SYDNEY FOOTBALL STADIUM REDEVELOPMENT

STATE SIGNIFICANT DEVELOPMENT APPLICATION

Concept Proposal and Stage 1 Demolition

SSDA 9249

APPENDIX U:

Infrastructure Management Strategy

NSW GOVERNMENT

Sydney Football Stadium Redevelopment

Infrastructure Management Plan

Infrastructure NSW

Reference: 501857

Revision: 4

28 May 2018

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Document control record

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Document control						aurecon
Report title		Infrastructure Management Plan				
Document ID		SFSR-IMP	**Project number**		501857	
File path		\\Aurecon.info\shares\AUSYD\Projects\BG\501857 - New Allianz Stadium\3.Project Delivery\8.Reports\Infrastructure Management Plan\SFS - Infrastructure Management Plan[4].docx				
Client		Infrastructure NSW				
Client contact		David Riches	**Client reference**		DR	
Rev	**Date**	**Revision details/status**	**Author**	**Reviewer**	**Verifier** (if required)	**Approver**
1	6 April 2018	Draft Issue	SB/TG/GR/CD	MM	MM	MM
2	26 April 2018	Revised Draft Issue	SB/TG/GR/CD	MM	MM	MM
3	24 May 2018	Revised Draft Issue	SB/TG/GR/CD	MM	MM	MM
4	28 May 2018	Issued for Stage 1 DA	SB/TG/GR/CD	MM	MM	MM
Current revision		**4**				

Approval			
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1 Executive Summary

1.1 Introduction

This report supports a State Significant Development (SSD) Development Application (DA) for the redevelopment of the Sydney Football Stadium which is submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). A staged approach to the planning applications is proposed which includes:

- **Stage 1** – Concept Proposal for the stadium envelope and supporting retail and functional uses as well as development consent for the carrying out of early works, including demolition of the existing facility and associated structures.
- **Stage 2** – detailed design, construction and operation of the stadium and supporting business, retail and functional uses.

This report relates to the Stage 1 Concept DA and detailed Early Works package.

Infrastructure NSW is the Proponent for the Stage 1 planning application.

1.1 Background

The Sydney Football Stadium (SFS) is a significant component of the sports facilities that comprise the Sydney Cricket and Sports Ground (SC&SG). Completed in 1988, the SFS has hosted numerous sporting events in its 30 years of operation for a number of sporting codes including football (soccer), rugby league and rugby union as well as occasional music concerts.

In 2012, the NSW Government announced the NSW Stadia Strategy 2012 which provided a vision for the future of stadia within NSW, prioritising investment to achieve the optimal mix of venues to meet community needs and to ensure a vibrant sports and event environment in NSW. A key component of the strategy included development of master plans for Tier 1 stadia and their precincts covering transport, integrated ticketing, spectator experience, facilities for players, media, corporate and restaurant and provision for entertainment. SFS is one of three Tier 1 stadia within NSW, the others being Stadium Australia (Olympic Park) and the Sydney Cricket Ground.

In order to qualify for Tier 1 status, a stadium is required to include:

- Seating capacity greater than 40,000;
- Regularly host international sporting events;
- Offer extensive corporate facilities, including suites, open-air corporate boxes and other function/dining facilities; and
- Be the home ground for sporting teams playing in national competitions.

Following release of the NSW Stadia Strategy, the Sydney Cricket and Sports Ground Trust (SCSGT) undertook master planning culminating in the 2015 Preliminary SCG Master Plan. This master plan defines the context for future redevelopment of the SCG, SFS and related sports infrastructure to ensure that the precinct continues to meet the needs and expectations of visitors and tenants into the future.

In a competitive national landscape, the existing Allianz Stadium (SFS) is now facing serious commercial and operational challenges to remain relevant and competitive. The SFS was constructed many years ago and therefore it fails to meet certain criteria for modern Tier 1 stadiums. The stadium has aged poorly and fails to meet expectations with regards to patron experience, crowd management, safety/security, accessibility, facilities for core tenants, operational efficiency, premium hospitality and food/beverage offerings and media requirements.

On 24 November 2017, the NSW Premier announced the redevelopment of the SFS into a world-class stadium with up to 45,000 seats. The redevelopment will include demolition of the existing facility and replacement with a modern, globally competitive stadium that achieves the requirements for a Tier 1 stadium to meet future requirements. Redevelopment of the SFS will assist in supporting the realisation of the Master Plan principles to:

- Create a flexible venue suitable for sports, e-sports and major events alike;
- Include technology for the future;
- Create a venue for the growth of men's and women's elite sport, as well as the ability to adapt to new sports and the rise of e-sports;
- Create a publicly accessible entertainment and recreational facility;
- Create a stadium integrated with its surrounds including Centennial and Moore Parks and the surrounding residential and business areas; and
- Create a sustainable future.

1.2 Purpose

This report addresses the following items of the Secretary's Environmental Assessment Requirements (SEARs) for the development.

Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure.

Undertake a preliminary analysis of the likely service demands for drinking water, wastewater and recycled water services and outline the preliminary Integrated Water Management principles detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design. This should include preliminary details of sustainability initiatives that will minimise/reduce the demand on supplies.

1.3 Scope

Although the seating capacity remains the same, the significant increase to gross floor area, food and beverage offerings, corporate facilities, amenities and technology which will be provided as part of the development is expected to result in an increased demand on existing utility services infrastructure.

In response, this report aims to provide the following items to inform the strategy for servicing the proposed stadium development:

- A summary of existing infrastructure services in the vicinity of the site
- A preliminary assessment of proposed demand for each utility service
- An assessment of the indicative capacity of utility infrastructure currently servicing the site and any required augmentation
- A summary of the staging and timing of the utilities and services works.

This report focuses on the following utility services infrastructure:

- Potable water infrastructure (Water)
- Wastewater infrastructure (Sewer)
- Electrical infrastructure (Elec)
- Natural gas infrastructure (Gas) and
- Data and telecommunications infrastructure (Telco)

Stormwater drainage and flood management infrastructure is described in a separate Stormwater Management Plan (SMP) prepared by Arup and is not considered in this report.

Please note that the utility infrastructure information provided in this report is detailed on record drawings provided by utility authorities through DBYD enquiries made by Aurecon and existing visual non-intrusive services surveys.

Assumptions included within this report, including existing site conditions, existing and proposed infrastructure capacity, and existing and proposed demand will need to be confirmed prior to detailed design and further consultation with the utility authorities.

1.4 Site Description

The site is located at 40-44 Driver Avenue, Moore Park within the Sydney Cricket Ground Precinct. It is bound by Moore Park Road to the north, Paddington Lane to the east, the existing SCG stadium to the south and Driver Avenue to the west. The site is located within the City of Sydney local government area.

The site is legally described as Lots 1528 and 1530 in Deposited Plan 752011 and Lot 1 in Deposited Plan 205794. The site is Crown Land, with the SCSGT designated as the sole trustee under the *Sydney Cricket and Sports Ground Act 1978*. The site is wholly contained within designated land controlled by the Sydney SCSGT under Schedule 2A of the *Sydney Cricket and Sports Ground Act 1978*.

In a broader context, the site is largely surrounded by Centennial and Moore Parks, the Fox Studios and Entertainment Quarter precincts and the residential suburb of Paddington. Located approximately 3km from the Sydney CBD and approximately 2km from Central Station, the site is connected to Sydney's transport network through existing bus routes and will benefit from a dedicated stop on the soon to be completed Sydney CBD and South East Light Rail.

The locational context of the Site is shown in **Figure 1**, whilst the site boundaries and existing site features are shown in **Figure 2**.

Figure 1 - Regional Site Context

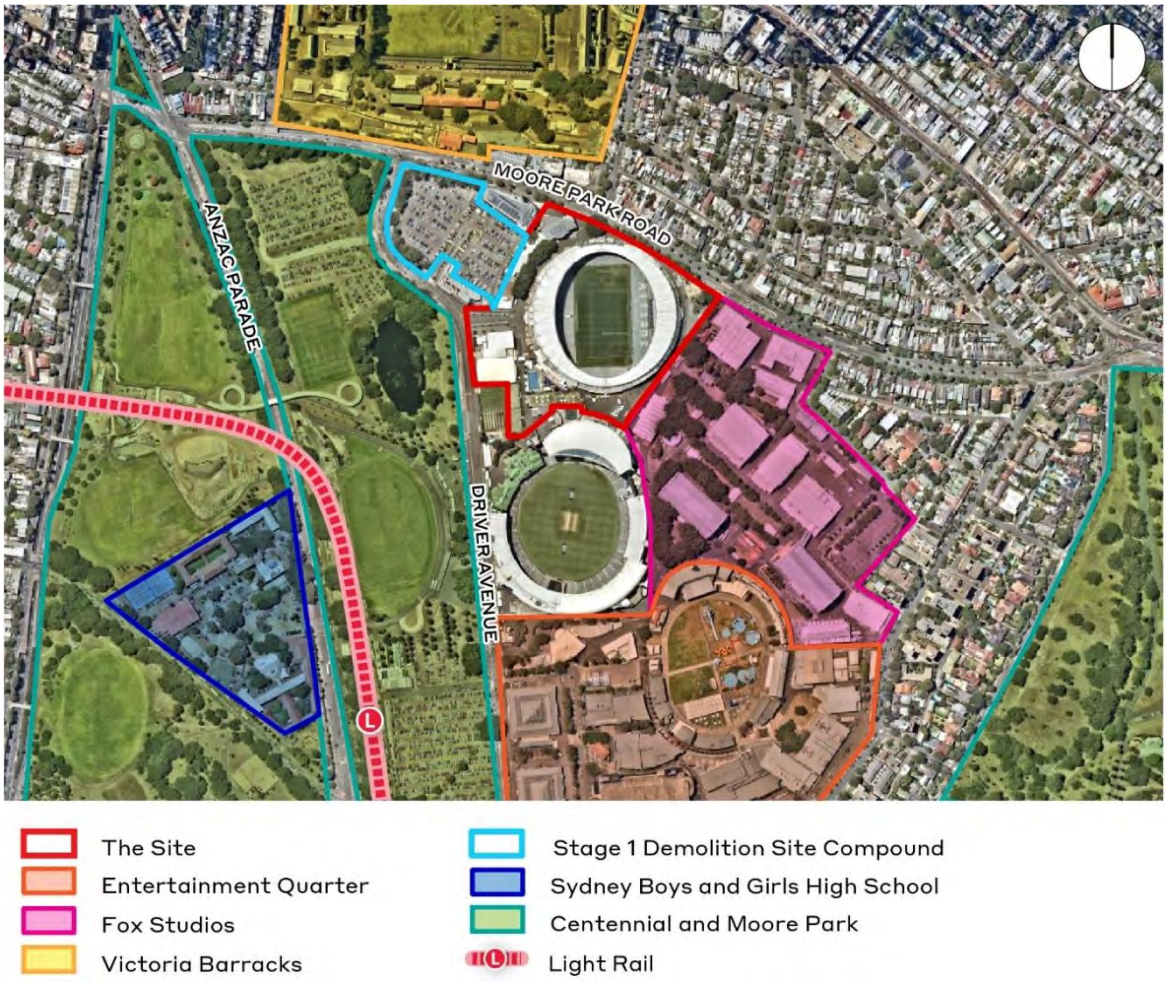


Figure 2 - Site Area and Local Context

1.5 Overview of Proposed Development

The SFS Redevelopment Stage 1 application includes a Concept Proposal and Early Works package.

The Concept Proposal comprises:

- A new stadium with up to 45,000 seats on the site of the existing stadium including:
  - New facilities for general admission;
  - New playing pitch;
  - Hospitality facilities; and
  - Ancillary food and beverage and entertainment facilities
- New basement with service vehicular access for servicing and bump-in/bump-out.
- New public domain works surrounding the stadium, building on the venue's unique parkland setting.
- Urban Design and Public Domain Guidelines.
- Signage strategy.

Indicative concept building envelope plans are included within the Environmental Impact Statement for the project. These plans outline the extent of the proposed stadium building envelope and surrounding public domain to be included in the Stage 1 planning application.

From a capacity, operational and mix-of-use perspective, the new stadium will be consistent with the existing Allianz Stadium.

The Stage 1 Early Works comprises:

- Site establishment, including erection of site protection fencing and temporary relocation of facilities;
- Decommissioning and demolition of the existing stadium and associated structures including the existing Sheridan, Roosters and Waratahs buildings and the administration building of Cricket NSW to ground level and 'make safe' of the site;
- Use of the existing Moore Park 1 (MP1) car park for construction staging; and
- Make good of the site suitable for construction of the new stadium (subject to separate Stage 2 application).

The SFS Redevelopment will create a new stadium with up to 45,000 seats through a range of seating styles and corporate facilities. The stadium will include state of the art technology with digital screens throughout to improve the fan experience. Sightlines will be improved and facilities including catering, amenities and accessibility will be designed to service future needs, creating a world-class customer experience befitting a global city such as Sydney.

2 Potable Water – Domestic

2.1 Existing Infrastructure

The existing authority's infrastructure in vicinity of the site has been identified based on Dial Before You Dig (DBYD) records, desktop review of available site services information, discussion with the current facilities manager and visual site inspection. The Potable Water service provider in this area is Sydney Water.

Records indicate the presence of potable water mains within Moore Park Road and Driver Avenue around the existing SFS. The existing water infrastructure surrounding the site includes the following:

- 1 x DN300 mm inside an old DN500mm water main along Moore Park Road;
- 1 x DN300 mm inside an old DN600mm water main along Moore Park Road;
- 1 x DN200 mm water main along Driver Avenue;
- 1 x DN150 mm water connection for SCG and authority water meter located in Paddington Lane
- 1 x 100 mm water connection for SFS and authority water meter located along Moore Park Road near the current main entry to SFS;

Further investigations will be undertaken during detail design phase to confirm the exact layout and depths of the infrastructure described above.

The SFS site including Tenant Buildings (Roosters, Waratahs, and Merchandise) and Sheridan building are supplied with potable water from the authority water main located in Moore Park Road. The 100mm authority connection is then boosted by pumps and branches out to various areas within the SFS and adjacent tenant buildings through private infrastructure. Pending detailed design, the reuse of the existing water connections could be proposed.

The existing potable water infrastructure layout is shown on Figure 3 at the end of this section.

2.2 Demand Assessment

The demand assessment for the future stadium, which will be subject to a separate Stage 2 planning application, has been based on the figures below:

- 45,000 Seats
- Up to 1,500 Staff
- 3-hour event time (average)

The estimated Water Max demand is 25-35l/s Potable Simultaneous Demand (PSD).

The average day water usage is estimated to be 200-250kl/average day/average month. This number includes the approximate 1.5L/sec available from bore water use and offset by the estimated rain water collection available for rain water harvesting of approximately 150kL (when the rain water tank has available rain water use).

Note:

Refer to Section 4 for waste water Demand

2.3 Water Demand Reduction

Initiatives that should be considered include but not limited to;

- Maintain reduction of water use through fixture selections and the use of alternate water supplies.
- The use the existing bore water supply and rain water harvesting for all toilet flushing thereby, achieving a reduction in potable water use.
- The use of bore water for irrigation.
- Use 4-star WELS rated or better sanitary ware and tapware throughout the stadium to reduce the potable water consumption throughout the stadium.
- Cold water only shall be supplied to the general public ablution areas (Hand basins) along with push button time flow tapware.
- Urinals shall utilise bore water and rainwater harvesting for flushing and shall be fitted with automatically operated flush devices.
- Shower facilities shall incorporate low flow shower heads to reduce the energy required to the hot water plant and overall water consumption.
- Pulse capable water meters shall be located throughout the stadium

Stadium Sanitary ware and Tapware

As a minimum, 4-star WELS rated Australian Sanitary and tapware shall be utilised throughout the development, coupled with a maximum 0.8 litre flush wall hung urinals for corporate areas and solenoid operated maintenance flush stainless steel trough type urinals for general public areas.

Push button timed flow tapware shall be utilised in all general public ablution areas as a means of water saving initiatives.

2.4 Utility Interaction

An initial meeting with Sydney Water was held on the 08/03/2018. This meeting was to discuss the overall project and was not specific to water supply. Further consultation will be required during the Stage 2 planning application to address planning issues that Sydney Water may require to be resolved.

2.5 Initial Design Assessment

The Water Supply Code of Australia – Sydney Water Edition (SWC, 2014) suggests a minimum DN150mm pipe size for industrial and commercial developments. The sizing required for the development will be based on the Maximum demand and will need to be approved by Sydney Water.

It is anticipated that the potable water supply will connect to the Sydney Water infrastructure along Moore Park Road via a 1 x 200mm domestic water site connection to the 300mm water main located in Moore Park Road.

2.6 Diversions, Temporary works and Staging

It is not anticipated that any major authority diversions will be required. The works will not require any temporary or Staged Authority works.

Part of the existing Sydney Cricket Ground (SCG) mains water connection will require relocation due to this service being installed within the demolition zone of the stadium. The current connection points for the SCG are located in Moore Park Road (refer to sketch below)

2.7 Next Steps

Due to the nature of the project, the process which will be subject to and undertaken under a separate Stage 2 planning application, will require the potable water infrastructure to consist of the following:

1. Develop the diversion strategy (including any interim works to suit staging) and protection/build-over requirements for the SCG;
2. Submit application to Sydney Water to obtain a Section 73 Compliance Certificate;
3. Sydney Water to issue Notice of Requirements (NOR) with their requirements for water main layout, sizing and funding matters confirmed; and
4. Detailed design to be progressed based on the NOR and submitted to Sydney Water for approval.

2.8 Water Management Plan

A water reuse management strategy plan is to be created and the purpose of this plan is to;

- Detail water reuse target as a percentage of potable water demand reduction which is sourced from a non-potable water source (such as rain water harvesting and bore water reuse)
- Detail the use of water on the project through the construction phase
- Investigate and evaluate all feasible reuse options available for storm/rain water and ground water (bore water) reuse

The strategy shall address the water use requirements and reuse options for the construction phase for all works on the site. Water reuse will be limited to groundwater and stormwater collected within the project boundaries.

This Strategy will address and detail the following:

- Water use requirements for Construction works;
- Water use for the site sheds and auxiliary buildings;
- ESD initiatives;
- Stormwater collection, management, treatment and discharge during surface works construction activities;
- Monitoring potable and non-potable water use to identify targets are met.

This strategy will be provided at the time of the Stage 2 planning application for the detailed design and construction of the new stadium.

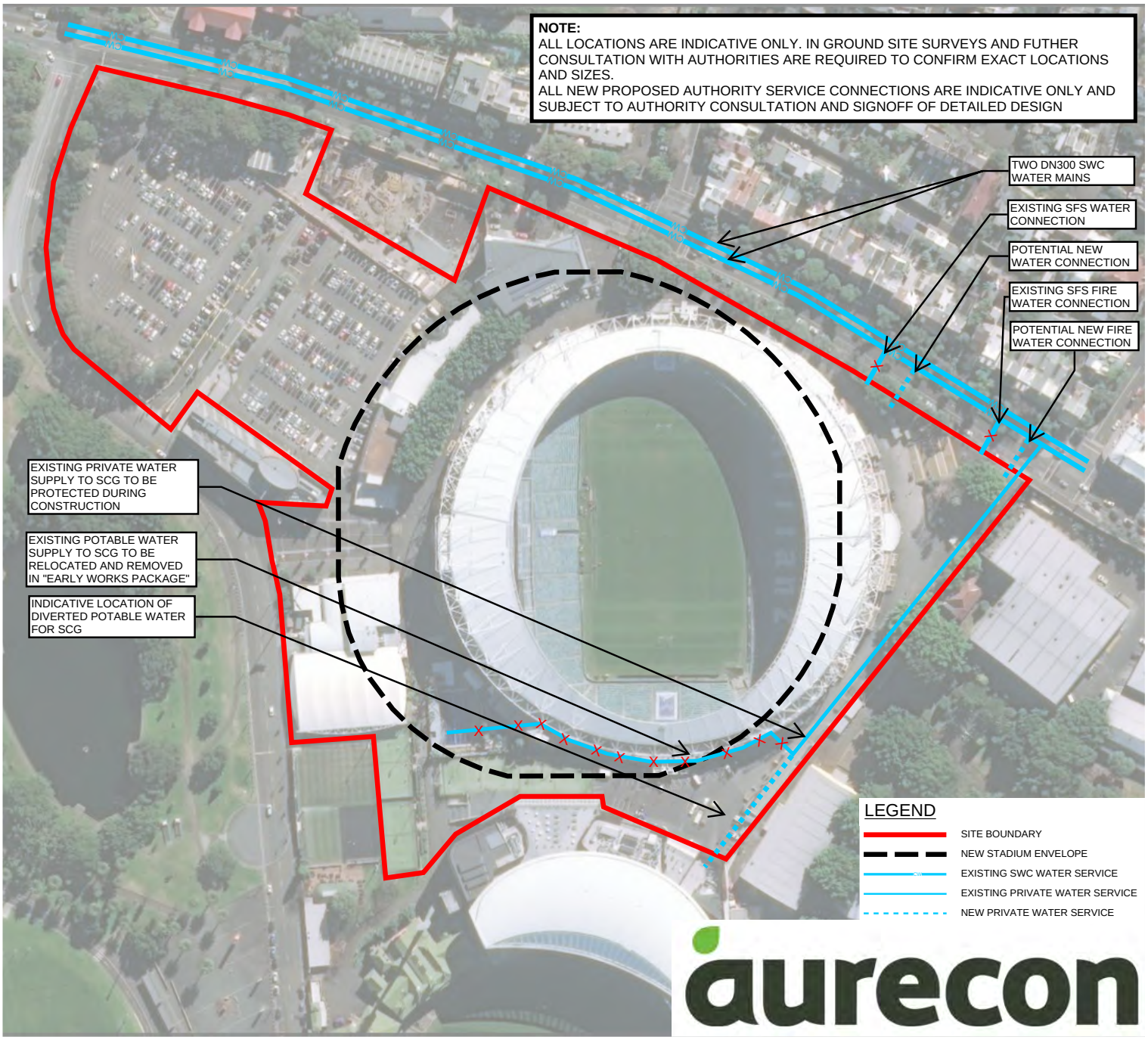


Figure 3 - Existing Potable Water Infrastructure Layout

3 Potable Water – Fire Services

3.1 Authority

Existing Authorities Infrastructure

Currently the existing site including the SFS, SCG and ancillary buildings that are served by the existing Sydney Water Corporation (SWC) water mains located in Moore Park Road and Driver Avenue. The general information in relation to these Sydney Water mains is as follows:

Location	Size	Performance	Comment
Moore Park Road	2 x Ø300mm. inside the old ø500mm and ø600mm Water main	MPF 120L/sec @ 360Kpa	■ Existing connection including condition to be confirmed during construction ■ New water services connection subject to Sydney Water approval
Driver Avenue	Ø150mm	Not available at this stage	■ This SWC water main appears to be servicing the SCG and the Australian Rugby / UTS Buildings.

Table 1 - Existing Authorities Infrastructure

It should be noted that establishing new connections to Sydney Water mains with a size greater than ø300mm will require liaison and approval from Sydney Water

The existing Sydney Water main supply located in Moore Park Road is considered to be suitable to form part of a Grade 1 Water Supply as required by required by the SFS.

It is anticipated that the existing water supply in Moore Park Road has sufficient capacity to be the primary water for the fire services systems servicing the SFS.

3.2 Existing Infrastructure

The existing infrastructure including the incoming water supply for the fire systems servicing the SFS are considered inadequate and non-complying. The existing infrastructure is to be disconnected and removed as part of the SFS demolition works unless reuse in a modified form is determined to be sufficient and the fire services required to be used during construction of the new stadium.

Other existing SFS fire services infrastructure including but not limited to fire tanks and fire pumps are also non-complying and are contained within the existing stadium and these fire services are schedule for disconnection and removal as part of the demolition works

The existing Sydney Cricket Ground infrastructure fire services are to be protected and retained and if required relocated throughout demolition and construction of the new stadium.

The existing fire services booster assembly's located to one side of the Paddington Lane are likely to be impacted by the new stadium entrance configuration and these services are to be relocated / reconstructed as necessary at a new location to the requirements of Fire and Rescue NSW.

3.3 Demand Assessment

The water service demand required to service a combined fire sprinkler system and fire hydrant systems is expected to be in the order of 60L/sec. Additionally, the system must include provisions for wall wetting systems if required which will impose an additional load in the order of 20L/sec.

As previously indicated the water supply for the new SFS will need to be a Grade 1 Water Supply. Complete with a primary (mains supply) and secondary water supply.

3.4 Utility Interaction

All new connections to the existing SWC water supply in Moore Park Road will be subject to an application and approval by Sydney Water.

Additionally, a Fire Flow Statement will be necessary to confirm all flows and pressures available for the water mains in Moore Park Road.

3.5 Initial Design Assessment

The new incoming fire service water supply is expected to be not less than ø200mm.

Based on the information available to date and generally as stated under 3.1.1 above the SWC infrastructure in Moore Park Road has sufficient capacity to support the Grade 1 Water Supply required for the new SFS.

3.6 Diversions, Temporary works and Staging

Refer to the hydraulic section for temporary works and general staging of the works.

3.7 Next Steps

Due to the nature of the project, the process which will be subject to and undertaken under a separate Stage 2 planning application, will require the fire service water infrastructure to consist of the following:

1. Undertake a further detailed survey investigation study including underground services investigation to confirm all existing services location, size and the like.
2. Once the design of the stadium has been sufficiently developed, determine the existing services that will need relocation and or altered. i.e. existing SCG booster assembly located adjacent to Paddington Lane.
3. Develop the diversion strategy (including any interim works to suit staging) and protection/build-over requirements for the SCG;
4. Submit application to Sydney Water to obtain a Fire Flow Statement.;
5. Undertake final design of the incoming infrastructure including hydraulic calculation to confirm final systems design requirements and confirm all new pipe sizes.

4 Wastewater – Sewer

4.1 Existing Infrastructure

The existing local wastewater infrastructure near the site has been identified based on Dial Before You Dig (DBYD) records and documents. The waste water (Sewer) service provider in this area is Sydney Water.

These records indicate the presence of various wastewater infrastructure in the vicinity of the SFS site including:

- DN225mm VC sewer main traversing SFS east-west direction towards Driver Avenue and further down along Driver Avenue - depth approximately 2.1m - 2.5m;
- Private wastewater infrastructure throughout the site;
- Private grease waste system;

Wastewater from the SFS site and tenant buildings (NRL House, Roosters, Waratahs, and Merchandise) discharge to the 225mm sewer main. Main connection is located at the main entry to the SFS from Driver Avenue.

Wastewater from the ICC, VSO Admin and Cricket NSW buildings discharge to 225mm sewer main through 150mm junction. Main connection is located in Driver Avenue in the vicinity of ICC building and will become redundant.

Coordination will be required in future design stages to identify whether the existing wastewater main within the site will need to be augmented to accommodate works associated with the development.

The existing sewer infrastructure layout is shown on Figure 4 at the end of this section.

4.2 Demand Assessment

A wastewater demand has been estimated, based on the stadium visitor and staff populations and event duration. This figure has been based on fixture unit loadings (AS3500).

The sewer discharge estimate is expected to be between 5,000 – 5,500 sewer loading units.

4.3 Utility Interaction

An initial meeting with Sydney Water has been undertaken. This meeting was to discuss the overall project and was not specific to Sewer system

4.4 Initial Design Assessment

The Sewerage Code of Australia – Sydney Water Edition (SWC, 2014) suggests a minimum DN225mm pipe size for Industrial lots larger than 300m2 and other complexes where large flows may be expected. This sizing will need to be confirmed with Sydney Water and developed through the design process.

Ongoing consultation with Sydney Water is required to confirm the existing wastewater layout, the existing capacity and potential demand. Potential augmentation works of the infrastructure will be undertaken by the relevant authority.

4.5 Diversions, Temporary works and Staging

It is anticipated that the existing 225mm sewer located in Driver Ave will require an upgrade. Initial conversations with Sydney Water has indicated that the current 225mm main is undersized for the development.

It is also anticipated that the NRL House building will require minor sewer adjustments to allow the SFS development to be undertaken.

4.6 Next Steps

Next steps in progressing the delivery of sewer infrastructure which will be undertaken under a separate Stage 2 planning application consist of the following:

1. Develop a wastewater strategy for the stadium including staging considerations and scope of diversion of existing infrastructure. These must be agreed with Sydney Water. Being a gravity service, this will need to include consideration of the depth of the existing wastewater infrastructure to be maintained and/or connected to and proposed grading of the site;
2. Discuss trade waste licencing requirements with Sydney Water;
3. Submit application to Sydney Water to obtain a Section 73 Compliance Certificate;
4. Sydney Water to issue Notice of Requirements (NOR) with their requirements for water main layout, sizing and funding matters confirmed; and
5. Detailed design to be progressed based on the NOR and submitted to Sydney Water for approval.

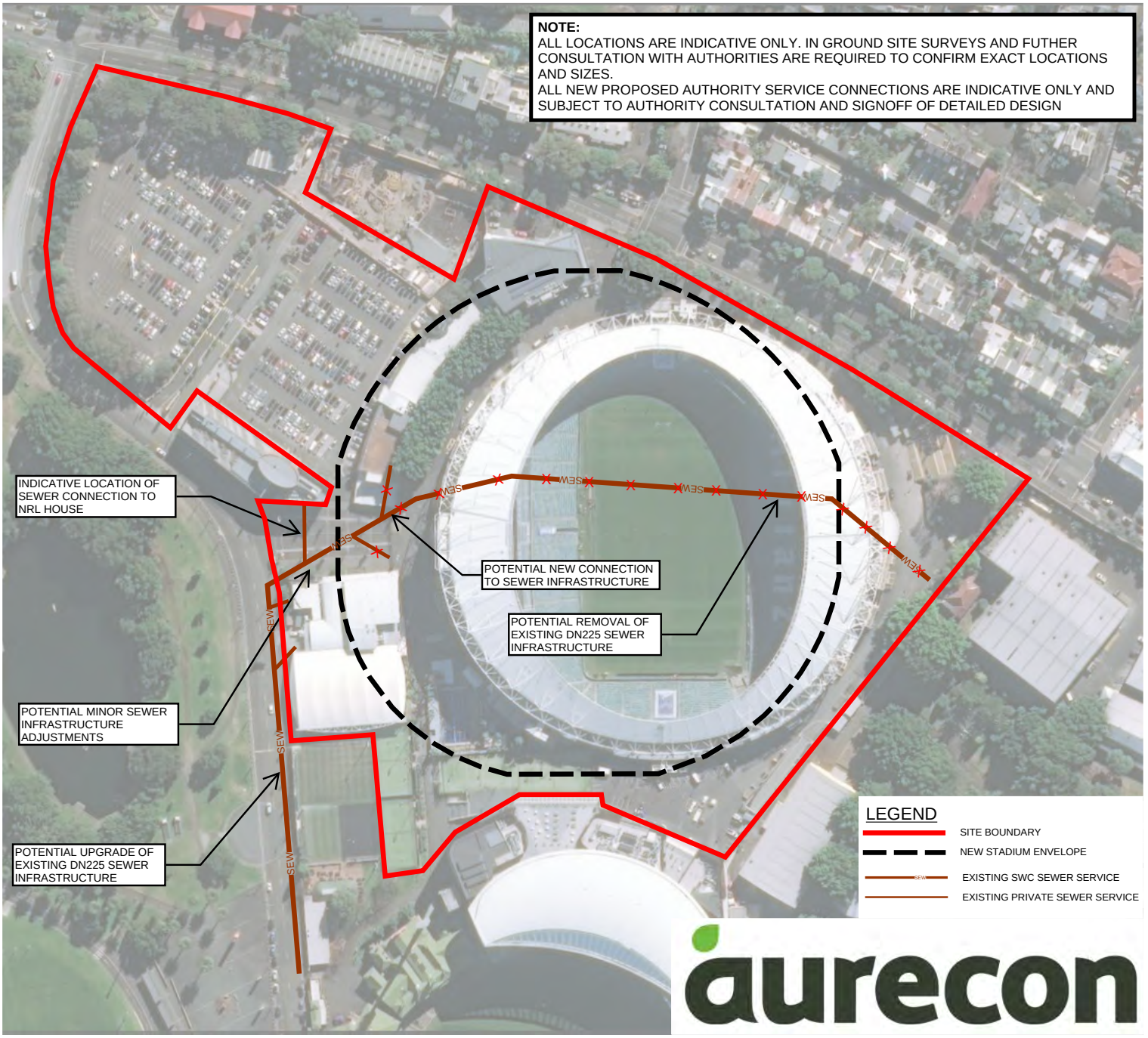


Figure 4 - Existing Sewer Infrastructure Layout

5 Stormwater

Authority Stormwater drainage and flood management infrastructure is not considered in this report, a separate Stormwater management plan has been prepared by ARUP.

6 Natural Gas

6.1 Existing Infrastructure

The existing infrastructure has been identified based on Dial Before You Dig (DBYD) records and documents. These records indicate the presence of Jemena assets in the vicinity of the SFS stadium.

The existing natural gas infrastructure includes the following:

- A network 110mm main (210 kPa) along Moore Park Road;
- A network 110mm main (210 kPa) along Driver Avenue;
- Jemena gas meter assembly located at Moore Park Road near the main entry to Stadium;
- Private gas infrastructure throughout the site;

Other gas infrastructure may exist that has not been identified from these information sources.

The SFS site including Tenant Buildings (Roosters, Waratahs, and Merchandise) and Sheridan building are supplied with natural gas from the authority gas main located in Moore Park Road. Main connection is located adjacent to main entry to SFS from Moore Park Road and then branches out to various areas through private infrastructure.

The Indoor Cricket Centre, VSO Admin, Cricket NSW and NRL buildings are supplied with natural gas from the authority gas main located in the Driver Avenue. Main connection is located in the vicinity of Members Stand and then branches out to various areas. It is proposed to retain existing SCG gas connection.

The existing natural gas infrastructure layout is shown on Figure 5 at the end of this section.

6.2 Demand Assessment

A preliminary demand figure for the development has been calculated estimated to be between 15,000 and 20,000 MJ/hr based on (un-diversified):

- Kitchen Appliances
- Domestic Hot Water
- Mechanical Heating Plant

6.3 Utility Interaction

Currently no direct interaction with Jemena has been undertaken for the development. It is however understood that the current contractual gas demand usage is well above the actual usage gas demand. It is anticipated that the site natural gas usage will not significantly increase and that a gas connection will be accepted by Jemena. A new contract will be required and applied for during the stage 2 planning approval process.

6.4 Initial Design Assessment

It is anticipated that the project will be supplied with gas via an existing connection to Moore Park Road.

Further consultation with Jemena is required to confirm the existing network layout and existing capacity.

6.5 Diversions, Temporary works and Staging

It is also anticipated that the NRL House building will require minor private gas infrastructure adjustments to allow the SFS development to be undertaken.

6.6 Next Steps

Next steps in progressing the delivery of gas infrastructure consist of the following:

1. Undertake site investigations to confirm the layout and extent of existing services (including non-Jemena infrastructure) prior to the commencement of demolition works;
2. Submit application for supply to Jemena at relevant stage as required to facilitate construction; and
3. Jemena will provide a quote for construction works.

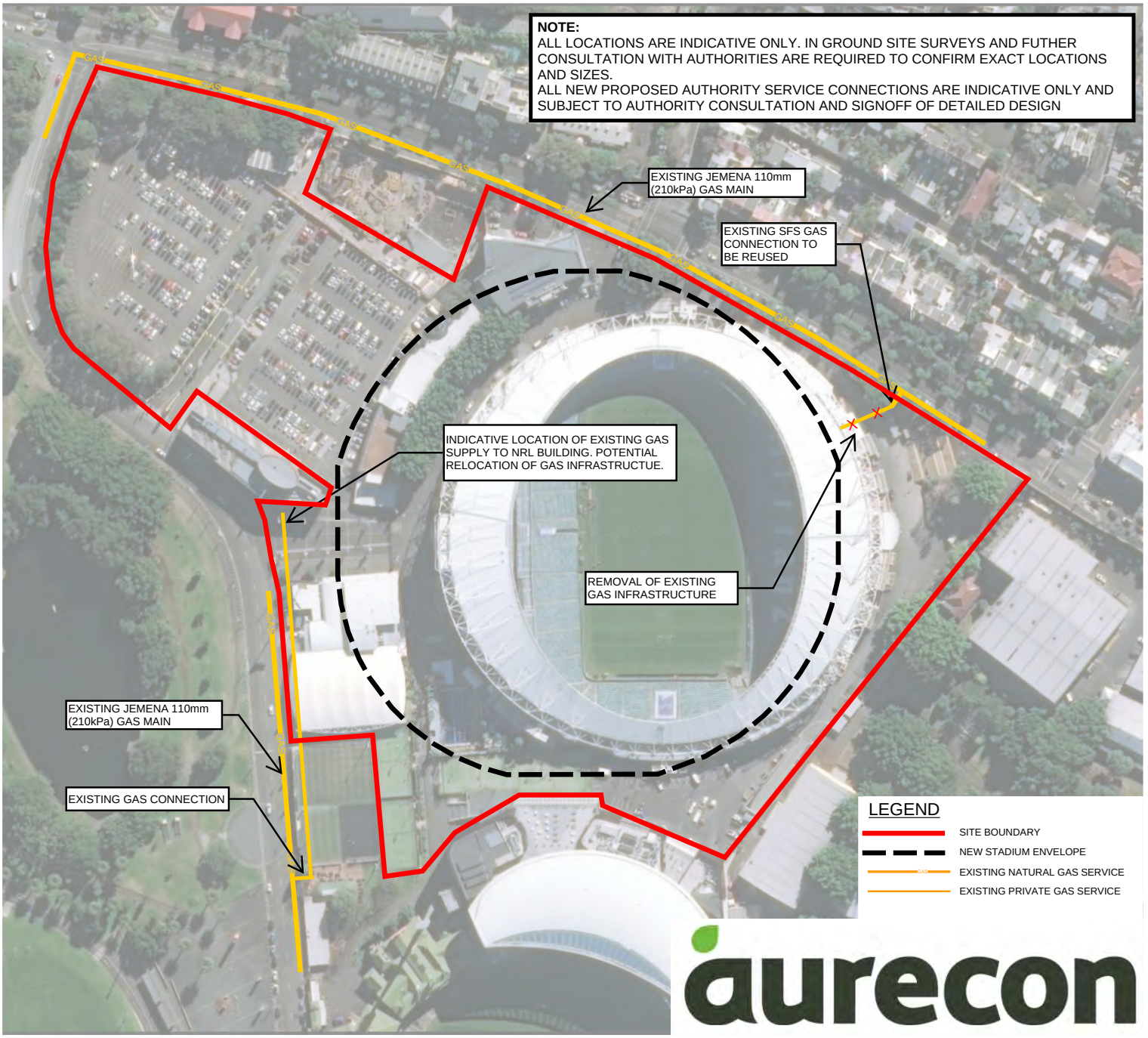


Figure 5 - Existing Natural Gas Infrastructure Layout

7 Electrical

7.1 Authority

Ausgrid is the electrical supply Authority for the site. There are multiple zone substations in the vicinity of the site which serve the surrounding areas through Ausgrids 11kV and 33kV networks:

- Paddington Zone Substation;
- Surry Hills Zone Substation;
- Campbell Street Zone Substation;
- Darlinghurst Zone Substation;
- Double Bay Zone Substation;
- Zetland Zone Substation;
- Belmore Park Zone Substation;

Figure 6 - Surrounding Zone Substations

7.2 Existing Infrastructure

The existing authority's infrastructure in the vicinity of the site has been identified based on Dial Before You Dig (DBYD) records, desktop review of available site services information, Ausgrid GIS records, discussion with the complex facilities management, visual site inspections and non-intrusive above ground site surveys.

SFS

The SFS currently receives a single 11kV supply originating from Ausgrid's Paddington zone substation. The supply enters the stadium from Moore Park Road into Ausgrid control chamber S6522 located at the northern end of the stadium which contains authority switchgear, metering equipment and private High Voltage (HV) switchgear. This supply then forms a private HV ring main within the site which feeds two chamber substations within the stadium and three kiosk substations on the perimeter of the stadium. This ring main is known as Ring 1.

These external kiosks supply:

- Indoor Cricket Centre (ICC),
- Cricket NSW (CNSW) Administration
- Venue Service Office (VSO)
- Merchandise Store
- Roosters Building
- Warratahs Building
- Sheridan Building
- NRL House

Peak demand figures obtained from Ausgrid confirm Ring 1 has a maximum demand on 2.5MVA. The capacity of Ring 1 is known to be 200A (3.8MVA), however consultation with Ausgrid is required to confirm the capacity of the feeder and HV switchgear which supply Ring 1.

Additional Infrastructure

Other electrical infrastructure in the vicinity of the site includes the following:

- Ausgrid kiosk substations S77241 and S77240 and associated feeders located on Moore Park Road outside the Sheridan Building which serves the ARDC building along with Ausgrid Low Voltage (LV) distributors in Moore Park Road.
- Ausgrid 132kV transmission feeders in Moore Park Road and Driver Avenue.
- Ausgrid 11kV feeders in Moore Park Road
- Ausgrid LV distributors in Moore Park Road
- Ausgrid HVC S36093, SCG HV Main Switchboard No.2 to the northeast of the existing stadium, adjacent to the main pedestrian entrance from Moore Park Road and associated 11kV cabling reticulating to the SCG Noble Bradman Stand basement chamber substation via Paddington Lane.
- Private HV and LV infrastructure throughout the site.

Further investigations should be carried during detailed design to determine the exact layout and depth of the inground cabling mentioned above.

The existing electrical infrastructure layout is shown in figure 7 at the end of this section.

7.3 Demand Assessment

A preliminary maximum demand calculation has been calculated based on the gross floor area of the proposed stadium (excluding pitch and seating bowl areas) and typical stadium energy demands (VA/m^2) formulated by Aurecon based on similar calculations produced; and real measured data from a number of other stadiums. This results in a peak load in the order of 6.7 to 8.1MVA and an increased site load in the order of 4.2 to 5.6MVA.

Stadium GFA(m^2)	Energy Demand (VA/m^2)	Maximum Demand (MVA)
65,000	100-120	6.5 – 7.8

Table 2 - Demand Assessment

The above calculation is preliminary only based on limited information and will need to be continually refined during detailed design stages as more comprehensive information becomes available.

7.4 Initial Design Assessment

Although modern Ausgrid feeders can be rated up to 8MVA, typical 11kV feeders are typically rated to a maximum of 6.9MVA, considering the existing SFS supply has a maximum demand in the order of 2.5MVA and the associated feeder also serves multiple other customers and is not dedicated to the stadium, it is unlikely that the capacity of the existing supply can be increased to near the full rating of the feeder.

Therefore, an additional HV is required to meet the estimated demand of the new stadium even if the actual maximum demand is at the lower bound of the preliminary calculation.

7.5 Utility Interaction

A Preliminary enquiry was submitted to Ausgrid on the 25/01/2018 to ascertain the options available to service the increase in load at the site. A response from Ausgrid was received on the 06/04/2018, Ausgrid slightly misinterpreted some of the information within the enquiry so subsequent discussion clarifying the project requirements occurred and a revised response from Ausgrid followed.

Ausgrid confirmed that the nearby Paddington Zone Substation currently has sufficient capacity to meet the increased demand at the site either by:

- Retaining the existing connection and connecting into two additional feeders in the vicinity of the site; or
- Providing two new dedicated feeders directly from Paddington Zone Substation each capable of supporting the full stadium load.

At this stage the second option is preferred and will be pursued in the stage 2 planning application. This is due to increased redundancy of this option and the risks identified with Ausgrid in relation to the alternative option.

A copy of the Preliminary Enquiry, response and subsequent correspondence can be found in Appendix A.

7.6 Diversions, Temporary works and Staging

As noted in section 7.2 the existing SFS HV ring main also services the Indoor Cricket Centre which will be retained for part of the stadium demolition, and NRL House which remains operational beyond the redevelopment. Servicing of these buildings will need to be considered in the detailed design of the development, temporary services and or new feeds may be required for these buildings, possible sources include temporary generators, a low voltage supply from the SCG Noble Bradman Main Switchboard or the Ausgrid Kiosks external to the Sheridan Building.

7.7 Next Steps

The following is a summary of the next steps in progressing the design and delivery of the site electrical infrastructure, which will need to occur during the Stage 2 planning application:

- Refine maximum demand and substation strategy during detailed design
- Submit a connection application to Ausgrid
- Complete Level 3 detailed design for Ausgrid signoff

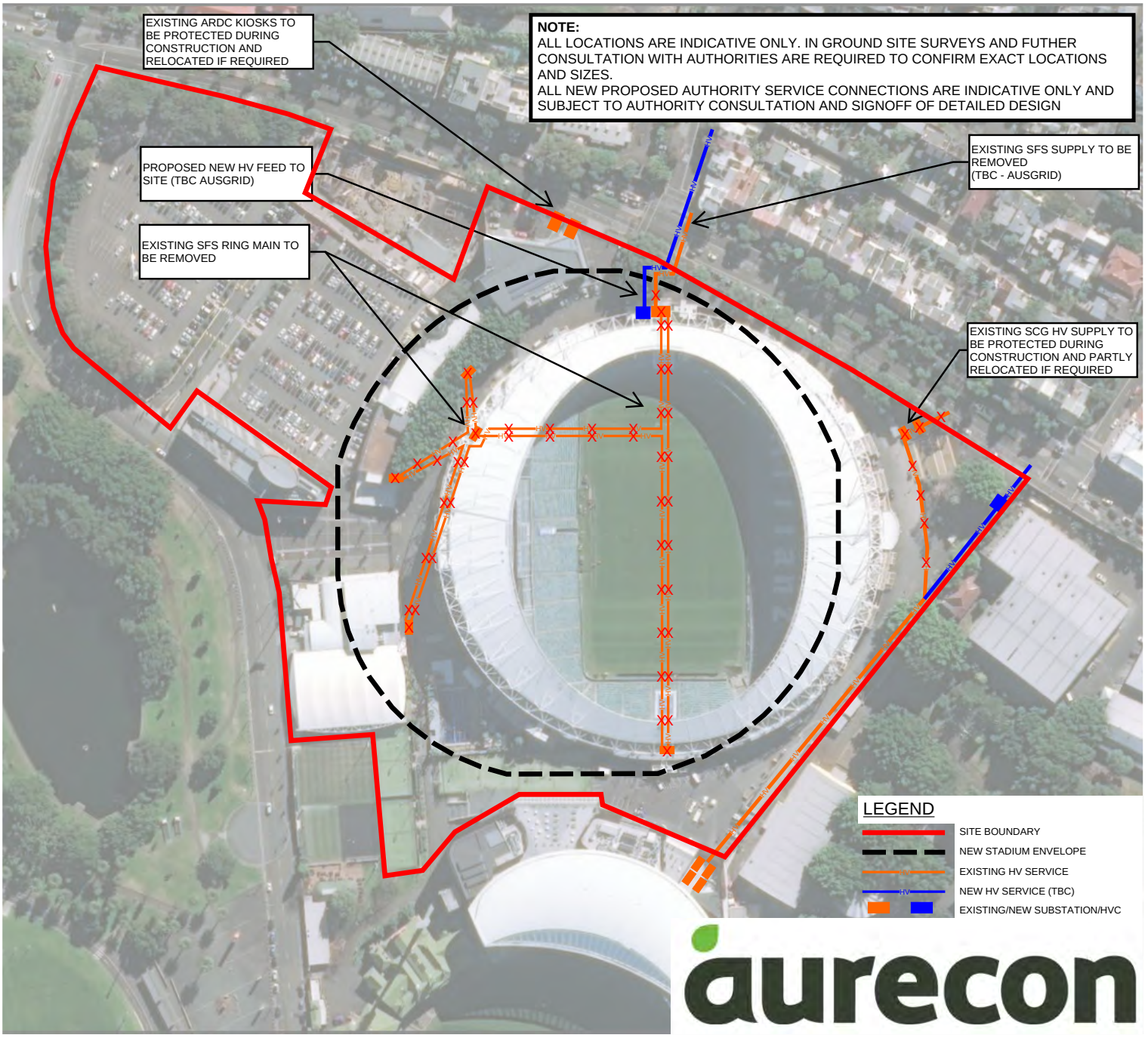


Figure 7 - Existing Electrical Infrastructure Layout

8 Telecommunications

8.1 Authority

The current known Telecommunications Service Provider authorities connected to the Moore Park precinct are as follows:

- SCG Trust Corporate – Optus (voice and data services)
- SCG Trust Public – Telstra (data only)
- Broadcast backhaul
  - Telstra DVN
  - nextGen/Vocus
  - ISDN (various)
  - Satellite uplink
- Mobile Telecommunications Carriers
  - Telstra
  - Optus
  - Vodafone Hutchinson Australia (VHA)
- Emergency Services radio networks
  - Government Radio Network
  - St John Ambulance
- Internal 2 way radio systems for security and production services

All major carriers are available to the site. An NBNCo search indicates that the site will be serviced by Hybrid Fibre Co-Axial (HFC) technology, however the service area is currently undergoing remediation works and may take some time before it is available.

8.2 Existing Infrastructure

The existing infrastructure on site consists of the following.

- Trunk pathways are located along Moore Park Road and Driver Avenue for the main carriers (Telstra/pipenetworks, Optus, nextGen, Amcom, AARNet). It appears that only services supporting the Moore Park site cross through it, with no services supporting 3rd party entities traversing through the precinct.
- Privately owned onsite pit and pipe network throughout Moore Park connecting the various buildings and the two stadiums.
- The primary site connection is through the SCG DC off of Driver Avenue
- The secondary site connection is through the Sheridan Building of off Moore Park Road
- The site primary Data Centre is located in the Victor Trumper Stand Level 00
- The secondary data centre is located in the Sheridan Building SCG Trust Office
- Televised Outside Broadcaster backhaul connectivity is
  - Wired - off of Moore Park Rd and Driver Avenue
  - Satellite – satellite uplink truck located in the MP1 carpark

- Macro mobile phone coverage is provided off of the Sydney Cricket Ground adjacent the north western sports lighting tower. SCG Trust have advised that macro antennas are mounted off of Allianz Stadium, however these are not visible on the OzTowers web search. A search of the ACMA licensing website shows that there are a number of licenses associated with Sydney Football Stadium for macro mobile carrier connectivity, In Building Communications, and stadium operations.
- Emergency services radio support, in particular St John's ambulance, is noted as licensed to the SCG. Feedback from the SCG Trust is that there are currently no emergency services radio networks supported off of the Allianz Stadium. With the exception of the GRN network, this has been confirmed for all other emergency services (Fire & Rescue NSW, NSW Police, and St John's NSW)
- 2 way radio systems are currently used on site for both security and production services. The antenna system is distributed around the site.

8.3 Demand Assessment

No demand calculations have been made for the telecommunications services requirements.

As the existing site is managed by the SCG Trust IT group, it is the expectation that they will continue to manage the site corporate requirements going forward.

Subject to who the patron technology package is managed by in the new Sydney Football Stadium, this may require additional service provider connectivity to support these services. It is expected that Telstra will continue to manage this requirement as part of their current contract with the SCG Trust.

For the televised broadcaster backhaul connectivity, this is typically managed directly by the broadcasters and the relevant service providers. It is expected that they would continue to manage their respective connectivity requirements.

Further discussions will be required with the radio broadcasters regarding their preferred backhaul method. As of 31 January 2018, Telstra are no longer provisioning new ISDN connections for new customers, and from 30 June 2018 for existing customers. The expected disconnection date for all ISDN services will be from June 2019 until June 2021 in line with the NBN cut over dates. Based on initial discussions with various outlet representatives, the expectation is that the radio broadcasters will transition to Audio over Internet based solutions once ISDN is no longer available. Clarification will be required around whether this will be provided by the SCG Trust, or if each broadcaster will provide their own internet connection.

Subject to whether the existing macro mobile phone system on Allianz Stadium is confirmed as active, the affected carriers will need to determine if decommissioning these base stations will impact on their network performance and adjust their coverage accordingly, whether by adding additional temporary base stations adjusting the existing surrounding base stations.

8.4 Utility Interaction

The following utility interactions will be required for project.

Enabling Works

Enabling works on site will consist of relocating and redirecting any services that currently run through the Sydney Football Stadium and surrounding areas that will form part of the civil works. Particular care will need to be taken around any civil works that will impact on the finish ground levels, including where soil will be removed and then reinstated potentially exposing inground pit and pipe work to be retained.

Once an indicative Civil works scope is developed, this should be reviewed against the inground survey and Dial Before You Dig data to confirm if any existing services that are to be maintained are not impacted on.

Service Provider Connectivity

SCG Trust - Corporate

Coordination will be required with the SCG Trust's corporate service provider (Optus) for any works required with respect to redirecting their connection as part of the decanting works from the Sheridan Building.

SCG Trust - Patron

Coordination will be required with the SCG Trust's patron service provider (Telstra) for any works required with respect disconnecting the SFS from the SCG. As the existing site connection is through the SCG DC, this should not be impacted by the Sydney Football Stadium works.

Broadcast Backhaul

Coordination will be required with the televised broadcaster backhaul providers (Telstra, nextGen/Vocus) to redirect the existing alternate site connection pathway located along the eastern side of the Sydney Football Stadium. Typically the Broadcasters require physically separated pathways to site for their backhaul connection. As such, an alternate pathway off of Driver Ave or through the Entrainment Quarter may need to be provided should the existing connection from Moore Park Rd no longer be viable.

The satellite uplink position will need to be reviewed with the televised broadcasters to confirm the preferred position on site. Generally, this is located in a position with clear view of the northern sky, in a compound that can be fenced off from the general public.

Confirmation is required regarding the radio broadcaster backhaul requirements, including whether any ISDN services provided in Allianz Stadium are also utilised for the SCG.

Mobile Carriers

The extent of the existing mobile carrier assets will need to determined in conjunction with the SCG Trust as there may be contractual obligations regarding decommissioning and relocation of services hosted on the Allianz Stadium structure. Should existing carrier assets within the SFS serve areas outside of the stadium precinct, temporary services will be provided prior to demolition to ensure coverage within areas adjacent to the stadium is not impacted by the redevelopment.

Emergency Services Radio Network coverage

The Emergency Services radio network coverage for emergency services should be reviewed with the various representatives (Government Radio Network, Fire & Rescue NSW, St John's Ambulance, and NSW Police) to confirm whether there are existing services provided as part of the Allianz Stadium.

- Verbal advice from Fire & Rescue NSW indicates that there are no direct assets associated with their operations on site, and that they current use GRN for event coverage.
- Written advice from NSW Police advises that there are no direct assets associated with their operations on site, and that they use their own local system on site for coverage during events.
- Written advice from St John's Ambulance has advised that there are no direct permanent assets associated with their operations on site, and that they use their own local system on site for coverage during events.

8.5 Initial Design Assessment

The initial design assessment should take into account the following considerations. Note that a capacity / availability check has not been completed for the works proposed below.

Service Provider Connectivity

An alternate / failover service provider connection should be provided from Moore Park Rd into a new Service Provider Room in Sydney Football Stadium. This connection will support both the SCG corporate and patron service provision for the stadium, and would operate in parallel to the current connection to the SCG Data Centre.

The secondary service provider connection to the site would be provided via the existing connection to the SCG Data Centre.

Provisions for NBN connectivity should be included in the design to allow for tenants such as food and beverage outlets or retail shops to provide their own internet connection to site. Subject to the total number of tenants expected on site, space may be required in the new Service Provider Room for NBN distribution equipment.

Generally pit and pipe will be provided by the project from the new stadium to the site boundary for the service provider(s) to connect to from their respective points of presence.

Broadcast Backhaul

Based on the current proposal that a new Broadcast compound will be provided for the Sydney Football Stadium, new backhaul connections will be required for the development in addition to the existing connections in the SCG OB compound. As per broadcaster requirements, alternate pathways should be provided for redundancy. These would be sourced from Moore Park Road and from the current connection to the SCG OB compound.

Subject to the where the alternate pathway for the SCG OB compound is sourced as part of the enabling works, consideration should be given to reinstating the original backhaul connection to Moore Park Road to the SCG OB compound.

The satellite uplink truck position will need to be located such that it has clear view of the northern sky, and in an area that can be fenced off from the general public. Similar to the current installation, a service totem will be required housing power and tie line connectivity to the OB compound. Consideration should be given to locating it in a position that will suit both the SCG and Sydney Football Stadium, noting that two trucks may be required if there are televised matches held concurrently.

Radio broadcaster backhaul connectivity will need to take into consideration the end of sale for ISDN service provisions. Subject to feedback from the radio broadcasters, dedicated internet services such as the NBN may be required for each broadcaster to support their backhaul requirements.

Mobile Carrier

Subject to the extent of the existing coverage provided as part of the Allianz Stadium, consideration should be given to the new Sydney Football Stadium providing both macro coverage for the surrounding precinct, and In Building Coverage for the patron inside the stadium. This is of particular relevance given the upcoming rollout of 5G services which increases requirements for smaller cell base station coverage using femto and pico cells.

Capacity to support multiple mobile carriers on site should be provided in the lead in conduits. Dedicated support facilities for a Distributed Antenna System within the stadium as well as macro base station support should also be provided.

8.6 Diversions, Temporary works and Staging

The following works will be required for diversions, temporary, and staging.

Service Provider Connectivity

Any primary service connections managed from the Sheridan Building will need to be redirected as required to the SCG Data Centre. This should only impact on the SCG Trust service, which will need to be redirected using assets in Driver Ave.

Broadcast Backhaul

The existing alternate televised broadcast backhaul connection to Moore Park Rd will need to be redirected through either the Entrainment Quarter or via Driver Avenue. These will then connect into the OB patch room located in the Level 00 carpark below the SCG.

The satellite uplink truck position in the MP1 carpark will also need to be relocated outside of the project works footprint. As noted above, the preference is to locate in a position that will suit both temporary operation during construction and also once the Sydney Football Stadium is completed, noting that it may need to be sized for two satellite trucks should concurrent matches be held.

Mobile Carrier

Subject to whether the existing mobile carrier base stations are active on the existing Allianz Stadium, coordination will be required with the mobile carriers supported from this facility regarding decommissioning the exiting base stations, and whether temporary macro base stations are required to be implemented until the new Sydney Football Stadium is completed.

Coordination will be required with the mobile carriers supported from this facility during the stage 2 DA process.

Emergency Services Radio Network coverage

Subject to feedback from the relevant emergency services radio network representatives on the project scope and impact on their systems, they may need to be relocated to support coverage during the project works and also the SCG.

8.7 Next Steps

Moving forward, the following steps should be taken with respect to the Telecommunications scope of works.

Service Provider Connectivity

Coordination will be required with the SCG Trust and their current service providers for redirecting any services that are routed through the Sheridan building and Allianz Stadium to the SCG. Based on initial discussions with the SCG Trust IT department, preliminary designs are currently in progress.

An application will need to be made to the NBN for site connectivity for tenants not supported by the SCG corporate network.

Broadcaster Backhaul

Generally, the televised broadcaster backhaul connections are managed directly by the broadcasters. Further discussions with the current outside broadcasters will be required to relocate the existing alternate connection from Moore Park Road.

As noted above, ISDN services are being phased out by Telstra. Provided the SCG is serviced from it's own MDF frame, disconnection of the Sheridan Building should not impact on the radio broadcast suites in the SCG. Further discussions will be required with the radio broadcasters on how they intend to support their backhaul connectivity once the new stadium is operational, including if NBN connectivity is required.

Mobile Carrier

The mobile carriers will need to be engaged to confirm if the existing base stations located on Allianz Stadium are currently in use.

Consideration should also be given to beginning preliminary discussions around what allowance should be made in the new stadium for both macro coverage around the site and In Building Coverage for stadium patrons.

Emergency Services Radio Network coverage

The Emergency Services radio network coverage for emergency services should be reviewed with the various representatives to confirm what assets are currently on site and may be impacted by the works.

Feedback from the representatives to date is as follows:

- GRN – still to provide feedback
- Fire & Rescue NSW – currently use GRN services for coverage
- St Johns Ambulance – no impact on current services if Allianz is demolished
- NSW Police – no impact on current services if Allianz is demolished

Appendix A – Authority Correspondence

Preliminary enquiry

FORM NECF - 01

When to use this form

If you have a specific enquiry related to:
- establishing a new connection to the Ausgrid network, or
- modifying an existing connection to the Ausgrid network, or
- relocating existing Ausgrid electrical network assets, and

our Connecting to the Network section of the website has not answered your question, then use this form to help us respond to your enquiry.

A preliminary enquiry is also required for some larger connections. You should refer to the NECF-01 Form Guide if you are intending to register or require an exemption in accordance with the National Electricity Rules, to ensure you include the appropriate information.

For all other Ausgrid enquiries call us on 13 15 35 or go to Ausgrid Contact Us at http://www.ausgrid.com.au/Common/About-us/Contact-us

A charge applies for provision of initial advice. Please refer to the "Preliminary Enquiry Service" charge in Ausgrid's Connection Policy - Connection Charges document on the Ausgrid website for further details.

Fields marked with an * are mandatory

How to submit this form to Ausgrid

Sydney, Central Coast and Hunter
Fax: (02) 4399 8007
Fax (local call): 1300 662 089
Email: datanorth@ausgrid.com.au

Upper Hunter only
Fax: (02) 6542 9037
Email: datamuswellbrook@ausgrid.com.au

PART A: PREMISES AND DEVELOPMENT DETAILS

1. About you - the enquirer

Title, first name, last name *: SEAN BOWEN

Phone number * (and/or): (02) 9465 5717

Postal address *: AURECON, LEVEL 5, 116 MILITARY ROAD, NEUTRAL BAY NSW 2089

Mobile phone number *: 0431 589 536

Email address *: sean.bowen@aurecongroup.com

Fax number:

2. Type of Enquiry (select one or more) *

Related to the relocation of Ausgrid's electricity network assets	☒			Refer to the NECF-01 Form Guide for the additional information requirements.
Related to a new or altered load connection - less than 10MVA	☒	- 10MVA or greater	☐ ▶	
Related to an Embedded Generator (EG) connection - less than 5MW	☒	- 5MW or greater	☐ ▶	Complete Part B of Form if EG is 5MW or greater
Related to an Embedded Network	☐			

3. Premises details and location diagram

NMI: NCCC006368

Meter number:

Floor number | Unit number | Street number or RMB * | or | Lot number * | DP number *

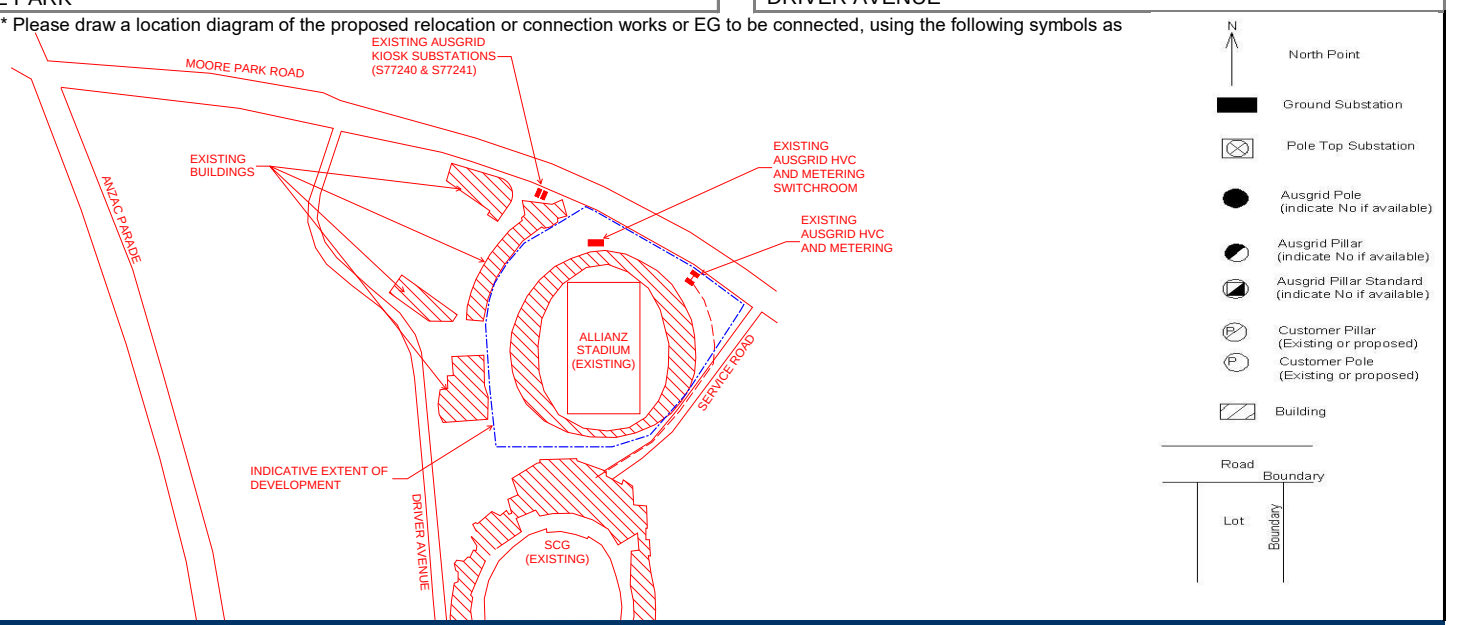
Street name *: MOORE PARK ROAD

Post code *: 2021

Suburb *: MOORE PARK

Nearest cross street: DRIVER AVENUE

Diagram * Please draw a location diagram of the proposed relocation or connection works or EG to be connected, using the following symbols as needed



4. Your question(s)? Include comments or attach additional information as specified in the NECF-01 Form Guide *

PRELIMINARY PLANNING ADVICE IS REQUESTED FOR A PROPOSED DEVELOPMENT AT MOORE PARK. THE DEVELOPMENT IS CURRENTLY IN CONCEPT MASTER PLANNING STAGE AND INITIAL DISCUSSIONS WITH AUSGRID ARE REQUIRED TO GAUGE FEASIBILITY AND INFORM THE ELECTRICAL INFRASTRUCTURE CONCEPT.
THE DEVELOPMENT IS FOR A SPORTS STADIUM WITH AN ESTIMATED MAXIMUM DEMAND OF 7 TO 8MVA.
THE EXISTING 11KV SUPPLY IS PROPOSED TO BE REUSED, HOWEVER CONFIRMATION OF MAXIMUM AVAILABLE SUPPLY IS REQUIRED, NOTING THE FEEDERS ARE NOT DEDICATED TO THE SITE. AN ADDITIONAL SUPPLY IS ALSO LIKELY REQUIRED TO MEET THE ESTIMATED MAXIMUM DEMAND.
THE PROPOSED ELECTRICAL INFRASTRUCTURE DESIGN MAY INCLUDE STANDBY DIESEL GENERATORS FOR BACKUP OF CRITICAL SYSTEM. TOTAL GENERATOR CAPACITY IS UNKNOWN AT THIS STAGE, BUT IS ESTIMATED IN THE ORDER OF 3 TO 4MVA.
CONNECTION POINTS FOR TEMPORARY GENERATORS WILL ALSO BE INCLUDED TO ALLOW THE FULL STADIUM LOAD (7 TO 8MVA) TO RUN ON GENERATORS AS PRIMARY SOURCE DURING MAJOR EVENTS.

Street Address of the Premises *

MOOE PARK ROAD (AS ABOVE)

Post Code*

2021

PART B: EG 5MW OR GREATER DETAILS (only complete Part B if your enquiry relates to an EG 5MW or greater)

5. Information to be provided with Preliminary Enquiry

(a) Type of plant – (eg. gas turbine generating unit; rolling mill, etc.)

REFER ABOVE

(b) Preferred site location – ('as above' only or listing any alternatives in order of preference as well)

(c) Maximum power generation or demand of whole plant – (maximum MW and/or MVA, or average over 15 minutes or similar)

(d) Expected energy production or consumption (MWh per month), or daily load profile

(e) Plant type and configuration – (eg. number and type of generating units or number of separate production lines)

(f) Nature of any disturbing load (size of disturbing component MW/MVAr, duty cycle, nature of power electronic plant, which may produce harmonic distortion)

(g) Technology of proposed generating unit (e.g. synchronous generating unit, induction generator, photovoltaic array, etc.)

(h) When plant is to be in service – (eg. estimated date for each generating unit)

(i) Name and address of the party for whom the enquirer is acting, (if applicable)

(j) Other information, such as capacity and timing of power required during construction or any other auxiliary power requirements, energy storage details, or registration or exemption application and/or AEMO response

06.04.2018

AURECON
Attention: Sean Bowen
Level 5, 116 Military Road
Neutral Bay Nsw 2089

Email: sean.bowen@aurecongroup.com

Reference Number: 700004563

Address all relevant correspondence to:

Ausgrid Contestability Section
Level 1, Building 4, 130 Joynton Avenue
Zetland NSW 2017

E: Contestability@ausgrid.com.au

Dear Sean

Preliminary Enquiry: Concept Planning Stage - Allianz Stadium, Moore Park

I refer to your preliminary enquiry regarding the electricity connection at the above address and provide the following information.

Ausgrid has received an application from Aurecon requesting investigation of connection options to supply the proposed 8MVA refurbishment and reconfiguration of Sydney Football Stadium.

Network state and assumptions
Analysis of this need was conducted on the Paddington Zone model.

Existing substations supplying the site are:

- S.77240 Moore Park Driver No.1 – Australian Rugby Development Centre No.1 and Moore Park Rd load (16A) [Pa.16L Paddington]
- S.77241 Moore Park Driver No.2 – Australian Rugby Development Centre No.2, Oatley Rd and Moore Park Rd load (31A) [Pa.16L Paddington]
- S.6522 HVC Sydney Sports Ground (104A) [Pa.16L Paddington]
- S.36093 HVC Sydney Cricket Ground (104A) [Pa.28L Paddington]

It is assumed the existing substations surrounding the site will remain in service. The load seen on these substations is approximately 5MVA, and the customer is applying for an additional 3MVA for a total load of 8MVA.

Available existing capacity for Sydney Football Stadium - Driver Ave, Moore Park

All feeder capacities shown below are at N-1.

Paddington Pa.16L – Paddington Pa.16L has approximately 1.2MVA spare capacity at the closest point of connection (S.6522 HVC Sydney Sports Ground). This feeder is limited by trunk capacity. The trunk rating is 271A and is at 75% utilization (204A).

Paddington Pa.28L – Paddington Pa.28L currently only supplies the SCG HVC. This feeder is limited by trunk capacity. The trunk rating is 245A and is at 40% utilization (104A). Pa.28L has approximately 2.5MVA spare capacity at the closest point of connection (S.36093 HVC Sydney Cricket Ground)

Paddington Pa.33L – Paddington Pa.33L has approximately 3MVA spare capacity at the closest point of connection (S.6522 HVC Sydney Sports Ground). This feeder is limited by trunk capacity. The trunk rating is 261A and is at 40% utilization (105A).The Paddington Pa.33L feeder was an ex 33kV feeder energized at 11kV, now supplying the Surry Hills area.

Options to address the 8MVA requirement at Sydney Football Stadium

Option 1: Supply the additional 3MVA using Paddington Pa.16L & Pa.28L – This option increases supply on Pa.16L by 1MVA and increases supply on Pa.28L by 2MVA to supply a total of 3MVA at Sydney Football Stadium. The existing substations surrounding the site will supply the remaining 5MVA.

Option 2: Supply the additional 3MVA using Paddington Pa.33L – This option includes a supply from Pa.33L of 3MVA to supply the additional load at Sydney Football Stadium. The existing substations surrounding the site will supply the remaining 5MVA.

If options are required to supply an additional 8MVA of load on top of the existing load please advise Ausgrid.

All the options above are subject to change, depending on the annual review of the demand forecast, future customers and load growth.

This preliminary enquiry does not reserve capacity for the customer and any capacity considered in this review will be made available to any subsequent formal customer applications.

To proceed further in obtaining a new or altered electrical connection to the property a Connection Application will need to be submitted. The various application forms are available on our website at the following link: http://www.ausgrid.com.au/Common/Customer-Services/Business-and-commercial/Connecting-to-the-network/How-do-I-connect-to-the-network/Connection-application-forms-and-guides.aspx#

It should be noted that the above advise is based on Ausgrid's polices and network status as of today and are subject to change.

Connections to the Ausgrid network are governed by a set of laws and rules referred to as the National Energy Customer Framework (NECF). Included in the NECF is the National Electricity Rules (NER). Under these rules, a binding contract may only be formed after a connection application is lodged and Ausgrid has made a connection offer in response to that application. Accordingly, to make arrangements for the electricity connection of the development to the Ausgrid network you should lodge a completed connection application.

Should you require any further information please contact me.

Yours sincerely,

Jeffrey Crough
Contestability Project Coordinator
Ausgrid

Direct Telephone Number: (02) 9663 9221
Email: jcrough@ausgrid.com.au
Facsimile: 02 96639499

Sean Bowen

From: Jeffrey Crough <JCrough@ausgrid.com.au>
Sent: Thursday, 12 April 2018 2:23 PM
To: Sean Bowen
Subject: RE: 700004563 - 20180406 - LT01C preliminary enquiry response - additional information

Categories: Red Category

Hi Sean,

Paddington Zone does have the capacity for the additional load.

However, Ausgrid would like to highlight some points:

- Pa.33L feeder capacity - The capacity (3MVA) on Paddington Pa.33L is using an ex 33kV feeder. This cable was commissioned back in 1967, decommissioned in 2015 and re-commissioned in 2016 for the Surry Hills ZS switchgear replacement. The cable is a 33kV 161mm² Cu Paper Lead. It tested ok when it was re-commissioned in July 2016, but it is expected that the older cables to have a failure rate higher than that of newer xlpe cables. Also restoration times will be longer if a failure were to occur on these cables.
- The proposed connection will need to have the load proportioned on each proposed substation to match the available capacity of each respective feeder. ie: a proposed HVC substation on Pa.16L would be limited to 3.5MVA. (2 MVA (S.6522 existing) + 1.2MVA spare capacity)

If either of these two points above are an issue for the customer given the nature of the load, Ausgrid has included a new connection back to Paddington Zone which is located 500m away. Ausgrid suggests that they seriously consider the options below due to the significance and value of the proposed project.

Available capacity with augmentation works for Sydney Football Stadium - Driver Ave, Moore Park

Option 1: Connect to Paddington Zone at 11kV using new 11kV feeders via Oatley Rd – Paddington Zone Substation is located 500m away in Weedon Ave. Each 11kV feeder has a rating of 400A (8MVA). Two 11kV feeders would provide up to 16MVA of capacity under N and if required an interconnection to an existing 11kV feeder within the vicinity of Sydney football stadium would provide 14MVA of capacity in N-1. Load transfers within the zone will be required if the customer wishes to improve reliability and have the 11kV feeders across multiple zone transformers at Paddington Zone.

Option 2: Connect to Paddington Zone at 11kV using new 11kV feeders via Regent St – Same as Option 1 except via an alternate 11kV feeder route. If cable congestion possess an issue in Oatley Rd the 11kV feeder route would need to take an alternate route. This option looks at Regent St as the alternative. The route length is 840m. It would provide identical capacities to option 1. Load transfers within the zone will be required if the customer wishes to improve reliability and have the 11kV feeders across multiple zone transformers at Paddington Zone.


Paddington Zone
2 x 500mm² Al3 cables
in new duct bank
Proposed
Development
Oxford St
Young St
Flinton St
Brodie St
Underwood St
Belmore Pl
Perry Ln
City of Sydney
Paddington Town Ha
Paddington
Reservoir
Gardens
Renny Ln
Walter St
Martin St
Regent St
Regent Ln
Stewart St
Leinster St
Moore Park Rd
Allianz Stadium

Note: All the options above are subject to change, depending on the annual review of the demand forecast, future customers and load growth.

This preliminary enquiry does not reserve capacity for the customer and any capacity considered in this review will be made available to any subsequent formal customer applications.

Kind Regards,

Jeffrey Crough | Engineer – Contestable Connections (Sydney East & CBD)| Ausgrid
Level 1, Building 4, 130 Joynton Avenue, Zetland, NSW, 2017, AUSTRALIA
☎+61 (0)2 9663 9221 (Extn 39221) | 🖷 +61 (0)2 9663 9499 (Extn 39499) | 0417 831 935 | ✉: jcrough@ausgrid.com.au

Please consider the environment before printing this email…

From: Sean Bowen <Sean.Bowen@aurecongroup.com>
Sent: Friday, 6 April 2018 12:32 PM
To: Jeffrey Crough <JCrough@ausgrid.com.au>
Subject: RE: 700004563 - 20180406 - LT01C preliminary enquiry response

Many thanks Jeffrey,

Please let the planner know they can feel free to contact me directly should they require any further clarification or have any queries.

Kind Regards,

Sean Bowen
Electrical Engineer, Aurecon
T +61 94655717 **M** +61 431589536
Sean.Bowen@aurecongroup.com

From: Jeffrey Crough [mailto:JCrough@ausgrid.com.au]
Sent: Friday, 6 April 2018 12:18 PM
To: Sean Bowen <Sean.Bowen@aurecongroup.com>
Subject: RE: 700004563 - 20180406 - LT01C preliminary enquiry response

Thanks Sean,

I have forwarded the below on to the planner

Kind Regards,

Jeffrey Crough | Team Leader (acting) – Contestable Connections (Sydney East & CBD)| Ausgrid
Level 1, Building 4, 130 Joynton Avenue, Zetland, NSW, 2017, AUSTRALIA
☎+61 (0)2 9663 9221 (Extn 39221) | +61 (0)2 9663 9499 (Extn 39499) | 0417 831 935 | ✉: jcrough@ausgrid.com.au

From: Sean Bowen <Sean.Bowen@aurecongroup.com>
Sent: Friday, 6 April 2018 11:59 AM
To: Jeffrey Crough <JCrough@ausgrid.com.au>
Subject: RE: 700004563 - 20180406 - LT01C preliminary enquiry response

Hi Jeffrey,

Thanks for this, just to be clear the SFS itself will now require 8MVA so the total increase in load to the site will be 8MVA minus the current maximum demand (or load allowance) for HVC S6522.

Kiosks S77240 and S77241, and the SCG HVC S.36093 will not be effected by this development in terms of load.

We believe the current maximum demand of HVC S6522 is in the order of 2.5MVA so total additional load to the site is the order of 5.5MVA (however you will have more accurate information). The response shows there is a total capacity of 6.7MVA in the nearby feeders which exceeds 5.5MVA so assuming that Paddington zone substation is able to supply and additional 5.5MVA (rather than 3MVA) we should be looking at a very similar situation.

Kind Regards,

Sean Bowen
Electrical Engineer, Aurecon
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Sean.Bowen@aurecongroup.com

DISCLAIMER

From: Jeffrey Crough [mailto:JCrough@ausgrid.com.au]
Sent: Friday, 6 April 2018 11:44 AM
To: Sean Bowen <Sean.Bowen@aurecongroup.com>
Subject: RE: 700004563 - 20180406 - LT01C preliminary enquiry response

Hi Sean,

I will get back to you with updated information when I am able. Distribution Planning has looked into giving the site 8MVA of new load on top of the existing load already (so the turnaround will be quicker) but the Planner is not in today.

Kind Regards,

Jeffrey Crough | Team Leader (acting) – Contestable Connections (Sydney East & CBD)| Ausgrid
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From: Jeffrey Crough
Sent: Friday, 6 April 2018 11:06 AM
To: 'Sean Bowen' <Sean.Bowen@aurecongroup.com>
Subject: 700004563 - 20180406 - LT01C preliminary enquiry response

Hi Sean,

See attached. Cheers.

Kind Regards,

Jeffrey Crough | Team Leader (acting) – Contestable Connections (Sydney East & CBD)| Ausgrid
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Sean Bowen

From: David Towells <towe1dav@police.nsw.gov.au>
Sent: Thursday, 19 April 2018 8:52 AM
To: Charlee Dare
Cc: Sean Bowen
Subject: Re: Fw: Existing NSW Police radio network coverage at Sydney Football (Allianz) Stadium [DLM=For-Official-Use-Only]

Hello Charlee,

NSWPF currently utilises its own local radio network for coverage into Allianz and SCG Events.

Our network is not connected to any internal antenna system at Allianz (like we do at ANZ Stadium Homebush)

If Allianz is demolished and a new UHF DAS or similar system is proposed, we would like to be involved in the planning

Similar to planning of new operations or security rooms where UHF Antenna ports for desktop radios will be required.

Demolishing of Allianz will not affect police radio network coverage in Moore Park/SCG area

Happy to answer any further questions

Regards

Dave TOWELLS - State Co-ordinator, Wireless Technology
Communications Group - NSW Police Force
Level 4, Sydney Police Centre
151-241 Goulburn Street, Surry Hills NSW 2010
EN: 54310 TEL: (02) 9265 4310 M: 0428 468 517
EMAIL: TOWE1DAV@police.nsw.gov.au

NSW Police Force

Hi,

We're currently working on the enabling works scoping document for the redevelopment of the Sydney Football (Allianz) Stadium. Kerry from Police Enquiries has passed on the contact details for this department advising that you may be able to assist with our enquiry below.

If possible could I please request clarification on the following items

1. Do NSW Police currently use GRN NSW in the Allianz/SCG Stadiums for radio coverage?
2. Is there an existing NSW Police system on site at Allianz Stadium or the SCG?
3. If so, off which stadium is it installed?
4. If Allianz is demolished, are any works required prior to demolition to maintain coverage around in the SCG and/or Moore Park?

Thank you for your assistance in advance, and please do not hesitate to call if you have any questions.

Regards

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Charlee.Dare@aurecongroup.com

Sean Bowen

From: Cathryn.Grieve@stjohnnsw.com.au
Sent: Thursday, 19 April 2018 2:14 PM
To: Charlee Dare; Sean Bowen
Cc: huw.price@stjohnnsw.com.au; michael.cheng@stjohnnsw.com.au
Subject: RE: Existing St John radio network coverage at Sydney Football (Allianz) Stadium

Hi Charlee and Sean,

Please see comments below from our State Comms Officer, Huw Price. Huw is cc'd on this email, so please feel free to contact him directly if you need more information.

Best regards,
Cathryn

Cathryn Grieve
Operations Manager - Health Services
St John (NSW)

M: 0429 602 243
E: cathryn.grieve@stjohnnsw.com.au
A: 9 Deane Street, Burwood, NSW 2134

From: Charlee Dare [mailto:Charlee.Dare@aurecongroup.com]
Sent: Wednesday, 18 April 2018 2:08 PM
To: Events <Events@stjohnnsw.com.au>
Cc: Sean Bowen <Sean.Bowen@aurecongroup.com>
Subject: Existing St John radio network coverage at Sydney Football (Allianz) Stadium

Hi Events,

We're currently working on the enabling works scoping document for the redevelopment of the Sydney Football (Allianz) Stadium.

If possible could I please request clarification on the following items

1. Do St John's currently use GRN NSW in the Allianz/SCG Stadiums for radio coverage?

No, St John Ambulance (NSW) does not use the NSW GRN.

2. Is there an existing St John Radio system on site at Allianz Stadium or The SCG?

No. St John Ambulance (NSW) does not currently have any infrastructure located at Allianz Stadium, SCG or Moore Park Precinct. We do have both a UHF repeater and UHF Simplex radiocommunications licenses in the Moore Park Precinct (ACMA Site ID 137248). These are there for future planning and to protect spectrum in case St John is engaged to provide Event Health Services in this area.

3. If so, off which stadium is it installed?

See previous response.

4. If Allianz is demolished, are any works required prior to demolition to maintain coverage around in the SCG and/or Moore Park?

No, Works to Allianz should not affect existing coverage to St John in this area.

Thank you for your assistance in advance, and please do not hesitate to call if you have any questions.

Regards

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