Dubbo Base Hospital

Stages 1 & 2 Redevelopment

State Significant Development Application

Architectural Design Report

Revision History

Revision	Prepared by	Review	Date	Comment
00	M Grave		19th July 2012	Initial draft for review
01	M Grave	J Agius	24th July 2012	Revised Issue
02	M Grave		25th July 2012	Revised Issue
03	A Brown		26th July 2012	Updated images Pg. 6,10&11
04	A Brown		6th August 2012	Updated images Pg. 6, 11, 15-17
05	M Grave		14th August 2012	Revised Text & updated images Pg. 10-11, 15-17
06	M Grave		16th August 2012	Revised Text & updated images Pg. 16 & 17
07	S Romion		11th Sept 2012	Updated images Pg. 10 & 11

Executive Summary

Introduction

This Architectural Design Report has been prepared by Cox Richardson for NSW Health Infrastructure, to describe the design intent of the Stage 1 & 2 Redevelopment works (referred to as Phase 1 in this report and in the architectural drawing set) to be undertaken at Dubbo Base Hospital, Myall Street, Dubbo.

The scope of this application includes the following works:

- Bulk excavation;
- Construction of a new 1 and 2 storey building to accommodate a new Maternity unit, Operating Theatre suite, Central Sterilising Department and Day Surgery / Extended Day Surgery Unit; with flexibility to expand to a future 3 storey building;
- Refurbishment of existing Admissions / Outpatients and Medical Records building to accommodate a new Front of House area;
- Refurbishment of the existing Theatres building, to accommodate an expanded Renal Dialysis Unit;
- Demolition of the existing Maternity building and construction of new car parking spaces on the footprint of the existing Maternity building;
- Provision of new landscaping to the Renal Unit outlook.

A separate approval to the project includes upgrades to the existing car parking and access arrangements, as well as stormwater and services infrastructure. The project also includes the construction of a new, standalone building for the hospital's Information Communication Technology (ICT) services, infrastructure and the demolition of various disused buildings.

Background

The Dubbo Base Hospital is located on the northern fringe of the Dubbo town centre, approximately 1.5km north-east of Dubbo CBD. It is bounded by Myall Street and Cobbora Road to the south, River Street and the Charles Sturt University Campus to the north, Leonard Street to the east and the Coonamble rail line to the west (refer to figure below).

Existing Site in local context

Existing Site aerial image

Design Brief

The project has been designed in response to priority needs identified by the Dubbo Health Services Clinical Services Plan.

The concept design has responded to the Master Plan, the Clinical Services Plan, the Functional Design Brief and the Australasian Health Facility Guidelines.

The Clinical Service Plan identified the following key needs:

- Provision of six new, enlarged Operating Theatres in a significantly larger Peri-operative facility supporting current clinical practice;
- Provision of Day Only and Extended Day Surgery facilities to support a High Volume Short Stay model;
- A new Maternity unit supporting current facility standards and including an enlarged Special Care Nursery;
- An upgraded and expanded Renal Dialysis Unit;
- A refurbished Front of House capable of future enhancement and supporting the Master Plan.

Site Context & Analysis

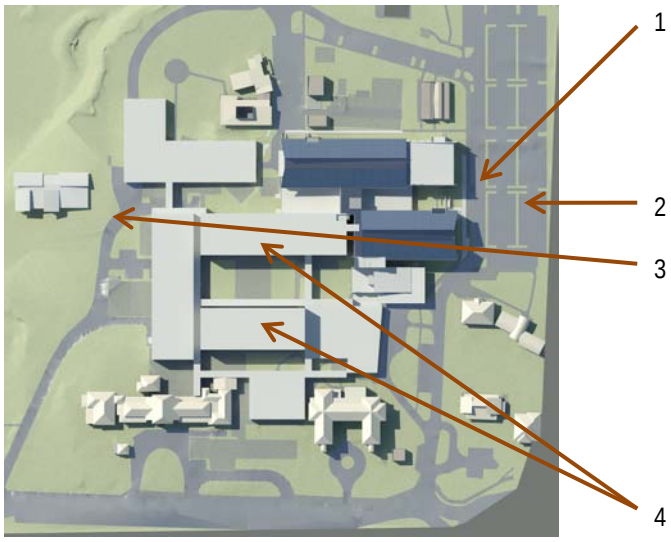
Master Plan Context

The architectural design brief for Stage 1 & 2 redevelopment initiates the master plan developed by COX for Health Infrastructure in late 2010.

This has been modified during the Schematic Design process in 2012 by:

- Consideration of the clinical scope now included in the Stage 1 & 2 works;
- Further understanding of the heritage elements on the site, and their significance;
- More developed understanding of site constraints undertaken during the Schematic Design process;
- A review of likely next stages in the realisation of the master plan and their included accommodation needs.

The Master plan envisages a more organised site structure than the current collection of buildings, and anticipates staged replacement of most existing buildings.



Ultimate master plan form

Key site planning principles of the master plan include:

1. Reinforcement of the eastern McGuinn Drive arrival path for emergency services and general public entry;
2. Concentration of public parking along the eastern side and improvement to the parking with additional capacity, to meet the needs of the stage 1 & 2 redevelopment;
3. Reinforcement of the western McGuinn Drive alignment as primary service access, separate from general public access.
4. Creation of a predominant east-west alignment of new buildings in standard modules, removing misalignments which presently exist and creating a series of contained courtyards between each block;
5. Minimisation of decanting and relocation as successive stages are complete.

Response to Director General's Requirements (DGR's)

Response to Specific DGRs

3. Built Form and Urban Design

Height, bulk and scale of the proposed development within the context of the locality

- Design quality, with specific consideration of the overall site

The approach taken to the design of the new facility is cognisant of the history of the site. It seeks to establish a continuity of the tradition of health buildings on the site, particularly the early 20th century buildings which contribute most strongly to the public domain.

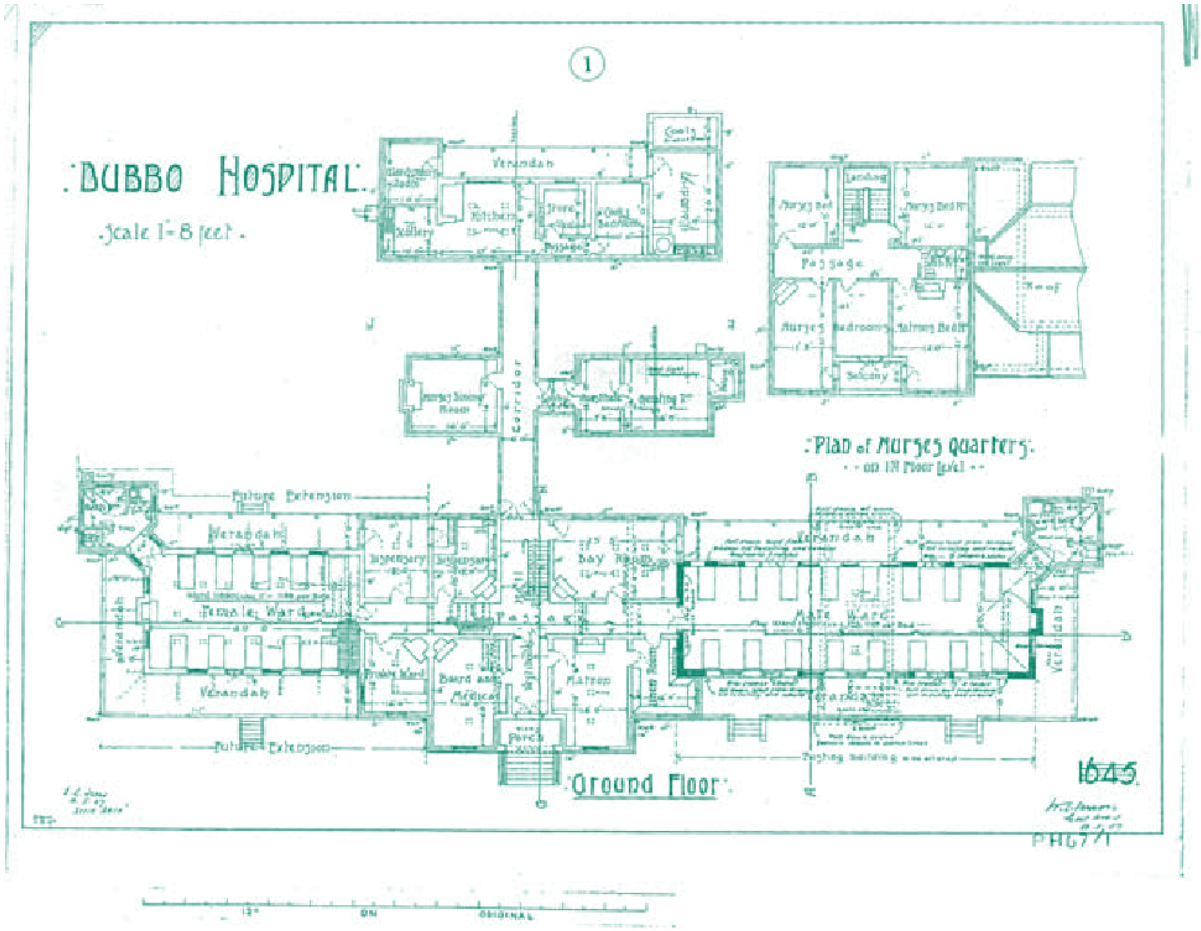
It is reflective on the significant history of the site which includes valuable historic buildings. The collection of buildings has been noted in the 2012 Heritage Impact study, prepared by Adaptive Architects, as representing an effective local history of public health services in NSW.

The 2010 master plan for the site promotes an orderly growth of new buildings which also respects the continued value of the earliest buildings remaining on the site.

The design for the main hospital building of 1907 by Walter Vernon, Government Architect, employed distinctive design elements:

- A layered façade treatment with robust materials including a brickwork base, stone detailing and roughcast render to the upper level;
- Strong articulate roof forms and detailing with an Arts & Crafts expression;
- A "Nightingale" symmetrical ward layout emphasising principles of extensive window openings for good light and ventilation to all patient areas.

Current view of 1907 wing from Myall Street



Original Vernon plan for the1907 wing

Whilst technological and space planning needs have matured considerably in successive period, these values remain relevant to the campus. The design seeks to achieve similar qualities of daylight access, strong visual expression and engagement with the public realm. This should encourage visitation and offer reassurance rather than daunting patients and visitors.

The design also recognises the need to achieve a form which can be completed in stages over a long period, which may evolve with future needs, yet maintain a consistency across the campus.

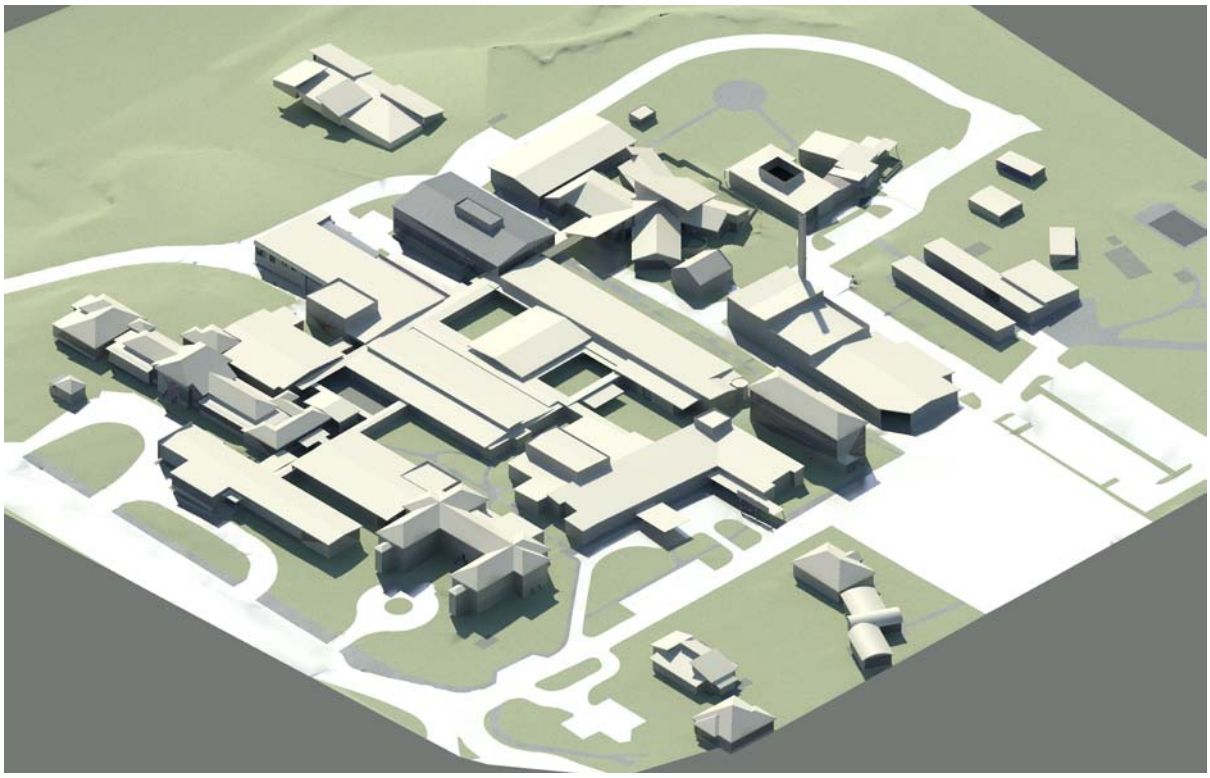
Stage 1 & 2 redevelopment will bring substantial changes to the building types presently included on campus.

The new work will bring aspects of change which including:

- A multi-storey service with a three-storey model for all new buildings to reduce travel distances and improve service efficiency;
- Adoption of a systemised structural and planning module comparable with other contemporary NSW Health projects. This is intended to achieve long-term flexibility, anticipating regular internal changes over time;
- Capacity for flexible changes of use throughout the structure, with redundancy of building services capacity for additional future needs;
- Standardised structural modules and floor-floor heights;
- Creation of more organised internal journeys for staff, patients and visitors; and simplification of servicing. The current site layout has evolved without apparent structure and is compromised in many aspects.

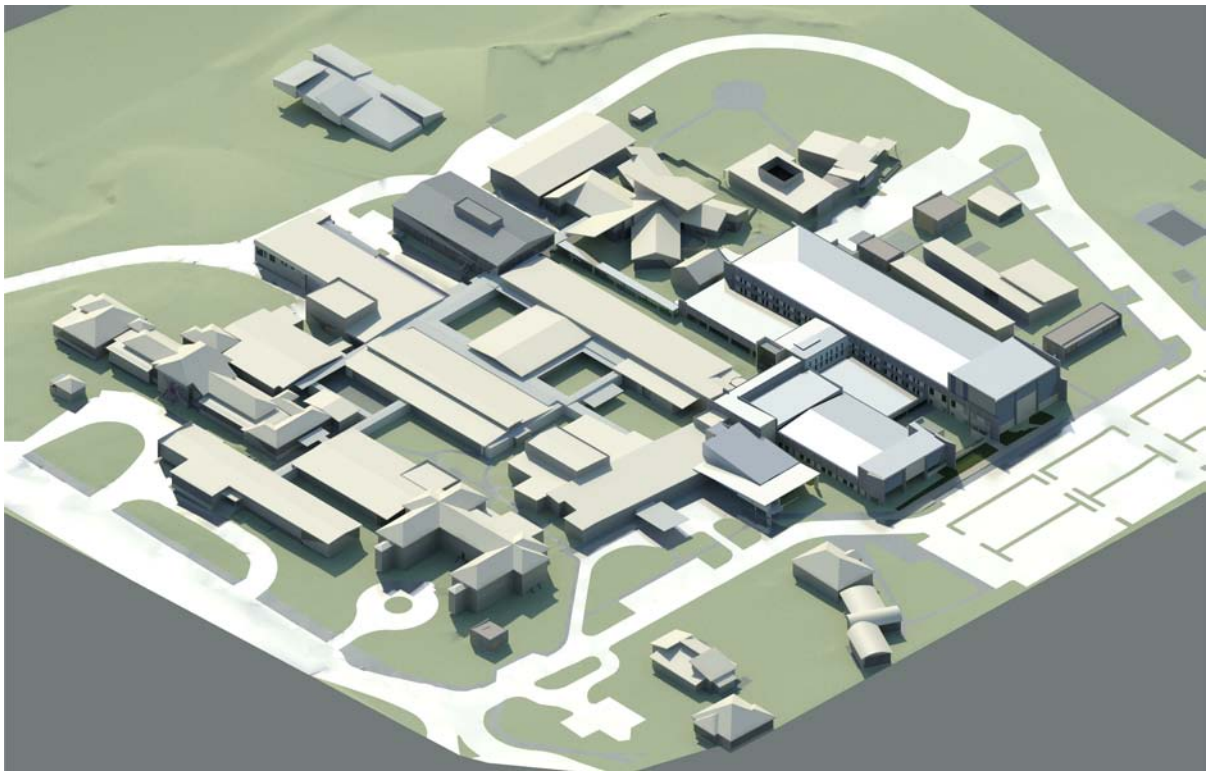
Current proposal in colour at top with heritage elements (shown in blue) at bottom of plan

Elements in purple / pink / light blue present new building extent

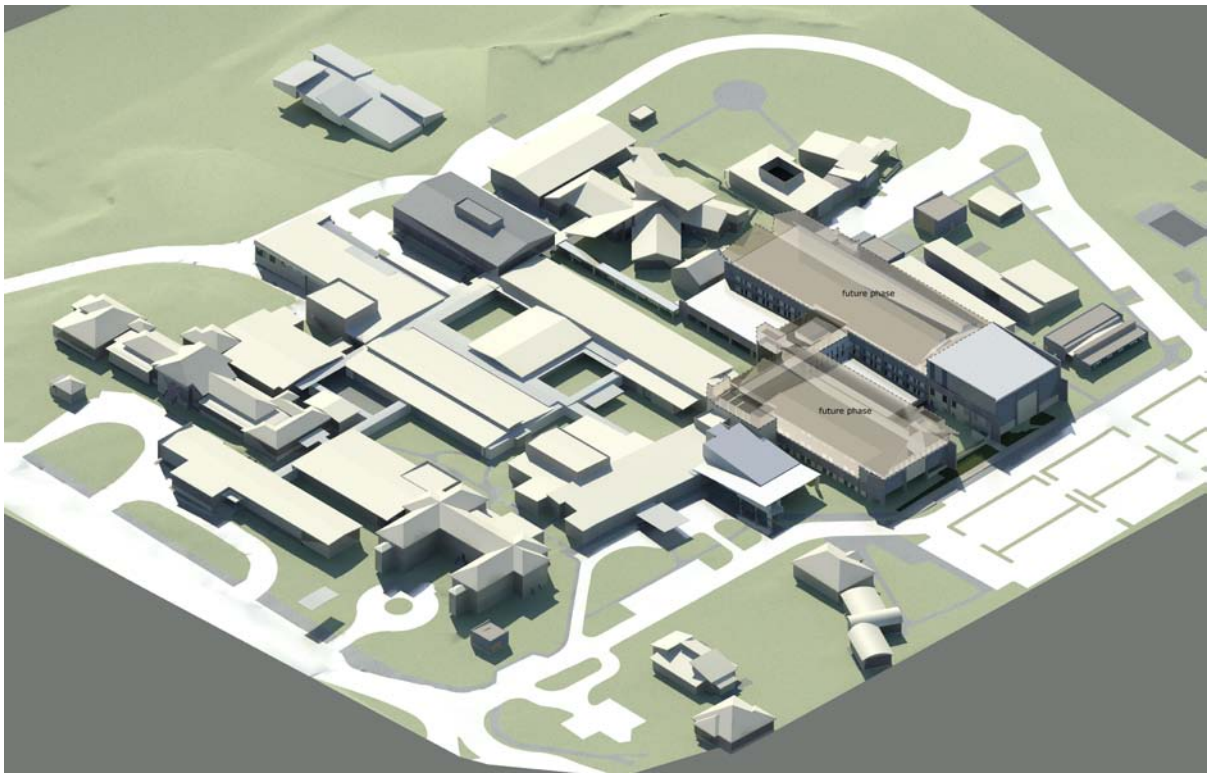


Diagrams showing:

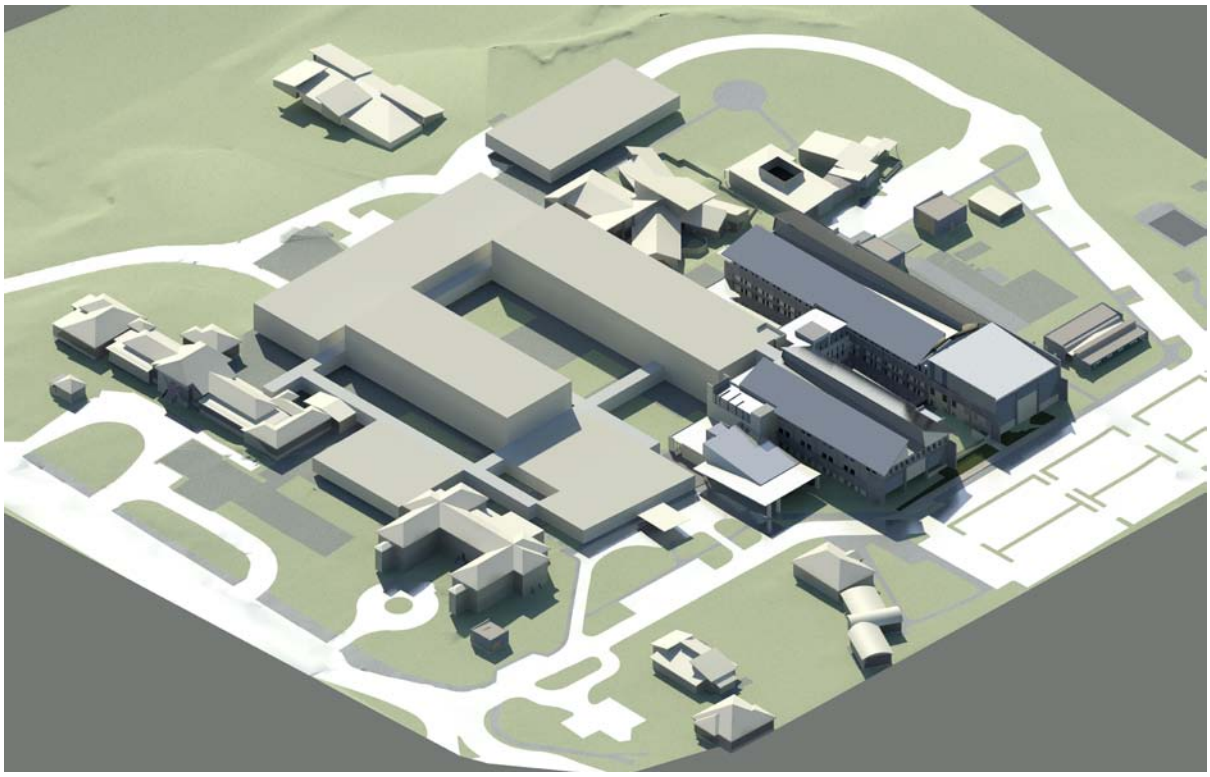
Existing site conditions (above)



Current proposal



Future phase



Ultimate master plan realisation

Scheme Design Description

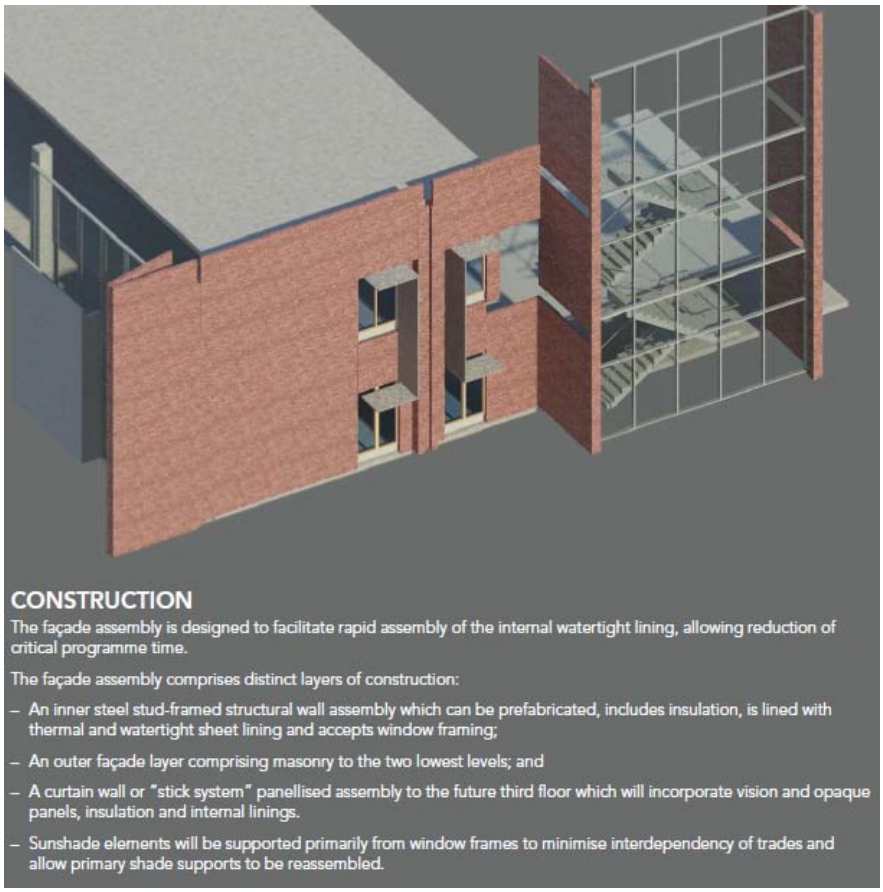
Layout

Within the form of the master plan, the new buildings initiate the initial three-storey model for future development. Key aspects of the planning form include:

Systemised design

This approach assumes standard modular forms which are capable of change with minimal impact on basic structure and form. These forms comprise:

- Linear blocks which incorporate a regular structural module of 8400mm x 8400mm;
- Commonality with other contemporary NSW Health projects in this regard, to promote systemised design of internal spaces;
- A floor-floor height of 4500mm for flexibility of clinical fit-out on each level;
- Egress stairs located on the perimeter of each block to maintain flexibility of the internal plan.



Facade construction principles

Future Expansion Capacity

The Stage 1 & 2 works occupy the ground floor and part of first floor of the current footprint. The remaining first floor and future second floor are intended to be used for related critical areas such as Intensive Care (ICU), the High Dependency Unit (HDU). Each of these will benefit from continuing proximity to Operating Theatres and the Imaging Department.

Relocation of the ICU and HDU or surgical patients to this new block will enable decanted buildings to be removed in future, and then replaced with further stages of the three-storey master plan.

Axis

The master plan and Stage 1& 2 redevelopment adopt the general orientation of existing buildings. This is approximately east-west in major orientation, favouring long north-south facades for optimal daylight.

The siting of the campus buildings and this favourable orientation minimise impacts on neighbouring sites.

Vistas and connectivity

The site is located on the edge of a gently graded plateau overlooking the Macquarie River floodplain. Views to the west are open and extensive across the western Dubbo region. Future landscape enhancement of the lower parts of the site would mask industrial development in the foreground and leave the western horizon visible.

View westward on Myall Street

View of entry from Myall Street

Primary elements, gateways

Open spaces and edges

The primary site arrival is from McGuinn Drive to the south. This is unchanged by the master plan and the new works are sited well within the site to the north, barely visible until visitors enter the site and proceed to the main entry.

McGuinn Drive is flanked by rows of ornamental trees and provides an attractive arrival street. This will be retained in the proposal. The current Main entry is indistinct and close to the Emergency Department entry with little privacy or functional separation.

The proposal includes an enlarged, welcoming entry which moves the entry doors away from the Emergency Department to face the east.

Architectural Expression

The Stage 1 & 2 architecture proposes a form which is:

- Welcoming;
- Memorable, with qualities intrinsic to Dubbo Base rather than generic in character;
- Engaging with the greater site and melding landscape with internal space;
- Capable of expansion in later stages;
- Robust and durable;
- Interpretive of past traditions of hospital building, yet clearly reflecting contemporary construction knowledge.

Facade & Rooftop design

Mechanical plant, massing, setbacks, building articulation

A key design requirement for the proposal is the achievement of a completed building, whilst permitting future vertical expansion.

The façade is articulated to express masonry at the lower levels, so that future expansion can be completed entirely with lighter, prefabricated elements. Dominant elements of the facades are extended parapet walls, individual windows with extended sunshades and a lively mix of facade materials.

Plant rooms are incorporated within each floor level. Where they project above the initial staged roof line, “blade” parapet walls define a roof line with low-pitched roof elements in between. Parapet elements are consistent between stages.

The future stage vertical expansion introduces pitched roof forms, reminiscent of the older buildings on site and appropriate to the scale of the three-storey form. These will emphasise the east-west linear forms of the master plan.

View of northwest corner

View of north facade from car park

Materials & Colours

The material palette for the works incorporates traditional and new elements which integrate the architectural history present on the site, with contemporary detailing and also permit rapid construction.

Colours are limited to emphasise a consistency of the new building. Repetition of detailing promotes consistency of expression and affords flexibility for future planning changes.

Masonry

The original hospital building of 1867 featured rendered quoins embellishing a masonry base construction. Portions of this construction survive on site.

The significant 1907 Vernon building introduced a combination of face red brick with roughcast render to the upper floor, creating a layered and contrasting palette. This has proven to be a durable and low-maintenance construction. The heritage report has noted that it also represents a good example of a notable period in public health architecture.

The new building proposes high-quality pressed brick cladding, in two colours, supplemented with lightweight infill panels as a continuation of this tradition. Colours have been selected to differentiate the new building from various red brick buildings of many periods remnant on site. The new building will be compatible, yet clearly not replicate these buildings.

The detailing achieves an apparent depth of façade with deep reveals and overhanging spandrels.

Projecting wall elements at each of the east and west ends extend the form into the landscape and articulate the long axis of each block. These are tapered slightly to add to the apparent depth and solidity of the form. In some locations, openings penetrate these walls to afford pathways and views along the building edge.

New brickwork will be solid-pressed types, which offer:

- Highest quality masonry finish
- Flexibility to adapt to future changes
- Durability against impact;
- Effectively self cleaning surfaces, not requiring lifetime maintenance;
- Flexibility for local labour to contribute to the construction.
- Independence from critical path assembly of the inner façade skin, enabling rapid enclosure ahead of the façade finish and external works.

Cladding panels

Upper floors are clad in modular metal-faced composite panels. These form a rain screen cladding over an insulated steel-framed inner lining which provides the thermal and acoustic seal to the building.

Glazing

The predominant fenestration to the building comprises discrete fixed windows, in response to the needs of the planning brief for individual rooms.

Windows are fixed, in recognition of infection control risks associated with disease transmission via openings between floors or adjacent rooms.

Glazing selections will be insulated double glazing units utilising high-performance glass types with high light transmission and neutral tint. The benefits of extensive daylight are widely documented in clinical evidence supporting patient recovery. Due to the provision of sprinklered fire protection, it is possible to provide large single windows extending almost to floor level within inpatient rooms. The landscaped outlook to the north and west will form a desirable outlook to the surrounding open spaces.

Sunshades

Northern and western facades are provided with projecting vertical and horizontal sunshades, according to aspect. These will be aluminium-framed and fixed to window framing for simplicity of assembly.

5. Amenity Impacts

Solar access

The master plan creates a wider, regular spacing between development blocks. This recognises the taller storey height of contemporary hospital buildings, to maximise daylight penetration within interiors. Landscape design and planting selections respond to the partial shadowing of each space.

Solar access is controlled with the use of extensive projecting sunshades on north, west and eastern facades to mitigate summer sun. This primary control is supported with internal venetian blinds to allow a finer level of control.

Acoustic impacts

Several aspects of importance can be considered for the project:

- Acoustic insulation of the interior from external noise sources including the adjacent railway and occasional helicopter movements;
- Acoustic impacts of the new development on neighbouring sites, arising from additional traffic movements, changed service vehicle patterns and plant noise.
- Each acoustic aspect has been analysed by NDY Acoustics and recommendations have been incorporated into the scheme. Principal mitigating treatments are to include:
    - Attenuation of plant room openings and machinery to limit noise transmitted through facades and openings, particularly plant room louvres.
    - Reinforcement of service vehicle access along the western side of the site, away from residential neighbours on the eastern boundary.
    - Assessment of limited noise impact arising from extension of the car park along the eastern boundary.

Visual privacy

The proposal includes a three-storey form within the elongated east-west axis characteristic of the master plan.

As a result a majority of windows are located along north and south facades, where they will address the open space of the hospital site or into internal courtyard spaces. The location of plant rooms at the eastern façade limits windows overlooking the eastern boundary, some 35 metres away.

Within the site, upper level windows on the western façade of the north block are located at high level on each floor, to prevent overlooking of the Acute Mental health facility.

Inpatient room windows will be provided with internal blinds to allow patient privacy from the public domain or overlooking areas of the hospital.

Servicing requirements

The form of the Stage 1 & 2 redevelopment reflects the principles of the master plan in regard to servicing strategies. These are described in the following sections.

Waste Management

A separate Waste Management Plan has been developed for the project and is included in this Development Application.

External Waste is confined to the western side of the site and the maintenance area at the north, as follows:

- Clinical waste storage to remain on the western side of the site before controlled collection;
- Internal waste to be collected manually and transported to the western holding / collection areas;
- Workshop waste and recycling material to be collected adjacent to the maintenance workshops.

Loading Zones

Loading zones are confined to the western side of the site and the maintenance area at the north. These comprise:

- Existing VIE gas storage and refiling will remain on the western service road with extended pipework serving the new building area.
- Deliveries and collection of sterilising equipment to the Central Sterilising Unit via a discrete door to the western facade.

Mechanical Plant

Mechanical plant is located within the floor levels of the building, enabling direct servicing of each floor and hence avoiding rooftop plant.

Louvre panels are articulated to contribute to the facade expression on each side. Projecting plant elements above the roofline are not intended. Cooling towers will be housed within the facade form with open panels in the general roof plane.

View Loss

Due to the isolated siting of the hospital buildings there is little view loss from adjacent properties. Views within the site will be improved qualitatively by the replacement of rudimentary service buildings with an articulate new form featuring quality facade materials and more considered detailing.

Overshadowing

Due to the isolated siting of the hospital buildings there is no demonstrated overshading of adjacent properties. The building form is effectively self-shadowing.

The shadow diagrams below demonstrate shadows at 9am, midday and 3 pm for each of the summer and winter solstices and the spring equinox.

Wind Impacts

As the development remains a low-rise form, few wind impacts are anticipated. The façade and roof forms are articulated to ameliorate winds and limit any concentrated effects at ground level.

A high level of environmental amenity

The Stage 1 & 2 redevelopment makes substantive improvements to the amenity of the site. In combination with external landscaping improvements (subject to a separate approval), the building incorporates a major internal landscaped courtyard as the first of a series of similar spaces.

Building separation is improved over the current buildings on site.

COX RICHARSDON

July 2012