailCorp as required to supply Darling Square. Other private utility providers (such as private telecommunications) will be addressed at the Stage 2 DA phase.



## 5.1 DETAILS OF MODIFICATION PROPOSAL

This Modification Application seeks approval for an increase in the total maximum non-residential GFA by 2,575m<sup>2</sup>

The Modification Application to the NW plot building Stage 2 DA (SSDA4) will be undertaken concurrently with this application.

This will enable the following increase within the NW building:

Building	Previous GFA	Proposed GFA
North West Plot Commercial Building	Commercial 25,775 m <sup>2</sup> GFA and Retail 1,705m <sup>2</sup> GFA. Active uses.	Commercial (approx.) 28,055m <sup>2</sup> GFA and Retail (approx.) 1,705m <sup>2</sup> GFA. Active uses.

## 6 UTILITIES INFRASTRUCTURE

### 6.1 SEWER

#### 6.1.1 SEWER SERVICE TO THE PRECINCT

The site is located in the Sydney Water Corporation (SWC) service area, and is located within the existing urban sewer collection network. Preliminary discussions with SWC indicate the mains in the location have adequate capacity to service the SICEEP precinct.

Sections of existing infrastructure will require demolition, and new reticulation pipework shall be installed to suit the new planning. The collection pipework shall be designed in accordance with WSA Sewerage Code of Australia Sydney Water Edition 1- Version 3.

The new sewer collection system and diversions shall be designed and constructed in accordance with SWC requirements which when completed will become SWC assets.

#### 6.1.2 MODIFICATION ASSESSMENT

The following assessment of the capacity of the currently proposed sewer network has been undertaken to determine whether the proposed changes to the overall loading can be accommodated.

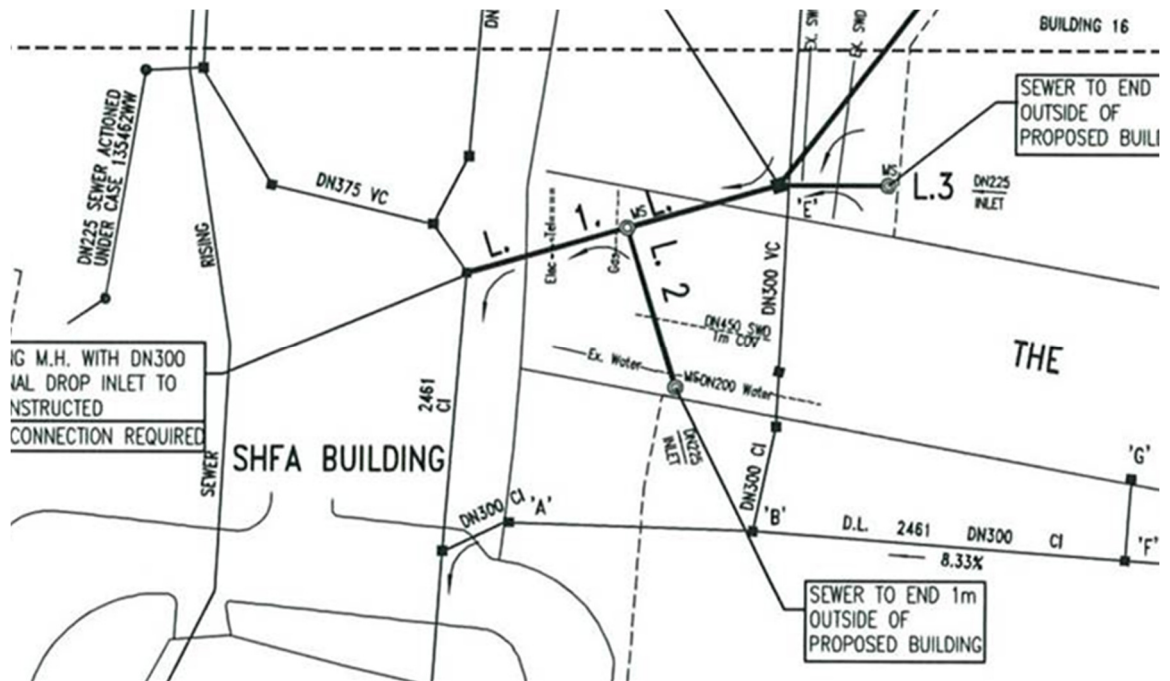
The results of this assessment can be summarised as follows:

- A) North West Building - Current sizing is OK and can accommodate the increase of 2,300m<sup>2</sup> Commercial Area

Please note, this assessment above is of Hyder sewer design only. We will need to notify Sydney Water in regard to change in sewer catchment to allow Sydney Water to assess whether the downstream sewer and pumping station has the capacity to accept the additional flows.

Please find below a detail explanation of the sewer loading

- A.) NW Commercial Building



The current sewer loading for the North West plot is 25,755m<sup>2</sup> Commercial and 1705m<sup>2</sup> Retail. The commercial area is proposed to be increased by 2,300m<sup>2</sup> to a maximum of 28,055m<sup>2</sup>.

Total proposed sewer loading is 825 EP.

Sewer Line 1 (L.1) is a DN225 main which has the design capacity to take up 1600 EP. There is still spare capacity within this sewer.

Line 2 (L.2) can be installed but may not be used or could be used for a different area.

## 6.1.3 CONSULTATION

Consultation with SWC was previously undertaken as part of the SSDA2 and further development of the concept planning and detailed planning for the individual plot development applications (SSDA3, SSDA4, SSDA5 and SSDA7).

Further consultation with SWC regarding the proposed modifications to the Concept Proposal will be required prior to commencement of detailed design. As has been demonstrated above, the current proposed sewer design for the precinct has capacity to accommodate the additional flows generated by the changes in the total Gross Floor Area.

## 6.2 WATER

### 6.2.1 WATER SERVICE TO THE PRECINCT

Darling Square is located in the SWC service area, and is located within the existing urban supply network. Preliminary discussions with SWC indicate the mains in the location have adequate capacity to service the SICEEP precinct.

Sections of existing infrastructure will require demolition/capping off, and new reticulation pipework shall be installed to suit the new development scheme planning. The reticulation pipework shall be designed in accordance with Water Supply Code of Australia (WSA)– Sydney Water edition 2012, suitable for the water loading and fire requirements for the development.

On completion, this new water service reticulation will become a SWC asset.

### 6.2.2 MODIFICATION ASSESSMENT

SICEEP WATER SUPPLY	WATER SUPPLY AVERAGE DAY kL/d	WATER SUPPLY PEAK DAY kL/d				
		Total Peak Day excl cooling water kL/d	Cooling Water kL/d	Total Peak Day kL/d	Peak Hour 8:15-9:15am kL/hr	PPP Peak Hour 1:30-2:30pm kL/hr
Total North West Plot	54	65	57	122	12	6

### 6.2.3 CONSULTATION

Consultation with SWC was previously undertaken as part of the SSDA2 and further development of the concept planning and detailed planning for the individual plot development applications (SSDA3, SSDA4, SSDA5 and SSDA7).

Further consultation with SWC regarding the proposed modifications to the Concept Proposal will be required prior to commencement of detailed design to ensure that the additional demand resulting from the increases in gross floor area and total apartments. It is anticipated that the current proposed water supply design for the precinct has capacity to accommodate the additional demand generated by the changes in the total Gross Floor Area.



## 6.3 GAS

Gas infrastructure in the vicinity of the site is owned and operated by Jemena. A 100mm/250mm secondary main (1,050kPa) skirts the northern and eastern border of the site. A branch off this line currently supplies the Entertainment Centre. It is proposed that a high pressure gas regulator will be introduced on this branch and further extended into the site and reticulated to feed the Darling Square precinct.

Jemena had previously indicated during the SSDA2 assessment that whilst the infrastructure in the immediate vicinity of the site has the capacity to service the needs of the different developments across all three precincts, the gas supply to the City of Sydney in general was close to reaching the available capacity of the trunk mains that feed it and that the SICEEP development will be required to contribute towards these costs.

Subject to commercial negotiations regarding developer contributions towards increasing Jemena's capacity to supply gas to the City of Sydney, it is expected that Jemena will be able to supply the site based on the current development concepts, including the proposed increase in non-residential Gross Floor Area.

## 6.4 TELECOMMUNICATIONS

### 6.4.1 TELECOMMUNICATIONS (FIXED)

#### Utility Responsible

NBN Co

Current in-principle approval as per their Early Certificate for the Redevelopment from NBN Co.

#### Utility Consultation and Agreements

Further consultation with NBN Co will be required, and will be undertaken as part of the detailed design for supply of services to the plot.

It is anticipated that the proposed additional Gross Floor Area will be adequately serviced via the currently proposed conduits feeding each building. Designs previously undertaken for telecommunications provision will be revised to confirm this.

## 6.5 ELECTRICAL

### 6.5.1 ELECTRICAL SERVICE TO THE PRECINCT

The site is located in the Ausgrid service area with the Darling Square site being located on the boundary between the CBD Triplex HV Network (to the East) and the Urban Network to the West. Previous discussions with Ausgrid have resulted in Ausgrid preparing an indicative Feasibility Report outlining possible means to service the site including considerations associated with the SICEEP PPP project loads and the Bayside (ICC Hotel). Ausgrid have subsequently confirmed that the PDA and PPP project loads will be serviced by two 11kV Ausgrid feeders originating from the Camperdown Zone Substation located on Purkis Street. Ausgrid have made available the capacity to service the SICEEP precinct as outlined in their Feasibility Study document.

Sections of existing infrastructure will require demolition, either due to planning and/or due to abandonment, and some diversions (where existing infrastructure clashes with the planned development) will be required. All new reticulation shall be installed to suit the new development scheme. The design and installation of the electrical infrastructure (new and/or augmented) will be undertaken by Level 3 and Level 1 and/or 2 Accredited Service Providers to the requirements of Ausgrid. On completion of the staged HV utility works by Lend Lease, the HV electrical infrastructure will become assets of Ausgrid, in stages, commensurate with the development staging.

### 6.5.2 CONSULTATION

Further consultation with Ausgrid has been undertaken as part of the detailed design for the precinct and plot development applications. The currently proposed servicing provisions include extension of conduits for connection to the North West Plot building and establishment of chamber substation. It is anticipated that the proposed additional floor space can be serviced via the currently proposed chamber substations.

### 6.5.3 EXISTING ELECTRICAL INFRASTRUCTURE

Existing Ausgrid HV infrastructure is located in Harbour Street to the east of the North West site and forms part of the CBD Triplex Network. This infrastructure currently supplies the existing Sydney Entertainment Centre complex. To the west of the site, the existing infrastructure forms part of the Urban HV Network. This infrastructure is not currently supplying services to the Darling Square site and some of this is routed directly adjacent the proposed development site for the Student Accommodation. Ausgrid's 132kV Cable Tunnel and a separate pit and conduit system (on Darling Drive) lie beneath the planned site for the proposed Student Accommodation. The existing 132kV ductline that runs through the Student Accommodation site is being modified to provide a suitable future ductline route along Darling Drive. The existing 11kV ductlines are being retained and extend to service the HV cabling extensions into each of the new chamber substations.

### 6.5.4 AUSGRID APPLICATION & CERTIFICATION

Revised maximum forecast demand calculations have been prepared for the SICEEP developments and submitted as part of the 'Application for Connection' process to Ausgrid.

The Design Information Packs from Ausgrid, have been provided for each of the Ausgrid works elements including the new chamber substations, temporary supply kiosk substations, existing 11kV diversions and new Darling Drive streetlighting. Level 3 ASP(s) has been engaged by Lend Lease and design certification has been granted by Ausgrid to permit the construction of the Ausgrid network augmentation projects.

## 7

# CONCLUSION

Lend Lease (including Hyder Consulting) has consulted where possible with relevant authorities and utility providers regarding the proposed Darling Square development in the context of:

- Existing utilities and arrangements
- Forecast demand for utilities required by the proposed Darling Square development; and
- New infrastructure, augmentation and diversion works required to facilitate the proposed the Darling Square development.

Previous consultation has confirmed that the Darling Square can be adequately serviced by utility providers, subject to further detailed investigation, scheme development and design development in consultation with the providers.

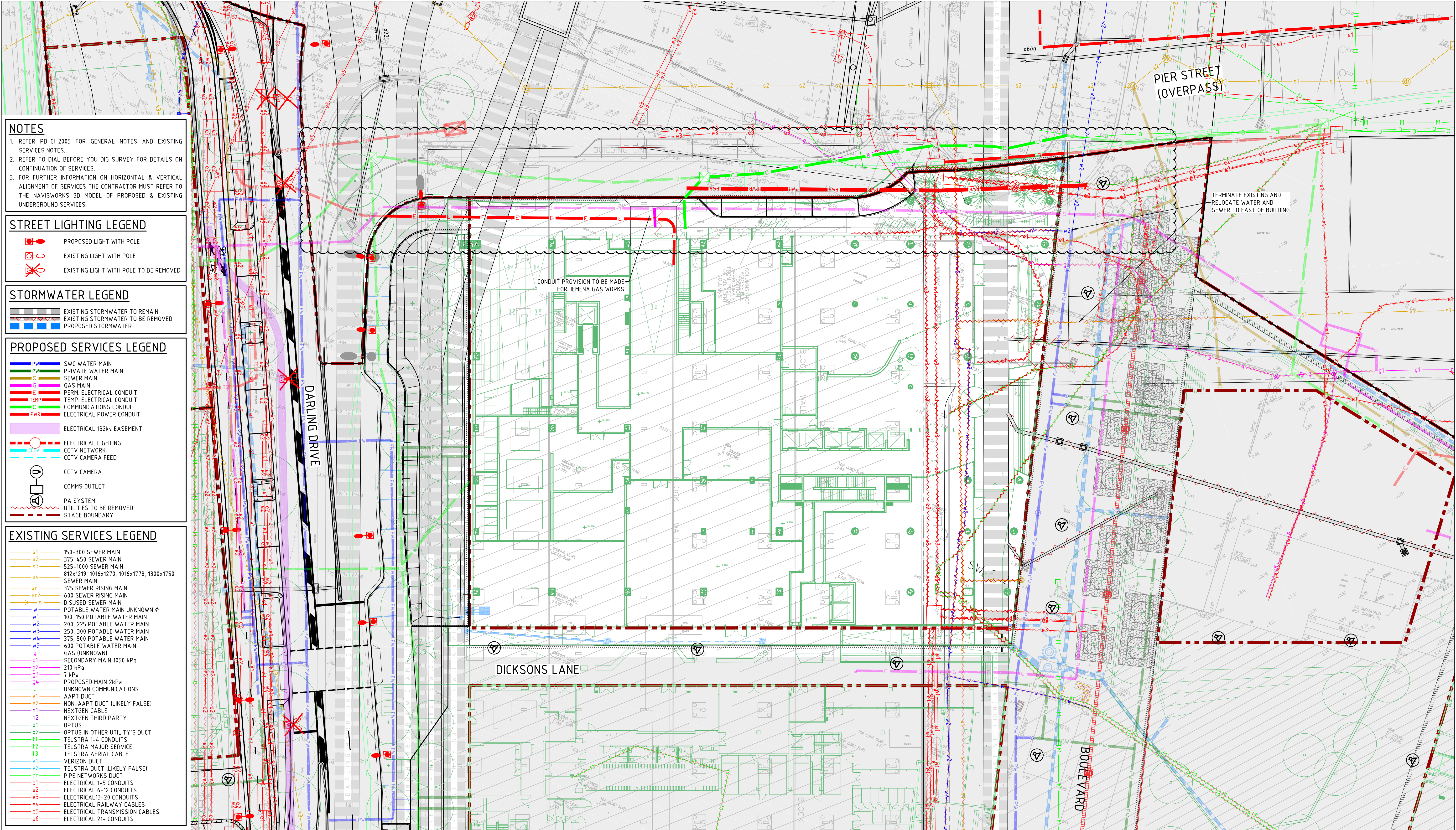
However, as set out in the report the proposed modification to the GFA (increase in non-residential GFA by 2,575m<sup>2</sup>) is considered to have minimal impact on the existing and proposed service networks within and around the Precinct.



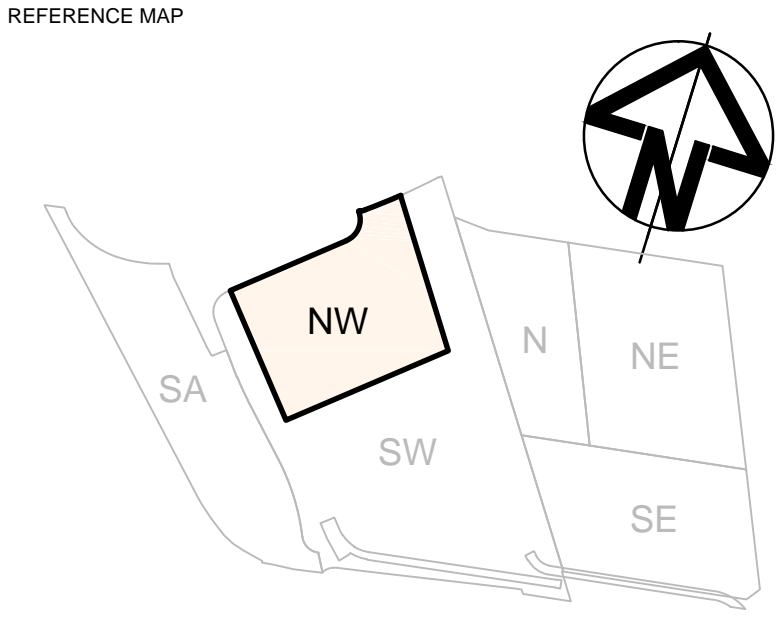
# APPENDIX A

- Combined Services Drawing





DARLING HARBOUR LIVE



NOTES:

1. DO NOT SCALE FROM DRAWINGS. USE WRITTEN DIMENSIONS ONLY.
2. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
3. ALL COORDINATES TO MGA. ALL LEVELS TO AHD.
4. ALL DIMENSIONS, COORDINATES AND LEVELS TO BE VERIFIED ON SITE BEFORE PROCEEDING WITH WORK. HYDER SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES.
5. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS AND DRAWINGS.
6. THIS DRAWING CONTAINS COLOUR AND MUST ONLY BE PRINTED OR COPIED IN COLOUR.

REV	DESCRIPTION	DATE
06	ISSUE FOR TENDER	11/05/2015
05	ISSUE FOR CONSTRUCTION	09/04/2015
04	ISSUE FOR SECTION 96	17/03/2015
03	HV ELECTRICITY CONDUIT AMENDED AND PLOT CONNECTIONS ADJUSTED	13/08/2014
02	PUBLIC REAM SERVICES & INFRASTRUCTURE ADDED	04/07/2014
01	ISSUE FOR TENDER	17/06/2014

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PROJECT

**SICEP - DARLING HARBOUR  
THE HAYMARKET PRECINCT (PDA)  
NORTH WEST PLOT**

DRAWING TITLE

**COMBINED SERVICES  
PLAN  
(ROBERT BIRD GROUP)**

STATUS

**TENDER**

SCALE @ A1

**1 : 250**

DRAWN

**LC**

DESIGNED

**-**

REVIEWED

**JJB**

APPROVED

**MAK**

PROJECT NUMBER

**AA004399**

DRAWING NUMBER

**PD-CI-2902**

REV

**06**