



Dubbo Health Services Redevelopment Stages 3 and 4

Mechanical, Medical Gases, Vertical Transport Statement of Significant Development Report

Prepared for:

**Health Infrastructure
NSW**

Prepared by:

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Project No. 29099-SYD-M

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Revision

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REVISION

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PROJECT DETAILS

1. PROJECT DETAILS

WGE has been engaged by Health Infrastructure to provide the Statement of Significant Development (SSD) Report for the Dubbo Health Service Redevelopment Stages 3 and 4. The report summarises the major existing mechanical systems on site and their condition in relation to the proposed new and extended buildings for stages 4A, 4B and 4C.

The DHS Redevelopment Stage 4 project scope is described as follows:

- Stage 4 – Site preparation works
 - Demolition of George Hatch and Existing Nurses Administration
 - Demolition of Existing Surgical Ward ('S' Block)
 - New Construction – Temporary Corridor Bypass Link
 - New Construction – 1 x permanent corridor bypass link south
- A new 3-storey clinical building comprising:
 - Ground Level
 - Medical Imaging
 - Emergency Department, including Short Stay Unit
 - A refurbished and expanded Main Entry
 - Level 1
 - Renal Dialysis Unit
 - Ambulatory Care Services
 - Level 2
 - 20 bed CCU/ Cardiovascular/ Stroke Unit
 - 12 bed ICU
 - Cardiovascular Suite
 - Level 3 – Plant Area
- Other associated works
 - Expansion of on grade car parking facilities and improved access and wayfinding.
 - Dedicated ambulance access off Myall Street
 - Amendments to the Cobbora Road roundabout to facilitate entry to the Hospital
 - Demolition of Playmates/Doctors Accommodation
 - Demolition of external component of existing Ambulatory Care Unit
 - Landscaping including tree removal and other public domain works
 - Upgrades of related engineering services infrastructure supporting Stages 4.
 - Refurbishment of the two ICU ensuites within the medical inpatient ward (G-ward).

2. HVAC SERVICES

The major issues with respect to site wide infrastructure detailed in this report include:

- Co-ordination of works required in order to execute Stages 3 & 4.
- Identify systems that serve more than one building so that inter-relation of infrastructure and its potential impact on the project are identified.
- This report summarises all the various mechanical systems onsite.

The major consideration for future planning for mechanical and vertical transportation services on the new build in respect to infrastructure are:

- Relocation of existing Medical Gas systems (Medical Liquid Oxygen, Nitrous Oxide, Medical Dry Air, Compressed Air)
- Relocation of Suction/Scavenge System
- Relocation Pneumatic Tube System
- Relocation of Bulk Oxygen VIE Tank.
- Additional demand on existing Medical Gas systems
- Staging of works for continuity of services
- Removal of asbestos where required
- The impact on existing systems.
- The impact of demolition of existing systems on site wide infrastructure.
- The impact on existing systems within refurbished buildings should refurbishment be required – the associated capability of existing systems to support refurbished

The following systems are proposed for the HVAC systems:

- Water Cooled Chillers and associated Cooling Towers
- Gas fired Boilers for space heating
- Pumps for Heating Hot Water (HHW) and Chilled Water (CHW)
- Pumps for Condenser Water (CW)
- Air side Variable Volume (VAV) diffusers
- Dedicated Air Handling Units (AHU's)
- Exhaust systems
- Smoke control systems
- Medical air system
- Expansion and relocation of existing scavenge/suction system
- Expansion and relocation of Pneumatic Tube system

Where feasible Plant spaces have been nominated in locations that allow independent access for maintenance staff to minimise interruption to the ongoing running of the hospital. Plant has been located on either the roof or perimeter areas to allow for future removal/replacement.

3. ESD CRITERIA

The project ESD & energy efficiency criteria are defined within Section 2.5 (Principles) & 7.9 (Thermal Modelling) of the NSW Health Infrastructure (NSW HI ESG). As a minimum the targets & aspirations for the project include; 10% improvement on NCC Section J – Energy Efficiency (NCC 2016), equivalent 4 Star Green Star design (non-certified) and selection of efficient building façade in accordance with maintaining comfortable internal design conditions.

Measures to reduce energy costs will include:

- Expansion of the existing site BMCS which allows for close monitoring and control of all major pieces of plant.
- VSD on all major motors and fans.
- Selection of chillers that have good part load efficiency
- Good passive design in relation to glazing, facades and the location of plant and non-conditioned spaces.
- Optimised building fabric via detailed energy modelling (to be further refined during detailed design phase).
- Efficient lighting selections & controls (refer electrical services schematic design report for further detail)
- Utilising a BMCS that is both open sourced and open protocol (Protocol meaning the computer language is universal & Source meaning any independent controls contractor can be used).

VERTICAL TRANSPORT

4. VERTICAL TRANSPORT

Proposed VTS works associated with Stage 4 include the provision of two public passenger lifts and two clinical patient care lifts.

Lift Description	Clinical Patient Care	Public Passenger Lifts
Lift No	: 5 & 6	7 & 8
Service	: Passenger / Class A	Passenger
Car capacity	: 2500kg / 33 person	1800kg / 24 person
No. of lifts	: 2	2
Speed	: 1.0m/s	1.0m/s
Estimated Travel	: 8.5m	8.5m
Entrance configuration	: Single entry	Single entry
Stops	: 3	3
Designation	: G, 1 & 2	G, 1 & 2
Type	: MRL gearless	MRL gearless
Car size	: 1800w x 2700d x 2300h	1600w x 2300d x 2300h
Doors	: 1400w x 2400h – 4 P CO	1400w x 2100h – 4P CO
Shaft size	: 5400w x 3200d	5350w x 2800d
Pit depth	: 1850mm	1700mm
Overrun	: 4700mm	4500mm
Control system	: Duplex	Duplex
BCA stretcher lift	: Yes	Yes
Emergency Lift	: Yes	Yes

The clinical patient care lifts are sized to accommodate critical care beds as identified by the NSW HI Engineering guidelines. The lifts can accommodate bariatric beds with reduced clearances. Lift shaft spatials provided suit supply of equipment from a minimum of two tier one suppliers.

PROJECT OVERVIEW

5. PROJECT OVERVIEW

This report covers the SSD for stages 4A, 4B and 4C which form part of the over works for the Dubbo Health Services Redevelopment Stages 3 and 4.



Figure 1-1 Site Plan – Proposed GF – (Stage 4)

PROJECT OVERVIEW

The following lists the impact of construction Stage 4Ai of the preferred SD option on the current infrastructure of the proposed development.

- Pneumatic tube head end to be relocated out of basement of existing Surgical IPU S Block.
- HHW Boiler to be demolished from basement of Surgical IPU S Block. New Boiler to replace demolished boiler to be located in new plant location. New boiler to be connected into existing HHW system
- New med gases pipework to serve Stages 3&4. Pipework to be laid in trench.

The following lists the impact of construction Stage 4A of the preferred SD option on the current infrastructure of the proposed development.

- Redirection of existing suction/scavenge pipe along East-West link corridor from ER to the old theatre.
- East-West link corridor from ER to the old theatre building top to be maintained
- Services trench/tunnel beneath link corridor to the west of proposed imaging building cannot be impacted by proposed construction
- Installation of two lifts

The following lists the impact of construction Stage 4B of the preferred SD option on the current infrastructure of the proposed development.

- Suction/Scavenge plant to be relocated out of ED imaging plant room prior to demolition
- New Condenser water connection to G ward prior to demolition of imaging
- New CHW & HHW connection to serve Front of House Air Handling Unit
- Install temporary AHUs to serve existing ED. AHUs to be installed and connected prior to demolition.
- Installation of two lifts.

The following lists the impact of construction Stage 4C of the preferred SD option on the current infrastructure of the proposed development.

- Cap off and demolish of services serving the existing Front of House.
- Install new plant to serve new front of House fed from new plant room.