

Figure 2: Preferred Masterplan

## 7 PURPOSE OF THIS REPORT

This report has been prepared to accompany the DA for The Haymarket component of the SICEEP project. It addresses the relevant requirements of the DGR'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 investigation of existing utilities in the vicinity of the development, the likely points of future connection to the utilities, associated potential upgrades or augmentation that may be required.

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 5<sup>th</sup> July 2011. 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 The Haymarket development is located (refer Figure 3). Separate reports cover the PPP and The Hotel complex components of the SICEEP development.

While preliminary development staging and sequencing information has formed the basis for consultation with utility providers to date, the final staging of utility works and the protection of assets is dependent on detailed construction staging and shall be developed at a later stage of the planning and design process.

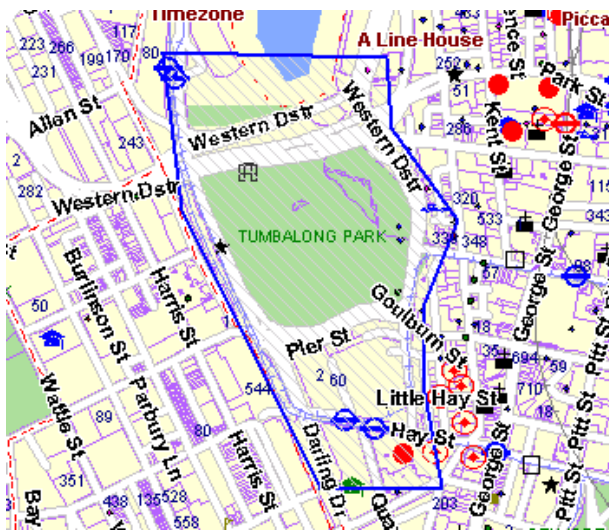


Figure 3: DBYD Enquiry Area (DBYD, 2011)

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

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

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

Chapters 8.1, 8.2, 8.4 and 8.5 of this report were prepared by Lend Lease and Chapter 8.3 was prepared by Hyder Consulting.

## 8 UTILITIES INFRASTRUCTURE

### 8.1 SEWER

#### 8.1.1 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.

#### 8.1.2 CONSULTATION

Consultation with SWC has commenced regarding servicing the development with water supply infrastructure. A preliminary servicing strategy meeting was held with SWC on 10th January 2013.

A SWC e-Developer servicing feasibility application has been submitted to SWC. SWC have confirmed in principle the development can be serviced from their existing infrastructure and are preparing a formal response to the feasibility application describing their requirements for the collection system and the receiving sewer pumping station.

The proposed student accommodation buildings in the west of The Haymarket site were identified as being located over an existing concrete encased sewer trunk main. The concrete encased main is a 1m carrier constructed in a tunnel, approximately 9m deep. At the point the tunnelled main passes under the proposed student accommodation building footprint, SWC work as executed drawings indicate that the tunnel is constructed in rock. The option of building over the sewer was discussed with SWC and it is expected that this will be addressed as part of their response to the sewer servicing feasibility application.

#### 8.1.3 SEWER INFRASTRUCTURE

New infrastructure shall be provided to service the new buildings in The Haymarket site. There are sewer mains running north to south across the site and these are proposed to be capped off / abandoned as part of the works. Existing sewer mains are located in Hay Street on the Southern Boundary. New mains are proposed to be constructed from the Hay Street main and existing mains to the north of the site to service the new buildings.

#### 8.1.4 REQUIRED WORKS

Refer to the sewer infrastructure concept plan in Appendix D for the indicative proposed new sewer reticulation, proposed relocations and mains to be made redundant.

Following SWC response to the feasibility application, it is proposed to liaise with SWC to develop an overarching servicing strategy for the SICEEP precinct, and formally submit the strategy for SWC agreement.

Subsequent to agreement for the overall precinct strategy, Section 73 applications will be made to SWC at the appropriate stages for each building development.

A building over sewer application will be required if SWC approve building over the existing sewer on the south west section of the site.

The required capital works relating to each stage of the project will then be undertaken and are expected to be executed as part of a major works contract with SWC, constructed in stages to suit the development program. Any capital works associated with the stages of the development will be in accordance with the relevant Section 73 Notice of Requirements from SWC.

## 8.1.5 SEWER INFRASTRUCTURE SERVICE

Preliminary discussions with SWC indicate the existing SWC sewer collection in the locality of the SICEEP development has the capacity to meet the demand of The Haymarket development. The mains can be extended and relocated as required to suit the intended usage on the site in accordance with SWC requirements.

## 8.2 WATER

### 8.2.1 WATER SERVICE TO THE PRECINCT

The Haymarket 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.

### 8.2.2 CONSULTATION

Consultation with SWC has commenced regarding servicing The Haymarket with water supply infrastructure.

An initial project familiarisation meeting was held with Bob Wickham from SWC at INSW offices on 20th December 2012. A second preliminary servicing strategy meeting was held with SWC on 10th January 2013 attended by

Matthew Lewis	SWC
Bob Wickham	SWC
Ray Parsell	SWC
Greg Ives	Hyder
Chris McClelland	Hyder
Chris Rust	Lend Lease
Ron Meyer	Lend Lease

At the meeting the water servicing strategy was discussed. The existing infrastructure was reviewed, and a section of trunk water main on the western section of the south development was identified as being required to be relocated to be clear of a proposed new building.

A SWC e-Developer servicing feasibility application has been submitted to SWC. SWC have confirmed in principle the development can be serviced from their existing infrastructure and are preparing a formal response to the feasibility application.

### 8.2.3 WATER INFRASTRUCTURE

Existing SWC infrastructure is located in Harbour Street to the east of The Haymarket, in Hay Street to the south, Pier Street to the north and Hay Street to the south. Reticulation mains are located within the public walkway on the western side of the existing Sydney Entertainment Centre, linking with the mains in Pier Street and Hay Street. This system of mains shall be modified as required to suit the new development, with sections demolished and new mains located in the proposed new roadways and public domains.

A trunk main is located in the western portion of The Haymarket site and is located within the footprint of a new building proposed to provide student accommodation. This trunk main is proposed to be relocated to be within the proposed amended Darling Drive road reserve and adjacent to the student accommodation building.

The staging of the project requires the Sydney Entertainment Centre is kept operation until December 2016. Water infrastructure works will maintain service to the Entertainment Centre while construction is proceeding on the western section of the site.

## 8.2.4 WATER DEMANDS

Preliminary water supply load profiles have been prepared for the development and submitted to SWC for consideration as part of the feasibility study. Preliminary diversified water load estimates for The Haymarket development are:

Domestic Water Supply - 40 L/s peak flow

Precinct Fire Flow - 105 L/s

The current use of the land to be occupied by The Haymarket includes the Sydney Entertainment Centre, multistorey carparks, on grade carpark and roadways. The Sydney Entertainment Centre is to be relocated into the PPP precinct. The Haymarket development residential buildings, commercial building and retail areas will increase the demand on the existing infrastructure but preliminary discussions with SWC indicated the existing water main capacity servicing the locality will be sufficient.

## 8.2.5 REQUIRED WORKS

Refer to Appendix D for the location of the proposed new water reticulation, proposed relocations and mains to be made redundant.

Following SWC's response to the feasibility application when it is received, it is proposed to liaise with SWC to develop an overreaching servicing strategy for the SICEEP precinct, and formally submit the strategy for SWC agreement.

Subsequent to agreement for the overall precinct strategy, Section 73 applications will be made to SWC at the appropriate stages for each building development.

The required capital works relating to each stage of the project will then be undertaken and are expected to be executed as part of a major works contract with SWC, constructed in stages to suit the development program. Any capital works associated with the stages of the development will be in accordance with the relevant Section 73 Notice of Requirements from SWC.

## 8.2.6 WATER INFRASTRUCTURE SERVICE

Preliminary discussions with SWC indicate the existing SWC water reticulation in the locality of the SICEEP development has the capacity to meet the demand of The Haymarket. The mains can be extended and relocated as required to suit the intended usage on the site in accordance with SWC requirements.

## 8.3 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 this branch will be extended into the site and reticulated to feed the Haymarket precinct.

Jemena have indicated 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 is 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.

Hyder Consulting undertook a consultation with Jemena at their offices on the 18<sup>th</sup> of January 2013, and presented a concept master plan of the SICEEP development, along with predicted future gas demands for the development. Please refer to Appendix B for a copy of the indicative utility load demands submitted to Jemena for assessment.

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. Please refer to Appendix C of this Report for a copy of the correspondence received from Jemena.

Appendix D of this Report contains a plan of the proposed indicative gas connections and alterations within The Haymarket development precinct.

## 8.4 TELECOMMUNICATIONS

### 8.4.1 TELECOMMUNICATIONS (FIXED)

#### Utility Responsible

NBN Co –Current in-principle approval as per their Early Certificate for the Redevelopment from NBN Co (refer Appendix C).

#### Utility Consultation and Agreements

A meeting was held to discuss the SICEEP development and telecommunications servicing with NBNC Co. NBNC Co are afforded right of first refusal for public telecommunications wired connectivity as required by the NBN Co and Telstra Binding Definitive Agreements.

**Date of Meeting:** 8th of January, 2013

**Location:** AECOM Office – 420 George St, Sydney

**Attendees:**

Brent Rollings	NBNC Co
Frank Kranjc	NBNC Co
Ron Meyer	Lend Lease PM&C
Greg Charalambous	AECOM
Alex McBurney	Lend Lease Design
Damien Treloar	Lend Lease Design
Greg Ives	Hyder
Heath Mallen	Hyder

#### Consultation Outcomes

- NBNC Co indicated that they currently plan to provide services to the entire SICEEP precinct and the consortium is to proceed with the DA application on this basis.
- AECOM (on behalf of Lend Lease) submitted a package of SICEEP details to NBNC Co, suitable for NBNC Co to issue a high level “In-principle” statement of consent to supply the SICEEP development with telecommunications services.
- Separate formal applications are required to be submitted via the NBNC Co website for The Bayside (ICC Hotels), The Haymarket and the Darling Central and The Bayside (PPP) areas.
- NBNC Co confirmed that in-street services would be provided under their scope of works with the SICEEP consortium responsible for the reticulation infrastructure within each lot via pits and ducts.
- Any additional secondary (diverse) service provider entry point required for the PPP are not under the NBNC Co servicing obligations.

#### Existing Arrangements

##### The Haymarket

The existing Haymarket Precinct currently contains Telstra, Optus and Verizon in-ground ducts containing a mixture of copper and fibre cabling. Other providers services may be identified as investigative works proceed and these will be suitably dealt with as required with in consultation with relevant providers

Pathways solely servicing the buildings which are nominated for demolition during this development are to be decommissioned and where practicable, cable in a reusable condition shall be pulled back and coiled at the site boundary.

This includes the following:

- Telstra cabling to the Sydney Entertainment Centre (SEC)
- Telstra cabling to the SEC Car park
- Optus cabling to the SEC
- Other providers services may be identified as investigative works proceed and these will, be suitably dealt with in consultation with relevant providers

Diversions are required for the following:

- Optus cabling and ducts along Darling Drive and Hay St through the site of the proposed Student Accommodation.
- Verizon cabling and ducts along Darling Drive and Hay St through the site of the proposed Student Accommodation.
- Requirements for diversions of other services providers may be identified as investigative works proceed and these will, be suitably dealt with in consultation with relevant providers.

Refer to the Appendix D for further details of proposed works.

## Staging

Where diversion works are required, the proposed alternate pathway will be established prior to decommissioning the existing pathway in consultation with the relevant service provider. All required cut-overs shall be programmed at times to limit the disruption of service to existing subscribers.

## Service Capacity

NBN Co. shall provide services as per the requirements of their Universal Service Obligation (USO) for the purpose of telephony to each building upon the site, terminating in the Telecommunications Entrance Room and, where applicable, will continue throughout the building to service each tenant. NBN Co. shall ensure that the infrastructure is capable of supporting 100Mbps (down-link) if a subscriber so chooses via their fibre-to-the-premises (FTTP) service.

Additional spare lead-in pathways shall be provided for dedicated tenant WAN/MAN services via point-to-point fibre links. Fibre-optic cabling shall be provided by the respective tenants. The quantity and locations shall be determined during tenant consultation with minimum provisions as per the requirements of the Property Council of Australia (PCA) Guide to Office Building Quality 2012.

## 8.4.2 TELECOMMUNICATIONS (WIRELESS)

### Utility Responsible (The Haymarket and The Bayside (ICC Hotels))

- Telstra;
- Optus;

- Crown Castle (Vodafone Hutchinson site manager);
- Darling Harbour Convention and Exhibition Pty Ltd (DHCE); and
- Sydney Harbour Foreshore Authority (SHFA).

## Utility Consultation and Agreements (where applicable)

Consultation has been undertaken with Telstra regarding existing wireless telecommunications arrangements as set out below

### Telstra

**Date of Meeting:** 17th of December, 2012

**Location:** Infrastructure NSW Offices

#### Attendees:

Mark Verrender	INSW
Dave Allen	Telstra Tunnels
Kumar Rajaram	Telstra Capacity Planning
Simon Dam	Telstra Mobiles
Bob Coyne	Telstra Property
Heath Mallen	Hyder
Greg Ives	Hyder
Geoff Todd	AECOM
Greg Charalambous	AECOM
Alex McBurney	Lend Lease Design
Ron Meyer	Lend Lease PM&C

Telstra have indicated that they have a cellular base station located on one of the Convention Centre stair cores. This services the whole of Darling harbour precinct including The Haymarket (with provision for special event loadings) as well as road traffic on the Western Distributor. Telstra must relocate this before December 2013. At present Telstra have not identified an alternative location.

Tumbalong Park has a micro cell installed. This will need to be indicated by Telstra as being a simple process.

Telstra emphasised that the existing Convention Centre has a Distributed Antenna System (DA'S) installation that is currently operated by Telstra. This is now considered to be a building owner obligation to provide and Telstra will not provide a new system in the new building.

The termination and / or relocation of any Telstra wireless telecommunications is to be resolved between the licensee and the licensor.

### Crown Castle (VHA)/Optus

Cellular Base Station and In-Building Coverage (IBC) Distributed Antenna System (DA'S) sites are located at the existing Sydney Entertainment Centre within The Haymarket. These are

believed to be managed by Crown Castle, who undertake the majority of site management for Vodafone Hutchinson Australia (VHA).

Melina Grin (SMC Coordinator – Crown Castle) has been consulted to establish Crown Castle requirements. We are currently awaiting feedback in regards to this.

The ACMA registered Site ID's are as follows:

- 202643; and
- 203474.

The importance of these sites has not been established and we are continuing to investigate this. It currently is assumed that a similar approach shall be taken for the Crown Castle sites as the Telstra sites (see above).

#### **DHCE and SHFA Radio Sites**

DHCE and SHFA operate 2-way radio base-stations across The Haymarket. These sites are proposed to be decommissioned. The future of these sites is currently being discussed with the relevant stakeholders.

### **Risks and Opportunities**

Costs associated with the decommissioning and possible relocation of utility equipment, including DHCE and SHFA infrastructure has not been included in the current budget.

## **8.5 ELECTRICAL**

### **8.5.1 ELECTRICAL SERVICE TO THE PRECINCT**

The site is located in the Ausgrid service area with The Haymarket site being located on the boundary between the CBD Triplex HV Network (to the East) and the Urban Network to the West. Preliminary 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 Hotels). To date, Ausgrid has not indicated a preferred methodology for the supply configuration and while initial proposals indicate the HV supplies will be provided at 11kV, Ausgrid has reserved their position in this regards to potentially require HV supplies to be taken at 33kV. Ausgrid has indicated that they have capacity to service the SICEEP precinct as outlined in their Feasibility Study document (refer Appendix C).

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 planning 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, it is envisaged that the HV electrical infrastructure will become assets of Ausgrid, in stages, commensurate with the development staging.

### **8.5.2 CONSULTATION**

Lend Lease has commenced Consultation with Ausgrid regarding servicing the SICEEP developments with Electrical supply infrastructure. A preliminary servicing strategy meeting was

held with Ausgrid at their Zetland offices on 15th January 2013 and minutes of this meeting have been provided.

<b>Date of Meeting:</b>	15th January, 2012
<b>Location:</b>	Ausgrid Offices, Zetland
<b>Attendees:</b>	
Mark Verrender	Infrastructure NSW
Ashwin Prasad	Ausgrid
Peter Shori	Ausgrid
Adam Simitsiotis	Ausgrid
Karl Ghest	Ausgrid
Scott Martin	AECOM
Alex McBurney	Lend Lease Design
Cameron McKay	Lend Lease Design
Ron Meyer	Lend Lease PM&C

Discussions at this meeting included:

- Overview of the Projects and timelines and sequence of development staging
- Indicative Electrical Demand including basis of calculation
- Identification of existing infrastructure and easements requiring clarification by Ausgrid
- Methodology for progressing applications for connection
- Ausgrid processes and indicative timeframes for the preparation of Feasibility Study, Design Information Pack, Level 3 ASP Design and Approval, Level 1 / 2 ASP Pricing
- Potential to utilise kiosk style substations on the urban network
- Other aspects of HV supply to the proposed development in the context of the overall SICEEP scheme

### 8.5.3 EXISTING ELECTRICAL INFRASTRUCTURE

Existing Ausgrid HV infrastructure is located in Harbour Street to the east of The Haymarket site and forms part of the CBD Triplex Network. This infrastructure currently supplies the existing Sydney Entertainment Centre complex. To the west of The Haymarket site, the existing infrastructure forms part of the Urban HV Network. This infrastructure is not currently supplying services to the Haymarket 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.

### 8.5.4 MAXIMUM FORECAST DEMANDS

Preliminary maximum forecast demand calculations have been prepared for the SICEEP developments and submitted as part of the 'Application for Connection' process to Ausgrid and have informed Ausgrid's Feasibility Study. The preliminary maximum demands for The Haymarket is 9.5MVA

## 8.5.5 PROPOSED SUPPLY ARRANGEMENTS

Arising from the consultation of 15th January, 2012, and the subsequent Applications for Connection, Ausgrid have provided an indicative Feasibility Study for the supply of the site. Based on the Ausgrid Feasibility Study, the proposed supply arrangements are as follows:

**The Haymarket:** Eastern two development lots to be supplied from existing CBD Triplex HV Network via Harbour Street.

**The Haymarket:** Western and Northern development lots (including student accommodation) to be supplied from two new urban HV feeders from Camperdown Zone Substation.

The final configuration and demand splitting between The Haymarket and the balance of the SICEEP redevelopment is still to be determined and will be the subject of commercial negotiations between Ausgrid and Lend Lease.

## 8.5.6 PROPOSED WORKS

Refer to Appendix D for the indicative new proposed electrical reticulation, proposed relocations and demolition.

On receipt of the Design Information Packs from Ausgrid, Level 3 ASP(s) will be engaged by Lend Lease to undertake the detailed design and documentation of the required infrastructure for approval by Ausgrid.

On receipt of Ausgrid's approval of the Level 3 ASP designs, Level 1 / 2 ASPs may be invited to tender for the works associated with the installation/construction of the required HV assets and relevant diversions.

Based on consultation to date with Ausgrid, the following works are anticipated (as per the Ausgrid Feasibility Study):

- Demolition / removal of existing electrical assets (redundant/obsolete) located on the The Haymarket site. Existing HV in-ground infrastructure that is redundant will typically be left in ground.
- Provision of new pits and conduits to Harbour Street to supply HV services (Triplex) to the Eastern elements of The Haymarket site (4MVA).
- Relocation/Diversion of existing HV infrastructure (pits, conduits and vaults where required) currently within the proposed Student Accommodation site of The Haymarket development including diversion of the 132kV transmission cable located through the site. It is assumed that 'building over' the existing 132kV City West transmission cable tunnel located approximately 30m below ground level will be permissible. Lend Lease will prepare suitable engineering modelling as appropriate and required by Ausgrid to demonstrate that there will be no detrimental impacts to the existing tunnel infrastructure.
- Provision of new 11kV pit and conduit system from Camperdown Zone Substation to service Western elements of The Haymarket site (5.5MVA).
- Provision of 'on site' pit and conduit systems for the lead in HV electrical services to substations located within and/or adjacent the buildings forming The Haymarket development.

- Diversion of existing HV routes internal to the site to coordinate with the proposed development scheme (where existing services are required to remain in service)
- The retention of existing supply arrangements to existing customers such as the Rockford Hotel, SHFA maintenance and offices, Pump House and the like (if and where these services are routed via The Haymarket site).
- Provision of new temporary supplies for the purpose of construction works.
- Other electrical infrastructure works may be identified upon completion of site based investigative works upon taking possession of the site and further consultation with relevant authorities.

In addition, it is noted that RailCorp (identified as 'SRA' – State Rail Authority) retain existing active HV electrical infrastructure within The Haymarket in the vicinity of the existing entertainment centre car park. Arrangements will need to be made to divert this infrastructure in accordance with RailCorp requirements to accommodate the proposed development scheme. Lend Lease lodged a Developments and Rail Crossings Application form for External Third Parties with RailCorp on January 7, 2013 however at the time of writing of this report, the application was yet to receive any response from RailCorp.

## 8.5.7 PROPOSED RETENTION OF SYDNEY ENTERTAINMENT CENTRE UNTIL DEC 2016

Consideration has been given to the retention of the Sydney Entertainment Centre until Dec 2016 and there is nothing identified in any of the planning to date which suggests that this could not be achieved based on the proposed development staging.

## 8.5.8 CONCLUSION

On the basis of the above and receipt of Ausgrid's Feasibility Study, it is our opinion that there is nothing which prevents The Haymarket development site from being serviced with HV electrical services from the Ausgrid network.

## 8.6 RAIL CORRIDOR UTILITIES

The Haymarket development scheme proposes the creation of student accommodation lots in part, within land currently under the tenure of RailCorp commensurate with the existing light rail corridor west of Darling Drive.

It is proposed that existing rail infrastructure services that may exist within the rail corridor, but under the sites for the proposed student accommodation would be relocated to facilitate the proposed development. Such infrastructure could include electrical, signalling communications, drainage and the like.

To endeavour to consult with RailCorp to understand what infrastructure services and other utilities may exist within the rail corridor portion of the proposed student accommodation lots, Lend Lease lodged a **Developments and Rail Crossings Application form for External Third Parties** with RailCorp on January 7, 2013 however at the time of writing of this report, the application was yet to receive any response from RailCorp.

Upon a response from RailCorp, Lend Lease will make arrangements for suitable relocations of the required rail corridor related infrastructure to facilitate its proposed development scheme.

## 8.7 STORMWATER DRAINAGE

### 8.7.1 EXISTING STORMWATER DRAINAGE UTILITIES

The existing stormwater drainage infrastructure network within the site falls under the tenure of 3 different authorities being City of Sydney (CoS), the Sydney Harbour Foreshore Authority (SHFA) and Sydney Water Corporation (SWC).

Stormwater drainage within the precinct includes a combination of below ground local network and trunk drainage and above ground overland flow paths. Surface inlet pits within road ways, pedestrian thoroughfares and landscaped areas capture local surface flows and drain them into minor pipe networks that drain to major trunk stormwater culverts within the precinct. These culverts then discharge into Cockle Bay towards the northern end of the SICEEP development precinct. Overland flows that bypass the inlet structures to the underground drainage network flow overland through and around the site to discharge into Cockle Bay at approximately the same location at the trunk stormwater culverts.

### 8.7.2 SWC CONSULTATION

Consultation with SWC has commenced regarding the augmentation and connection of new stormwater drainage from the SICEEP development to the existing stormwater drainage utilities operated by SWC. Consultation has also canvassed the impact of the proposed development scheme upon SWC's assets more generally.

An initial project familiarisation meeting was held with Bob Wickham from SWC at INSW offices on 20th December 2012. A second preliminary servicing strategy meeting was held with SWC on 10th January 2013 attended by

Matthew Lewis	SWC
Bob Wickham	SWC
Ray Parsell	SWC
Greg Ives	Hyder
Chris McClelland	Hyder
Chris Rust	Lend Lease
Ron Meyer	Lend Lease

A SWC e-Developer servicing feasibility application has been submitted to SWC and they are preparing a formal response.

#### Flooding

The existing SICEEP development site is currently inundated by flood waters in a range of storm events. The development proposal seeks to manage this flood impact, together with general stormwater management, through a combination of the following:

- Utilisation and retention of existing stormwater assets and networks where the proposed development scheme permits.
- Installation of new in-ground pit and pipe network to capture and convey stormwater runoff to existing trunk drainage utilities within the precinct,
- Augmentation/amplification of existing drainage utilities to manage the impact of the proposed development upon existing flooding conditions. This may be achieved through a combination of constructing new inlet structures into existing drainage utilities or the augmentation of existing drainage utilities, and
- Regrading of site surface levels to more efficiently manage and facilitate overland flood flows.

The aim of the above works proposed to be undertaken will be to improve existing drainage and flooding conditions where practicable and to avoid worsening existing drainage and flooding conditions.

### 8.7.3 WATER SENSITIVE URBAN DESIGN

At present there is minimal infrastructure in place within the precinct that is intended to manage the quality of stormwater runoff from the precinct. The majority of existing runoff within the precinct discharges directly into Cockle Bay in conjunction with untreated flows from upstream external catchments.

Where practicable, the SICEEP development proposes to implement principles of Water Sensitive Urban Design (WSUD) to treat stormwater runoff from the precinct through a combination of measures that may include rain water tanks, grass bio-swales, stormwater inlet-pit filters/inserts, gross pollutants traps and the like. The intention of these water sensitive urban design measures will be to reduce the suspended solids and nutrient loads that currently discharge into Cockle Bay via untreated stormwater runoff. The extent of WSUD initiatives will be subject to further consultation with relevant authorities.

## 9 CONCLUSION

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

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

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

APPENDIX A

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HYDER CONSULTING, AECOM, LEND LEASE &  
WSC CORRESPONDENCE

# APPLICATION FOR CONNECTION



To be completed in BLOCK LETTERS by the electrical contractor or agent, on behalf of the customer.

A Site Establishment Fee as detailed in ES5 may apply to this installation. You will be notified if a Site Establishment Fee applies to this installation when your Job Number is issued. The Site Establishment Fee is charged when the Notification of Service Work is received.

Fax Sydney and Tuggerah (02) 43998007

Email to: [ea.datanorth@ausgrid.com.au](mailto:ea.datanorth@ausgrid.com.au)

Fax Local Call (Not to be used for Muswellbrook) 1300 662 089

Fax Muswellbrook (02) 65429 037

Email to [ea.datamuswellbrook@ausgrid.com.au](mailto:ea.datamuswellbrook@ausgrid.com.au)

RETAILER										NMI									

## INSTALLATION ADDRESS

Property Name  
 'The Haymarket' PDA

Floor Unit Street Lot/RMB

Street  
 Darling Drive

Nearest Cross Street  
 Hay Street

Suburb Postcode  
 Darling Harbour, NSW 2000

Pole/Pillar ID

Existing Meter ID

Office Use Only  
 Job Number

Site Establishment Fee to be applied

## CUSTOMER AND POSTAL ADDRESS

First Name (or Company Name)  
 Lend Lease

Last Name

Floor Unit Street No PO Box Street  
 30 Hickson Road

Street (cont) Suburb Postcode  
 Millers Point, NSW 2000

Phone

Mobile

## ELECTRICAL CONTRACTOR/AUTHORISED SERVICE PROVIDER

Electrical Contractor Name Licence Number  
 T.B.C.

Authorised Service Provider Name Licence Number

Email Address (Preferred Option of Returning Job Number)

E/C or ASP Postal Address

Contact Phone Number

Contact Phone Number

Fax Number

## SERVICE, DEMAND AND LOAD DETAILS (please tick)

<b>Connection Type</b> New <input checked="" type="checkbox"/> Alteration <input type="checkbox"/> Upgrade <input type="checkbox"/> Separation <input type="checkbox"/> Amalgamation <input type="checkbox"/> Grid Connected <input type="checkbox"/> Generation System <input type="checkbox"/>	<b>Service Type</b> Overhead <input type="checkbox"/> Underground <input checked="" type="checkbox"/> UGOH <input type="checkbox"/> Off Pole Transformer <input type="checkbox"/> Upgrade to TOU <input checked="" type="checkbox"/>	<b>Service Size</b> 100A <input type="checkbox"/> 200A <input type="checkbox"/> 400A <input type="checkbox"/> Other..... A 13770A/ph	<b>Number of Installations</b> Single Installation <input type="checkbox"/> Multiple Installation <input checked="" type="checkbox"/> Number of House Services <input type="checkbox"/> Number of Units <input type="checkbox"/>	<b>Premise Type</b> Domestic Torrens <input type="checkbox"/> Strata <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Builders Service Perm <input type="checkbox"/> Special Small Service (Indicate type of SSS below) <input type="checkbox"/> Other.....	<b>Supplementary AFC</b> If the installation is one of the following types you must also complete and attach the Supplementary Application for Connection. New electrical work over 20kW <input checked="" type="checkbox"/> Services greater than 100 Amps <input checked="" type="checkbox"/> CT metered installations (CT Metering Form MUST be submitted) <input checked="" type="checkbox"/> New HV installations and those requiring more than 100 Amps of additional load <input type="checkbox"/> Multiple living unit developments (more than six units) <input type="checkbox"/> Installations located in rural or outlying areas <input type="checkbox"/> Work where the proposed equipment may cause excessive fluctuation of voltage (eg welders, x-ray machines) <input type="checkbox"/> Equipment > 75A per phase (Power Quality Form MUST be submitted) <input checked="" type="checkbox"/> Grid Connected Generation System <input type="checkbox"/>
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Calculated Maximum Demand in Each Phase (Amps)

A	B	C	Service Length
Proposed 13770	13770	13770	
Existing NIL	NIL	NIL	Existing Service Rating

Details of Job: Mixed use development of five (5) commercial, retail, residential and carpark facilities and two (2) student accommodation buildings as a Private Development Application with Infrastructure NSW.

Print Name ..Cameron McKay..... Signature Date 21/01/2013

# SUPPLEMENTARY



## APPLICATION FOR CONNECTION

To be lodged with the Application for Connection. Refer to document ES1.

FAX

Tuggerah (02) 43998007

Email to  
ea.datanorth@ausgrid.com.au

Free Call 1300 662089

(Not to be used for Muswellbrook)

Muswellbrook (02) 65429037

Email to  
ea.datamuswellbrook@ausgrid.com.au

### This form is required for:

- New electrical work over 20kW (Part A, B, C);
- Multiple living unit developments (more than 6 units) (Part A, B, C);
- For services greater than 100 Amps (Part A, B, C);
- CT metered installations. **NOTE: The installation WILL NOT be energised unless all the information required on the CT Metering form has been provided and processed (Clause 4.5 of ES1).** (Part A, B, C);
- Rural or outlying areas (Part A, B & C);
- New HV installations and those requiring more than 100kW or additional load (Part A, B, C, D);
- Work where the proposed equipment may cause excessive distortion, fluctuation or unbalance of voltage (Part A,B,C,D);
- All new and altered Solar Grid Connected generation installations (Part A, E)
- All other new and altered Grid Connected generation Installations (Part A, C, E)

Please complete this form in **BLOCK LETTERS**.

### PART A INSTALLATION ADDRESS

#### Property Name

'The Haymarket' PDA

Floor Unit Street No. RMB/Lot

Street Suburb  
Darling Drive Darling Harbour

Cross Street Existing Meter ID Pole Pillar ID  
Hay Street

### PART B INSTALLATION LOAD DETAILS

#### Residential Portion

No living units: 1782  
 No of bedrooms per unit: Various  
 Gas hot water (yes/no): Yes  
 Lift(s) and start current: TBC  
 Car park ventilation current rating: TBC  
 Air conditioning (yes/no): Yes  
 Air conditioning rating: TBC

#### Commercial Portion

Total floor area with air/con: 22696m<sup>2</sup>  
 Total office floor area without air/con: 0m<sup>2</sup>  
 Car park floor area: 16509m<sup>2</sup>  
 Warehouse floor area: 0m<sup>2</sup>  
 Commercial areas for food handling (yes/no): Yes – in retail areas

#### Industrial Portion

Number of factory units: N/A  
 Total floor area of all factory units: N/A m<sup>2</sup>

### Part D – Power Quality. Attach Power Quality Assessment form if any of the following are proposed:

Variable Speed Drives, switched-mode power supplies or other rectifiers > 75A per phase	<b>X</b>
Motors exceeding the limits set out in the Service and Installation Rules of NSW	<b>X</b>
Arc furnaces, welders or harmonic filters	
Unbalanced loads (Phase-Phase connected or single phase > 75A)	<b>X</b>
Power Factor Correction capacitor banks	<b>X</b>
Other voltage distorting or fluctuating equipment > 75 per phase, or installation with a large deployment of computer servers or IT equipment	<b>X</b>

### PART C DIAGRAM

Refer to attached site plan.

### Part E- Grid Connected Generation Systems. Full details of any Grid Connected Generation Systems (Refer to Section 8 of the Service & Installation Rules of NSW)

Make/Model:	
Inverter Details	
Size of Inverter: (Nominal Rating)	kW
No. of Phases:	1      3
No. of Inverters:	Is Inverter an Approved Type? (CEC) YES NO      If No, Attach Certificate of Suitability
Total kW's to be Connected (Single Phase)	kW's
Note: The Metering Configuration must be Net Metering	CEC Accredited Installer Number
The installation must be: -	Solar Panel Details      Other Generator details (Wind etc.)
	Number _____      Type _____ Total Rating _____ kW      Total Rating _____ kW

a) Designed and installed by a CEC accredited person



21 January 2013

Mr Ashwin Prasad  
Manager, Contestability Sydney South & East  
Distribution Operations & Reliability  
Building 1A, 33-45 Judd Street  
Oatley NSW 2223  
Australia  
aprasad@ausgrid.com.au

Dear Ashwin,

Re: Application for Connection – Sydney International Convention Exhibition Entertainment Precinct, 'The Haymarket' and 'ICC Hotels'

Further to our meeting of 15 January 2013, we now write to formally make applications for connections associated with the Sydney International Convention Exhibition and Entertainment Precinct (SICEEP) developments. Below we outline the developments including associated ownerships and anticipated contractual arrangements for each of the developments.

### Introduction

On 11 December 2012 "Destination Sydney", now known as 'Darling Harbour Live', (a consortium comprising Lend Lease, Capella Capital, AEG Ogden and Spotless) was announced as the preferred proponent for the delivery of the Public-Private-Partnership (PPP) redevelopment of the SICEEP by the government of New South Wales. In addition, Lend Lease was announced as the preferred proponent for the delivery of the two Project Development Application (PDA) elements known as 'The Haymarket' and 'ICC Hotels'. It is a requirement of the developments that the DA applications be made commencing 28 February 2013 with the last of the Detailed DA Applications being made in April 2013. A plan of the 'proposed masterplan' is attached for your reference including an indicative area schedule.

### Overview

The various parties involved including their roles are identified below:

The Government of New South Wales (The State) – Ultimately 'The Client' of the PPP component. As the project is a 'State Significant Project', the Government of New South Wales, via the Director General, is the 'approving authority' in terms of the Part 4 application.

Infrastructure New South Wales (INSW) – An independent statutory agency assisting the NSW Government in identifying and prioritizing the delivery of critical public infrastructure for NSW. INSW is managing the delivery of the SICEEP redevelopment.

Sydney Harbour Foreshore Authority (SHFA) – The local authority of the land on which the development is taking place.

Darling Harbour Live – A Consortium comprising Lend Lease, Capella Capital, AEG Ogden and Spotless and currently the preferred proponent of the PPP element of development.

Lend Lease Development: - The preferred proponent of the two (2) PDA elements of the development.

Lend Lease Project Management & Construction – A subsidiary of Lend Lease Corporation responsible for the project management, design and construction of selected Lend Lease projects.

Lend Lease, Design – An internal department within Lend Lease Project Management and Construction responsible for the engineering services and architectural design elements (including design risk identification and authority liaison). Lend Lease Design is currently engaged to provide electrical engineering consulting services to the PDA elements of the project.

AECOM Australia – A subsidiary of AECOM (a New York Stock Exchange listed company) currently engaged to provide electrical engineering consulting services to the PPP element of the development.

Hyder Consulting – A London Stock Exchange listed company engaged to provide civil engineering services to both the PPP and PDA elements of the development.

### SICEEP

The SICEEP development is located on the site of the existing Sydney Convention and Exhibition Centre site (including the public realm area of Tumbalong Park). The development consists of the establishment of a new, larger Convention Centre (on the site of the current Convention Centre to the North of the development site), a new, larger Exhibition Centre (on the northern end of the current Exhibition Centre Site) and a new 8,000 seat 'Theatre' (Entertainment Centre) (on the southern end of the current Exhibition Centre Site). The planned demolition of the existing facilities is such that the existing carpark / basement structure will remain with new construction occurring on the existing structure provided.

This site will be owned and returned to the State of New South Wales on completion of the development as per the PPP arrangements with 'Darling Harbour Live' operating the venue for 25 years

### Existing Demand

This site is currently served by five surface chamber substations (4 on the Convention and Exhibition Centre site and one triplex substation on the Entertainment Centre site) currently being serviced by HV feeders on the Ausgrid network. The existing design capacities of these substations total in the order of 17.4MVA. Our enquiries indicate that the operating maximum demand is in the order of 7MVA for the Exhibition/Convention Centre substations and 2.4MVA for the Entertainment Centre triplex substation, totaling 9.4MVA for the site.

### New Demand

The new development proposes the establishment of 5 new surface chamber substations (four of which are to be located along Darling Drive) with an anticipated maximum demand of 13.4MVA. Taking into account the demand on the existing site, the development will result in an increase in load of 6.4MVA.

### 'The Haymarket'

This site is bounded by Pier Street (overpass, to the North), Harbour Street (to the East), Hay Street / Light Rail Line (to the South) and the realigned Darling Drive (to the West), is a mixed use development comprising five towers incorporating accommodation, commercial, retail and associated carparking facilities (this site currently housed the Sydney Entertainment Centre and associated carparking facilities). In addition, two student accommodation buildings to the west (between the realigned Darling Drive and the Light Rail Corridor in space currently occupied by the soon to be removed Monorail) are to be developed. The site is currently served by a Triplex substation (in the Entertainment Centre) which will be decommissioned when the existing Entertainment Centre is demolished



The anticipated maximum demand on completion of these elements in the order of 9.5MVA, including approximately 1.7MVA of load associated with the two student accommodation buildings.

This site will be developed and owned by Lend Lease, and may be subject to future subdivision (post DA) and on-sale.

#### 'ICC Hotels'

This site is located to the west of the existing Harbourside development, to the north of the existing Convention Centre and to the east of the light rail corridor. This site is currently planned to host two hotels delivering 915 keys. The land is currently undeveloped (landscape and roadway) and therefore there is no existing electrical load.

The anticipated maximum demand is in the order of 4.8MVA.

This site will be developed and owned by Lend Lease and may be subject to future subdivision (post DA) and on-sale.

#### Load Summary

In summary, the additional loads for the site are as follows:

Area	Estimated Load (MVA)
SICEEP PPP	13.4MVA
Haymarket PDA	9.5MVA
ICC Hotels PDA	4.8MVA
Subtotal	27.7MVA
Existing Site Load	(9.4MVA)
<b>TOTAL ADDITIONAL LOAD</b>	<b>18.3MVA</b>

#### Temporary Supplies / Construction Power

Although it is very early in the construction planning stages, it is currently envisaged to obtain construction power / temporary supplies as follows:

**SICEEP:** By utilising the existing substations currently serving the existing Exhibition Centre until the new, permanent substations are constructed and energised at which time Temporary Supplies / Construction power will be sourced from the new substations until completion of the project.

**'The Haymarket':** Due to the anticipated staging of this project and the consideration being given to maintaining operation of the existing Sydney Entertainment Centre until the establishment of the new Entertainment Centre/Theatre within SICEEP, we anticipate obtaining Temporary Supplies / Construction Power from the existing substation serving the existing Sydney Entertainment Centre until new substations are established in the initial stages of 'The Haymarket' development (anticipated to be to the west of the existing Sydney Entertainment Centre).

**'ICC Hotels':** The ICC Hotel site is a particularly constrained site to the north of the existing Convention Centre and west of the 'Harbourside' development. To obtain construction power / temporary supplies to this site we anticipate either:

- a) Sourcing supply from the substation(s) located within the 'Harbourside' development (subject to Ausgrid confirmation of available spare capacity), or
- b) Establishment of site temporary kiosk substation to service the site.

Formal application for site temporary supplies will be made in due course however your initial feedback and advice regarding supply availability on the basis of the above assumptions/proposals would be appreciated.

**Applications for Connection**

Due to the contractual and anticipated ownership arrangements we intend to make multiple applications for connection initially as follows (and attached):

Application 1 of 3: SICEEP PPP

Application 2 of 3: 'The Haymarket' PDA

Application 3 of 3: 'ICC Hotels' PDA

We trust the above is of assistance and look forward to your ongoing assistance and cooperation in delivering these significant developments to the State of New South Wales.

Should you wish to discuss any specific detail further, please do not hesitate to contact Cameron McKay on 0427 370 324 or myself on 0411 028 055.

Yours Sincerely,

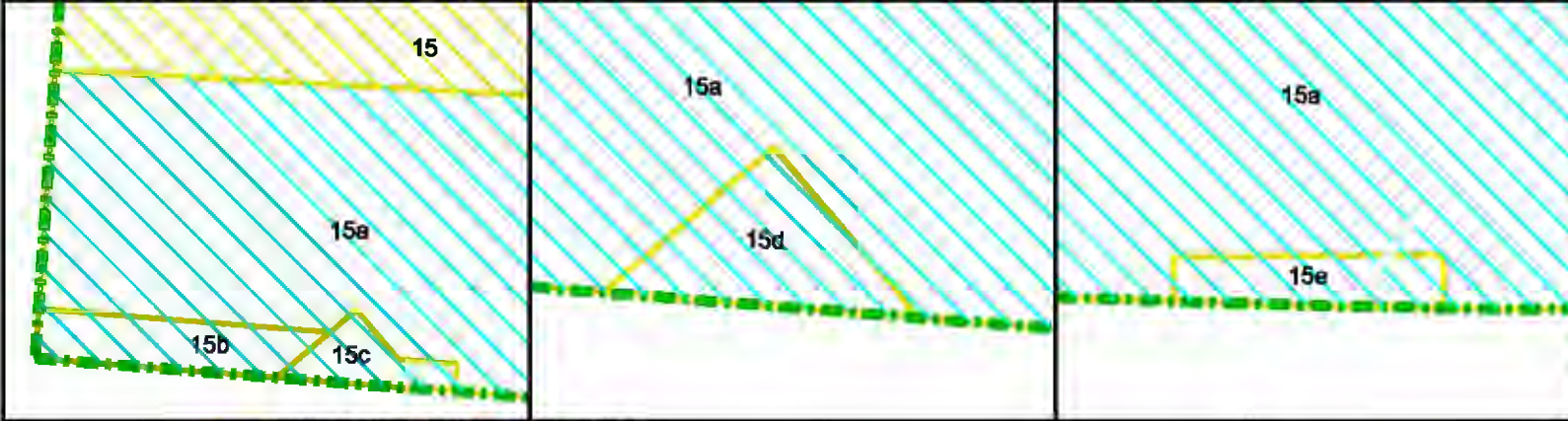
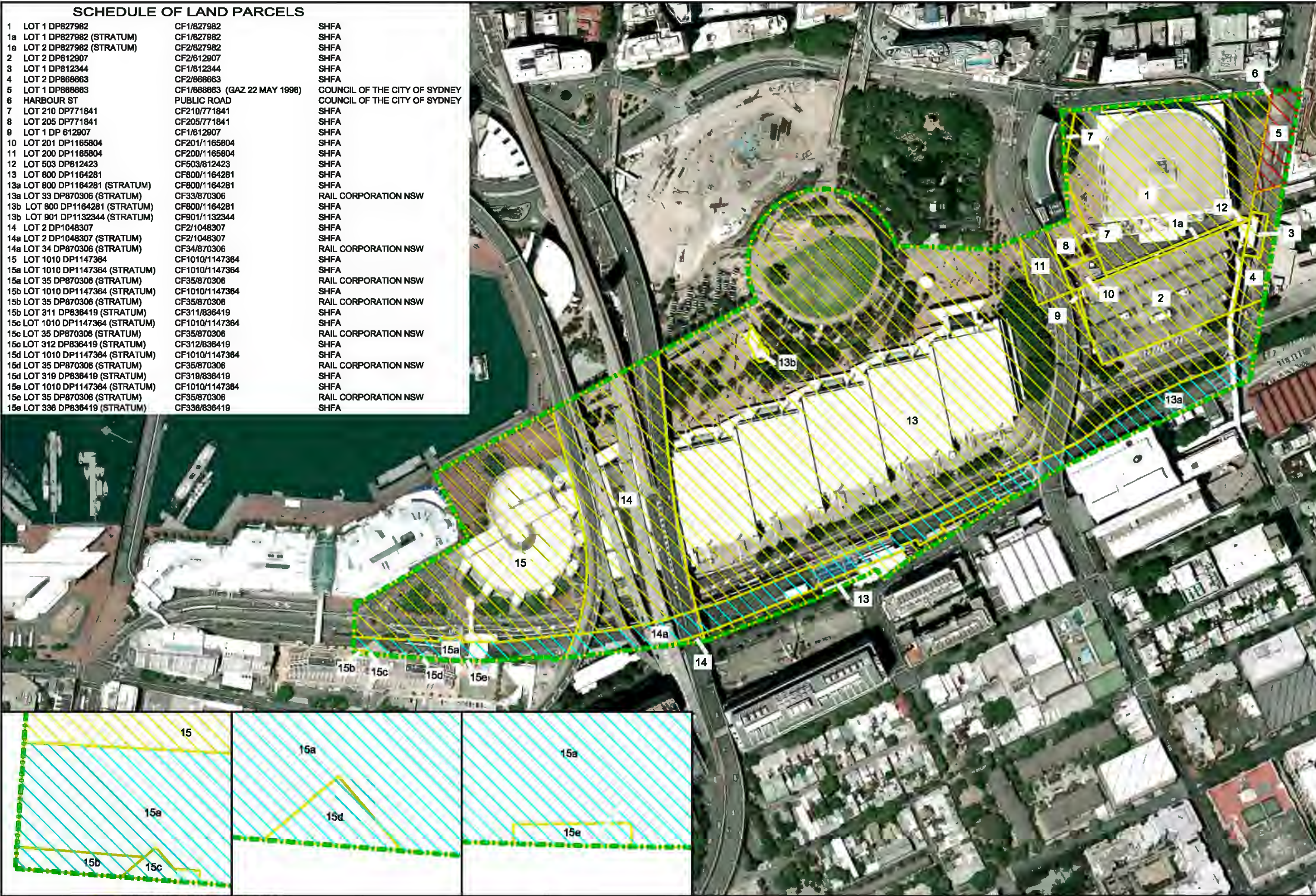


**AM** Alex McBurney  
National Engineering Manager, Design

Cc: Ron Meyer, Lend Lease PM&C  
Warwick Bowyer, Lend Lease, Development

# SCHEDULE OF LAND PARCELS

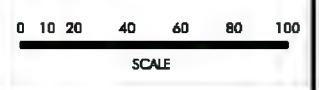
1	LOT 1 DP827982	CF1/827982	SHFA
1a	LOT 1 DP827982 (STRATUM)	CF1/827982	SHFA
1a	LOT 2 DP827982 (STRATUM)	CF2/827982	SHFA
2	LOT 2 DP812907	CF2/812907	SHFA
3	LOT 1 DP812344	CF1/812344	SHFA
4	LOT 2 DP888663	CF2/888663	SHFA
5	LOT 1 DP888663	CF1/888663 (GAZ 22 MAY 1998)	COUNCIL OF THE CITY OF SYDNEY
6	HARBOUR ST	PUBLIC ROAD	COUNCIL OF THE CITY OF SYDNEY
7	LOT 210 DP771841	CF210/771841	SHFA
8	LOT 205 DP771841	CF205/771841	SHFA
9	LOT 1 DP 612907	CF1/612907	SHFA
10	LOT 201 DP1165804	CF201/1165804	SHFA
11	LOT 200 DP1165804	CF200/1165804	SHFA
12	LOT 503 DP812423	CF503/812423	SHFA
13	LOT 800 DP1164281	CF800/1164281	SHFA
13a	LOT 800 DP1164281 (STRATUM)	CF800/1164281	SHFA
13a	LOT 33 DP870306 (STRATUM)	CF33/870306	RAIL CORPORATION NSW
13b	LOT 800 DP1164281 (STRATUM)	CF800/1164281	SHFA
13b	LOT 901 DP1132344 (STRATUM)	CF901/1132344	SHFA
14	LOT 2 DP1048307	CF2/1048307	SHFA
14a	LOT 2 DP1048307 (STRATUM)	CF2/1048307	SHFA
14a	LOT 34 DP870306 (STRATUM)	CF34/870306	RAIL CORPORATION NSW
15	LOT 1010 DP1147364	CF1010/1147364	SHFA
15a	LOT 1010 DP1147364 (STRATUM)	CF1010/1147364	SHFA
15a	LOT 35 DP870306 (STRATUM)	CF35/870306	RAIL CORPORATION NSW
15b	LOT 1010 DP1147364 (STRATUM)	CF1010/1147364	SHFA
15b	LOT 35 DP870306 (STRATUM)	CF35/870306	RAIL CORPORATION NSW
15b	LOT 311 DP836419 (STRATUM)	CF311/836419	SHFA
15c	LOT 1010 DP1147364 (STRATUM)	CF1010/1147364	SHFA
15c	LOT 35 DP870306 (STRATUM)	CF35/870306	RAIL CORPORATION NSW
15c	LOT 312 DP836419 (STRATUM)	CF312/836419	SHFA
15d	LOT 1010 DP1147364 (STRATUM)	CF1010/1147364	SHFA
15d	LOT 35 DP870306 (STRATUM)	CF35/870306	RAIL CORPORATION NSW
15d	LOT 319 DP836419 (STRATUM)	CF319/836419	SHFA
15e	LOT 1010 DP1147364 (STRATUM)	CF1010/1147364	SHFA
15e	LOT 35 DP870306 (STRATUM)	CF35/870306	RAIL CORPORATION NSW
15e	LOT 336 DP836419 (STRATUM)	CF336/836419	SHFA



PLAN PREPARED BY:  
 GEOSPATIAL MANAGEMENT SERVICES  
 76/23 NARABANG WAY  
 BELROSE NSW 2085  
 PH 94501221

LAND HELD BY SHFA AS REGISTERED PROPRIETOR AS AT 14 DECEMBER 2011  
 LAND HELD BY SHFA EXCLUDING THE STRATUM LOT HELD BY RAIL CORPORATION NSW  
 LAND HELD BY THE COUNCIL OF THE CITY OF SYDNEY

SYDNEY INTERNATIONAL CONVENTION, EXHIBITION AND ENTERTAINMENT PRECINCT BOUNDARY



Planning & Infrastructure  
 Sydney Harbour Foreshore Authority

SYDNEY HARBOUR FORESHORE AUTHORITY  
 PLAN SHOWING LAND OWNERSHIP  
 WITHIN THE SYDNEY INTERNATIONAL CONVENTION,  
 EXHIBITION AND ENTERTAINMENT PRECINCT BOUNDARY