



Tamworth Hospital Refurbishment Stage 2

Schematic Design Report

For

HYDRAULIC / FIRE SERVICES

Project No : 7370

Revision : E

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1 EXECUTIVE SUMMARY

The new building will be serviced by upgraded site infrastructure. This infrastructure will connect directly from the authorities mains. Where possible the internal infrastructure is to be upgraded to be a ring main configuration. This is intended to improve the services performance and reliability to support the entire facility.

Construction of the new buildings will have minimal impact on the ability of the remaining services to ensure the existing hospital and its facilities remain operational. Relocation of services will be required but these are estimated (if managed correctly) to have little impact on the hospitals ability to operate.

2 DESCRIPTION OF WORK

The State Significant Development Application seeks consent for the proposed redevelopment of the hospital site, including:

1. Earthworks and associated excavation for the site preparation.
2. Construction of a new five level Acute Services Building with an overhead link to the Brudelin building.
3. New access and transport facilities including construction of a new Hospital entry road from Dean Street.
4. Demolition of buildings within the footprint of the new Acute Services building.

3 GENERAL

The current hospital campus consists of numerous buildings across the site.

This review covers the following services;

- Sewer Drainage
- Cold Water
- Hot Water
- Natural Gas
- Fire Hydrants
- Fire Hose Reels
- Fire sprinklers
- Dry Fire

The hospital is essentially bounded by 2 streets being;

- Dean Street – to the west of the site accommodating main public access to the hospital with several main driveway entrances (Noted on the hospital site map as Gate 1, Gate 2 and Gate 3)
- Johnston Street – to the south which has secondary driveway entrances (Noted on the hospital site map as Gate 4, and Gate 5)
- The final boundary is located on the east side is vacant private land with a portion used for hospital temporary carparking off Johnston Street.

4 HYDRAULIC AND FIRE SERVICES

4.1 COLD WATER SERVICES

(Refer to SD-HY-NZ-00-0003, SD-HY-NZ-00-0010)

The existing site is serviced by a number of individual connections in Dean and Johnston Streets. All of the building are connected directly to the water main with the exception of the Brudelin building.

A new 150mm ring main is to be installed to the site. Part of the ringmain will be installed under the proposed works with the remainder completed under future planning.

The existing individual connections to the Tamworth Council Mains are to be disconnected and reconnected to the proposed site ring main. The site ring main will have individual connections to the 150mm and 300mm mains in Dean Street with a separate 150mm diameter connection to the water main located in Johnston Street. The purpose of the connections is to improve the reliability of the water supply to the site.

The proposed individual connections to the mains in Dean Street will be joined within the site and pass through one meter assembly and dual Reduced Pressure Zone Devices (RPZD) before connecting to the ring mains servicing the site. The connection in Johnston Street is a single connection passing through a meter and dual Reduced Pressure Zone Devices (RPZD).

The current design is based on adapting a holistic approach to completion of the proposed ringmain as part of the overall planning for the site.

A 50,000 litre site storage tank is currently proposed to prove improved reliability in addition to the dual connections into the authorities street water main. The existing external cold water storage tank located north west of the Linen building to be made redundant and removed from site.

WATER MANAGEMENT

Tamworth Hospital had commissioned a separate Water Management Plan 2010/11 to 2012/13 review on the existing buildings with only the Linen Building adopting majority of the recommendations to date.

For the remainder of the hospital, the upgrades are works in progress. The Water Efficiency Audit was performed in 2007.

Water consumption reduced by 27% from 151,179 kilolitres in 2005/06 to 110,658 kilolitres in 2008/09 which was well above the 20% reduction target set by Tamworth Council at the time.

Water management of the new Acute Building will incorporate the following;

- Metering
 - Sub- metering to each building.
 - Sub- metering to major water user areas and/or equipment.
 - Sub-metering linked to BMS to provide a leak detection system.

Dual flush toilet cisterns.

Solar Hot Water. The proposed development will incorporate solar hot water with gas boost. Current design philosophy will aim for a 50% contribution to hot water generation from the solar system.

Water efficient sanitary fixtures and tapware – All fixtures and tapware will conform to the Water Efficiency Labelling Scheme (WELS)

Benchmarking will be provided to determine efficiency.

Recovery of sterilizer discharge once through cooling water via the steam condensate return tank for reuse in the boilers.

Recovery of Renal Dialysis Unit reverse osmosis reject water for reuse in toilet flushing.

Waste water management for cooling water discharge water.

Water audits to be undertaken to manage and monitor the Hospital water management strategy.

4.2 SEWER DRAINAGE

(Refer to SD-HY-NZ-00-0002, SD-HY-NZ-00-0007, SD-HY-NZ-00-0008, SD-HY-NZ-00-0009)

The existing site sewer site drainage appears to be running close to capacity and has reportedly endured high maintenance costs associated with blockages/breakages etc. The current sewer connection will not be used to service the new building due to the capacity and reliability issues.

The proposed design is to provide a new gravity connection to the existing 150mm Tamworth Regional Council sewer main located in Smith Street. The new connection will collect all of the sanitary plumbing and drainage for the Acute building. Additional provision points are to be provided in the line for future extensions. The new building will be provided with trade waste pits i.e. grease arrestor etc as required.

4.3 GAS SERVICES

(Refer to SD-HY-NZ-00-0004, SD-HY-NZ-00-0011)

There is an existing 63mm diameter gas main located in Dean and Johnston Streets with an operating gas pressure of 400kPa supplying the site with gas regulators reducing the gas pressure to 100kPa before entering the individual buildings.

The individual gas services connecting the building to the authorities mains to be made redundant and reconnected into the proposed site gas ringmain in the Phases indicated below.

A new gas connection will be made into the authorities Dean Street and the Johnston Street gas main. The site gas ring main will connect via a boundary regulator in two locations. The regulator will limit the internal main lines to 100kPa. The ring main will service both the new and existing buildings. Each of the building will be provided with a localised gas meter and regulator assembly.

Existing gas meters will be retained and the regulators modified to suit the proposed incoming 100kPa gas pressure before being connected to the internal ring main
The current design is based on adapting a holistic approach to completion of the proposed ringmain as part of the overall planning for the site.

4.4 HOT WATER SUPPLY

(Refer to SD-HY-NZ-00-0010)

The Acute Building will be supplied with a separate solar/gas boosted hot / warm water system (distributor Informenergy. (formerly Rotex Australia).The hot/warm water system will be a flow and return system to provide the hot water requirements for the new buildings. In isolated areas where sanitary fixtures cannot connect to a proposed warm water system thermostatic mixing valves will be documented to provide the required warm water temperature to designated patient/bathroom areas as required by Australia Standards and TS11 Hospital Standards.

Separate hot water units to be provided to isolated areas requiring hot water supply.

4.5 FIRE HYDRANT SERVICE AND HOSE REEL SERVICE

(Refer to SD-HY-NZ-00-0005, SD-HY-NZ-00-0013)

Fire Hydrants.

The existing fire hydrant service onsite has three separate 100mm dia. connections to authorities street mains. The existing street connections to be made redundant with a new separate 2 x 150mm fire hydrant connection made into the existing 150mm and 300mm diam. Tamworth Regional Council mains in Dean Street.

- A new fire hydrant booster valve assembly including backflow prevention units will be provided to create a site ringmain with branches to individual buildings.
- The ringmain could be extended as part of future development works
- A new fire hydrant system to be provided throughout the new Acute Building.
- A new fire hose reel system to be provided throughout the new Acute Building.

Fire hydrant system to provide coverage according to AS2419.1

Fire Hose reel system to provide coverage according to AS2441

The current design is based on adapting a holistic approach to completion of the proposed ringmain as part of the overall planning for the site.

4.6 DRY FIRE SERVICES (SMOKE DETECTION)

(Refer to SD-HY-NZ-00-0013)

At the completion of the project the dry fire systems will be connected to the Fire Brigade from one point within the site. External site panel and mimic panels will be provided to suit the operation requirements of the Hospital and Fire and Rescue NSW.

New Dry Fire systems to be installed according with AS1670 with the main site FIP being located in the foyer of the new Acute building.

4.7 FIRE SPRINKLER SYSTEM

(Refer to SD-HY-NZ-00-0005, SD-HY-NZ-00-00013)

A new 150mm diameter connection will be made to the Tamworth Regional Council water mains located in Dean Street. The fire sprinkler booster assembly complete with double check detector assembly and bypass meter will be located adjacent to the Fire Hydrant booster assembly. The main sprinkler services will extend from the booster assembly to internal alarm valve assemblies for the new Acute and existing Brudelin Wing.

Sprinkler system to provide coverage according to AS2118.1 with a grade 3 water supply.

5 APPENDIX A DRAWINGS

Drawing Number	Description
SD-HY-NZ-00-0001	Project Information
SD-HY-NZ-00-0002	Site Sewer Services
SD-HY-NZ-00-0003	Site Water Services
SD-HY-NZ-00-0004	Site Gas Services
SD-HY-NZ-00-0005	Site Fire Services
SD-HY-NZ-00-0006	Site Concept Phasing Plan
SD-HY-NZ-00-0007	Acute Building Sewer Services Schematic Sheet 1
SD-HY-NZ-00-0008	Acute Building Sewer Services Schematic Sheet 2
SD-HY-NZ-00-0009	Acute Building Sewer Services Schematic Sheet 3
SD-HY-NZ-00-0010	Acute Building Hot/Cold Services Schematic
SD-HY-NZ-00-0011	Acute Building Gas Services Schematic
SD-HY-NZ-00-0012	Acute Building Fire Hydrant and Hose Reel Schematic
SD-HY-NZ-00-0013	Acute Building Fire Services Schematic