



# Built Form and Urban Design Report

## Gunnedah Hospital Redevelopment

Marquis Street, Gunnedah, NSW



Date	18.05.2023
Project No.	21-0218
Issue	B

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*Cover Image: aerial view of Gunnedah Hospital by Skyview Aerial*

## Control

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## Abbreviations

HI	Health Infrastructure NSW
LHD	Hunter New England Local Health District
REF	Review of Environmental Factors
CPTED	Crime Prevention Through Environmental Design

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# 1. Executive Summary

dwp is engaged by NSW Health Infrastructure in the role of architect for the redevelopment of Gunnedah Hospital. The Built Form and Urban Design Report summarises the analysis and interpretation of the site conditions, cultural context and design principles guiding the overall urban design influence of the redevelopment. The report also summarises landscaping strategies, security and crime prevention and ecological sustainable design considerations. Further detailed investigation and explanation is provided in the Schematic Design Report prepared by dwp. The purpose of this report is to address aims and guidance within the following documents:

- Government Architect of NSW - Better Placed
- Health Infrastructure - Policies for Design, Placemaking and Sustainability
- Hunter New England Local Health District - Emotional Design Brief
- Crime Prevention Through Environmental Design Principles
- Government Architect - Connecting with Country Framework
- Government Architect - Design Guide for Healthcare
- Building design addressing scale of built form, urban design principles and infrastructure services methodologies

Gunnedah Hospital Redevelopment project team would like to acknowledge the Gunn-e-darr people of the Gamilaroi Nation, the traditional owners of this land. They have occupied and cared for this Country over countless generations, and we celebrate their continuing contribution to the life of this region. We pay respects to Elders past, present, and emerging.



*Figure above: Emergency entrance concept visualisation depicting the entry canopy featuring an example of how the perforated artwork panels can connect to Country and community through locally commissioned designs*

## 2. Project Context and Design Vision

Gunnedah is located in northern New South Wales in the Liverpool Plains district, within the Hunter New England Local Health District. The district services over 920,000 people, including close to 53,000 Aboriginal and Torres Strait Islander people. The hospital site is zoned within a R2 Low-Density Residential Zone under the Local Environmental Plan 2012.

Gunnedah Hospital is a C2 district level facility that delivers a range of clinical services including emergency medicine, acute care, surgery, maternity, and outpatient services. The building infrastructure is at the end of its useful life. The key aim of the redevelopment is to provide a contemporary healthcare facility that is culturally appropriate, welcoming and inclusive to service the community in Gunnedah now and into the future in response to the Clinical Services Plan. A newly built emergency department and inpatient unit adjacent and in conjunction with some of the existing health facilities located on the existing site, is proposed to support the delivery of contemporary models of care and quality services for the future healthcare needs of the catchment population. The Gunnedah Hospital redevelopment design approach has given consideration to the key aspirations and principles that holistically include:

- **Community Place** - creating a hospital campus that recognises the hospital as an integrated community place,
- **Hospital Identity** - establishing an appropriate identity for the redeveloped hospital,
- **People Focus** - a design addressing the values of safety, privacy and respect,
- **Culturally Appropriate** - the provision of facilities that are culturally appropriate and respond to the needs of the community,
- **Healthy Design** - incorporating desirable qualities including access to natural daylight and green spaces,
- **Clarity of Movement** - the provision of clear and intuitive wayfinding assisted layout and outlook,
- **Connectivity** - the development of connections between the existing facilities and the new to provide efficient public, service and clinical flows,
- **Flexibility and Adjacencies** - opportunities for sharing collaborative environments,
- **Staging Opportunities** - ensuring the continued operation of the hospital throughout the different stages of the redevelopment,
- **Future Expansion** - ensuring future development potentials identified and appropriate allowances included for,
- **Sustainability and Environmental Design** - incorporating sustainable design responding to the initiatives set out in the HNELHD sustainability policy and the Greenstar framework

The collaborative design process has seen consultation and engagement with a number of stakeholder and user groups to inform a design that responds to the local needs of the clinical staff and the community users as advocated in the Better Placed policy's design process. Workshops, presentations and consultation has occurred with the following stakeholders and is an ongoing and iterative process:

- Clinical Project User Groups and Staff Consultations
- Community Consultations, Council Presentations and other Community Group engagement
- Connecting with Country with local Indigenous Groups
- NSW Police and Ambulance Stakeholder Groups
- Agency for Clinical Innovation Review
- Executive Reference Groups and Executive User Groups Governance
- Health Infrastructure Design Reviews



The building design has undergone the following reviews by HI Design Advisors with the below recommendations incorporated into the design:

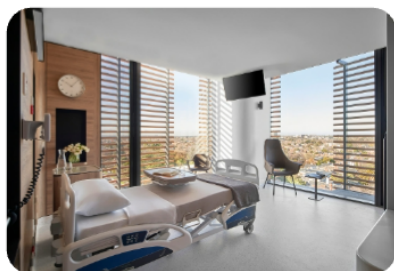
July 2022	Health Infrastructure Expert Reference Group	<ul style="list-style-type: none"><li>- Improved visibility of main entrances through refurbished awning, unique emergency entry canopy design and a comprehensive signage and wayfinding strategy,</li><li>- Consolidation of entrances into the hospital from seven to two: a main entry during business hours and a 24/7 emergency entry,</li><li>- Separating the general public from back of house services areas,</li><li>- Improved vistas into landscaped courtyards by maximising glazing from patient bedrooms and hospital corridor links.</li></ul>
August 2022	Health Infrastructure Clinical Innovation Review	<ul style="list-style-type: none"><li>- Ambulance bay has direct access to central staff station and treatment bays in lieu of being further away from triage,</li><li>- Planning revised to ensure visibility from staff station to all emergency treatment bays and spaces,</li><li>- Decontamination room incorporated with direct internal access within the emergency department rather than a unenclosed bay,</li><li>- Relocation of emergency outdoor waiting area and glazing maximised to improve staff oversight for security &amp; safety,</li><li>- Inpatient unit replanned to adopt a racetrack configuration and avoid entrapment issues for staff and isolation of patients.</li></ul>
September 2022	Health Infrastructure Architect Design Review	<ul style="list-style-type: none"><li>- Landscape plan revised to earmark zones for future expansion,</li><li>- Strengthen connection to courtyards by providing additional access as an important connecting with Country element to access nature,</li><li>- Shade sails added to the central courtyard to provide extra shade,</li><li>- Combined Indigenous art design and screens to provide additional shade and connecting with Country elements.</li></ul>
October 2022	Health Infrastructure Executive User Group	<ul style="list-style-type: none"><li>- Achieved a balance between Indigenous &amp; colonial historical references through materiality, art strategy &amp; landscape design,</li><li>- Break up the building mass by utilising various metal wall cladding profiles and colours and reduced the scale of building at entrances through entry canopy design.</li></ul>

Throughout the design process and review of the guidance documents, the design principles have been distilled as the key priorities to inform the design of the hospital redevelopment. There are many clinical, cultural, social and community considerations that are encompassed by the following three principles and represented in the figure below:

**Design for Wellbeing** will create a quality new health facility for use by patients, their carers and the staff providing clinical care to support improved health, healing and wellbeing in difficult and stressful times. This particular principle is also driven by the Emotional Design Brief framework which focuses on the individual's experience of the built health-care spaces.

**Design for Country** aims to establish meaningful and culturally appropriate references to Country by not only creating connections to the ground and landscape, but also facilitating family connectivity and gathering through the design. This principle is guided by the Connecting with Country framework which focuses on 'place-led' design approaches and outlines strategies for designing with Country in order to value and respect our First Nations culture.

**Design for Equity** strives to create an inclusive and welcoming built hospital environment that ensures everyone accessing and working in healthcare feels safe and comfortable. This principle is linked closely to the previous principles; Design for Wellbeing in terms of designing spaces that are private and secure, and Design for Country in terms of design that is culturally appropriate, safe and provides dignity to all. Design for Equity is guided by the Design Guide for Healthcare which provides a framework for the design of quality, inclusive and sustainable health facilities.



### Design for Wellbeing

*quality health facility for patients, carers and staff to support healing in difficult and stressful times.*



### Design for Country

*establish meaningful references to Country, create connections to the ground and landscape, facilitate family connectivity through the design*



### Design for Equity

*create an inclusive and welcoming built hospital environment that ensures everyone accessing healthcare feels safe and comfortable*

Figure above: Design Principles and Conceptual Framework for the Gunnedah Hospital Redevelopment

These distilled design principles encapsulate the objectives of the Government Architect of NSW Better Placed policy to enhance the design quality of our built environment and create better places, spaces and buildings. These principles acknowledge the complexity of contemporary social, economic and environmental challenges that call for new modes of thinking, analysis and problem solving throughout an iterative design process to achieve an outcome aligned with the Better Placed policy's vision and objectives.

<b>OBJECTIVE 1.</b>	<b>OBJECTIVE 2.</b>	<b>OBJECTIVE 3.</b>	<b>OBJECTIVE 4.</b>	<b>OBJECTIVE 5.</b>	<b>OBJECTIVE 6.</b>	<b>OBJECTIVE 7.</b>
<b><u>Better fit</u></b>	<b><u>Better performance</u></b>	<b><u>Better for community</u></b>	<b><u>Better for people</u></b>	<b><u>Better working</u></b>	<b><u>Better value</u></b>	<b><u>Better look and feel</u></b>
contextual, local and of its place	sustainable, adaptable and durable	inclusive, connected and diverse	safe, comfortable and liveable	functional, efficient and fit for purpose	creating and adding value	engaging, inviting and attractive

Figure above: Better Placed objectives

Source: Government Architect NSW (2017). "Better Placed" NSW Government

### 3. Existing Site

The Gunnedah Hospital campus site is surrounded by wide quiet residential streets and a sometimes noisy and disruptive high school to the north-west. The high school and TAFE located off Marquis Street are set back from the main road with the main fronting being the school oval. The tree-lined street is generally quiet until morning and afternoon drop-off and pick-up where pedestrian and traffic flows increase, often disrupting the main carpark of the hospital site during these times.

Reservoir Street lines the south-west of the site with quiet residential houses. The corner of Marquis Street and Reservoir Streets houses the Gunnedah Baptist church and Community Preschool. Anzac Parade is another wide and quiet street lining the south-east of the site. Almost half the length of the block is occupied with at-grade car parking for the neighbouring swimming pool.

The site also houses the Alkira Nursing Home to the north-east which is bordered by the two-lane Oxley Highway that dissects Gunnedah connecting the town to its neighbouring regional centres. Alongside the highway is the Mungindi Railway Line. Neighbouring the high school along the Oxley Highway is a showground and across the road and railway line is the train station.



Figure above: Existing urban context analysis

The existing hospital site itself is currently divided into three portions; the hospital, nursing home and Lions Club park. A stormwater overland flow easement diagonally intersects all three lots. The hospital portion is currently occupied by the following buildings, with some impacted by the redevelopment:

- Rural Health Centre provides allied health and general practitioner services and will remain operational,
- Ambulance Station will remain operational,
- Helipad will remain operational,
- Staff Accommodation building will remain operational with the former clinic area separately leased
- Day Care Centre is vacant and will be demolished,
- Engineering building will remain operational, with a plant room built alongside to house a communications room, main switchboard and mechanical switchboard. Rainwater reuse plant will be in an outdoor enclosure,
- Mortuary will remain operational,
- Doctor's accommodation will remain operational,



- Kitchen and back of house will remain operational with a new service vehicle driveway upgraded to allow access for large bulk oxygen refill trucks,
- Provision for medical gas services will be within the existing back of house area,
- Bulk oxygen tank relocated within the service area to remove cross-over at public entry,
- New pad mount substation to be provided,
- New hydrant and sprinkler tanks and pump sets for fire protection,
- Dental, Physiotherapy and Pathology services will remain operational
- Maternity and Birthing will be demolished for the new Inpatient Unit, Maternity, Birthing and Emergency Departments,
- CSSD, Theatre, Day Surgery and Imaging will remain operational,
- Chapel, Kiosk and Education Centre will remain operational,
- Administration will relocate from their current position within the Rural Health Centre into the existing hospital,
- Main carpark off Marquis Street will remain operational,
- New car parking and drive through drop off will be created at the Emergency entry off Anzac Parade,
- New ambulance access and emergency vehicle parking will be created off Reservoir Street,
- The project aims to replace existing car parking removed during the redevelopment and provide new accessible car parking spaces.

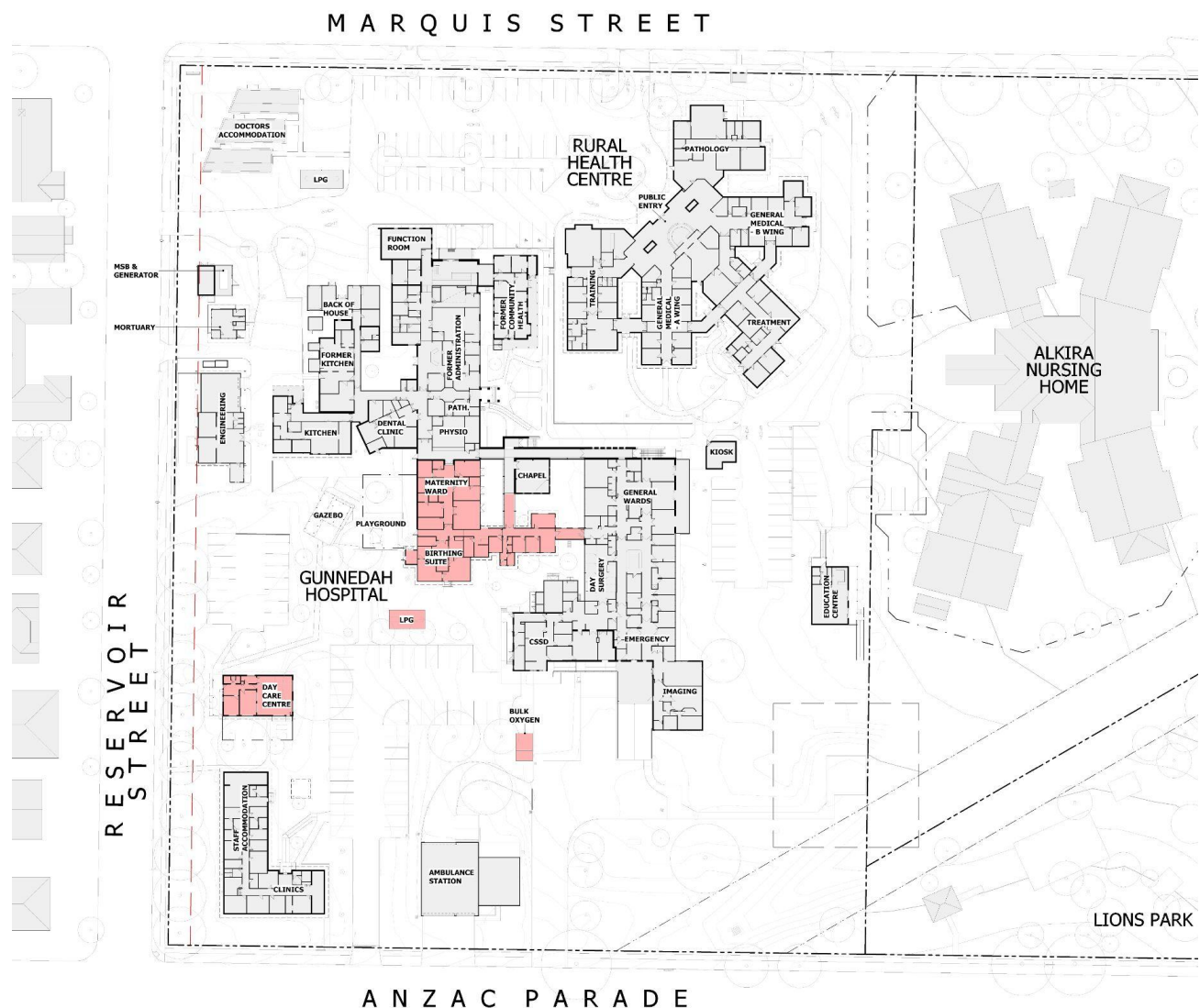


Figure above: Existing site plan with existing spaces shaded grey and spaces to be demolished shaded red.



## 4. Placemaking and Design

The key aim of the redevelopment is to provide a contemporary healthcare facility that is culturally appropriate, welcoming and inclusive to service the community in Gunnedah now and into the future. Through assessment of the Better Placed policy's seven distinct objectives, the following placemaking and design principles have been considered and implemented to highlight important factors that contribute to good design outcomes.

### **Better fit: contextual, local and of its place**

The redevelopment is informed by and derived from its location, context and social setting. The initial design process began with the discovery of Gunnedah; analysing the social, cultural, environmental and statutory planning context, researching precedents and defining the brief. The local character has informed the built form to reference its unique qualities and characteristics appropriate for a regional hospital that feels responsive, sensitive and relevant to better fit the community. This objective and how it has been considered within the design is further explored throughout this report.

### **Better performance: sustainable, adaptable and durable**

Environmental sustainability, responsiveness and adaptivity is essential for better performance and providing a functional, whole of life design. The design builds on an increased awareness of site opportunities, form and function, to encompass and target a broad range of sustainable objectives including specific healthcare considerations for wellbeing which are expanded upon in Section 10 of this report.

### **Better for community: inclusive, connected and diverse**

The design seeks to address economic and social disparity and inequity by creating an inclusive, welcoming and equitable healthcare facility. It has developed in consultation with various local stakeholders to ensure spaces resonate and embrace the community that it will serve. Connecting with Country is one important consideration that has been further explored in Section 5 of this report.

### **Better for people: safe, comfortable and liveable**

Providing a safe, comfortable and liveable environment has a significant impact on people's wellbeing which has been addressed in Section 10 of this report and is becoming increasingly important, particularly within hospitals. Similarly people have a right to feel safe when accessing healthcare and so crime prevention through environmental design principles are outlined in Section 8.

### **Better working: functional, efficient and fit for purpose**

Review of the Clinical Services Plan, collaboration with the Local Health District and the Project User Groups throughout the design process identified a number of key functional relationships to be maintained in order to achieve a practical and fit for purpose hospital which are listed further in this section of the report. Hospitals are one of the most complex building types with specific functional and clinical requirements while needing to enhance patient care and comfort. The solution to this challenge was constantly questioned and tested throughout the planning process and is continually being refined to achieve a more efficient solution that supports productivity and effectiveness for staff while also prioritising patient wellbeing.

### **Better value: creating and adding value**

Good design creates ongoing value for people and communities and minimises costs over time while raising standards and quality of life for users, as well as adding return on investment. The redevelopment of Gunnedah hospital is a desperately needed investment into the community that hopes to attract new doctors and nurses into a region that is facing a shortage. The social and health value of creating a new and enhanced public space providing such important and vital care is immeasurable. The redevelopment integrates new construction with existing infrastructure in order to maximise the monetary investment into the development and prioritise services that have the greatest need to be upgraded and renewed.

### **Better look and feel: engaging, inviting and attractive**

It is important for healthcare facilities to be welcoming and aesthetically pleasing so that it encourages communities to use and enjoy the spaces that provide such vital care. The hospital infrastructure and condition of the facilities should not be a barrier to users accessing healthcare. The feel of a place, how we use and relate to our environment is dependent upon the aesthetic qualities that ultimately promote positive engagement. A successful outcome depends on a considered and sensitive balance of materials, finishes, proportions and details to enhance its value and usage by the community. Meaningful consultation, iterative design reviews and continually pushing the design to ask questions and challenge assumptions moves the design towards an improved and resolved architectural solution.

The above factors begin to highlight some of the ways in which the design considered placemaking and design principles to achieve a quality design outcome aligned with the Better Placed policy's vision and objectives. These objectives are further expanded upon throughout this report and reiterate the redevelopment's goal to provide a contemporary healthcare facility that is culturally appropriate, welcoming and inclusive to service the community in Gunnedah now and into the future.

In order to create a better working environment through the assessment review of the Clinical Services Plan and discussions with the Local Health District and the Project User Groups, the key functional relationships are identified as:

- Main hospital entry zone to have links to the inpatient unit, the rural health centre, and to community health and day surgery,
- A separate public entry zone to emergency to be maintained,
- The inpatient unit, maternity, birthing, and emergency to have close functional relationships to address administration and staffing,
- Medical imaging to have links with the emergency, the inpatient unit, and an entry for outpatient services,
- The existing day surgery, theatre, and CSSD to be maintained with links to maternity and birthing as well as to the main entry for day surgery services,
- The existing kitchen, engineering, mortuary, and main switch room buildings to be maintained and new back of house linked closely to the existing facilities,
- The circulation links for the public, staff, and back-of-house require consideration with importance placed on the length of travel for the public from the entry.

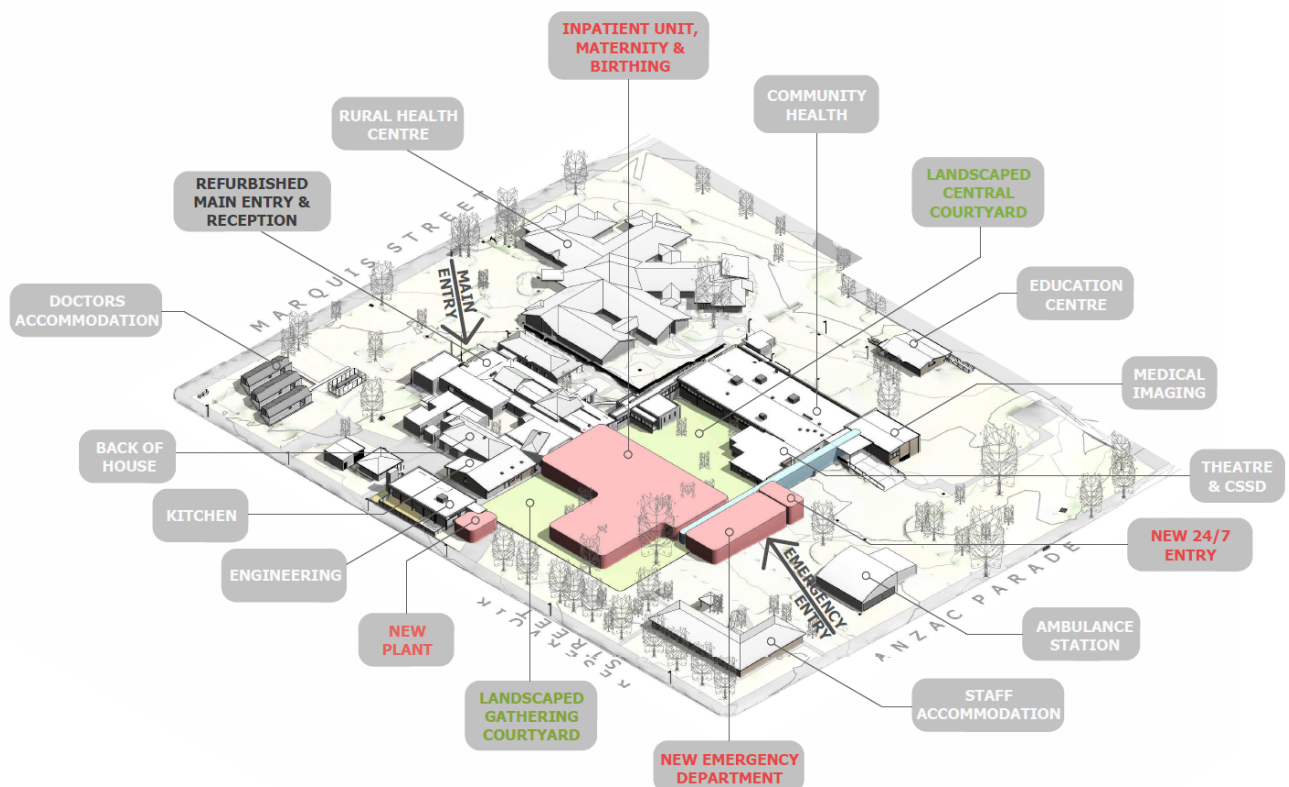


Figure above: Masterplan massing diagram of the hospital redevelopment

The conceptual form was developed to allow for a series of landscaped courtyards between the various functional units to provide an outlook and access to nature, identified as a key design principle in the Emotional Design Brief and an important component of the Connecting with Country Framework.. The generous landscaping provides an open garden setting integral to the vision for the campus that will provide a valuable emotional impact on the wellbeing of patients, carers and staff. This synergy between nature, people and design also forms part of the Connecting with Country framework where nature and landscaping can be

celebrated and embraced. This also addresses the 'better for community' objective within the Better Placed policy to create an inclusive and connected environment for all members of the community. The functional relationships between departments underwent a comprehensive consultation process to identify the most appropriate location of the program within the development zone so that key relationships and adjacencies are maintained and strengthened. The built form was conceptualised with design principles considered to create spaces with good solar access for natural light, gable and pitched roof forms with the opportunity for a highlight window and welcoming entry canopies to provide safe, equitable spaces. These principles speak to several Better Placed objectives such as better performance, better for people and better look and feel.

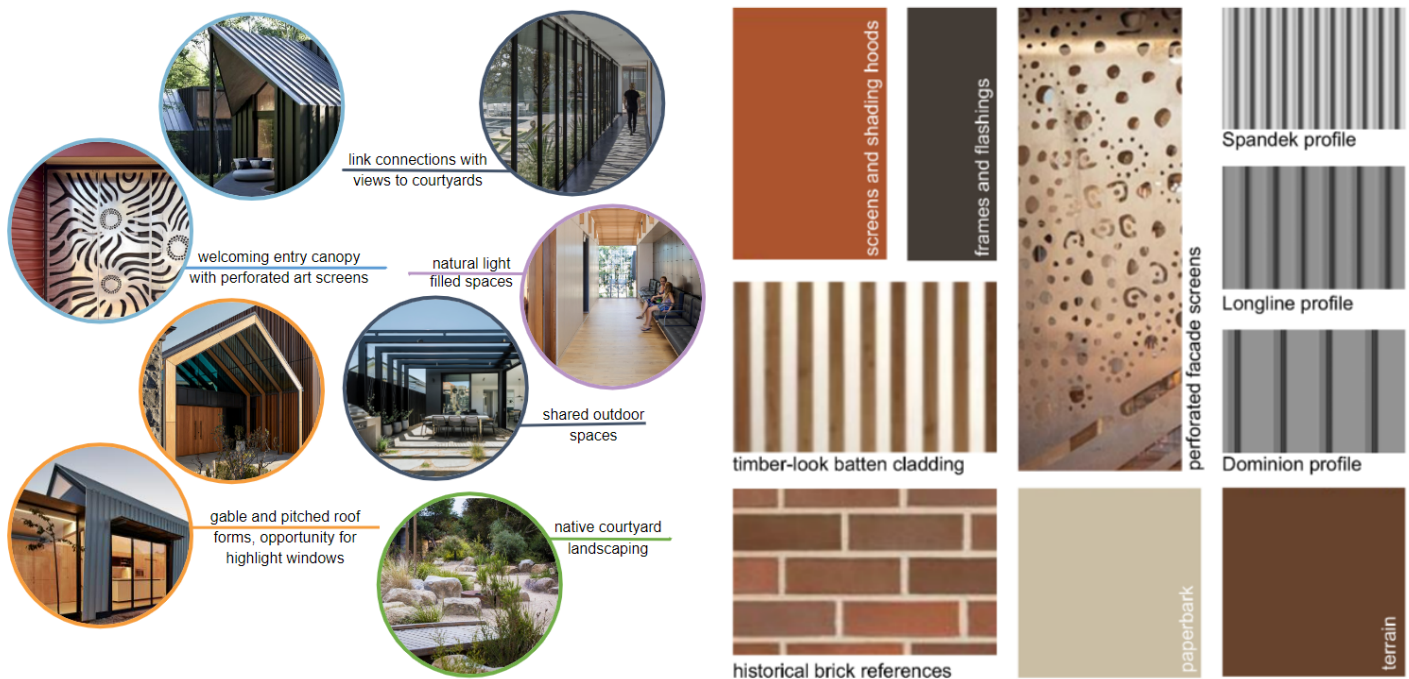


Figure above: Building fabric conceptual design principles and preliminary materials selections

The building fabric has developed to consist of low maintenance and affordable materials that reference both the contextual and regional built environment. Pre-finished profiled steel, recycled brick and the incorporation of landscaping will be integrated in a considered manner to achieve a sympathetic, yet contemporary design for the regional community.

It is important that the building entry be welcoming and engaging to embrace a spectrum of users from different generational and cultural backgrounds. The scale of the building is broken down into a series of functional units on an almost residential scale to appear approachable and welcoming. The emergency department entry design intent is to incorporate generous canopies with the inclusion of perforated art screens commissioned by local indigenous artisans to celebrate the local culture, engage users and provide an important connection to Country and awareness of Indigenous culture.

Gable and pitched roof forms will provide contemporary silhouettes, reminiscent of Gunnedah's surrounding landscape, designed to integrate place and community echoing both contextual and regional forms while also providing a unique identity for Gunnedah community health. Passive and active design strategies will be integrated to engage both on a mental and physical level with the underlying social message of health promotion and sustainable design. The pitched roof forms allow the opportunity for a highlight window encouraging natural light to reach the internal corridor with the intention to create a healing environment through the provision of generous solar access and connection to nature.

Connection to nature will also be achieved by hospital street links with views into the surrounding landscaped courtyards. Several courtyard spaces break up the campus providing views to native landscaping and shared outdoor spaces for patients, staff and carers to enjoy, undertake therapeutic care and gather with visiting friends and family. The synergy between the landscape design and the building fabric aims to be community-focused, connected to Country, incorporating culture and providing high standard care.

## 5. Connecting with Country

Connecting with Country is a framework for the design of built environments that aims to support the health and wellbeing of Country by valuing and respecting the guidance of First Nations people who know that if we care for Country - it will care for us. Country has a significant and specific meaning for First Nations peoples as it relates to the culture and land one belongs to, yearns for, finds healing from and will return to. Country not only includes the physical land but is the place of origin in cultural, spiritual and literal terms including the family connections, access to knowledge and cultural practices associated with the land. The diagrammatic interpretation of the Connecting with Country framework illustrated below emphasises the interrelationships between people, nature and design influencing a 'place-led' design approach to the redevelopment of the built hospital environment.

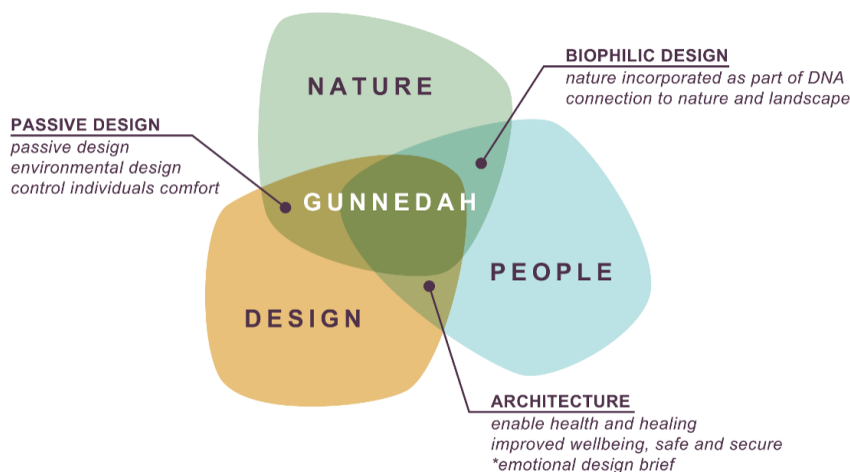


Figure above: Interpretation of the Connecting with Country Framework for the Gunnedah Hospital Redevelopment

Designing with Country includes connecting with the natural environment and considering people, animals, resources and plants equally. This approach aligns with the biophilic design principles that are a crucial part of the design of health facilities, and with sustainable design practices. Designing with Country brings these together with Indigenous cultural knowledge of identity and place. This is fundamental to creating places that are culturally safe and inclusive for Aboriginal people and fulfils several of the Better Placed objectives ensuring the design will be healthy, responsive, integrated, equitable and resilient.

The design of the built environment has the opportunity within a healthcare facility to enable health and healing by providing spaces for improved wellbeing that are safe, welcoming, inclusive and secure. The redevelopment of Gunnedah Hospital aims to achieve this through the following design responses, further detailed in Health Infrastructure's Connection to Country Report:

- **Entry** - to create a welcoming entry that incorporates local art, clear signage, local language and wayfinding guidance,
- **Connection to Outdoors** - design of internal spaces with access to natural light, connections to landscaped courtyards, use of native and healing plants within the gardens. Creation of outdoor courtyard spaces for different types of gathering,
- **Waiting Spaces** - support large family groups and gathering for family connections and support while accessing healthcare on Country,
- **Start of Life** - recognises the importance of water birth and includes an immersion bath in the birth suite. The design also includes a private birthing courtyard with connection to natural earth materials in a walking track,
- **End of Life** - inclusion of a dedicated palliative care room with connection to outdoor courtyard and allows gathering of large family groups,
- **Emergency** - contemporary and compliant design with access to improved indoor and outdoor waiting areas for comfort and privacy,



- **Inpatient Unit** - visual connection to landscaped courtyards, access to natural light, all bedrooms at ground level, carer spaces allow support people to stay overnight, multi-purpose interview rooms allow for private and confidential conversations.
- **Keeping Place** - considered as part of the design and arts strategy to introduce Country connections through the display of artefacts.

## 6. Greener Places and Better Spaces

Greener Places is a design framework for urban green. It seeks to capture our collective aspiration and expectations in planning, designing and delivering green infrastructure in urban areas across NSW. The Better Placed policy advocates for a network of greener and better space with biodiversity and water systems that connect people to open recreational space. Well-designed greener places will make it easier for people to be physically and mentally active, an important element when considered within the healthcare typology. The landscaped courtyard spaces established between the buildings as a result of the redevelopment create an opportunity for connections to land, Country and landscape through the ability to experience outdoor space.

The proposed planting palette for the courtyards will include a mix of native shrubs and ground-covers with deciduous trees to allow summer shade, seasonal colour variation and winter sunlight into the building and courtyards. The plant species are designed to be low maintenance and attract wildlife including birds, butterflies and bees into the space. Plantings will include in-ground and raised planter boxes to provide separation of the larger courtyard area. Themed gardens will feature indigenous medicine plants to enhance the connection to Country and reference the long associations between plants and medicine healing. Indigenous themed artwork and sculpture commissioned by local artists will be utilised within the space to enhance the experience for patients.

The key aims of the private outdoor spaces include:

- enhancing the public domain to improve staff, visitor, patient and carer experiences of the hospital,
- improve circulation and wayfinding by opening up corridors to outdoor spaces and connecting them to landscape features,
- creation of different courtyard spaces responding to differing functions;
  - tall acoustic landscaped screening for the birthing courtyard to create privacy and separation, along with natural materials to connect to birthing on Country.
  - large gathering spaces softened by landscaped mass planting
  - central breakout courtyard with stairs and ramps for physiotherapy exercise, along with a play area for children with a relationship to the maternity ward.
- visual amenity is improved with all bedrooms and breakout spaces with sight lines to landscaped spaces.

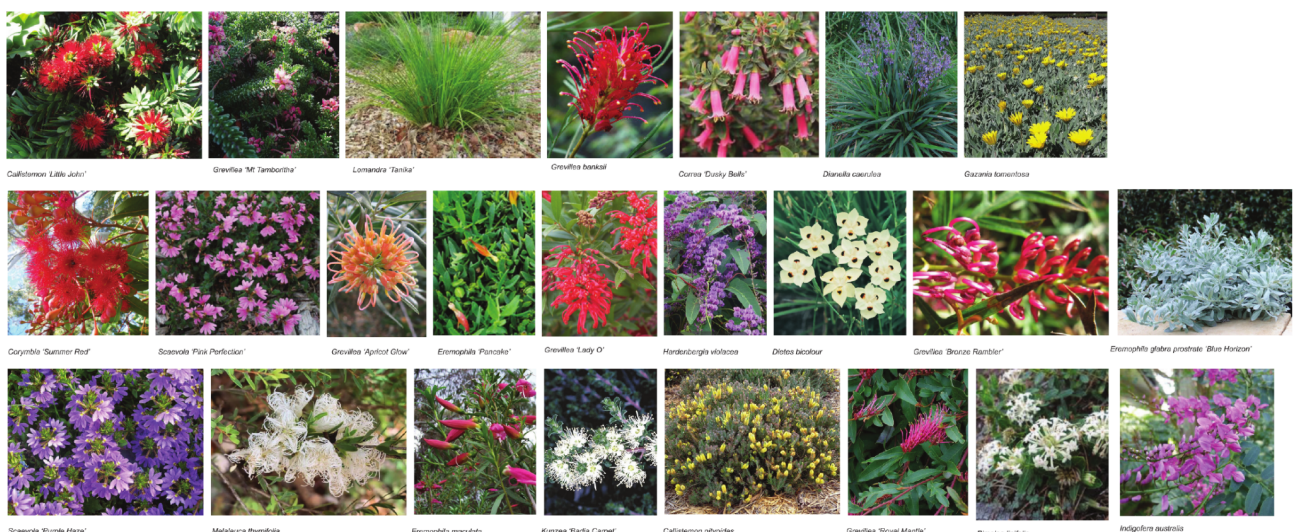


Figure above: Indicative images of conceptual plant selections

## 7. Landscape Plans

Landscape design has been prepared by Stewart Surveys, local to Gunnedah. The design has been collaboratively developed with the conceptual design framework established by the architects and as a result of engagement with local stakeholders and First Nations groups through Connecting with Country consultation. The landscaping design approach will improve public access and orientation at the site by providing courtyards located around the hospital buildings provide a strong connection between the indoor and outdoor spaces, being attractive landscapes, which are looked upon from within the building and patient suites, as well as spaces to be utilised by patients and visitors during their stay. These courtyards will provide access outdoors and to nature, opportunities for patients to socialise and a space for patients and visitors to enjoy. They set the tone for the site and provide a place for patients to recover and heal. The outdoor spaces will cater for both small and larger family group gatherings while maintaining privacy for patients in the adjoining suites.

The landscape design has undergone a significant amount of value engineering to allow the redevelopment to be delivered within the project budget. As a result, the following landscape design elements respond to the projects design principles, the Greener Places and Better Spaces framework and the Connecting with Country framework:

- Opportunity for interpretive concrete inlays to provide reference to the Indigenous Song Lines, language and connection to Country,
- Seating areas under existing large shade trees, native grasses to screen services.
- The central patient courtyard is constructed in two tiers. This secure courtyard is visible from adjoining patients rooms and provides a place for gathering, access to outdoors, patient rehabilitation and is looked upon from within the inpatient wards. Deciduous trees will provide shade, seasonal change and winter sunlight. A range of seating options will be provided for patients. The ramp and stair access to the lower terrace will provide built in seating along the level change and opportunities for patient rehabilitation. Plantings will incorporate an indigenous healing garden with local medicine plants. Interpretive signage will tell indigenous stories of healing and medicine plants.
- The birthing courtyard is accessed directly from the birthing suite. This courtyard will have mass planting and screen to provide a tranquil private quiet space for patients in labour to utilise.
- The gathering courtyard provides a breakout space for patients and families. A gathering area will provide a quiet zone with seating in a semi-private setting. Separate seating zones allow multiple users in this space. This area is secured with 1.8 metre high fencing. Lush planting will create a peaceful setting which is viewed upon from within the hospital.
- Outdoor waiting area off emergency is provided with seating and mass planting of native grasses to soften the hardscape and provide continuity of planting.

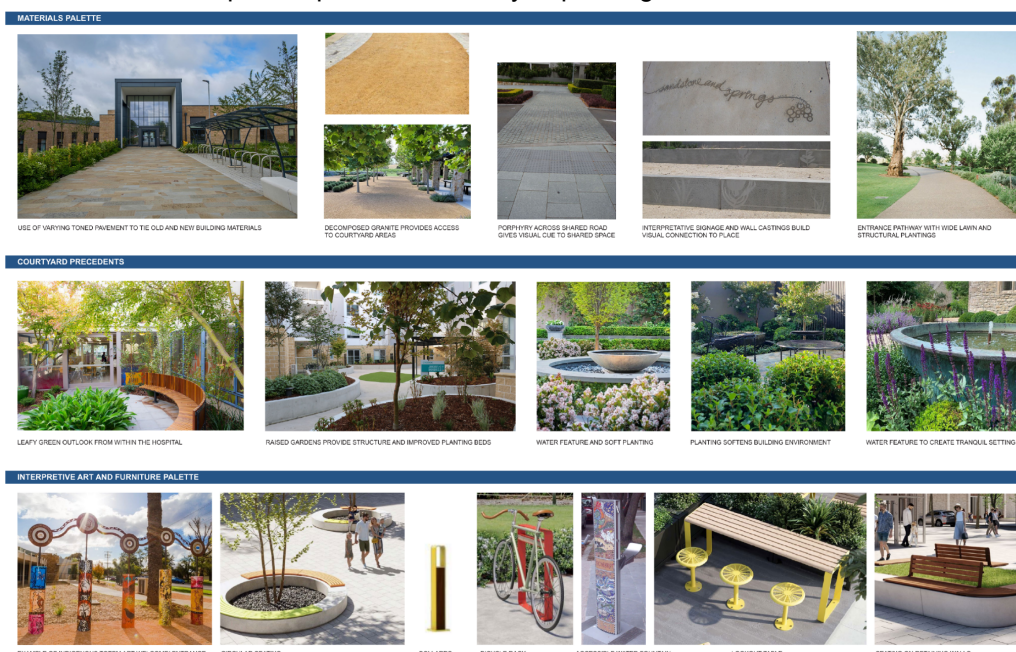


Figure above: Landscape design precedents and conceptual materials palette



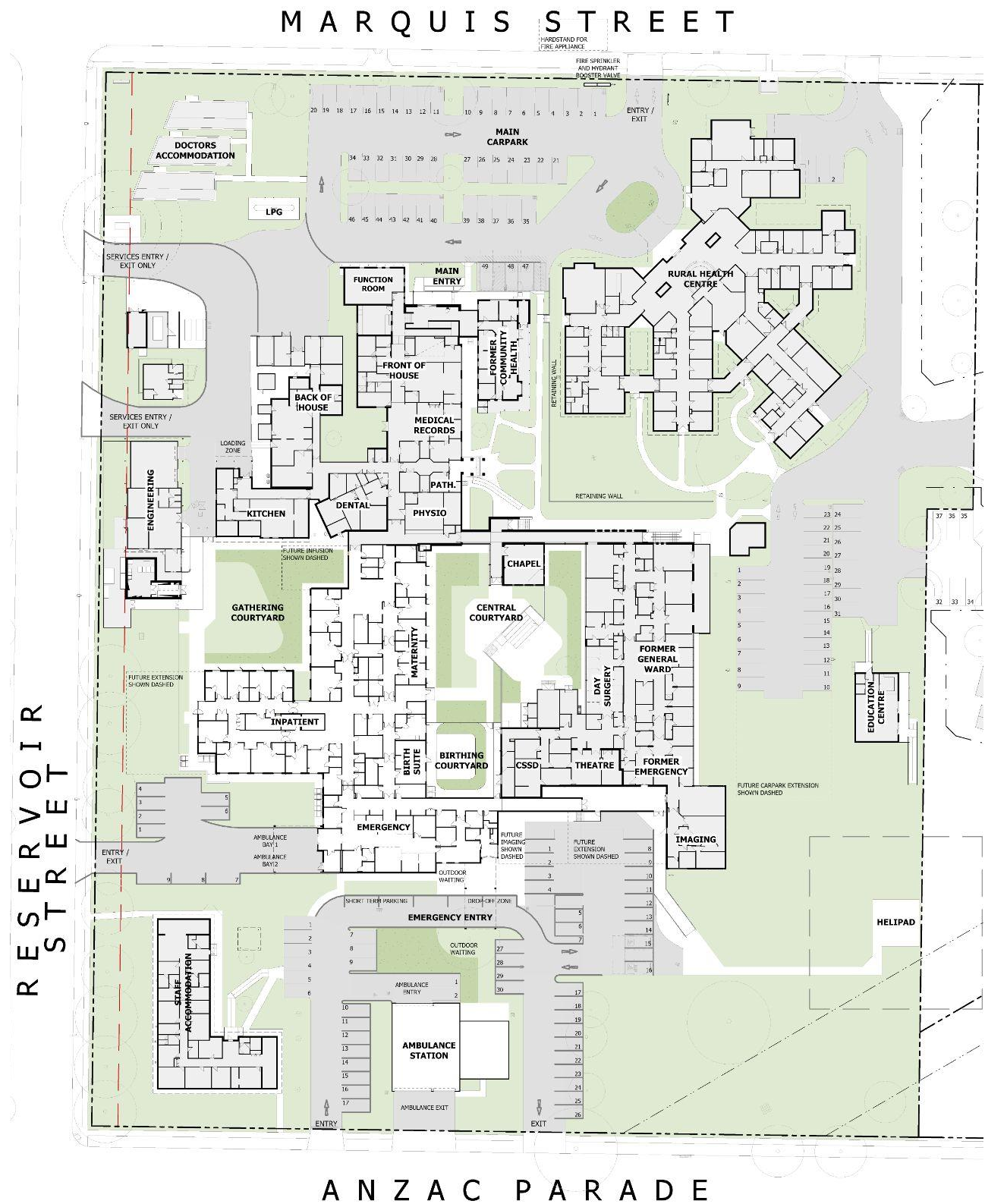


Figure above: Landscape site plan and courtyard design

## 8. Crime Prevention Through Environmental Design Principles

Crime Prevention Through Environmental Design (CPTED) is a multi-disciplinary approach of crime prevention that uses urban and architectural design and the management of built and natural environments. The strategies aim to reduce victimisation, deter offender decisions that precede criminal acts, and build a sense of community among inhabitants so they can gain territorial control of areas, reduce crime, and minimise fear of crime. These strategies are also aligned with the Better Placed policy's vision and objectives to create better places for people that are safe, comfortable and liveable. There are four main principles of CPTED that have been considered in the design; surveillance, both natural and technical (mechanical or electronic), access control, territorial reinforcement, and space management.

Natural and technical surveillance combines to make 'passive' or 'active' surveillance that can reduce the attractiveness of antisocial activities occurring, ultimately improving the safety of staff, patients, carers and visitors. Natural surveillance is achieved through visibility of waiting spaces from reception, entry doors from staff stations, avoidance of blind corners, locating entries that are clearly visible from the street, installing doors and windows that allow natural observation, installing effective lighting in public places and ensuring landscaping does not obstruct surveillance or provide a place to hide or entrap victims. Technical surveillance adds another layer of protection to supervise isolated, higher risk locations by installation of security cameras, mirrors and help points. This highlights the importance of building layout, orientation and location, as well as the strategic use of design, landscaping and lighting.

Access control refers to the management of who enters an area. There are two main public entry points to the redevelopment: the main entry during business hours and a 24 hour zone for the emergency department. Both entries are clearly visible from the street and accessed from the associated car parks providing clear entry points for the public. Ambulance, emergency vehicle and doctor access to the hospital is provided separately 24 hours from Reservoir Street. These access points are enhanced by a strategic wayfinding and signage strategy. The 24 hour zone includes the emergency department, public amenities and waiting space so that the remainder of the hospital and main entry is locked down after business hours, restricting access which is highly controlled. A drop-off zone and short term parking makes the after hours access more accessible for carers and patients. Within the hospital itself, internal circulation is further controlled by the use of access controlled doors with card reader access to prevent unauthorised persons from entering restricted areas.

Territorial reinforcement means that users of the space are more likely to protect territory they feel they own and have a certain respect for the territory of others. The redevelopment was designed with the needs of the Gunnedah people at its centre, aiming to provide a contemporary healthcare facility that is culturally appropriate, welcoming and inclusive for the community. The community ownership of the space is enhanced by references to the local context, art strategies by local artisans and implementation of design principles outlined in the Connecting with Country framework which aims to create a safe and respectful environment where Indigenous people can feel valued while accessing healthcare. The territorial reinforcement means the community are more likely to enjoy the space and increase the likelihood to report or prevent crime.

Space management strategies are an important means of generating and maintaining activity, serviceability, and natural community control ensuring the space is appropriately utilised and cared for. This is also linked to the principle of territorial reinforcement. Strategies include activity coordination, site cleanliness, rapid repair of vandalism and graffiti, and the refurbishment of decayed physical elements. The redevelopment implements a low maintenance landscape design considering ease of management by the maintenance team and includes drought tolerant plants. Low maintenance and durable external and internal finishes are utilised to ensure the spaces longevity and cleanliness. Space management is further controlled through dual egress doors to consult and interview rooms and safe assessment rooms.

Feedback from consultation with clinical Project User Groups, Agency for Clinical Innovation, NSW Ambulance and Police and non-clinical engineering and security services has also been incorporated into the design of the redevelopment to address the following:

- Removing any concealment / entrapment points by eliminating dead-end corridors and providing dual egress,
- Isolation of patients and staff by co-locating low activity areas with high activity areas,
- Proximity of outdoor waiting to the Ambulance Station for ambulance staff safety,
- Visibility over outdoor waiting for staff overseeing the waiting spaces.



## 9. Building Design

Conceptually, the landscape context of Gunnedah informs the approach to the hospital's architecture both internally and externally, drawing on the colours and structure of the landscape beyond the site. The local context informing the design is the first objective of the Better Placed policy in order to contribute positively and evolve the future character and context of Gunnedah. The facade approach is seen as a soft and recessive building that will act as a backdrop to the landscaped courtyards - being the key component to the design of the redevelopment. In reference to the design principles, this approach will provide natural outlooks for health and wellbeing, connection to Country through Indigenous medicine plantings and/or their representations, and create safe and equitable spaces.

The preliminary materials palette includes profiled metal wall cladding used in a vertical format that references the linear crop rows of the surrounding agricultural fields. The pre-finished nature of the product makes it economical and low-maintenance. The proposed Colorbond colours include Paperbark and Terrain as soft earthy references. Perforated art facade screens will be integrated into the architecture of the facade at the thresholds to create a language that references Country and culture, aiming to create an inclusive and welcoming healthcare setting. Brick has been a material widely used in the built form across the site and an opportunity exists to re-utilise these bricks as a material within the redevelopment. One of the key design principles is to break down the threshold transition into the hospital spaces. This can be achieved by blurring the lines between inside and outside by using exterior materials internally.

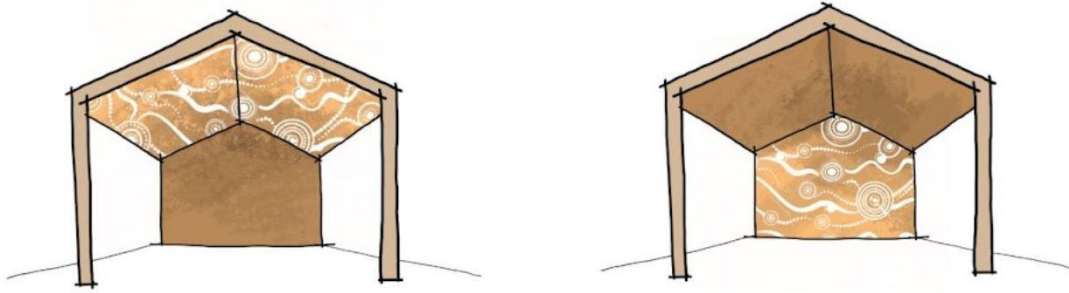


Figure above: Facade concept typical elevations

The two facade concept elevations above, diagram the proposed application of the material selections across the facade. The left elevation shows the single storey hospital scale, with the striking feature of a large highlight window above a staff station slicing into the sky to capture views and light. The popout is featured in Colorbond Terrain metal cladding to break down the scale and form across the facade. The main building is finished in three different metal profile cladding types in a vertical orientation to reference the linear language of the crop rows of the surrounding agricultural fields. Profiled (Longline), channelled (Dominion) and ribbed (Spandek) metal sheets will be applied across the facade in order to create a dynamic rhythm of light and shadow in one harmonious colour. The use of one colour aims to emphasise the effect of light and shade, and its changing effect throughout the day.

The large inpatient windows in the right elevations provide an expansive sense of connection with the landscaping in an aim to open up the rooms and connect with nature. The opportunity exists for these windows to include operable portions to allow access to fresh air and the activity in the courtyard. Awning screens provide solar protection and mirrored window tint will enhance visual privacy from courtyard sight lines. Sheer and blackout roller blinds recessed into a window pelmet will allow patients and visitors to control solar access and privacy.

The approach to the massing of the building form and materiality as a consistent canvas to the landscaping across the redevelopment allows the design to focus the attention and detailing on the threshold places into the building - the canopies. The mass of the building itself is seen as a soft grounded building that is the canvas to the landscape design, as a shelter and a healing place within nature.



*Figure above: Emergency department and ambulance canopy concept*

The canopy concept aims to create a welcoming and inclusive entry to the hospital by exploring the agricultural aesthetic of the gable structure. Integrated within the architecture of the canopy is the opportunity for locally commissioned perforated artwork screens to create inclusivity, a welcoming transition and be a wayfinding element. The public entry canopy for the emergency departments is a regular gable form with the artwork screens applied to the soffit lining. The ambulance canopy is another gable form that is a variation on the theme with the artwork screens applied to the gable end of the facade to create the entry into the emergency department. The architectural language of the canopies aims to tie into a consistent concept to unify the entry points across the site, where there are currently multiple, disjointed and convoluted entries to the existing buildings that creates a confusing and stressful navigation of the site.



*Figure above: Emergency canopy artist impression*



*Figure above: Ambulance canopy artist impression*

The public emergency entry to the hospital provides all hours access to the Emergency Department and after hours access to the Birth Suite and the Inpatient Unit from Anzac Parade. This entry features a canopy, referencing the agricultural gable forms of the region. The canopy provides covered drop-off and pick-up access to the Emergency Department. The canopy utilises perforated art screens applied as the soffit lining to the pitched ceiling, creating a consistent language across the architecture. The soffit lining will be back-lit, shining light through the perforated pattern, creating a beacon wayfinding element to the Emergency Department entry after hours. Outdoor waiting will also be provided at this entry, softened with mass planting that references the same landscaping species utilised in the courtyards created by the built form.

The ambulance bay canopy provides shelter and protection from the weather conditions for two ambulance vehicles to collect and unload. This canopy subtly features the perforated art screens to the gable end with the aim to provide additional enclosure and protection from sun and wind driven rain between the roof forms. This canopy is roofed with translucent sheeting to allow maximum natural daylight into the southern ambulance airlock entry. Mass planting of a landscaped zone also assists in screening the ambulance bay from the public Emergency car park.

The facade section through the highlight window (seen on next page) illustrates how natural daylight is pulled into the centre of the wide clinical footprint of the inpatient unit. A dramatic raked ceiling pitches from 2700mm high corridor ceilings to open up spaces at the staff station. Large vertical windows will give a beautiful visual connection to the sky and weather patterns as they change across night and day enhancing the patients, staff and visitors experience of the typically internalised clinical spaces of hospital design. The highlight window will also act as a wayfinding device for patients and visitors to navigate the hospital layout. The facade section shows an elevation of the inpatient unit bedrooms beyond and shows the window connection providing visual sight lines from the patient bed out to the landscaping.



*Figure above: Facade section through highlight window*

The central courtyard is created at the centre of the new inpatient unit and the existing hospital. The space features terraced paving to respond to the fall across the site. The integrated stairs and ramps can also be utilised by the gymnasium for outdoor physiotherapy and rehabilitation sessions. The existing chapel, a result of local fundraising efforts, opens directly into the courtyard providing a breakout space for gathering and access to outdoors. The plantings will incorporate an Indigenous healing garden with local medicine plants and an opportunity for a locally commissioned sculpture piece to be installed as a wayfinding feature and provide connection to culture. Playground equipment installed on rubber softfall will provide active engagement for visiting siblings. A large array of rooftop photovoltaic solar panels form part of the environmentally sustainable design strategy.

The building design responds to the site and surrounding, natural environment, incorporating culturally sensitive elements and utilises natural light and low profile forms to dilute the clinical character of the hospital to a more welcoming place with a functionally driven layout. This demonstrates how principles of placemaking and key objectives in the Better Placed policy have been considered to achieve the best possible design outcomes for the local community, ensuring a healthy, responsive, integrated, equitable and resilient built environment.



*Figure above: View into the central courtyard*

## 10. Sustainable Design

The redevelopment aims to achieve an environmentally sensitive and highly sustainable design outcome. This requires a holistic and integrated approach which addresses a broad range of sustainability considerations. The design builds on an increased awareness of site opportunities, form and function, to encompass and target a broad range of sustainable objectives including specific healthcare considerations for wellbeing.

Aligning to the principles of performance and sustainability in the Better Placed policy, creating a healthy indoor environment that enhances wellbeing and is conducive to staff productivity is becoming increasingly important, particularly within hospitals. Hospitals are one of the most complex building types. Their greatest challenge is to reduce their energy consumption while maintaining their specific functional needs to enhance patient care and comfort. They are typically considered to be stressful places and so the physical environment can have a significant effect on both patient and staff health and wellbeing. Daylight is found to be beneficial and a critical requirement for humans, for both psychological and physiological well being. Maximising windows for solar access and views to the outside, establishes a connection to the natural environment and has been associated with reduced anxiety, pain and depression. Similarly, integration of greenery through biophilic design also improves views, air quality and connection to nature. Air quality is also important in controlling and preventing airborne infections. Providing clean, filtered air and effectively controlling indoor air pollution through ventilation are key aspects of maintaining good air quality. Lastly poorly designed acoustical environments can have a serious impact on patient and staff outcomes therefore installation of high-performance sound absorbing acoustic treatments results in shorter reverberation times, reduced sound propagation and improved speech intelligibility. All these factors play an important role in providing a sustainable healthy indoor healthcare environment that promotes health and wellbeing.

Additionally, Ecologically Sustainable Development (ESD) initiatives are being considered to meet HI's ESD requirements and targets, acknowledging the unique requirements of the redevelopment as a healthcare institution located in regional NSW. The HI ESD Framework has been used during the design process to determine the credits that can potentially be targeted and establish an overall target score for the redevelopment. The selection of the credits targeted has been based on the following:

- ESD target requirements,
- review of site, context, and proposed design,
- opportunities and constraints identified within the current design,
- key ESD healthcare specific considerations and,
- project team experience in other similar health care projects.

The sustainability target is to achieve 45 points through HI's ESD evaluation tool. HI has defined these targets, in alignment with the NSW Government Resource Efficiency Policy (GREP) v2 section E4. 45 points are required to achieve a 4-star GreenStar rating, while 60 points are required to achieve a 5-star GreenStar rating which is the LHD's aspiration for the redevelopment.

The redevelopment responds to the green vision outlined in LHD's 'Sustainable Healthcare: Together Towards Zero 2030' plan which aims to:

- be carbon and waste neutral by 2030,
- reduce environmental impact while continuing to focus on excellence,
- display public leadership and drive change in the market.

The current strategies implemented for the redevelopment may include but not limited to:

- **Energy** - installation of solar panels, LED and sensory lighting, utilising energy efficient electrical equipment,
- **Waste** - develop recycling strategies, targets and implementation plans for all waste streams, review and update management procurement policies and waste procedures and align these with HealthShare and local vendors,
- **Water** - capture and reuse rainwater, reduce water waste through leak detection and repair, implementation of low-flow fixtures,
- **Transport** - provide electric charging stations, reduce staff business travel through the use of technology advancements including telehealth; implement ride-to-work and car-pooling strategies where possible.



## 11. Conclusion

The purpose of this report is to illustrate the design principles, vision and framework informing the urban design and built form of the Gunnedah Hospital Redevelopment and how it is an appropriate response to the local context and character of the Gunnedah community. This report also outlined landscaping strategies, security and crime prevention and ecological sustainable design considerations.

The project context and design vision illustrated how the design process has been, and will continue to be, a collaborative process involving consultation and engagement with a number of stakeholders and user groups to inform the design and ensure it responds to the clinical users and community's needs. There were a number of clinical, cultural, social and community considerations that were encompassed into three principles driving the design: design for wellbeing, design for Country and design for equity.

The design addresses aims and objectives outlined within various documents including;

- Government Architect of NSW - Better Placed
- Health Infrastructure - Policies for Design, Placemaking and Sustainability
- Hunter New England Local Health District - Emotional Design Brief
- Crime Prevention Through Environmental Design Principles
- Government Architect - Connecting with Country Framework
- Government Architect - Design Guide for Healthcare
- Building design addressing scale of built form, urban design principles and infrastructure services methodologies

The redevelopment seeks to respond to the existing site conditions and provide a contemporary healthcare facility that is culturally appropriate, welcoming and inclusive to service the community of Gunnedah now and into the future. It responds to the surrounding context scale and form, implementing a single storey redevelopment consisting of low maintenance and affordable materials that reference both the contextual and regional built environment. Conceptually, the landscape context of Gunnedah informs the approach to the hospital's architecture both internally and externally, drawing on the colours and structure of the landscape beyond the site. The built form was conceptualised to create spaces with good solar access for natural light, gable and pitched roof forms with the opportunity for a highlight window and welcoming entry canopies to provide safe equitable spaces. The canopy forms explore the agricultural aesthetic of the gable structure integrating perforated Indigenous artwork screens to create a welcoming, inclusive transition and be a wayfinding element. The building finish comprises three different metal profile cladding types in a vertical orientation to reference the linear language of the crop rows of the surrounding agricultural fields. The landscaped courtyards provide an outlook and access to nature - an important component of the Connecting with Country Framework.

The design addresses concerns with regards to crime prevention through four main environmental design principles including: surveillance, access control, territorial reinforcement and space management. Strategies implemented aim to reduce victimisation, deter offenders and build a sense of community among the inhabitants. The development also aims to achieve an environmentally sensitive and highly sustainable design outcome building on an increased awareness of site opportunities, form and function, to encompass and target a broad range of sustainable objectives including specific healthcare considerations for wellbeing.

Together these principles and considerations result in a building design that responds to the local context, incorporating culturally sensitive elements and utilising natural light and low profile forms to dilute the clinical character of the hospital to a more welcoming place with a functional layout to serve the Gunnedah community.