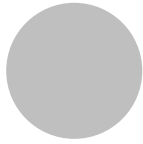

BUILDING SERVICES

STEENSEN VARMING



Sutherland Public School Hall (SPSH) Electrical and Telecommunications Utility Infrastructure Assessment

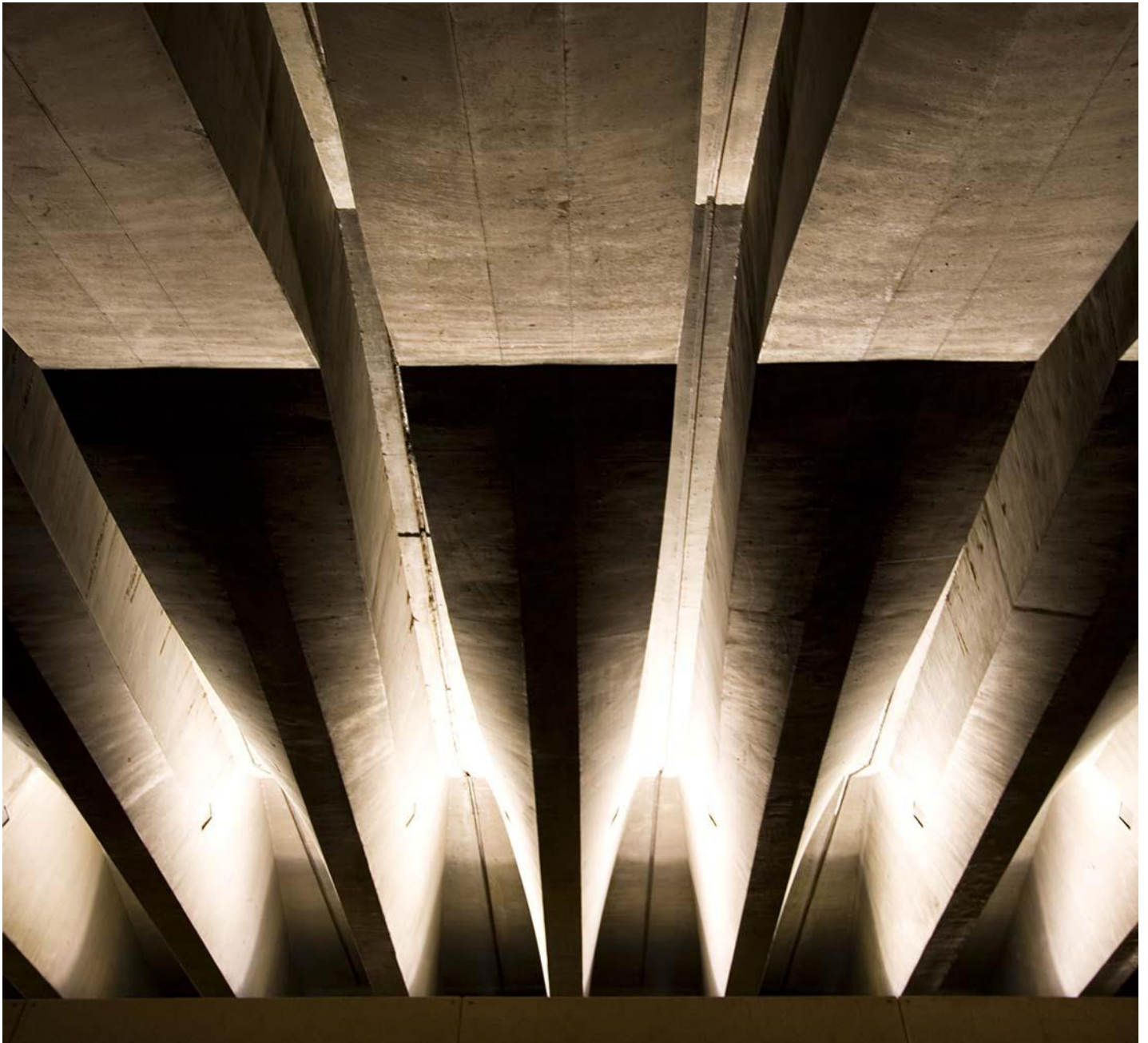


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1.0 Introduction

This report supports a Review of Environmental Factors for a new school hall, pursuant to Part 5 of the Environmental Planning and Assessment Act (EP&A Act).

The subject site is located at 38-54 Eton Street Sutherland NSW 2232 (see Figure 1 below). The Sutherland Public School is approximately 1.35 ha in area and is made up of the following 16 allotments:

- Lot 1 DP6600
- Lot 2 DP6600
- Lot 5 DP6600
- Lot 6 Section 45 DP802
- Lot 8 DP6600
- Lot 9 Section 45 DP802
- Lot 10 DP6600
- Lot 3 DP6600
- Lot 5 Section 45 DP802
- Lot 7 DP6600
- Lot 8 Section 45 DP802
- Lot 10 Section 45 DP802
- Lot 4 DP6600
- Lot 6 DP6600
- Lot 7 Section 45 DP802
- Lot 9 DP6600



Figure 1: Subject Site. Source: Mosaic

The proposed works involve upgrades to the existing Sutherland Public School. This will include demolition of existing Block J, garden bed, car parking spaces, and associated structures, construction of a new single-storey school hall, and associated civil works. The proposal retains the existing student capacity at the Sutherland Public School.

The project will be carried out over one continuous construction period for the demolition and construction works.

This report for Electrical and Telecommunications Utility Infrastructure Assessment has been prepared in accordance with the following requirements:

General

- Clean Energy Council
- NSW Department of Education Educational Facilities Standards and Guidelines
- NSW Environment Protection Authority.
- Sutherland Shire Council
- The National Construction Code of Australia.

Building Electrical Services

AS/NZS 3000	Electrical installations (known as Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.1	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical Australian installation conditions
AS 4777.1	Grid connection of energy systems via inverters – Installation requirements
AS 4777.2	Grid connection of energy systems via inverters – Inverter requirements
AS 4777.3	Grid connection of energy systems via inverters – Grid protection requirements
AS/NZS 5033	Installation and safety requirements for photovoltaic PV arrays
Clean Energy Council	Grid Connected Solar PV systems: No Battery Storage – Design guidelines for accredited installers
Clean Energy Council	30 - 100 kW Grid-Connected Solar PV Systems: No Battery Storage, Design Guidelines for Accredited Installers
Clean Energy Council	Grid Connected Solar PV systems – install and supervise guidelines for accredited installers – Version 13

Clean Energy Council	Installation requirements for alterations, additions, repairs and upgrades to existing grid-connected PV array
Electricity Distributor Service and Installation Rules	Ausgrid Standards

Building Communication Services:

AS/CA S008	Requirements for Customer Cabling Products
AS/CA S009	Installation requirements for Customer Cabling (Wiring Rules)
AS/NZS 2967	Optical fibre communication cabling systems safety
AS/NZS 3080	Telecommunications installations – Generic cabling for commercial premises (ISO/IEC 11801:2002, MOD)
AS/NZS 3084	Telecommunications installations – Telecommunications pathways and spaces for commercial buildings
AS/NZS 3085.1	Telecommunications installations – Administration of communications cabling systems – Basic requirements

2.0 Electricity

2.1 Description of Works

The new hall for Sutherland Public School will be constructed on the site noted in Section 1.0 of this report.

The existing school operates with a 200A main switchboard, supplied via an overhead configuration. With the addition of the proposed hall, the maximum demand will require an incoming supply of 400A, necessitating an upgrade to the existing electrical consumer mains. To address this, a new main switchboard has been proposed within the new hall. Steensen Varming submitted a network application to Ausgrid for supply options for the new main switchboard. Ausgrid has provided a supply offer confirming the need to engage a Level 3 designer to determine the supply methodology for the upgraded infrastructure. Ausgrid has not raised any concerns regarding its ability to meet the new power requirements for the school. A Level 3 consultant was engaged to complete a desktop study of the incoming power supply and to submit a connection application to Ausgrid. Certification for the connection is currently pending approval.

Sutherland Public School is proposed to be connected via a direct distributor low-voltage supply from proposed substation S.32747, a chamber substation, and low-voltage panel 3 to satisfy the anticipated maximum demand of the new hall. The maximum demand for the completed school has been calculated at 362A.

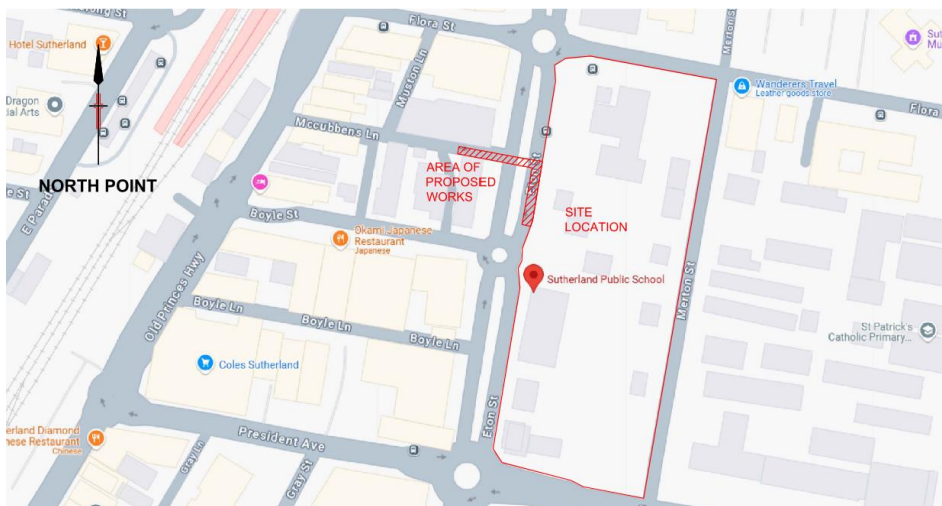


Figure 2: Scope of Works for Incoming Supply. Source: ASP3 Design

The incoming supply has been designed to be underground, as new distribution systems in urban areas must comply with underground installation requirements. Additionally, the largest overhead service permitted by Ausgrid is 200A, which does not meet the 400A supply required for the site. Figure 2 shows the area of works requiring trenching to facilitate the underground connection from the substation to the site pillar box and then into the new main switchboard located within the hall. Once the new connection has been established, the existing overhead incoming supply will be decommissioned.

Refer to the supply offer and ASP3 design pending certification from Ausgrid in Appendix A and Appendix B of this report.

2.2 Mitigation Measures

Impact of Trenching Across Eton Street

Trenching is required across Eton Street, a public road, as shown in Figure 2 in Section 2.1, to facilitate the underground connection from the proposed substation to the site pillar box and subsequently to the new main switchboard in the hall. This activity introduces a few considerations under the Planning and Environment Guidelines for Division 5.1 Assessments, as outlined below:

1. Regulatory and Environmental Considerations:

- Traffic and Transport Disruption: The trenching activity may temporarily disrupt traffic flow. A traffic management plan should be considered and implemented to ensure minimal impact on commuters and the surrounding community.
- Noise and Dust Emissions: Construction activities will generate noise and dust, requiring mitigation measures such as dust suppression and adherence to noise control regulations.
- Road Surface Restoration: Post-trenching, ensure road surface is restored to its original condition in compliance with local council standards.

2. Approvals and Coordination:

- Approval from the relevant local council shall be sought for trenching activities across the public road, in accordance with Division 5.1 guidelines.
- Coordination with utility providers to ensure the trenching process does not interfere with existing underground services.

3.0 Telecommunications

3.1 Description of Works

No utility works is required as the school is already has the following connections:

- Telstra Network: The Telstra network is connected to the Campus Distributor in Block B.
- NBN Connection: The NBN connection is in Block A, where it is connected to the Building Distributor.

Refer to the Site Utility Survey Investigation Report for detailed information on the locations of lead-ins and termination pits for both the Telstra and NBN lead-ins.

The new hall will be equipped with its own dedicated communications rack. The following infrastructure works within the school premises are proposed:

1. Communications Conduits:

- Block A: Communications conduits will connect the new hall's communications rack to Block A's Building Distributor.
- Block B: Communications conduits will connect the new hall's communications rack to Block B's Campus Distributor.

2. Security Conduits:

- Block B: Security conduits will connect the new hall's security system to the main communications room in Block B, where the Network Video Recorder (NVR) will be housed. The NVR will be responsible for recording and managing video data from the security cameras in and around the new hall.

Refer to the SSU brief for more information.

- Conduit From Block B to Block A: Since the CCTV display units will be in the clerical/admin area of block A, conduit connection between Block B and Block A is proposed.

3.2 Mitigation Measures

No specific mitigation measures are deemed necessary due to the works required to the telecommunications network as a result of the activity. The works are not considered to be of a significant impact nor do they have an impact on the Environmental Factors outlined in section 3 of the Guidelines for Division 5.1 assessments guidelines.

4.0 Appendix A – Ausgrid Supply Offer

5.0 Appendix B – ASP3 Design Pending Certification