

NSW Department of Education

Proposed New High School for Googong

Electrical and ICT Services Report

Reference: EL-GHS-RPT-002

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1. Introduction

This Electrical and ICT Services Report has been prepared by Arup on behalf of the NSW Department of Education (DoE) to inform a Review of Environment Factors (REF) for the proposed construction of a new high school for Googong (the activity) located at 200 Wellsvale Drive, Googong, NSW (the site).

The activity relates to the construction and operation of a new educational establishment to serve the needs of the growing Googong township by accommodating up to 700 students from years 7 – 12. Specifically, the activity includes the following:

- Building A, a three to four-storey building in the northern portion of the site, fronting Glenrock Drive, which will accommodate learning spaces and administrative functions of the school.
- Building B, a three-storey building in the north-west portion of the site, fronting Observer Street, which will accommodate learning spaces and administrative functions of the school.
- Building C, fronting Glenrock Drive, which will accommodate a school hall / gymnasium and canteen.
- Outdoor recreation areas, cricket nets, playing court and playing field.
- Main pedestrian entry established from Glenrock Drive.
- Car park and accessible pedestrian entry from Wellsvale Drive.
- Service entry from Observer Street.
- Associated civil works, earthworks, servicing and landscaping.
- Associated off-site works such as the construction of pedestrian crossings, drop off and pick up bays and a bus stop.
- School identification and wayfinding signage.

The REF describes the activity, documents the examination and consideration of all matters affecting, or are likely to affect, the environment, and details safeguards to be implemented to mitigate impacts.

The Department of Education is the determining authority for the project under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

1.1 Site description

The site is identified in Figure 1 and the activity is shown in Figure 2.



Figure 1– Site Location Plan

Source: Mecone

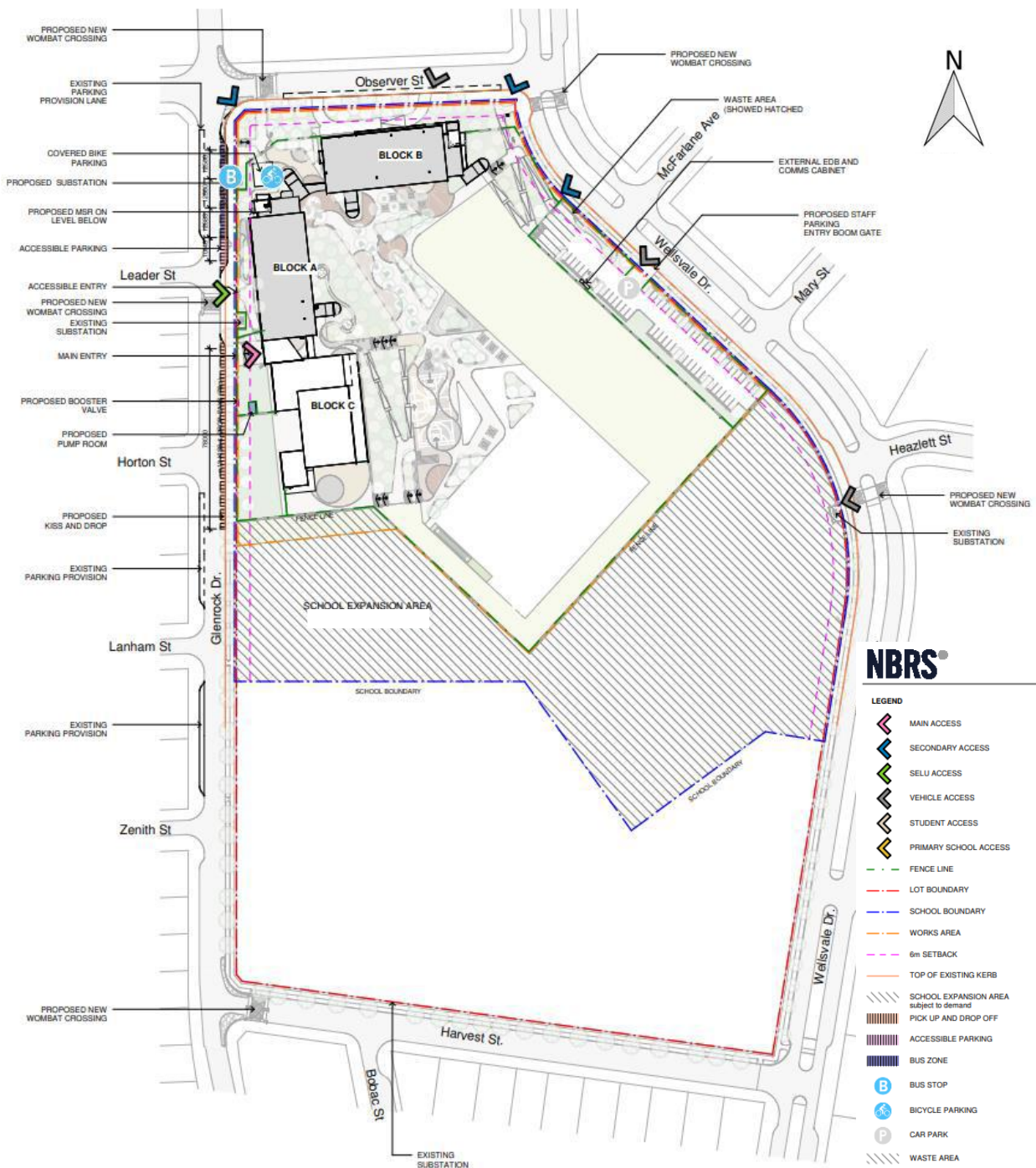


Figure 2 – New high school for Googong proposal – indicative only, subject to detailed design

Source: NBRS, 29/01/2024

Googong is a new release area within the Queanbeyan-Palerang Local Government Area (LGA), located approximately eight kilometres south of Queanbeyan and 17 kilometres southeast of the Canberra Central Business District (CBD). Googong Reservoir, a significant waterbody, is located approximately 3 kilometres east of the subject site. Canberra Airport is located approximately 12 kilometres north of the subject site.

The site is legally described as Lot 829 in Deposited Plan 1277372. The proposed new high school site within this Lot has an area of approximately 5.84 hectares.

The site is currently zoned as R1 General Residential in the Queanbeyan Palerang Local Environmental Plan (LEP) 2022 and is located within Neighbourhood 2 of the Googong Masterplan, within the Googong DCP 2010.

The site is surrounded by low-density residential development, recreational areas and a future local centre adjoining the site to the north.

The site is currently vacant with no existing structures and has been cleared of all trees and native vegetation. The site has an approximately 12 metre fall from the southwest corner of the site at RL ~763.550m Australian Height Datum AHD to the northeast at RL ~751.570m AHD.

2. Project Overview

The proposed new high school for Googong is an educational facility accommodating up to 700 students. Electrical infrastructure includes a 1000kVA kiosk substation, a main switchboard, extensive ICT connectivity, and provisions for sustainability features such as solar PV systems.

3. Existing Services

3.1 Existing Utilities – Electrical

A desktop Before You Dig Australia (BYDA) study was conducted for the proposed site and the surrounding area. The following outlines the existing services and infrastructure around the site, providing context for the proposed development's servicing strategy.

The site is currently serviced by Essential Energy's 500 kVA substation (Sub 86262) located on the western verge of Glenrock Drive, with approximately 300A of spare capacity as of June 2023. This substation includes a spare low voltage (LV) fuse strip and a high voltage (HV) switch, allowing for future electrical infrastructure connections if required. It is noted that 300A is not sufficient for the new school.

Essential Energy's high-voltage (HV) cables run along the eastern, western, and northern sides of the site, providing multiple options for future development phases:

Western side: HV cables run parallel to Glenrock Drive, supporting the existing substation and providing the primary connection point for initial phases of the school's development.

Eastern side: HV cables along this route offer a strategic opportunity for further development of the proposed school in the future. This infrastructure could support future load expansions, with the possibility of installing a second substation to meet growing electrical demands.

Northern side: HV cables provide an additional opportunity for future electrical connections, allowing further flexibility for expanding power supply infrastructure without impacting the western or eastern connections.

Given that the total estimated power load for the school will exceed the 300A spare capacity of the existing substation, additional electrical infrastructure, such as a new substation, will be required to support the school's operations and future expansion needs.

The nearby substations operated by Essential Energy include:

Stage 9A Substation (Sub 86201): A 315 kVA substation, moderately constrained due to existing load commitments for nearby lots.

Stage 5B Substation (Sub 85181): Another 315 kVA substation, fully constrained and unavailable for additional connections.

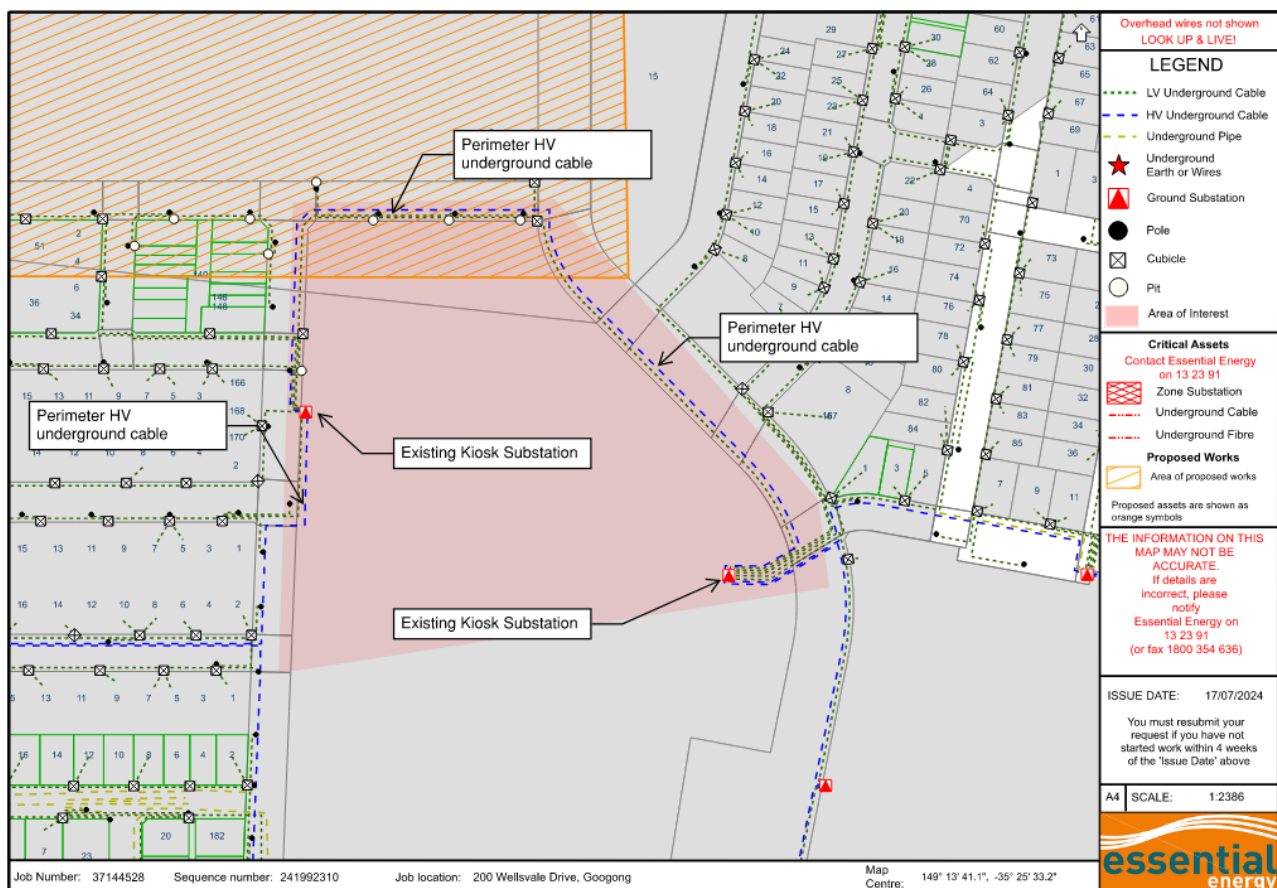


Figure 3 BYDA Essential Energy existing services

3.2 Existing Utilities – Communications

A desktop Before You Dig Australia (BYDA) study was conducted for the proposed new high school for Googong and the surrounding area. The following outlines the existing communications services around the site, providing context for the proposed development's servicing strategy.

The communications infrastructure for the site includes conduits from both Telstra and NBN. However, the Telstra network is currently located at the north-eastern corner of the site, across the road from the school. This network will need to be extended to cross the road and be brought to the school site.

There are no required diversions.

Key details of the existing communications infrastructure:

Telstra Conduits (P50): Telstra conduits with 50mm PVC are located across the road at the north-east corner of the site. These conduits need to be extended across the road and connected to the school to provide high-capacity fibre and copper communications services.

NBN Conduits (P40): The NBN network, is available around the site.

The existing conduits and pits include:

Pits and Conduits: Multiple P50 conduits are in place across the road, near the northeastern corner of the site, which will need to be extended and connected to the school. These conduits form part of Telstra's fibre optic and copper network.

Pit locations: There are existing Telstra pits at key points in the surrounding area, which can be accessed to facilitate the extension of services to the school.

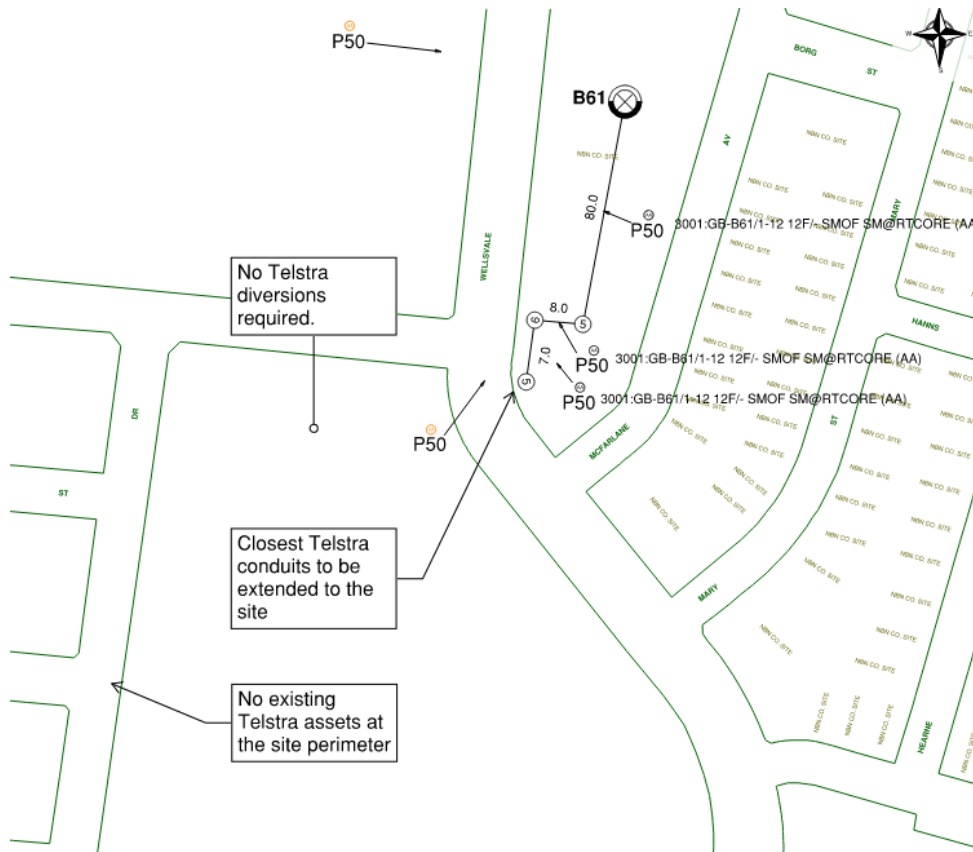


Figure 4 BYDA Telstra assets

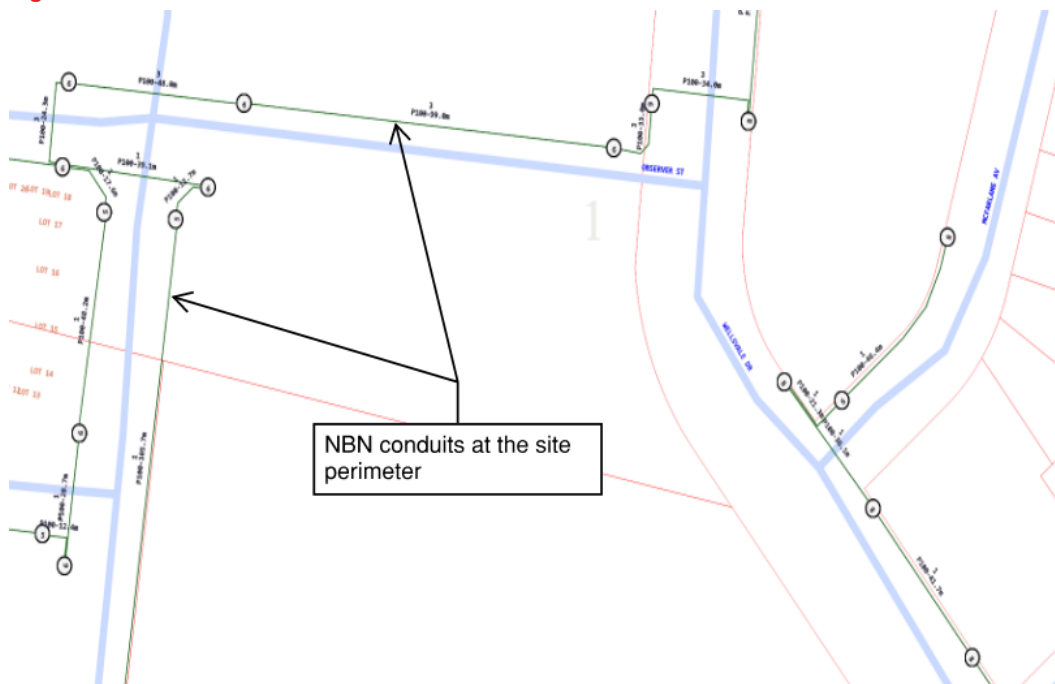


Figure 5 Existing NBN assets

Utility applications for connection will need to be completed at the next stage of design to provide confidence in the proposed connection strategies.

- **Mitigation:** Erosion control and noise management plans.

4.5 ICT Infrastructure Impacts

- **Impact:** Minimal as ICT works are primarily underground or within buildings.
- **Mitigation:** Ensure all trenching avoids sensitive areas and complies with environmental management plans.

4.6 Compliance with Standards and Regulations

- The design aligns with:
- **NCC 2022** and relevant Australian Standards, including AS3000:2018, AS1768 (Lightning Protection), and AS2293.1 (Emergency Lighting).
- NSW Department of Education's EFSG 2.0 and Structured Cabling Systems Specifications.
- Australian standards
- Utility standards

4.7 Stakeholder Consultation

- DBYD for Telstra, NBN and Essential Energy complete
- Coordination with Essential Energy for electrical connections and approvals will commence at the next stage of design.
- Engagement with NBN for ICT infrastructure integration will commence at the next stage of design.

4.8 Mitigation Measures

- Early engagement with utility providers to confirm connection points and design approvals.
- Implementation of detailed erosion, sediment control, and noise management plans during construction.
- Continued coordination with the design team to integrate sustainability measures, including the PV system and ICT infrastructure, while minimising environmental impacts.