



NEW MAITLAND HOSPITAL

SERVICES INFRASTRUCTURE MANAGEMENT PLAN

Prepared for:

Health Infrastructure

Prepared by:

Rowan Barwood

Project No. 32489-1

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Building B, L6, 207 Pacific Highway, St Leonards, NSW 2065

T: (08) 6222 7000 F: (08) 6222 7100 E: perth@wge.com.au W: www.wge.com.au

Revision

REVISION	DATE	COMMENT	APPROVED BY
0	02/03/2018	Preliminary	RBAR
1	30/04/2018	Final Report	RBAR
2	08/05/2018	Final Report, incorporating all comments	RBAR

REVISION

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Introduction

1. Introduction

This report supports a Stage 1 EIS submission of a staged Infrastructure project under Section 115ZD(1) of the EP&A Act for the New Maitland Hospital.

- Stage 1 - Concept design, site clearance and preparatory works
- Stage 2 - Detailed design, construction and operation of the hospital

The range of services at the proposed new hospital include emergency care, critical care, surgical care, acute care, maternity services, paediatric care, inpatient medical and surgical beds, rehabilitation, mental health, palliative care, chemotherapy and ambulatory care.

1.1 Background

The existing Maitland Hospital facility cannot support the growth and change in the type of services needed to provide contemporary health care to the Hunter Valley Region due to:

- A growing and ageing population in the Hunter Valley
- The facility is already operating at capacity
- The number of residents living with chronic disease is on the rise
- A number of issues relating to age, asset condition, compliance with current facility guidelines and ability to meet contemporary service delivery and models of care

The proposed Maitland Hospital at Metford provides an opportunity to develop contemporary health facilities that will meet the needs of the Region well into the future.

The site was declared State Significance Infrastructure in the Environmental Planning and Assessment Amendment (Maitland Hospital) Order 2017 dated 28 November 2017, published on 1 December 2017.

OVERVIEW OF PROPOSED STAGE 1 WORKS

Early works are the works being sought under Stage 1 of the staged infrastructure application (EIS).

Stage 1 includes site clearance and preparatory works generally comprising:

- Site office and construction compound, including connection of compound to services
- Connection of temporary and permanent services for the new facility (water, sewer, power, gas)
- Removal of existing temporary fencing and installation of construction fencing and signage
- General clearance of site vegetation within the footprint of hospital construction works including tree stumps, but with retention of the majority of native vegetation around the site's perimeter in areas less impacted by historical mining activities. Asset Protection Zones (APZs) would be established for bushfire protection
- Chipping of cleared vegetation (excluding weed species) to use on site for ground stabilisation/erosion control in the period prior to commencement of Stage 2
- Offsite disposal of surplus cleared vegetation and weeds to green waste recycling facility or another beneficial reuse
- Bulk earthworks to establish the required site levels and create a stable landform in preparation for hospital construction.
- Associated in-ground infrastructure and works may include formation of building foundations, drainage works and excavation of sub-level structures
- Site stabilisation (such as establishment of erosion and sediment controls) in preparation for Stage 2
- Site management
- Construction of internal un-sealed road ways for use during construction and in preparation for final road formation in Stage 2
- Construction of a hard, un-sealed sub-base for temporary construction parking spaces and in preparation for final carpark formation in Stage 2.

Introduction

1.2 The Site

The New Maitland Hospital (NMH) will be located on Lot 7314 DP 1162607 and Part Lot 401 DP 755237 in the south-western portion of the Metford Triangle.

The Metford Triangle is the old brickworks and quarry formally leased and operated by CSR. The triangle consists of four separate lots - Lot 7314 in DP 1162607, Part Lot 3 in DP 1091727 and Lots 266 and 401 in DP 755237.

Part Lot 401 has been incorporated within the site area to align with the State Significance Infrastructure (SSI) declared boundaries.

Electrical Infrastructure

2. Electrical Infrastructure

2.1 Existing Supply Authority Electrical infrastructure

The Supply Authority for the area is Ausgrid. There are two zone sub stations, Metford ZS (south-west of Hospital site) and Thornton ZS (south-east of Hospital site), located in close proximity to the New Maitland Hospital site. There are 33kV overhead networks to the north, south and west of the site. The existing 11kV networks adjacent to the site do not have capacity or are not suitable to service the proposed New Maitland Hospital site.

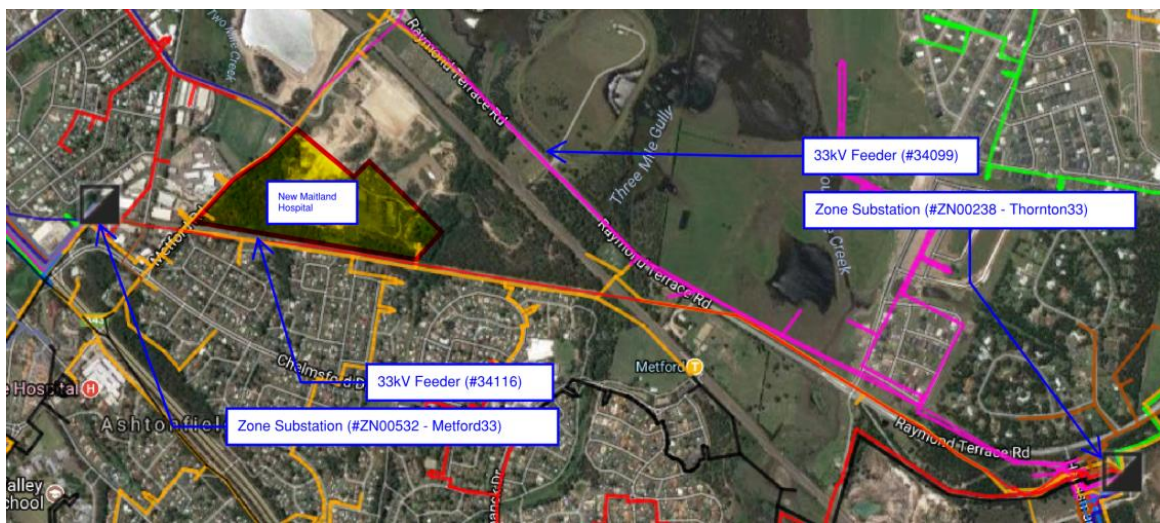


Figure 1 : Ausgrid Zone Substation Locations



Figure 2 : Ausgrid assets in vicinity of the Development Sites

Electrical Infrastructure

2.2 Proposed Supply Authority Electrical infrastructure

It is proposed that the hospital will be a High Voltage customer and the Point of Connection (POC) would be an 11kV Switching Station that would be located at the site boundary.

It is proposed that a new 11kV Switching Station will be located at the boundary of the New Maitland Hospital site with two dedicated feeders (#83304 and #83291) out of Metford ZS supplying the Switching Station. Metford Zone Substation is approximately 1.4km to the West of the site.

This option will provide a fully redundant 11kV supply (N-1) to the New Maitland Hospital providing the ability to reconfigure the network to maintain supply during single network contingencies and most abnormal network operating conditions.

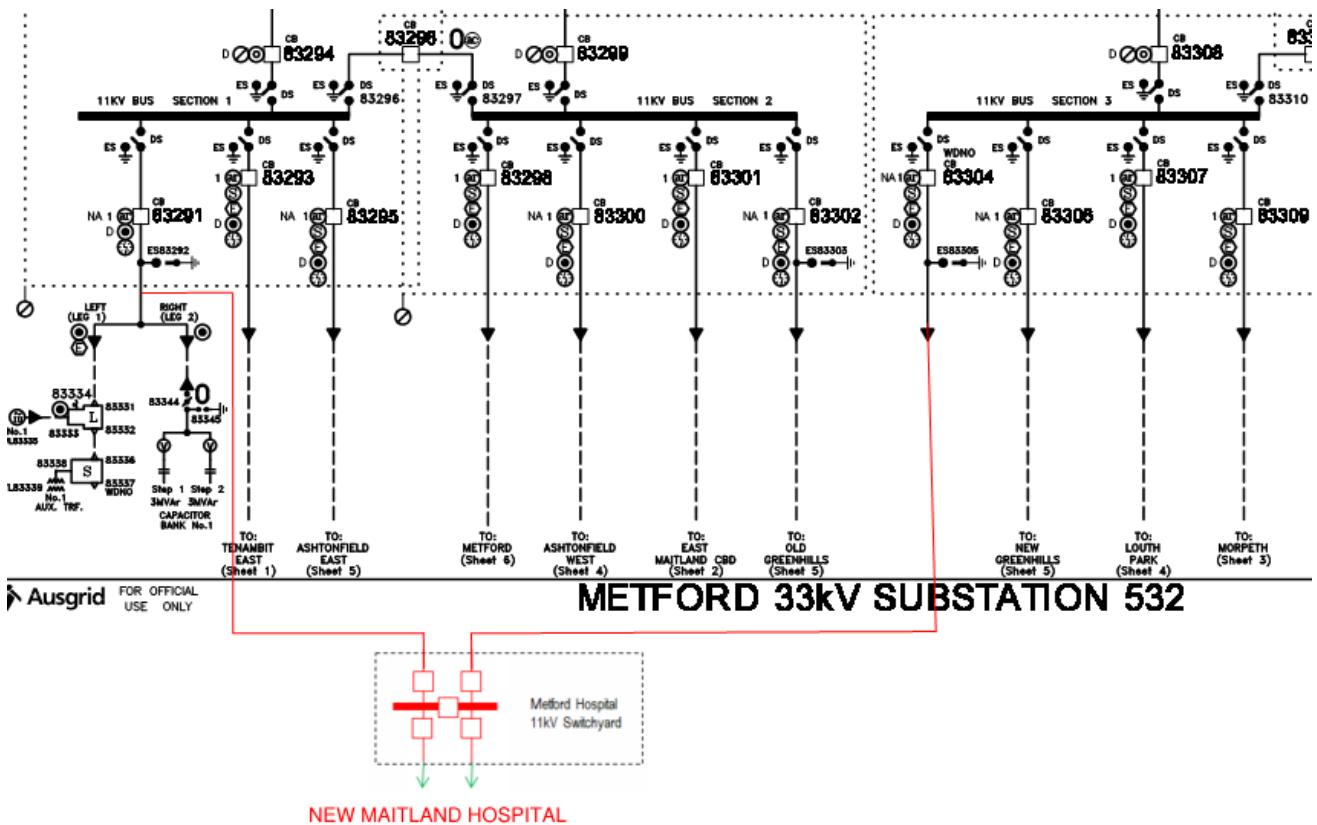


Figure 3 : Ausgrid SLD and proposed connection to New Maitland Hospital

2.3 Proposed Onsite Electrical Infrastructure

The electrical maximum demand calculated for the proposed development equates to 6MVA. An Application for Connection will be lodged with the Supply Authority and it is envisaged that two of chamber substations, each consisting of 3x1,500kVA transformers, will be required for the development. The proposed substations will be of the surface chamber type and be located on the north-east and south-east sides of the building. On site HV reticulation shall consist of a ring network and utilise diverse pathways so to maximise redundancy. The substation shall comply to the Ausgrid network standards.

Electrical Infrastructure

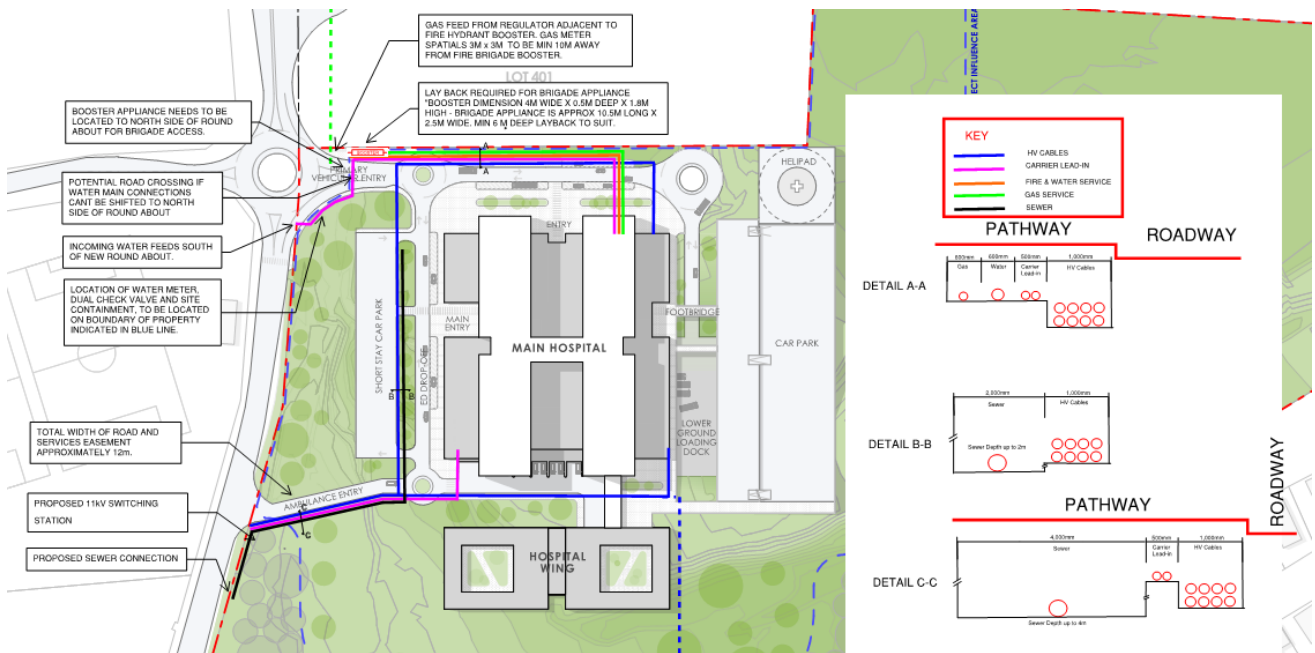


Figure 4 : Proposed Onsite Reticulation Pathways

2.4 Standby Power

Two off 1,000kVA standby generator shall be provided for the new development. A 10,000L in-ground double skinned fuel tank to be provided to allow for 24 hour fuel storage capacity. The design shall comply with AS 3010 and AS 1668.2. In addition, suitable attenuation of the air intake and outlet fans as well a suitable silencer of the engine exhaust shall be provided to meet required acoustic performance.

A centralised UPS room shall be established to supply uninterrupted power to communication systems, medical and surgical lighting.

2.5 General Power and Miscellaneous Services

Two off Low Voltage Main Switch Rooms (1 per substation) are to be proposed. Main Switch Rooms are proposed to have an FRL of 120/120/120. Each Main Switch Room will have two off fire rated, outward opening, self-closing doors which are spaced apart.

A series of distribution boards throughout the development shall provide power. Reticulation shall be via dedicated electrical riser cupboards. The Development shall be provided with small power, voice and data provisions, electronic security, access control and CCTV monitoring.

Carrier Telecommunication services

3. Carrier Telecommunication services

3.1 Carrier Telecommunication services in proximity to the proposed site

There are existing Telstra and Optus telecommunication services along Metford Road and Raymond Terrace Road adjacent to the site. NBN have also indicated that their service is available.

3.2 Proposed onsite Carrier Lead-in Services

It is proposed that two off carrier lead-ins pathways are provided to the new Maitland Hospital, terminating in the Primary and Secondary communication Entrance Facilities. Each lead-in pathway shall consist of 2 off 100mm diameter white communication conduits and associated pits. The pit and pipe system shall be NBN compliant.

Reticulation shall be as per Figure 4

3.3 Distributed Antenna System

The new Hospital shall be provided with a Distributed Antenna System (DAS) as needed to ensure that there is 100% mobile phone coverage. A fire rated room to be provided for the Distributed Antenna System. The room shall house the Telco racks and equipment required for the DAS.

3.4 New Maitland Hospital Communication

Communication Floor Distributors (FD) shall be 3,400mm x 3,300mm with an FRL of 120/120/120 and shall be utilised to feed the Technical Outlets (TO) throughout the hospital. Diverse backbone cabling pathways shall be provided to each FD. Floor Distributors shall be located as required.

Hydraulic Services

4. Hydraulic Services

It is noted that this report does not include Part Lot 401, however, this does not affect the outcome of this report as no works are proposed on the lot.

4.1 Cold Water Supply

WATER SUPPLY DEMAND CALCULATIONS

The assumptions taken in determining the average daily potable water demands for the proposed 358 beds were taken from the Sydney Water table, "Average Daily Water Use by Property Type" and is presented in Table 1 below.

Table 1: Average Daily Water Demand

Classification	Metric Unit	Average Demand (L/Metric Unit/Day)
Hospital		
Bed	Bed number	271

Table provided by WSP Pty LTD

Table 2: Average Daily Water Demand Calculation

Total Units	Average Demand (L/Metric Unit/Day)	Total Average Daily Water Demand (kL)
Hospital		
358 beds	271	97.01
	Total	97.01

Table provided by WSP Pty LTD

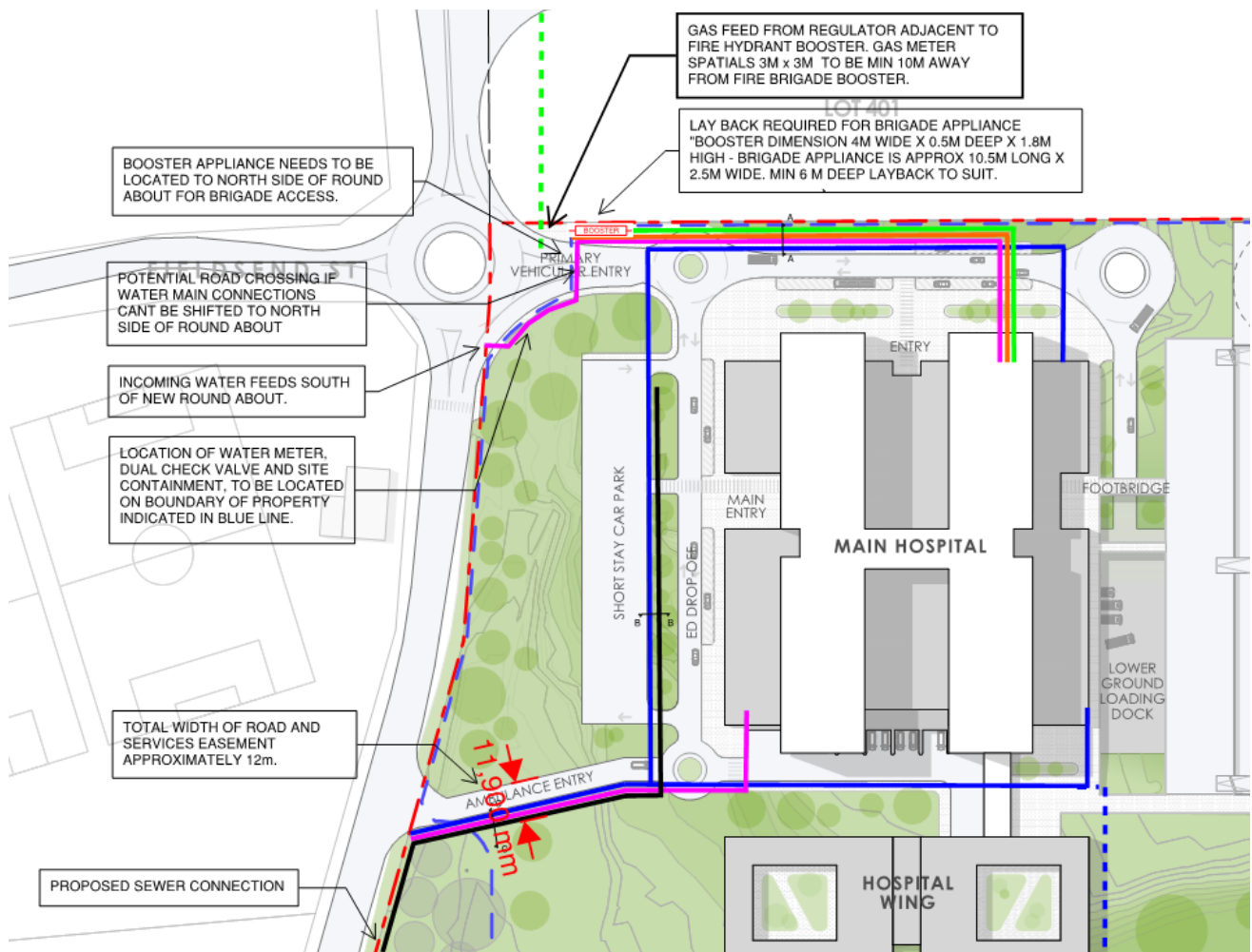
The new cold water supply will be designed to be a "Grade 1" water supply. The Cold water connection to Authority mains is in Metford Road to a new 200mm water main designed under the enabling works package being delivered complete and commissioned outside of the SSI project and assessed under Part 5 of the EP&A Act and the provisions of State Environmental Planning Policy (Infrastructure) 2007. The building will be provided with a 250,000 litre onsite cold water storage tank which is sized to meet base building and tenant requirements of a minimum use of 4 hours.

Domestic cold water (potable) services will be designed to BCA, AS 3500.1-2003, Sydney Water and NSW Code of Practice for Plumbing and Drainage requirements to supply the site. Duty and standby pumping systems will be provided to allow better flexibility and lower risk of failure. Pressure limiting valves will be provided as required to ensure over pressure does not occur at fixtures.

Hydraulic Services

4.2 Natural Gas

The Natural Gas supply will be designed to be extended from the Authority Gas main located in Metford Road to the boundary regulator at the main entry. A control valve shall be provided at the meter assembly to isolate gas supply for maintenance. Main and sub gas pressure regulators to reduce gas pressure to various areas and vents will be designed to be provided. The gas system will be designed to be reticulated to mechanical plant heaters on the roof, domestic hot water heaters in the basement and other area's, each area will be separately metered



Hydraulic Services

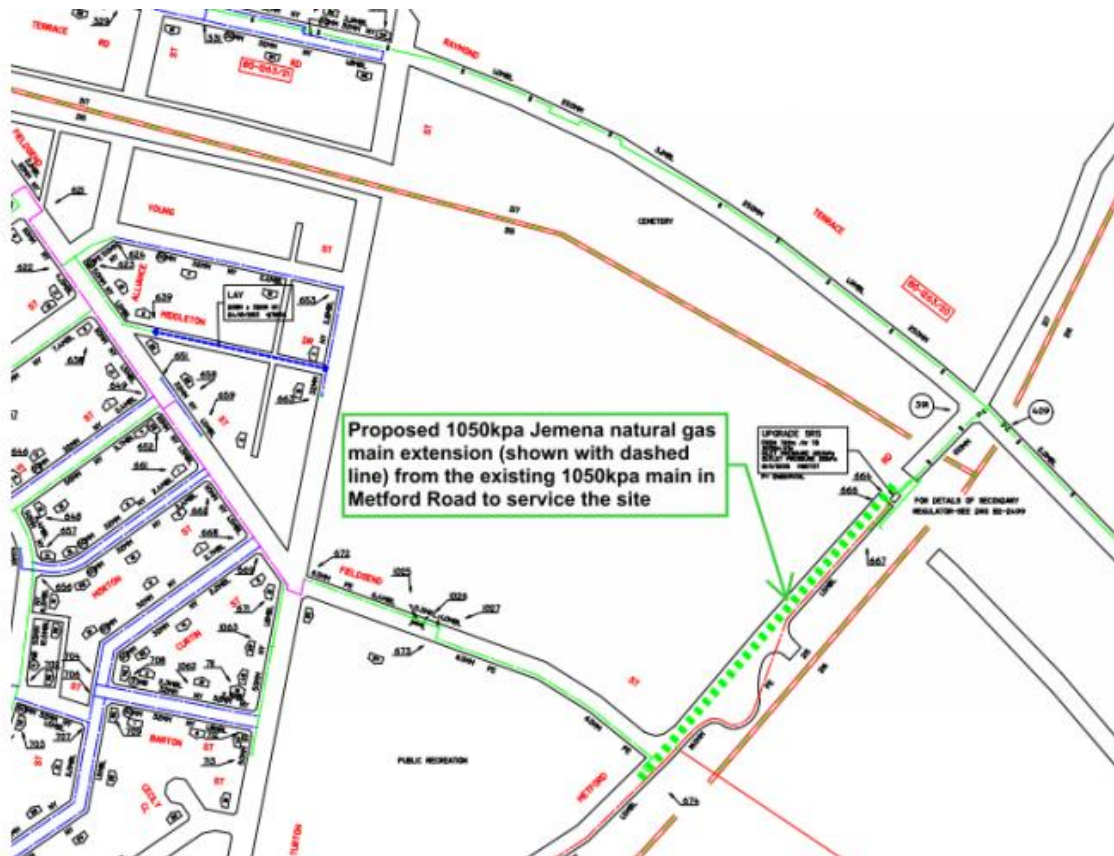


Table 5: Average Gas Loads

Appliance	Total (MJ/hr)
HVAC & DHW Heating Water Plant	24,000.00
Kitchen	5,000.00
Café	1,000.00
Total	30,000.00

Hydraulic Services

4.3 Sewer Drainage

In order to determine the average daily sewer discharge for the proposed 358 beds, the estimated equivalent population (EP) for the expansion is required. Please refer to Table 3 for the EP data adopted, sourced from the Water Service Association of Australia, Sewerage Code of Australia WSA 02-2002-2.2.

Table 3: EP Data

Classification	Unit	EP per unit
Hospital		
Bed	Bed number	3.4

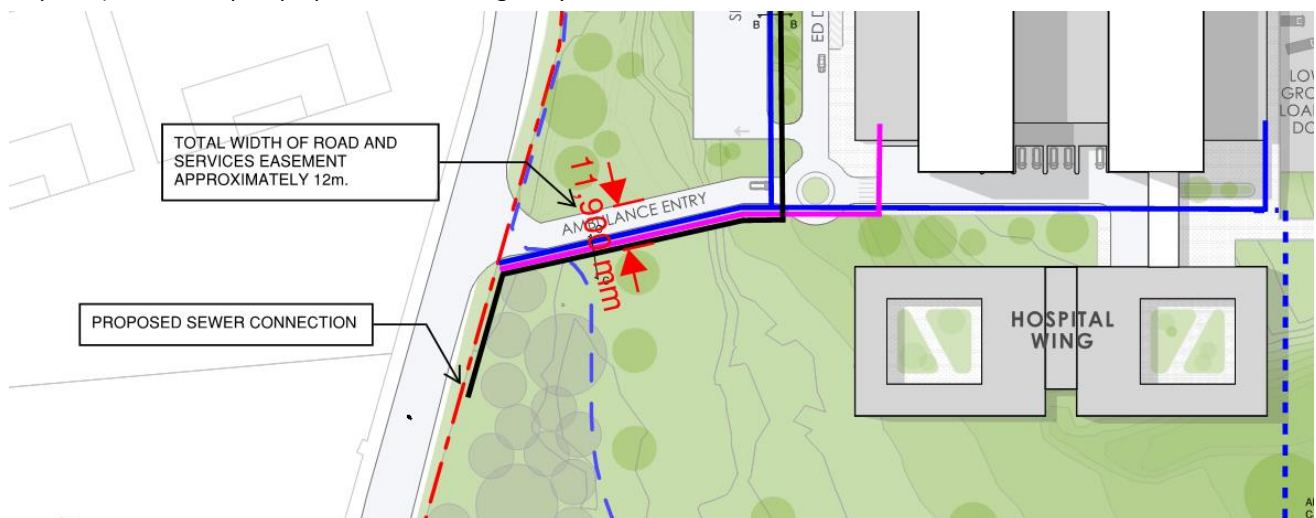
Table provided by WSP Pty LTD

Table 4: EP Calculation

Units	EP per Unit	Equivalent Population
Hospital		
358 beds	3.4	1217.20
	Total	1217.20

Table provided by WSP Pty LTD

Sanitary Plumbing and Drainage shall be a gravity collection system in accordance with AS 3500.2-2003, and the NSW Code of Practise for Plumbing and Drainage requirements, extending 80% of the building to the new sewer connection / main extension. The possible strategy to the remaining 20% of building is to extend to an on-site sewer pump station (if required) which will pump up to the internal gravity line.



5. Fire services

5.1 Fire Hydrants

A combined sprinkler / hydrant system will be designed to provide fire sprinkler protection and hydrant coverage throughout the building, and will be designed in accordance with AS2118.6-2012. The building will be served by a Grade 1 water supply comprising of a 120,000 litre storage tank (Location to be determined) with automatic fill from the main water supply (which will be boosted by a Tank Fill pump located in a dedicated fire services pump room within the basement) and a 150mm diameter dedicated connection to the main supply. Automatic booster pumps will be designed to be provided in a dedicated fire services pump room at basement level adjacent to the storage tanks, comprising one diesel pump and one electric pump.

5.2 Sprinkler Protection

The new Building will be sprinkler protected throughout to comply with current NCC relative Australian Standards. The system will be designed as combined fire hydrant and fire sprinkler system in accordance with AS2118.6-2012. The building will include major fire systems and components such as Automatic Fire Detection and Alarm System, Automatic Fire Sprinkler Service and Portable Fire Extinguishers.