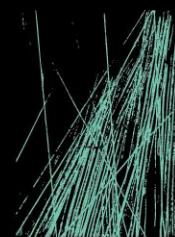


STATE SIGNIFICANT DEVELOPMENT APPLICATION REPORT – SSD-96248991

**ROUSE HILL HOSPITAL**

**ELECTRICAL & COMMUNICATIONS SERVICES**



**JHA**

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## DOCUMENT CONTROL SHEET

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# 1 INTRODUCTION

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## 1.1 OVERVIEW

The future Rouse Hill Hospital will be located at the corner of Windsor Road and Commercial Road, Rouse Hill. The RHH responds to the health care needs of the growing north west region and will provide a modern, technologically connected hospital integrated with its surrounds and the community.

Approval for Rouse Hill Hospital will be sought under a State Significant Development Application (SSDA) process. The project consists of two stages, with Early Works undertaken as Development Without Consent. Early Works will be completed prior to the commencement of the works sought for approval under the SSDA.

This report has been prepared by JHA to support a State Significant Development Application (SSDA) for the construction and operation of a new hospital campus at the Corner of Commercial Road and Windsor Road, Rouse Hill (SSD-96248991).

The proposed development comprises:

- Site preparation including earthworks and tree removal;
- Construction of internal roads with connection to Commercial Road;
- Incoming electrical and communications services
- Construction of hospital buildings up to eleven storeys;
- Construction of a ten storey above-ground car park;
- Pedestrian and cycle pathway connections;
- Landscaping; and
- Ancillary works to Commercial Road, comprising:
  - Minor works (including realignment of existing median strip, kerb and gutter, footpath and lane marking) to provide access from Commercial Road into Hospital Road; and
  - Associated tree removal along Commercial Road.

The scope of the proposed works includes:

- An emergency department and primary access clinic
- Comprehensive birthing services including birthing rooms and a maternity inpatient unit
- Inpatient beds and day surgery services
- Short stay medical assessment services
- Pathology, pharmacy, and medical imaging services
- Outpatient and ambulatory care services including paediatrics and renal dialysis and antenatal and postnatal services
- Virtual care and hospital in the home services
- Prehabilitation, rehabilitation and lifestyle medicine.
- Administration, staff support, loading dock and back-of-house services; and
- Ancillary commercial uses to support the hospital, including retail.

Figure 1 shows the proposed hospital site plus surroundings.

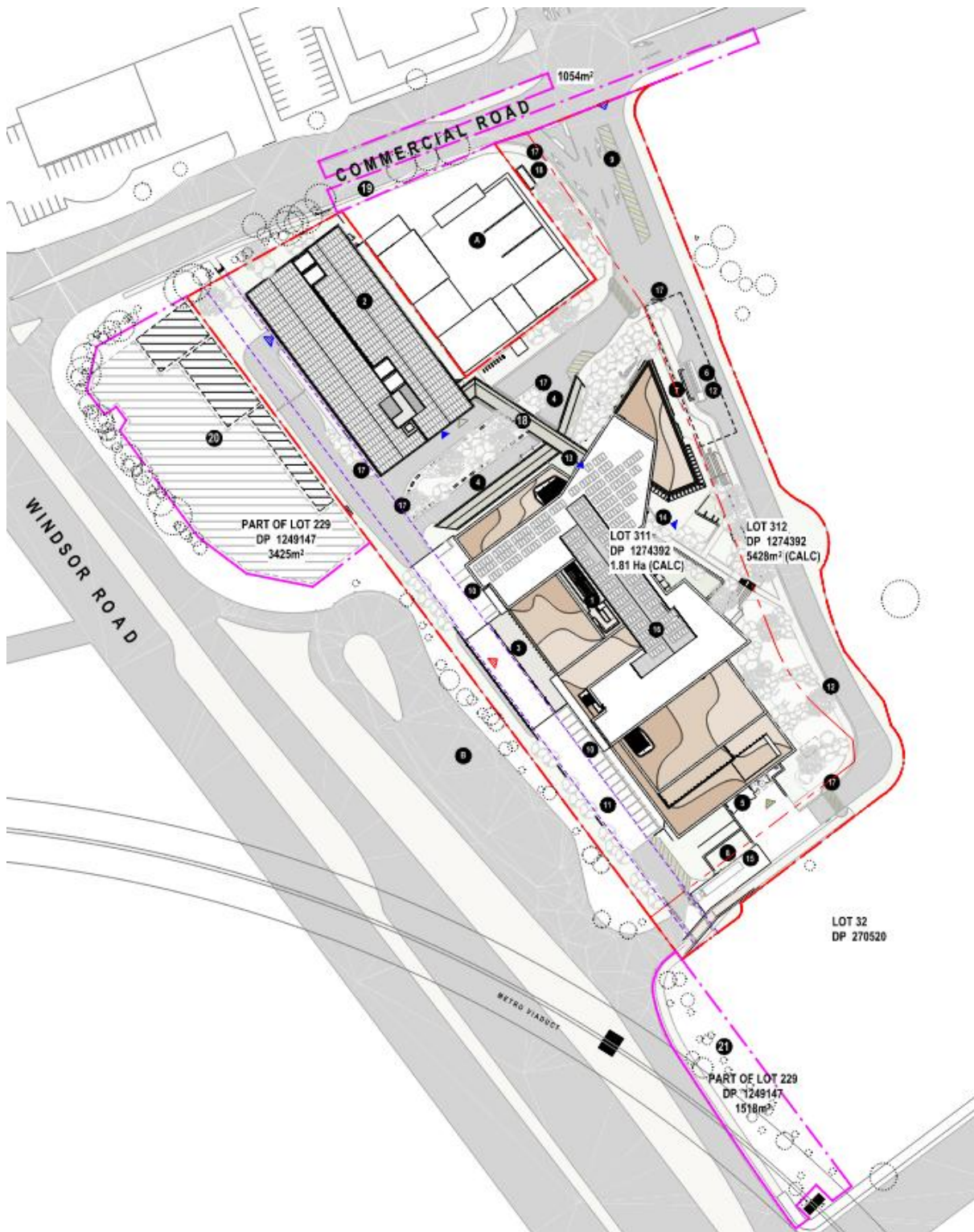


Figure 1: Proposed site with the extent of works (including Commercial Road widening) shown in red and pink outline.

## 1.2 RESPONSE TO SEARS

This report has addressed the following matters within the Secretary's Environmental Assessment Requirements (SEARs) issued for the SSDA on 16 October 2025 (see Table 1).

relating to the electrical and communications infrastructure scope. Each item below is in consultation with relevant service providers:

**Table 1: Relevant SEARs items.**

SEARs Requirement	Documentation
<b>22. Infrastructure Requirements and Utilities</b>	
<i>In consultation with relevant service providers:</i>	
- Assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site.	Section 4
- Identify any infrastructure upgrades required on-site and off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained.	Section 4
- Provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.	Section 4

## 2 DESCRIPTION OF PROPOSAL

### 2.1 LOCATION / SITE DESCRIPTION

Rouse Hill is located within North-West Sydney, which has recently become an area of significant population growth, approximately 43km North-West of Sydney CBD. It belongs to the Local Government Area of The Hills Shire.

The proposed hospital site is located on the corner of Windsor Road and Commercial Road, approximately 0.5km North-West of the Rouse Hill metro station. The site contains two lots and cover approximately 2.2Ha. These lots are legally known as Lot 311/DP1274392 and Lot 312/DP1274392. SSDA site will extend to the full extent of works including the hospital site (the two aforementioned lots), footpath connection (Part Lot 229), construction compounds (Part Lot 229) and works to Commercial Rd (Lot 2011, DP 1131519 and Lot 101, DP1060353).

The Sydney Metro trainline runs along a decoupled bridge to the South-West of the site and the surrounding land includes a mixture of residential, commercial and industrial lots. The site is adjacent to a substation at the north and the surrounding land uses are as follows:

- *North:* Two business developments containing a mixture of hospitality and commercial.
- *East:* Land immediately to the East is undeveloped greenfield land designated for mixed use.
- *South:* Land immediately to the South is undeveloped greenfield land designated for mixed use. This land is bounded by Rouse Hill Drive which separates it from a commercial lot containing a shopping centre.
- *West:* Immediately to the West of the site is a bus interchange which is bounded by Windsor Road. Windsor Road separates the interchange from residential developments, mainly detached houses.

Figure 2 shows the lot boundary and surrounding suburb area for the Rouse Hill Hospital.



Figure 2: Aerial view showing the Rouse Hill Hospital site boundary.

### 3 UTILITY INFRASTRUCTURE

Rouse Hill Hospital will require incoming electrical and communications services.

#### 3.1 ELECTRICAL UTILITY INFRASTRUCTURE

Incoming electrical services will be required to meet the anticipated maximum demand of the site, which has been developed on the basis of approximately 39,100sqm building floor area as well as allowances for a multi-storey carpark.

Considering the proposed building size and the amount of carparking spaces (including a selection of electric vehicle charging spaces), the maximum demand of the site is calculated as:

Area	Maximum Demand Allowance (VA/sqm)	Total
RHH Site – Initial Case (this SSDA)	100	3289 kVA
RHH Site – Expansion Capacity	100	4047 kVA

Table 1: Maximum Demand Calculation

The 100VA/sqm allowance for the general hospital has been derived from the NSW Health Engineering Services Guidelines. It should be noted that the connection application has included an allowance for electric vehicle (EV)

charging in the carpark as well as some foresight with regard to electrification as part of the Government's clean energy goals. The requirements of the National Construction Code (NCC) as well as health Infrastructure's DGN-046 will be adhered to in order to provision EV charging services for the site. At present, the requirements of NSW Health DGN-046, ESD aspirations and the NCC result in a total of 34 chargers being installed initially.

Importantly, the new edition of the NSW Health ESG (Section 5.6.1) stipulates that authority substation nameplate ratings need to be derated to 90% for the purposes of infrastructure planning. A 1500kVA substation will therefore be reduced to 1350kVA.

Three 1500kVA units would therefore be required to facilitate the maximum demand of the site, especially once future expansion provisions are considered.

### 3.2 COMMUNICATIONS UTILITY INFRASTRUCTURE

The communications services to the site will be delivered in the form of two diverse fibre lead-ins. Diverse lead-ins by definition involve separate physical entries to the site and separate physical reticulation throughout the site as well.

Both lead-ins will be designed to NBN standards, with the intent being that NBN will be one provider and the second provider will be a carrier of Health Infrastructure's choosing. Consultation with HI as well as WSLHD will be required during the design process to procure the communications lead-in services and to nominate the second carrier.

Due to NBN requiring design drawings to assess applications, an application to NBN will occur once the site and building plans are developed further and incoming conduit routes are known.





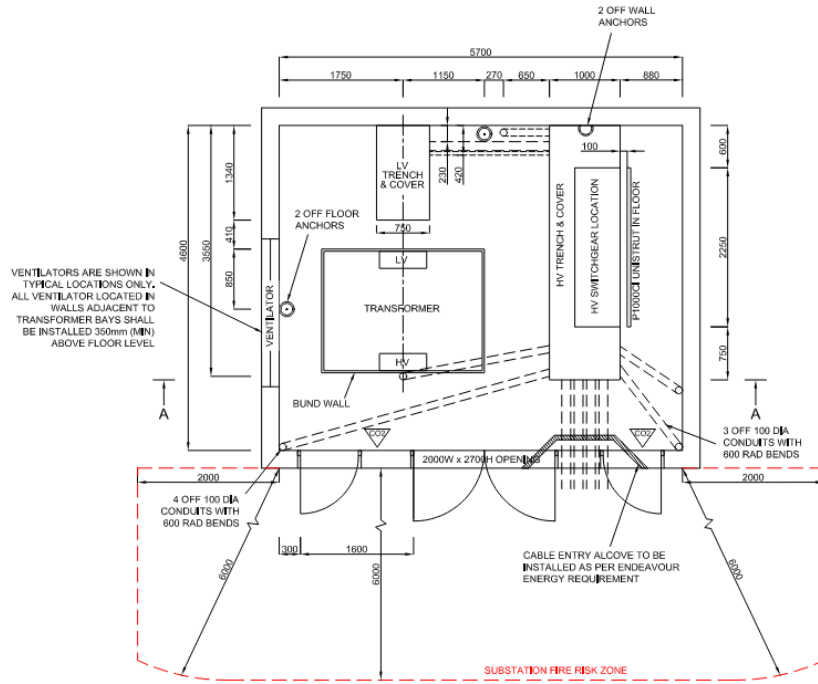


Figure 5: Standard single Endeavour Energy chamber substation spatial.

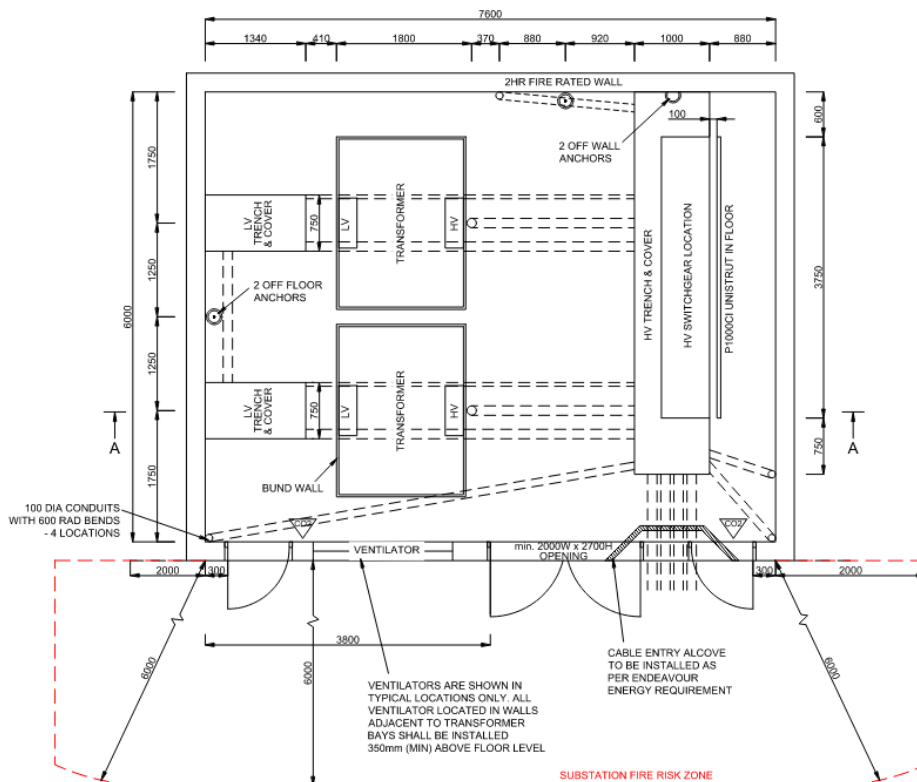


Figure 6: Standard double Endeavour Energy chamber substation spatial.

The below summarises the high voltage supply strategy for the site:

- Introduction of new high voltage feeders from the adjacent zone substation & Commercial Road.

- Two new chamber substations will be introduced into the new building. The chambers will be sized to accommodate 3x1500KVA transformers and be capable of delivering 4.5MVA for the development.

A temporary builder's supply padmount substation and main switchboard will be established on site during the construction phase of the main works until the permanent electrical infrastructure is established.

The reticulation of the new HV along Hospital Rd will require coordination with other proposed services, however standard roadway services alignment zones will be adhered to.

### 4.3 EFFECT ON ENDEAVOUR ENERGY ASSETS

Endeavour Energy has raised some items in relation to how the proposed development will affect their existing assets. Namely, Endeavour Energy has identified:

- Any impact on Mungerie Park Zone substation transformer runway
- 132kV underground transmission line easement and depth of cover
- Any impact of structures built adjacent the zone substation

Planning implemented thus far has considered these impacts to Endeavour Energy's assets and consultation with Endeavour Energy has occurred. A summary of these items and how they have been considered in the master planning is below:

#### 4.3.1 MUNGERIE PARK ZONE SUBSTATION TRANSFORMER RUNWAY

Mungerie Park zone substation is immediately adjacent the site and a Sydney Metro Railway line asset is positioned to the South West.

All new services to the RHH site (including communications, sewer and water) will be required to coordinate with existing Endeavour Energy assets originating from Mungerie Park zone substation. Careful surveying and asset identification will therefore occur during the design phases.

The figure below shows the easements in place relating to the zone substation. No works are proposed on the eastern boundary of Mungerie Park zone substation in order to keep the transformer runway clear. The transformer runway is indicated by the red outline to the east of the zone substation and is in place to enable Endeavour Energy maintenance access to the equipment within.

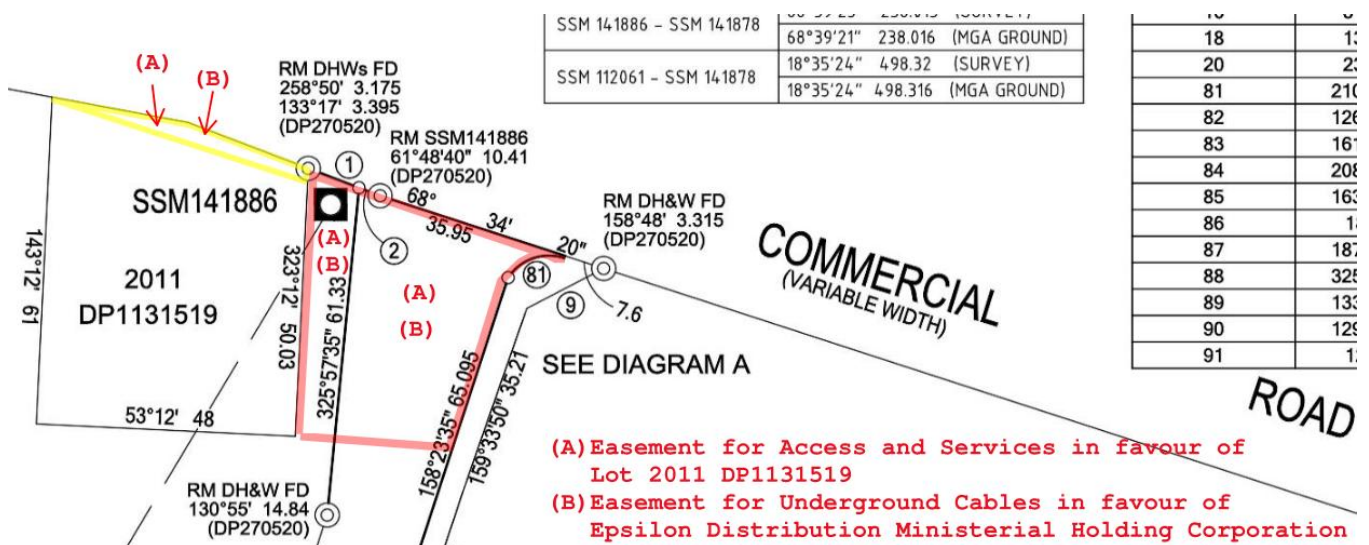


Figure 7: Easement for Access adjacent the existing Mungerie Park Zone Substation

Through email correspondence and meetings, Endeavour Energy have provided the following advice which will be applicable in relation to any structures adjacent the zone substation:

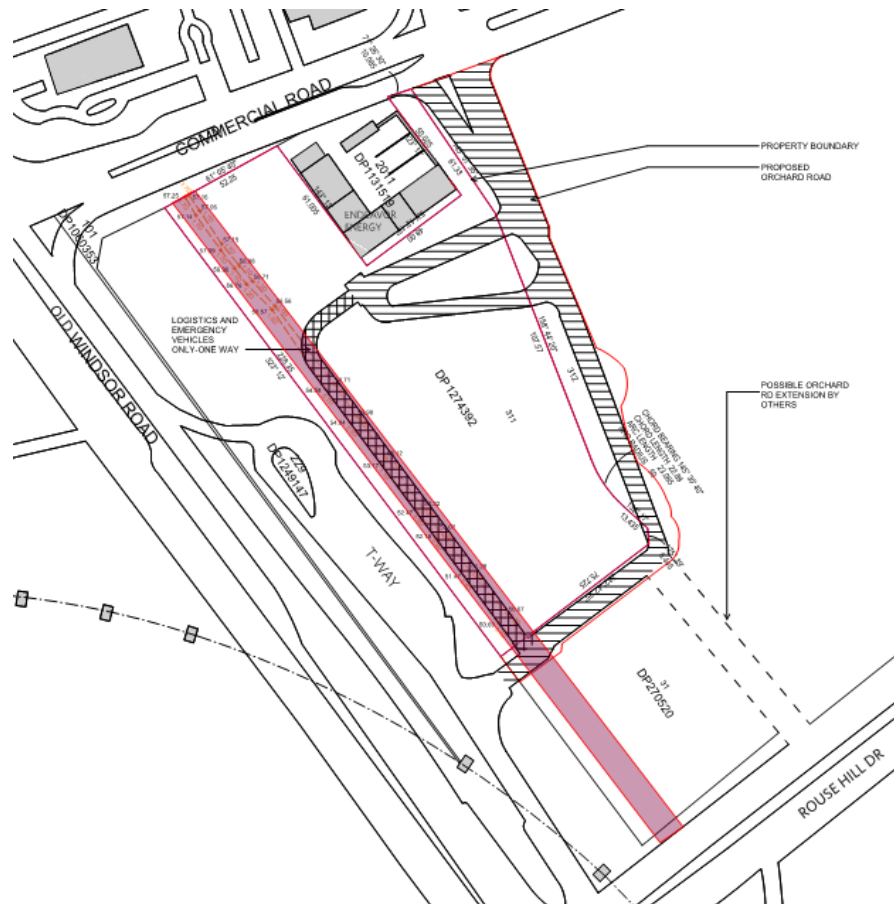
- No objection to buildings adjacent the southern substation boundary
- A mesh screening is to be included for the carpark to prevent objects being thrown down into the zone substation
- Any windows or balconies above the substation from an adjacent building would require means of protection from thrown objects entering the substation
- Any metallic structures, cables or pipes within 15m of the zone substation to be effectively earthed



**Figure 8: Mungerie Park Zone Substation transformer runway**

#### 4.3.2 132KV UNDERGROUND TRANSMISSION LINES

Contained within the site envelope are existing underground 132kV transmission cables owned by Endeavour Energy. The location of these cables is shown below in red:



**Figure 9: Location of existing 132kV Transmission cables and associated proposed easement.**

The project team are aware of the location of the existing 132kV underground transmission cables and have discussed the proposed development with Endeavour Energy in the context of these cables. Through email correspondence and meetings, Endeavour Energy have provided the following advice which has been incorporated by the design team in relation to these 132kV assets:

- An easement of 7.6m in width is to be established for the length of these cables through the site
- Building of an on-grade carpark is allowed over the easement, provided depth of cover is not adversely affected
- Endeavour Energy have stated that the existing cable rating (maximum current carrying capacity) needs to be maintained for these transmission assets. As a result, no additional fill can be added on top of the existing alignment. In order to meet the civil level requirements therefore, a suspended slab roadway is proposed above the existing assets which will serve as access to the loading dock whilst upholding Endeavour Energy requirements.
- Any metallic structures, cables or pipes within 15m of the easement to be effectively earthed

Furthermore, easement restrictions include the below prohibited actions:

- Construction of habitable buildings (permanent or temporary) including garages, sheds and carports
- Installation of sound walls or safety barriers
- Installation of conductive fencing
- Planting of flora with significant root systems exceeding 400mm in depth

The allowable construction activity in the vicinity of these transmission assets and their easement, considering the above points, must therefore be used to inform both the architectural and civil designs.

### 4.3.2.1 Construction Details

According to Endeavour Energy's as built documentation, the transmission cable trench is arranged as detailed below:

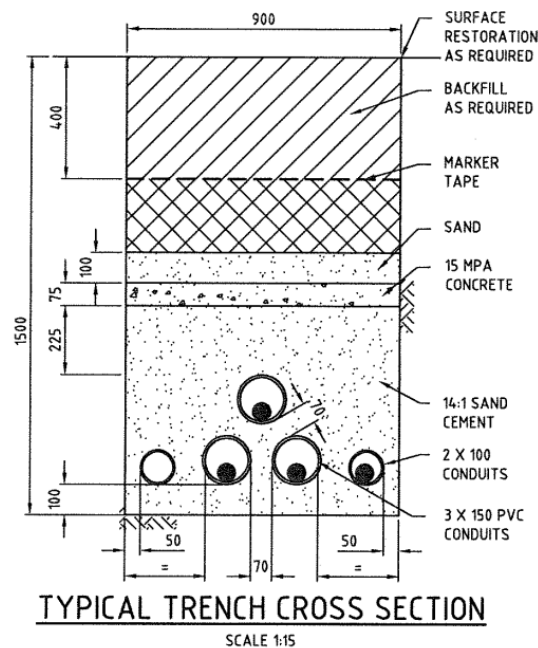


Figure 10: As built documentation showing existing 132kV transmission cable typical trench detail.

The detail above indicates that there is a 400mm fill cover, which could be readily excavated (subject to Endeavour Energy approval) and be replaced with an asphalt road surface. This method has been used further along the same transmission cable easement, at Rouse Hill Drive. Any disturbance beyond this 400mm depth increases the likelihood that the 132kV cables will be affected, potentially triggering costly relocation requirements. Disturbance beyond the stabilising sand is strongly not recommended if the project is to avoid affecting the 132kV assets.

### 4.3.3 PROPOSED WORKS ADJACENT MUNGERIE PARK ZONE SUBSTATION

As discussed in section 4.3.1, no works are proposed on the eastern boundary of Mungerie Park zone substation in order to keep the transformer runway clear.

As part of future Main Works, a multi-storey carpark is proposed for the development, offset from the western Mungerie Park zone substation boundary. Through email correspondence and meetings, Endeavour Energy have provided the following advice which has been incorporated by the design team in relation to building these structures adjacent the zone substation:

- No objection to the proposed services building (Figure 2) adjacent the southern substation boundary
- A mesh screening is to be included for the carpark to prevent objects being thrown down into the zone substation
- Any metallic structures, cables or pipes within 15m of the zone substation to be effectively earthed

## 4.4 COMMERCIAL ROAD WIDENING

The project scope includes upgrade of the Commercial Road/Hospital Road intersection. The localised widening of the road presents a number of impacted electrical services which need to be considered and relocations arranged.

Utilising available Dial Before You Dig and survey data, the table below summarises the existing electrical & communications services along Commercial Road and some high-level notes relating to the impact of the road widening.

Service	Location	Approx Depth	Status
Endeavour Energy UG Transmission	Out of zone substation, through footpath & under Commercial Road. Back in under footpath closer to Windsor Rd.	900mm – 1000mm according to field book. 2000mm according to survey.	Depth of cover would need to be maintained. Preference would be to maintain DoC or provide additional protection rather than lowering cables.
Endeavour Energy UG HV/LV	Under footpath/nature strip – south side of Commercial Rd	600mm-900mm according to survey.	Minimum 600mm cover would need to be maintained, otherwise cables would need to be lowered. Seems like at certain points, the new road levels would trigger lowering of these cables. Would need to be relocated into electricity alignment as road is widened.
Street Light Columns	South side of Commercial Rd	N/A	Would need to be relocated to suit new verge/footpath location.
Overhead LV (North side)	North side, west end of Commercial Road	N/A	Unaffected (proposed works are on the south side)
Optus Comms Fibre			Unaffected (proposed works are on the south side, Optus assets to the north)
Telstra/NBN Comms	Pit locations – one near the corner of Windsor Rd.	500mm-800mm according to survey.	Would need to be relocated into new alignment as road is widened. Likely to need to be lowered at points of cover lower than 600mm.

**Table 2: Summary of services affected by widening of Commercial Road.**

The above table contains high level notes based on a desktop assessment. Any actual design works would require further detail and will be subject to authority approval.

Appendix B shows a sketch of the Endeavour Energy assets affected by the proposed road widening and the actions needing to be taken to fulfill the scope. JHA have met with Endeavour Energy in relation to this proposed scope of works sketch and can divulge the following outcomes:

1. JHA presented an electrical concept for realignment of EE assets due to the road widening:
  - a. New sand pit for 22kV lines and conduits for northern access to substation
  - b. EE noted a potential second location for 22kV lines to come into the zone substation (ZS) at the south east corner. The hospital's HV could potentially enter ZS here.
  - c. HV cables to be re-aligned before road works are to occur so the cables cover is not compromised
  - d. Streetlighting assessment for the full road needed due to affects on the SL columns
2. EE in principle was supportive of the concept design and for a work access deed. However, exact design details need to be provided before a formal agreement can be executed.

An application for asset relocation has been submitted to Endeavour Energy and a supply offer received (Refer Appendix A) in order to proceed with the design for this scope.

#### 4.5 INCOMING COMMUNICATIONS SERVICES

The new site will require two diverse communications lead ins as per the NSW Health cabling standards. These incoming communications fibres can be provided by NBN Co and/or a second carrier and are sourced from separate exchanges for redundancy purposes. Currently, there exists telecommunications fibres along the north side of Commercial Road and the Western side of Windsor Road. This being the case, some trenching/underboring roadworks will likely be necessary to facilitate bringing communications services across the road ways into the site.

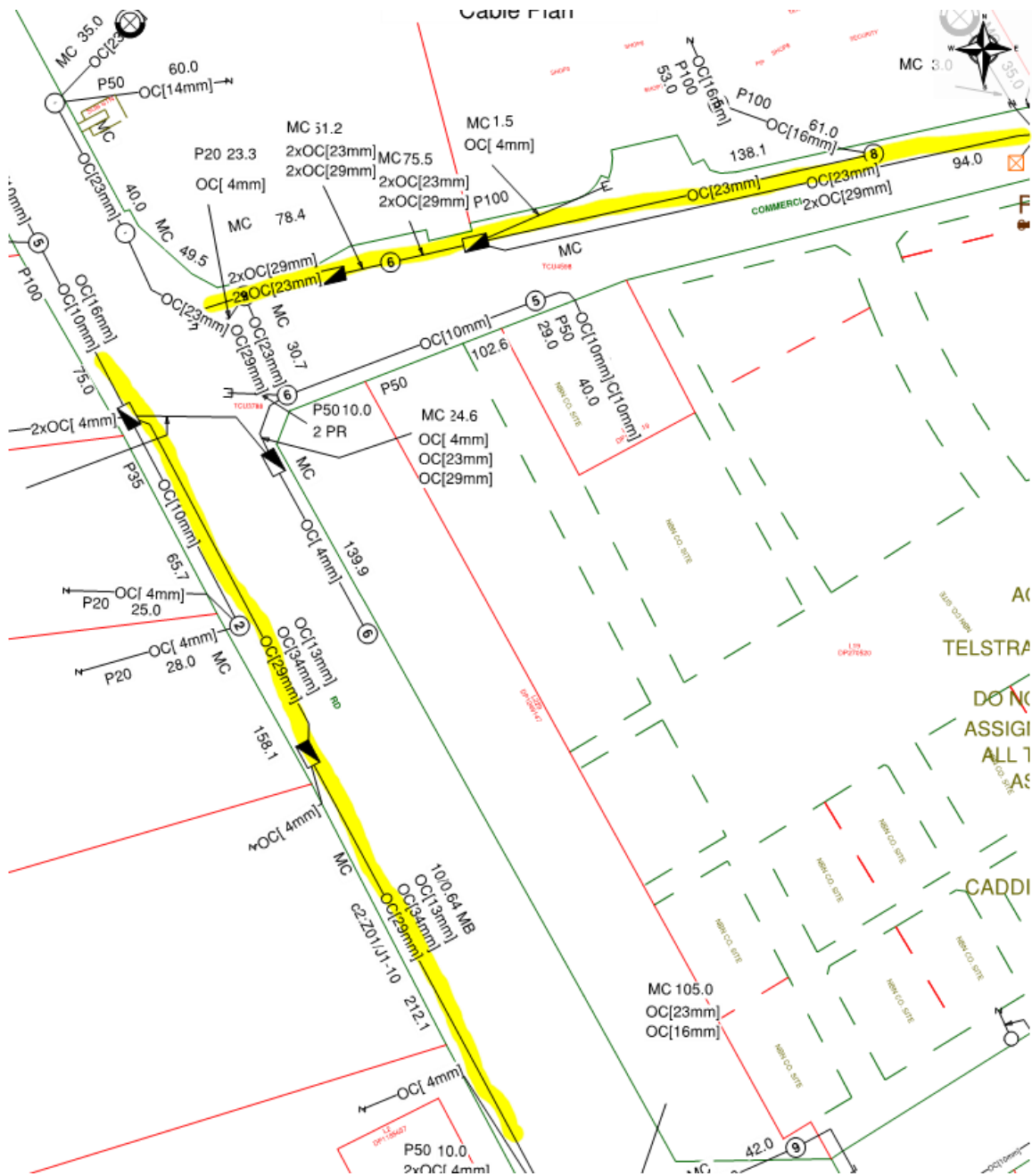
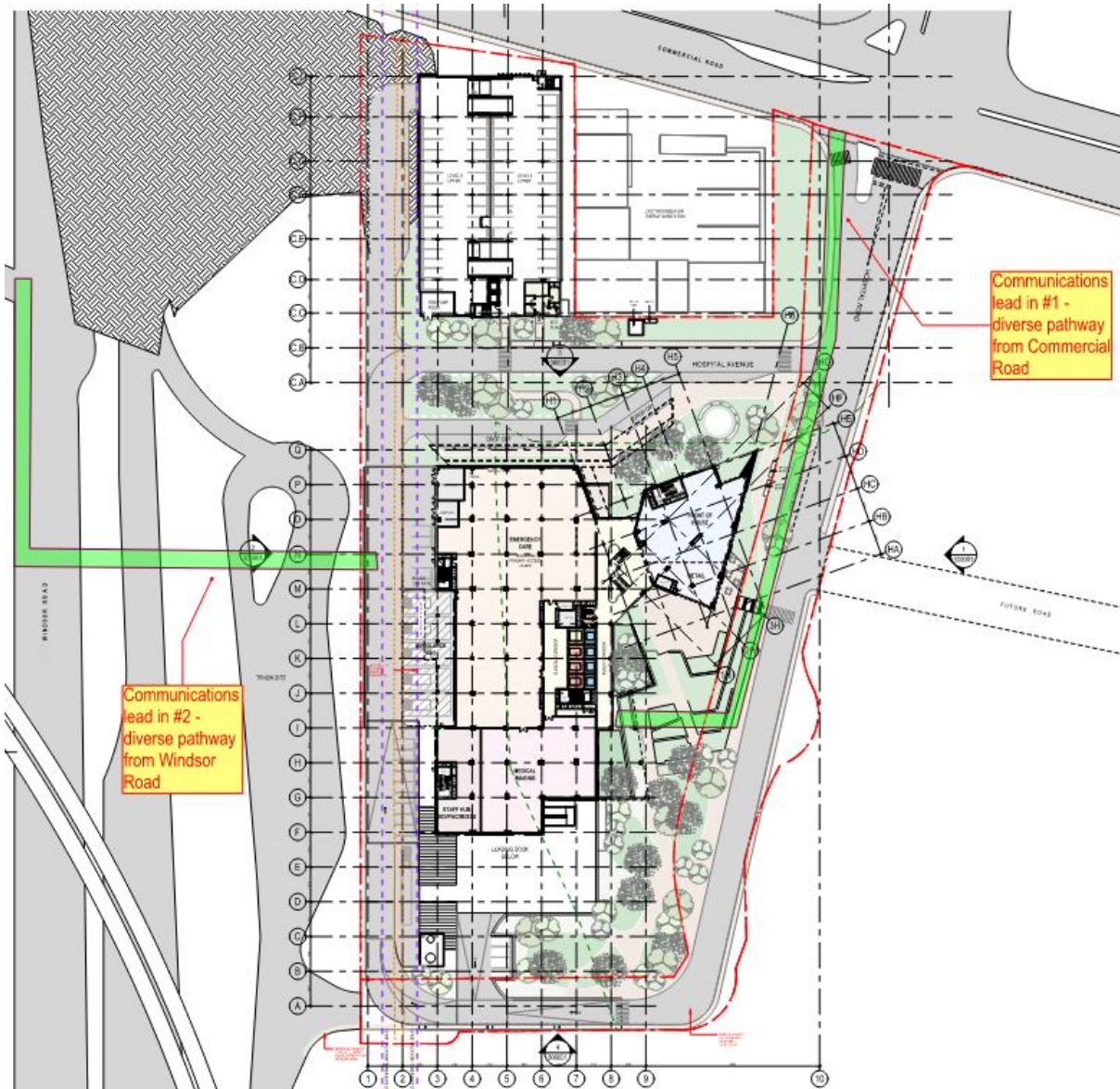


Figure 11: Telstra plan showing existing communications services proximal to the site.



**Figure 12: Indicative location of proposed incoming communications services.**

The communications services to the site will be delivered in the form of two diverse fibre lead-ins. Diverse lead-ins by definition involve separate physical entries to the site and separate physical reticulation throughout the site as well.

Both lead-ins will be designed to NBN standards, with the intent being that NBN will be one provider and the second provider will be a carrier of Health Infrastructure’s choosing. Consultation with HI will be required during the design process to procure the communications lead-in services and to nominate the second carrier.

Due to NBN requiring design drawings to assess applications, an application to NBN will occur once the site and building plans are developed further and incoming conduit routes are known.

#### 4.6 EMERGENCY BACK-UP GENERATION

In accordance with the ESG the site will be equipped with dual backup generators to support power to essential and safety services during the event of a utility outage. The generators will be driven by diesel engines, however, in accordance with the SSDA Net Zero Statement, these engines will also be capable of running on Hydrotreated Vegetable Oil (HVO), a fossil fuel-free alternative to diesel.

## 5 APPENDIX A – ENDEAVOUR ENERGY SUPPLY OFFERS

Main Works Chamber Substation:



### Supply Offer

(Based on desktop assessment)

5 September 2024

Endeavour Energy Reference: ULL3662

<b>Development Details &amp; Applicant's Assessed Load:</b>	New Rouse Hill Hospital. 4752 Amps/phase (3.3 MVA).
<b>Endeavour Energy Assessed Load:</b>	4752 Amps/phase (3.3 MVA). (Include AS3000 maximum demand calculation for requested load in the MOS package).
<b>Development &amp; Site Plans received/not received:</b>	Provide copy of DA consent from local council (if available) and site plan with location of proposed substation marked on it.
<b>Transmission Assets:</b>	To be checked and confirmed by ASP L3.
<b>HV/LV Connection Point &amp; Connection Asset Requirements:</b>	New substation/s will be required on site to supply total requested load as per desktop assessment. New HV feeder from Zone Sub may be required.  ASP L3 is required to investigate and provide method of supply (MOS). MOS shall comply with Endeavour Energy standards and Connection Policy.  Pad sub - 33047 appears to be located within vicinity of the site.



## Supply Offer

(Based on desktop assessment)

25 September 2024

**Endeavour Energy Reference: ARP5665**

<b>Development Details &amp; Applicant's Assessed Load:</b>	Relocation of Endeavour Energy assets along Commercial Road due to proposed road widening.  Associated Project - ULL3662 (Rouse Hill Hospital )
<b>Endeavour Energy Assessed Load:</b>	To be determined.
<b>Development &amp; Site Plans received/not received:</b>	Provide site plan showing extent of the road works as part of MOS package.
<b>Transmission Assets:</b>	132KV feeders 21M and 21P appears to be affected by proposed road widening works. To be checked and confirmed by ASP L3.
<b>HV/LV Connection Point &amp; Connection Asset Requirements:</b>	Relocate 132KV, HV, LV and SL assets in compliance with Endeavour Energy standards.  ASP L3 is required to investigate and provide method of supply (MOS). MOS shall comply with Endeavour Energy standards, Connection Policy, and requirements of the Road Authority.  Include MOS drawing with clear site plan, 132KV, HV, LV, SL circuits, MOS cover letter outlining entire scope of works, Utility Services Coordination Plan approved by Road Authority, site photos etc. in the MOS package.

## 6 APPENDIX B – COMMERCIAL ROAD WIDENING SKETCH

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## 7 APPENDIX C – SUBSTATION PROPOSED METHOD OF SUPPLY

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