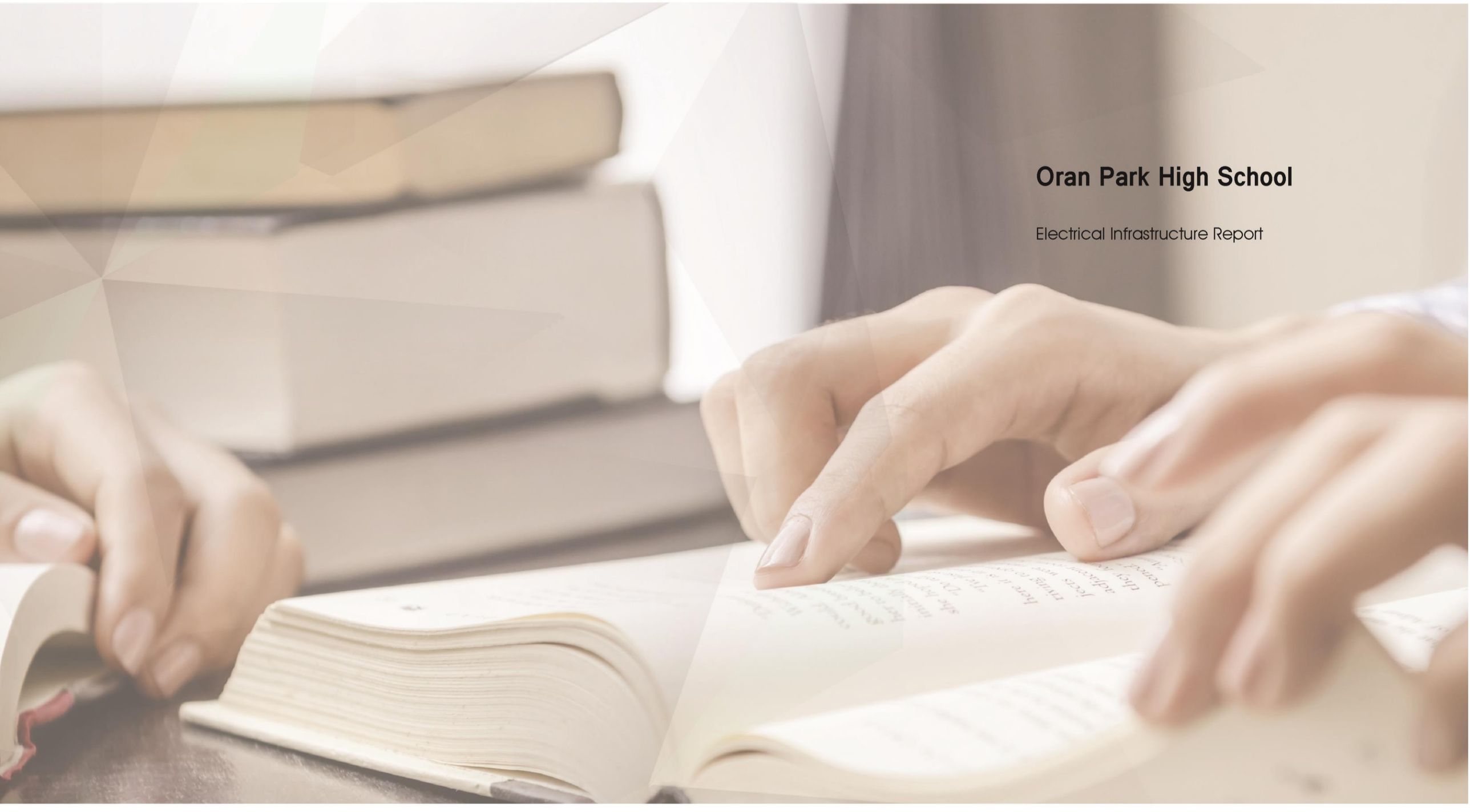

Oran Park High School

Electrical Infrastructure Report

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Document Control Sheet

Title	Infrastructure Assessment Report
Project	Oran Park High School
Description	Electrical Services Report
Key Contact	Marc Estimada; Frank Liu

Prepared By

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	DATE								

Contents

1. Introduction

1.1 GENERAL

The following report has been prepared for Perumal Pedavoli Architects (Hereafter referred to as 'PPA') in response to a proposed development of a greenfield lot at Oran Park NSW, 2570.

The development (see Figure 1) predominantly consists of future school grounds and associated education facilities for Oran Park High School.

1.2 THE SITE

The development site, neighbouring the existing Oran Park Primary School is located about 60km south west of Sydney's CBD. Oran Park is largely a greenfield district with strong upcoming developments occurring.

1.2.1 SITE LOCATION

The following figures (1-2) show aerial detailing of the proposed site location, including;

- Satellite imagery
- Site Survey Plan

Figure 1 – Proposed Greenfield site - satellite imagery

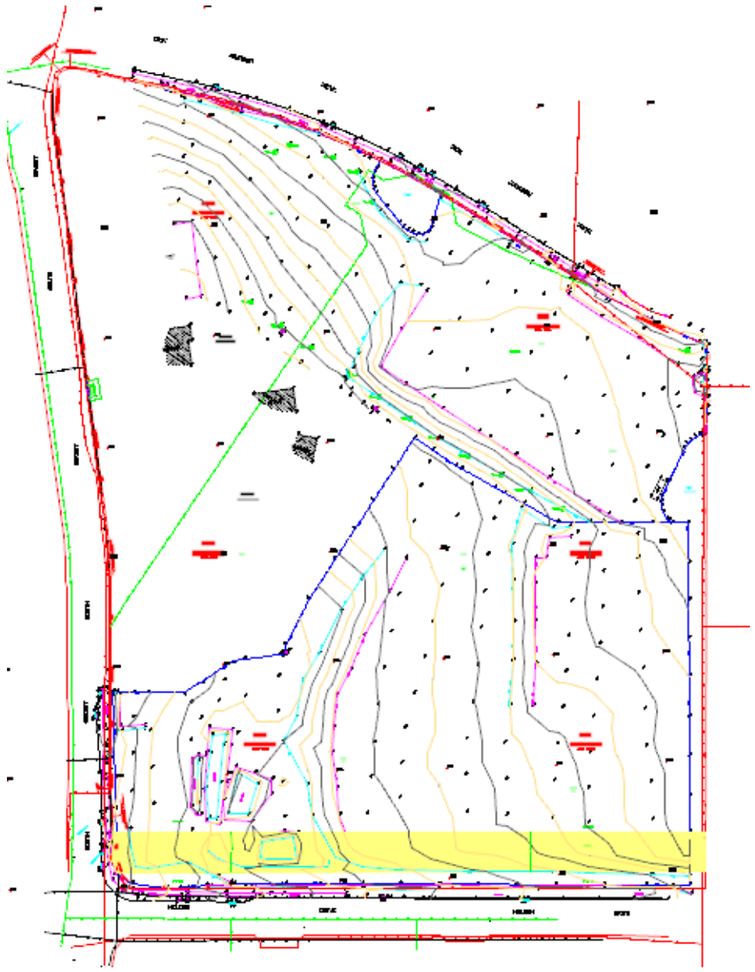

Figure 2 – Site Survey plan for proposed development

2. Utility Engineering Services

2.1 UTILIES SERVICES REVIEW / ANALYSIS

A utility review has been carried out in consultation with the relevant local authorities to identify the existing utilities at the site.

Dial before you dig (DBYD) requests were submitted on the 9 August 2016 to investigate the presence of existing utilities such as power and telecommunications. The following utilities with interests / assets in the vicinity of the site were notified in this process:

Type	Sequence No	Authority	Phone	Status
Electricity	54812753	Endeavour Energy	0298534161	Notification Sent
Gas & Petroleum	54812756	Jemena Gas West	1300880906	Notification Sent
Communications	54812762	Opticomm Co Pty Ltd (NSW)	1300137800	Notification Sent
Water	54812758	Sydney Water	132092	Notification Sent
Communications	54812755	Telstra NSW, Central	1800653935	Notification Sent

Figure 3 – Dial before you dig utilities notification status.

The utility review process revealed that no major assets exist on site and therefore services in the area will unlikely be interrupted during development. However the survey plan also shows the existing Endeavour Energy Overhead line Easement (along Holden drive) as highlighted in figure below.

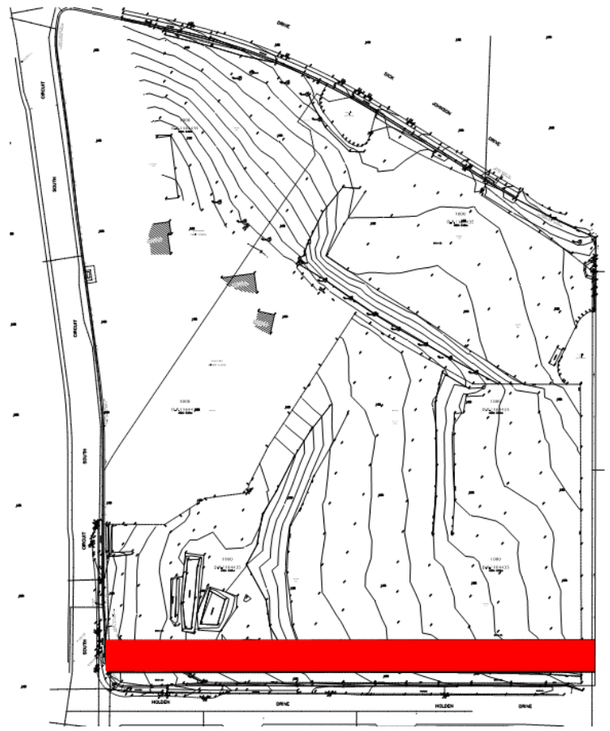

Figure 3 – Existing EE's Overhead Line Easement

2.2 EXISTING OVERHEAD LINE EASEMENT WITHIN OUR BOUNDARY:

JHA has discussed with Endeavour Energy (EE) in relation to the existing easement onsite.

EE have confirmed the easement continues to exist and was created and registered under an entity titled "Leppington Pastoral". EE have also confirmed no infrastructure assets exist above or below ground.

We understand that the developer and DET will negotiate the removal of the existing easement.

2.3 EXISTING HV INFRASTRUCTURE

JHA has undertaken a high level investigation to determine the nearest high voltage (HV) cable to the site. There appears to be Endeavour Energy's (EE) HV infrastructure existing to the west of the site along South Circuit. A new substation can be located along the property boundary of South Circuit (see the indicative location shown in below sketch) and simply tie into the HV feeder along South Circuit and utilise existing EE underground conduits. This is considered as the most economical and feasible location although the final easement location will be subject to EE's approval.

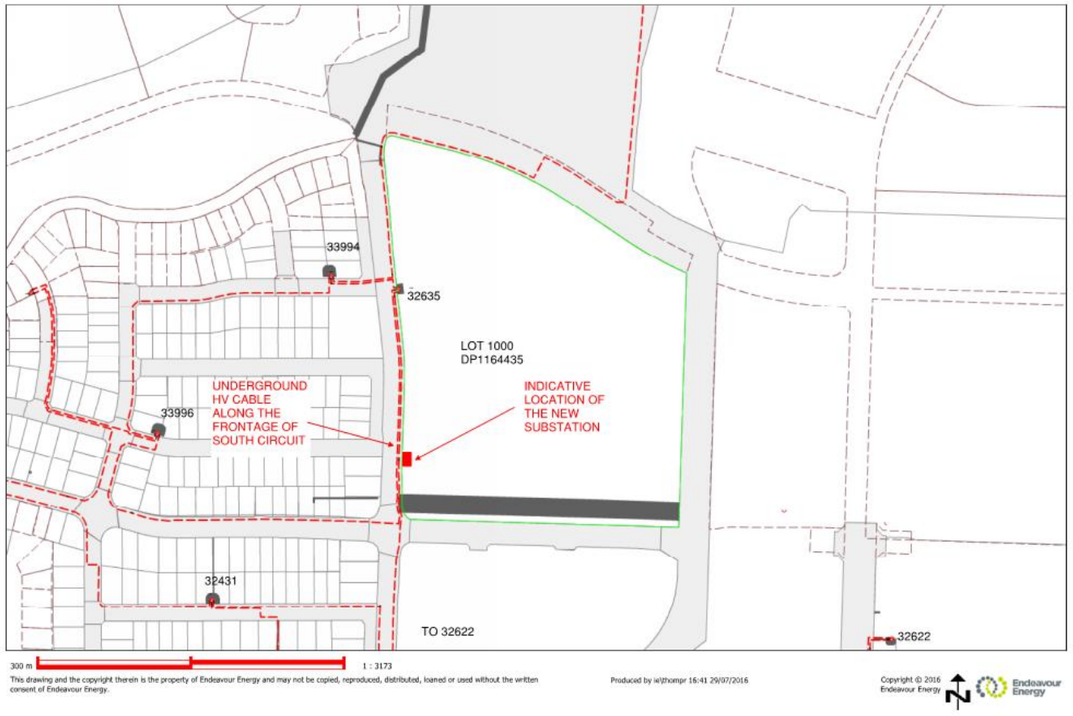

Figure 4 – Indicative location of nearest high voltage cable.

3. Electrical Services

3.1 ELECTRICAL MAXIMUM DEMAND

Based on our desktop investigations on the current EE's HV and LV infrastructure in the vicinity of the site, a dedicated new substation will likely be required to cater for the magnitude of the development. JHA has carried out a preliminary maximum demand calculation and we estimate a substation in the order of 500kVA will be required to cater for the site. EE will determine the final substation size during the level 3 substation design process.

JHA will submit an Application with the preliminary maximum demand to EE for approval. As part of the application, a new National Meter Identifier (NMI) number is required (which now has been established for the new school) in order for the application to be processed. Once the AFC is submitted, a lead time of approximately 4-6 weeks is expected until a response/ supply offer is received from EE.

3.1.1 NEW KIOSK SUBSTATION

As explained in the section above, a new on site substation is required to meet the power demands for the site. There appears to be Endeavour Energy's (EE) HV infrastructure existing to the west of the site along South Circuit. A new substation can be located along the frontage of South Circuit (see the indicative location shown in below sketch) and simply tie into the HV feeder along South Circuit and utilise existing EE underground conduits.

The substation easement can be located anywhere along the marked frontage as shown in figure below, but ideally not closer than 15m from the intersection.

Refer to Appendix A for typical Endeavour Energy substation spatial clearances.

The cost of a new substation is estimated to be approximately between $200K - $250K.

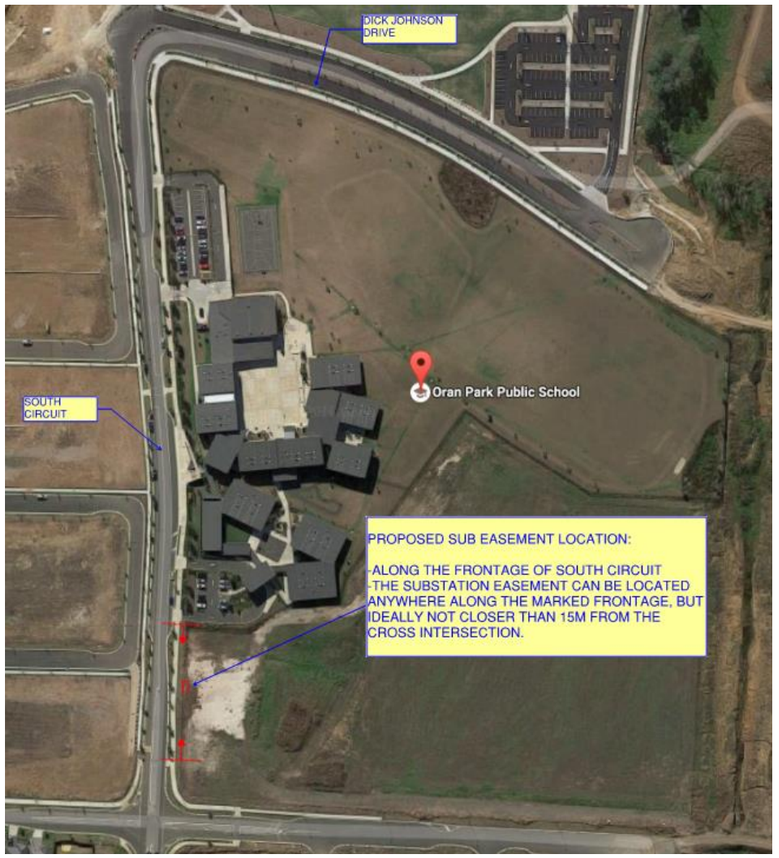

Figure 5 – Proposed Location of New substation.

4. Telecommunications Services

4.1 EXISTING SERVICES

JHA has contacted NBN Co and carried out a desktop investigation of the existing Telecommunication network near the site. Figure 6 indicates the locations of existing sites to which NBN Co is currently proving NBN fibre. The brown sites indicate those which NBN Co is currently completing and the purple sites indicate those which NBN Co has completed. The blue sites indicate areas with fibre network provided by other infrastructure providers.

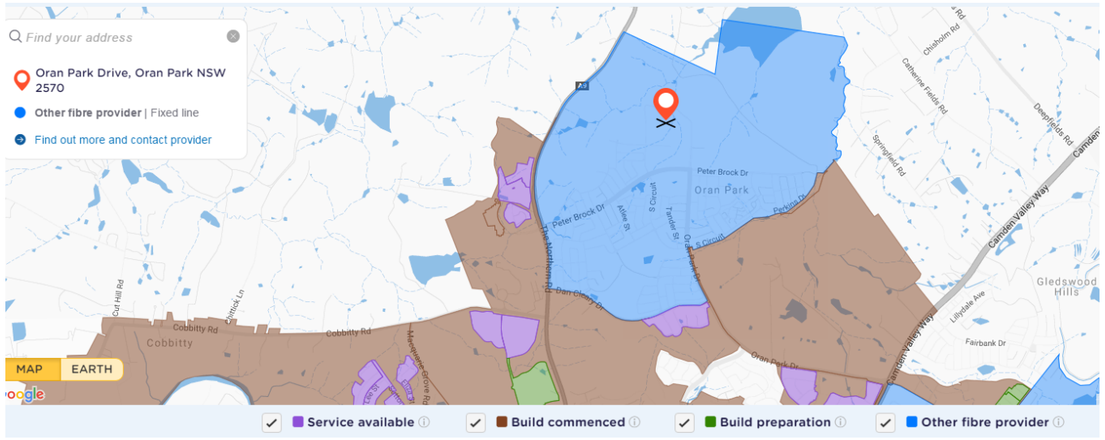

Figure 6 – Communications Network Proximity - NBN.

This preliminary investigation shows (based on the circumstances shown) that fibre is available in the vicinity of the development site but provided by OptiComm.

JHA has contacted OptiComm and there appears to be communications infrastructure to the west of the site along South Circuit as shown on figure 7. It is likely that further infrastructure works will be built along Holden Drive for the fibre connection to the development site.

A formal application will need to be submitted to OptiComm by school ICT department and a new fibre account will need to be established. In receiving the application, OptiComm will confirm whether or not they can provide fibre to the development and advice all available Telecommunication pits along the site for the connection.

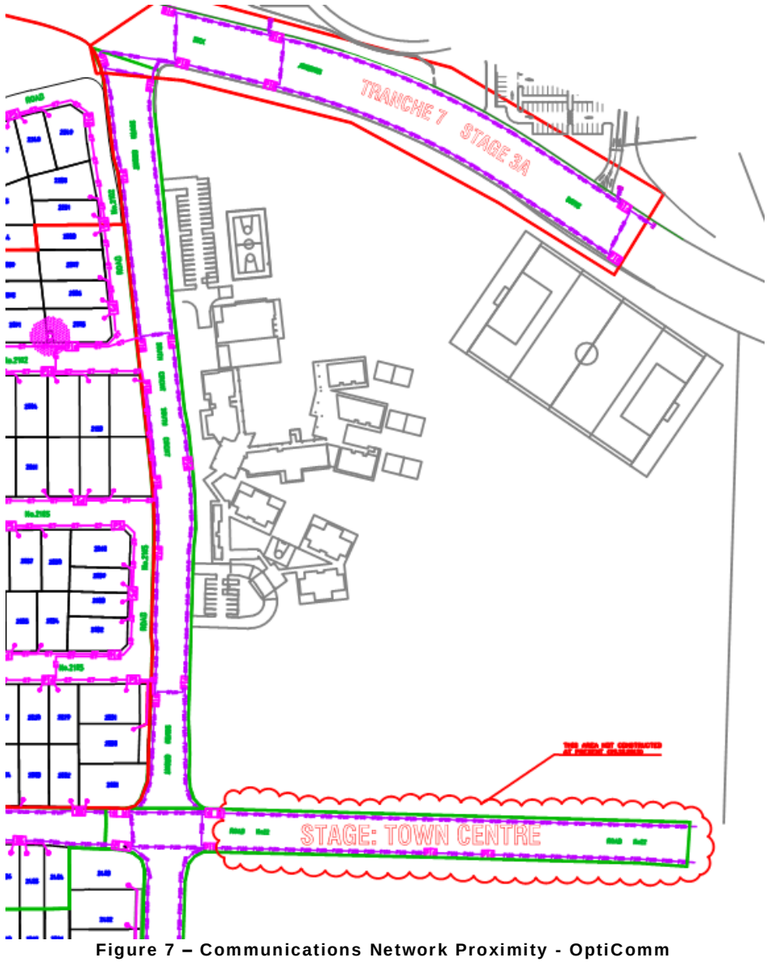

Figure 7 – Communications Network Proximity - OptiComm

5. Summary

EE have confirmed an existing easement continues to exist and was created and registered under an entity titled “Leppington Pastoral”. We understand that the developer and DET will negotiate the removal of the existing easement.

- JHA has carried out a preliminary maximum demand and estimate a 500kVA substation will be required to support the new site. The final substation size will be determined by EE during the level 3 design phase.
- JHA will submit an Application with the estimated maximum demand and the NMI number to the local energy authority, Endeavour Energy for approval.
- In receiving the application for additional load, Endeavour Energy will take 4-6 weeks to assess the existing network and determine whether the existing infrastructure has capacity to support our proposed new works and whether an onsite substation will be required (this is highly likely).
- Although the final easement location will be subject to EE's approval, the attached EE substation spatial requirements (Appendix A) and location options (Appendix B) are for consideration and to assist PP-A with the concept/schematic design. An easement of 5500 x 2750mm to be nominated on the master plan.
- Telecommunication Fibre network is available in Oran Park area provided by OptiComm. However an application for site fibre connection will need to submitted to OptiComm by the school ICT department. In receiving the application, OptiComm will assess the existing network and advise all available Telecommunication pits along the site for the connection.

6. Appendix A – Endeavour Energy Kiosk Substation

7. Appendix B – Proposed Kiosk Substation Location

8. Appendix C – Existing OptiComm Infrastructure