

An aerial photograph of Bowral, New South Wales, showing a dense residential area with numerous houses and trees. In the background, rolling hills are visible under a clear sky. The text 'MSJ' is overlaid in the top left corner.

**MSJ**

| MASTER PLAN FEASIBILITY | MONA ROAD BOWRAL NSW |

# BOWRAL & DISTRICT HOSPITAL REDEVELOPMENT MASTER PLAN REPORT

| McCONNEL SMITH & JOHNSON | 10 JUNE 2016 |



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## 01 1.0 Executive Summary

McConnel Smith & Johnson, in conjunction with TSA Management, were commissioned to undertake a masterplan study of Bowral and District Hospital (B&DH) for the South Western Sydney Local Health District (SWSHD).

The site consists of a disparate collection of buildings across a range of ages, uses and floor levels. There is also a private hospital collocated on site, providing surgical and inpatient services. The public and private hospitals currently share some services, and this relationship is anticipated to continue into the future.

The Clinical Services Plan (CSP) predicts growth in bed numbers and operating theatres. The disjointed nature of the campus, as well as the constraint of ageing building fabric necessitated a considered approach to consolidating and connecting services on the campus.

This masterplan sets the direction for site redevelopment and provides the basis by which masterplan options development can be measured. MSJ have developed several options for redevelopment and assessed these for opportunities and constraints.

The masterplan outlines a strategy by which acute services could be consolidated in a new building on the north end of the site, with expansion down the centre. This strategy presented the best opportunities in regards to respecting the existing garden landscape; creating a strong presence and identity for the hospital; and minimising the impact on current buildings and services.

## 02 2.1 Project Team

### Project Team

Project Director		Local Health District	
Project Manager		Health Planner	
Architect		Cost Manager	
Electrical & Mechanical		Hydraulics	
BCA		Civil & Structural	
Surveyor		Traffic & Carparking	
Heritage Consultant		Arborist	



## 02 2.2 Methodology

The following process has been followed to inform the project team.

- Desktop review of available documents on the existing site.
- Site visit(s) and assessment of existing buildings to determine the state of the building fabric, services and structure.
- Site measure and survey of the existing site is currently underway to compile plans of the existing buildings.
- Site assessment of local environmental, physical and authority constraints and opportunities.
- Mapping of the existing clinical services functions, areas and locations within the existing buildings.
- Review of the Clinical Services Plan to inform the compilation of a high level schedule of accommodation (SOA).
- Comparison between the existing clinical areas and the Australasian Health Facility Guidelines (AusHFG) to identify where areas are under, meet or exceed guidelines.
- Series of project planning team/ executive user group meetings (PPT/ EUGs) to inform users of the planning process and listen to the users issues, concerns and ideas regarding any potential work to their current facility.
- Clinical Services prioritisation workshop to establish the key service priorities for B&DH and South Western Sydney LHD (SWS LHD).
- PUG's input considered in the determination of the Functional Design Brief for the top service priorities.
- Compilation of functional relationship diagrams for the hospital as a whole and for each unit within the hospital to inform the understanding of the service and physical relationships

The project team used the above information to develop the zonal Masterplan covering :

- “Keep Safe and Operational” - areas for clinical services that may have minimal works to maintain a safe level of service on the existing site.
- “Alterations and Additions” - areas for clinical services that may have refurbishment works that improve service in line with the CSP with varying degrees of AusHFG compliance under the high level SOA on the existing site.
- “Developable area” - areas of new build which are guided by the AusHFG under the high level SOA.

The design process has been checked and balanced against the SWSLHD and HI drivers through the project governance structure of:

- Executive Steering Committee (ESC)
- Project Development Committee (PDC)
- Executive User Group / Project Planning Team (EUG/ PPT)
- Project User Group's (PUG's)
- Executive Reference Group (ERG)

Due to the nature of the project this masterplan assessment has run parallel with the development of the Functional Design Brief (FDB) and the development of the detailed Schedule of Accommodation (SOA). These elements will continue to be developed during Feasibility Development for the Concept Design Report.

## 02 2.3 Existing Documentation

The following documents were provided to the project team.

### Key Reports

- Masterplan Strategy for Bowral and District Hospital, Capital Insight, December 2009
- Bowral and District Hospital Clinical Services Plan Redevelopment to 2026, South Western Sydney Local Health District, June 2015
- Asset Strategic Plan, South Western Sydney Local Health District, 2013

### Other Reports

- Arborist Report, C.B Mattick P/L, 1 April 2015
- Geotech Report, EF Consulting Pty Ltd trading as Auswide Geotechnical, 28 July 2000
- Helipad Assessment Report, AOS Airport Consulting, August 2004
- Heritage Assessment, Conbeare Morrison, April 2007
- Inspection Report - Admin Building & Old Hospital & Engineers Cottage, Airsafe Occupational Health Consultants, 14 March 2016
- Inspection Report - Admin Building Entrance, Airsafe Occupational Health Consultants, 30 June 2006
- Inspection Report - Admin Building, Airsafe Occupational Health Consultants, 30 June 2006
- Inspection Report - Admin, Kitchen & Dining Room, Airsafe Occupational Health Consultants 5 June 2006
- Inspection Report - Ambulance Station, Airsafe Occupational Health Consultants, 17 July 2006
- Inspection Report - Engineering Workshop & Stores, Airsafe Occupational Health Consultants, 18 March 2006
- Inspection Report - Gas Bottle Storage Area, Airsafe Occupational Health Consultants, 11 March 2006
- Inspection Report - Kitchen 2, Airsafe Occupational Health Consultants, 8 May 2006

- Inspection Report – Kitchen, Airsafe Occupational Health Consultants, 4 May 2006
- Inspection Report – Laundry, Airsafe Occupational Health Consultants, 24 April 2006
- Inspection Report - Maintenance Workshop, Airsafe Occupational Health Consultants, 17 March 2006
- Inspection Report - Milton Park Building, Airsafe Occupational Health Consultants, 24 March 2006
- Inspection Report - MPG & Yeomans Wing, Airsafe Occupational Health Consultants, 3 April 2006
- Inspection Report - Old Hospital & Engineers Cottage, Airsafe Occupational Health Consultants, 26 May 2006
- Inspection Report - Pipe Milton Park Building, Airsafe Occupational Health Consultants, 28 March 2006
- Inspection Report - Watson Building, Berrima Cottage, Airsafe Occupational Health Consultants, 15 May 2006
- Inspection Report - Watson Building, Airsafe Occupational Health Consultants, 18 May 2006
- Inspection Report - Western Side Watson Building, Airsafe Occupational Health Consultants, 4 March 2006
- Inspection Report - Yeoman Wing CW, Airsafe Occupational Health Consultants, 7 April 2006

### Drawings

- High Level CAD plan – ‘Bowral Key Plan’, date and source unknown
- High Level CAD plan – ‘Bowral Key Plan - Level 01’, date and source unknown
- High Level CAD plan – ‘Bowral Key Plan - Level 02’, date and source unknown
- Existing Building Areas CAD file - Bowral\_CMP\_Exist Area\_Grd.

dwg

- General Layout – ‘arc – ADMINISTRATION’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - BOILERHOUSE + LAUNDRY’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - CARDIAC ASSESSMENT UNIT’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - EMERGENCY + RECORDS’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - MILTON PARK (G)’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - MILTON PARK (L1)’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - MILTON PARK (L2)’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - MILTON PARK (L3)’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc – MORTUARY’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - OLD HOSPITAL + DENTAL’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - OUT BUILDINGS’, NSW Gov LHD, 17 January 2012
- General Layout – ‘arc - VISITOR ACCOMODATION’, NSW Gov LHD, 17 January 2012

### Photographs

- Aerial photo looking East
- Aerial photo looking West
- Aerial Photo looking North



## 03 3.1 Existing Health Services

The SWS LHD covers both rural and suburban communities and manages six acute public hospitals at Bankstown - Lidcombe, Campbelltown and Camden, Fairfield, Liverpool and Bowral and District Hospital (B&DH).

B&DH is a District C1 group hospital, providing services to the community as mainly role delineation level 3.

B&DH is a major Rural Hospital which provides a wide range of services, including general medical, obstetrics and gynaecology, paediatric, surgical, orthopaedics, ophthalmology, geriatric, mental health, palliative care, haematology and emergency services. Services are provided to the population of the Wingecarribee Shire and also to some patients from the surrounding areas.

Bowral has close links with a range of Sydney's teaching and referring hospitals including Liverpool, Fairfield, Bankstown and Campbelltown hospitals.

The majority of B&DH facilities are outdated and require some investment. The configuration at both facilities provides a poor functional configuration for the delivery of health services, requiring long travel distances for patients, visitors and staff between the various services. There is a need to consolidate site services and update facilities to support contemporary models of care, including a greater emphasis on primary, community and ambulatory care services with a multi-disciplinary orientation.

The redevelopment of B&DH health facilities will support contemporary models of health care that are able to adapt to emerging community needs and changes in clinical practice and technology.

Facility functionality will be informed from user group consultation and clinical priority but should include:

- Capacity for and flexibility to support contemporary models of care.
- Flexible bed configuration that allow direct access to and observation of patient areas.
- Information technology and systems to support remote consultation, point of care data entry, integrated records and the sharing of information between facilities and services.

## 03 3.2 Clinical Services Plan

The Bowral and District Hospital Clinical Services Plan 2015 (CSP), and the B&DH Master Plan Strategy 2009 have been completed to provide a framework for the redevelopment of the Bowral and District Hospital.

The SWSLHD Strategic and Healthcare Services Plan, Strategic Priorities in Health Care Delivery to 2021 identifies the redevelopment of B&DH as the 4th highest priority for the LHD. This has since been upgraded to 3rd priority. As per the Strategic and Healthcare Services Plan, the redevelopment of B&DH is a priority, “because of the imminent need to address the poor quality of ageing building fabric there and the need to provide additional medical and surgical beds in the hospital and expand ambulatory care and ED capacity. The ageing of the Wingecarribee population indicates that additional aged care, rehabilitation and palliative care beds will be required within the next decade. Community Health also needs redevelopment.”

The objective of the project is to provide contemporary healthcare facilities suited to the current and future needs of the catchment population. The key objective of the B&DH Redevelopment Project is to provide capacity to support the agreed scope of clinical care in an environment that facilitates the delivery of contemporary health services.

Facility function should allow efficient bed utilisation and staffing to better meet the current and future needs of the Wingecarribee population. In addition to facilitating the strengthening of service links to the private sector and exploring alternative procurement models.

Bowral has an ageing population demographic and the CSP projects increases in demand for sub-acute and non-acute beds. It also forecasts substantial growth in acute adult overnight, as well as adult and paediatric day only activity. New services at the hospital will also necessitate additional beds.

The services with the most significant increase in activity forecasted within the CSP includes:

- Adult Acute Medical and Surgical Inpatient Services
- Sub-acute Rehab / Transition Unit
- Perioperative Services
- Emergency Services

The CSP predicts an increase of 1.31 spaces in the Emergency Department between 2013 and 2026. A ‘hub’ model, entailing the collocation of Emergency Department and the Close Observation Unit has been identified as the appropriate Model of Care for B&DH. The current Emergency Building footprint and location would present challenges to implementing such a model.

The CSP has identified a projected growth to 3.19 operating theatres by 2026. There are currently 2 operating theatres at the hospital. These are located within ageing and restrictive building infrastructure. At 28m<sup>2</sup> each, they fall well short of the current AHFG guidelines areas.

## 3.3 Clinical Service Priorities

During the course of consultation with the hospital Executive User Group, the Top Priorities were identified as:

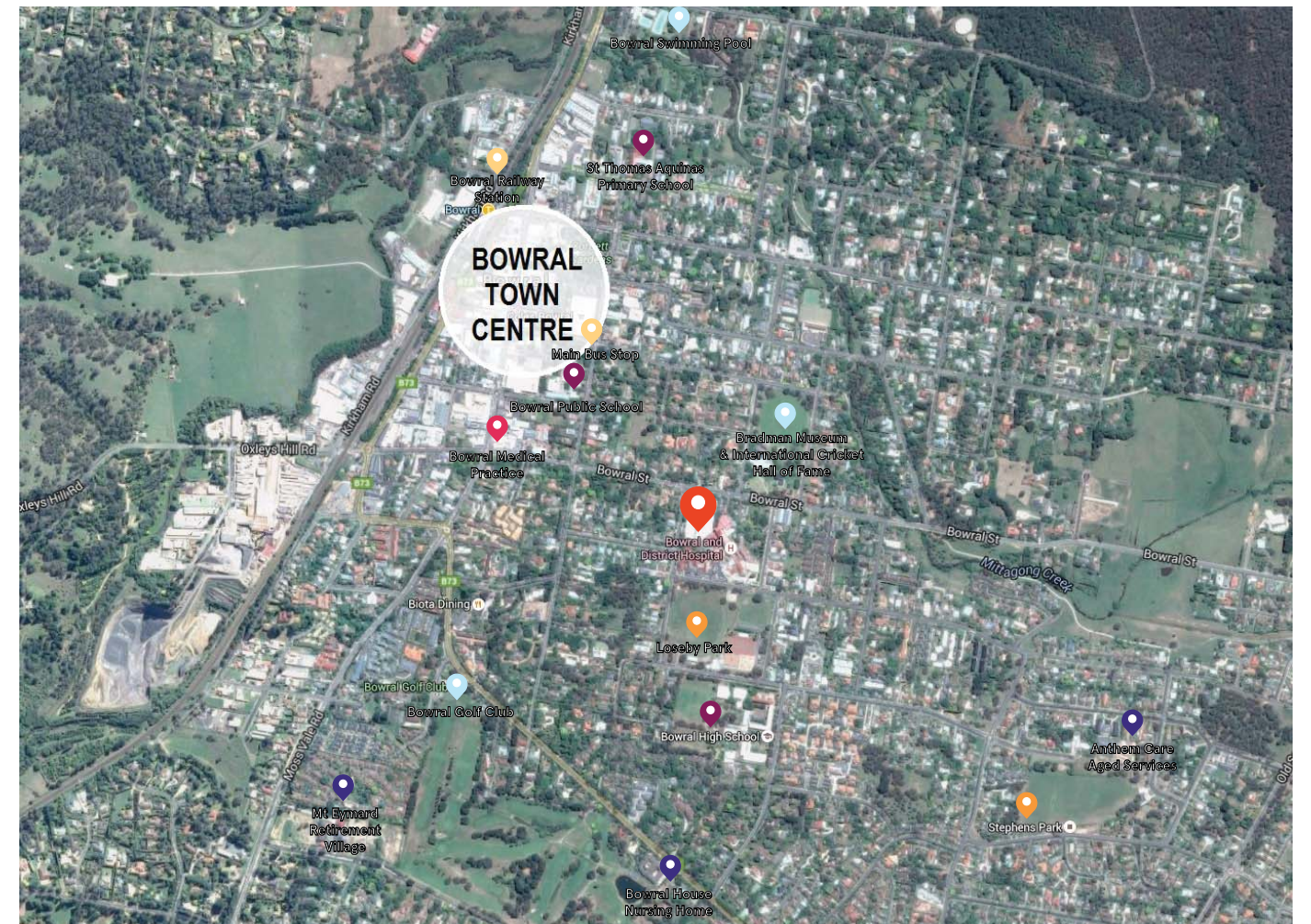
1. Adult Inpatient Accommodation
2. Perioperative Suite
3. Close Observation Unit
4. Emergency Department
5. Outpatient Services – Ambulatory Care
6. Pharmacy
7. Maternity and Children's Services
8. Clinical Support
9. Non-Clinical Support
10. Medical Records



## 04 4.1 Location



Bowral & Surrounding Suburbs



Bowral Town Centre & Significant Places of Interest

### Location

Bowral and District Hospital is located in the Wingecarribee Government Area, in the Southern Highlands of NSW. Campbelltown Hospital is the closest referring hospital and is located approximately 45 minutes drive to the north. The campus boundary is clearly delineated by Bowral Street, Mona Road, Ascot Road and Sheffield Street.

The hospital campus is flanked by Bradman Museum and Glebe Park to the north and Loseby Park to the south. The campus benefits from a hilly outlook, with Mount Gibraltar featuring significantly to the north. Southern Highlands Private Hospital is located in the north western quadrant of the site, with a main entry off Bowral Street and a secondary entry off Sheffield Street.



## 04 4.2 Existing Site Plan

The current site plan can be divided into eight approximate zones.

The hospital gardens, which have high social and historical value to the community, feature significantly in the north east corner of the site. The Administration Building presides over the garden and is an identifiable 'face' to the hospital.

The Old Hospital and associated buildings form a cluster of heritage buildings in the south west corner. These are accessed by a driveway and turning circle off Sheffield Road.

Southern Highlands Private Hospital occupies the north west corner, over two floor levels. There is a main entry on Bowral Street and a secondary entry off Sheffield Street. An enclosed walkway and ramp provides a link between the private hospital, a privately operated medical imaging centre, and the public hospital emergency department.

The bulk of the acute and ambulatory services are provided around the centre of the site, in the Milton Park Wing and Watsons Building.

The inboard location of these buildings has given rise to multiple entry points and disorienting wayfinding.

The Back of House services are located in a conglomerate of buildings at the south east corner of the site. These departments, as well as the Mortuary, are serviced by a dedicated driveway from Ascot Road.

There are large zones of parking at the north and south ends of the site. The north carpark is used by the patients and visitors to the public hospital, whilst the south carpark is mostly used by staff. The private hospital also has a number of parking spaces at both entries.

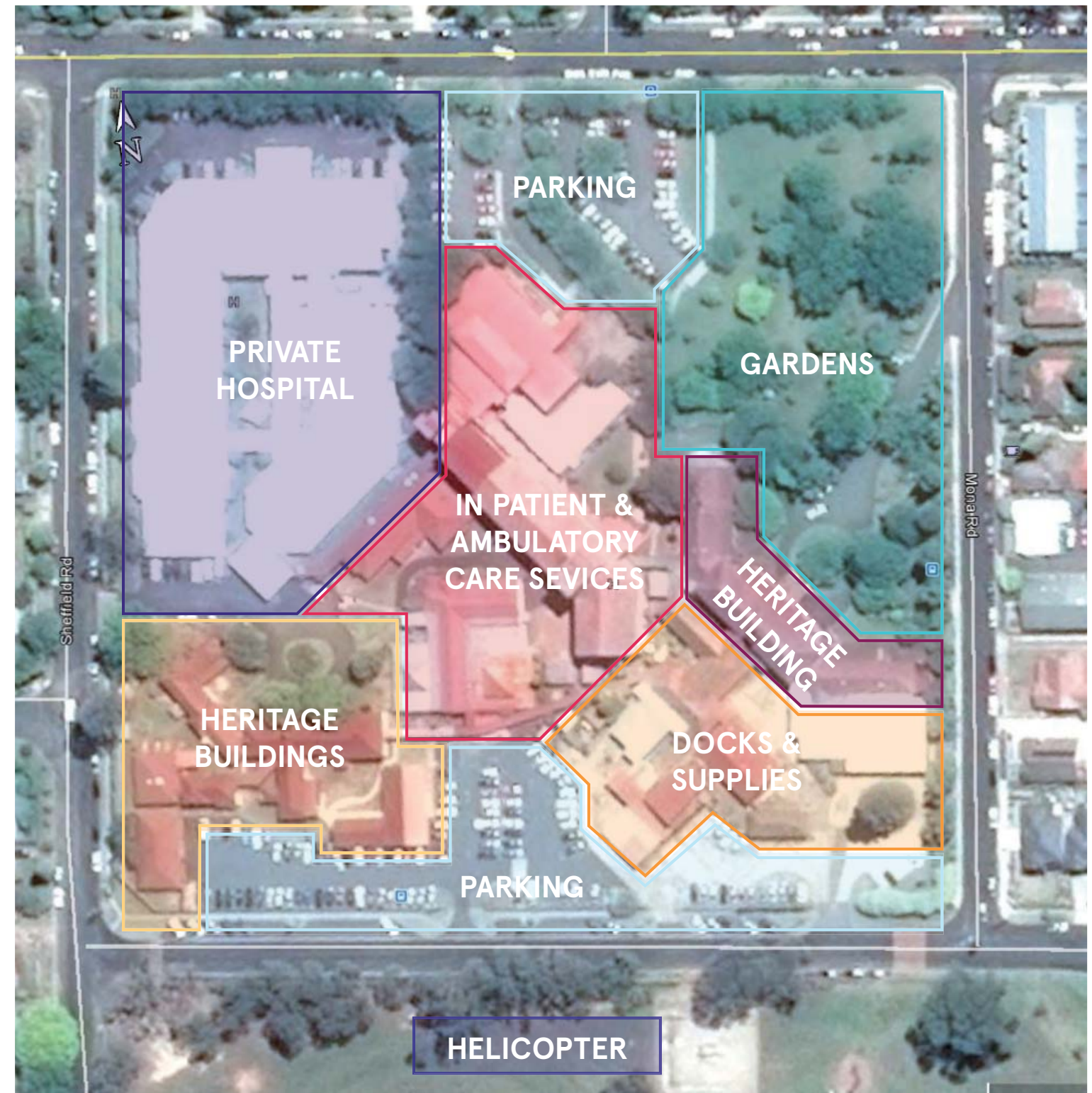
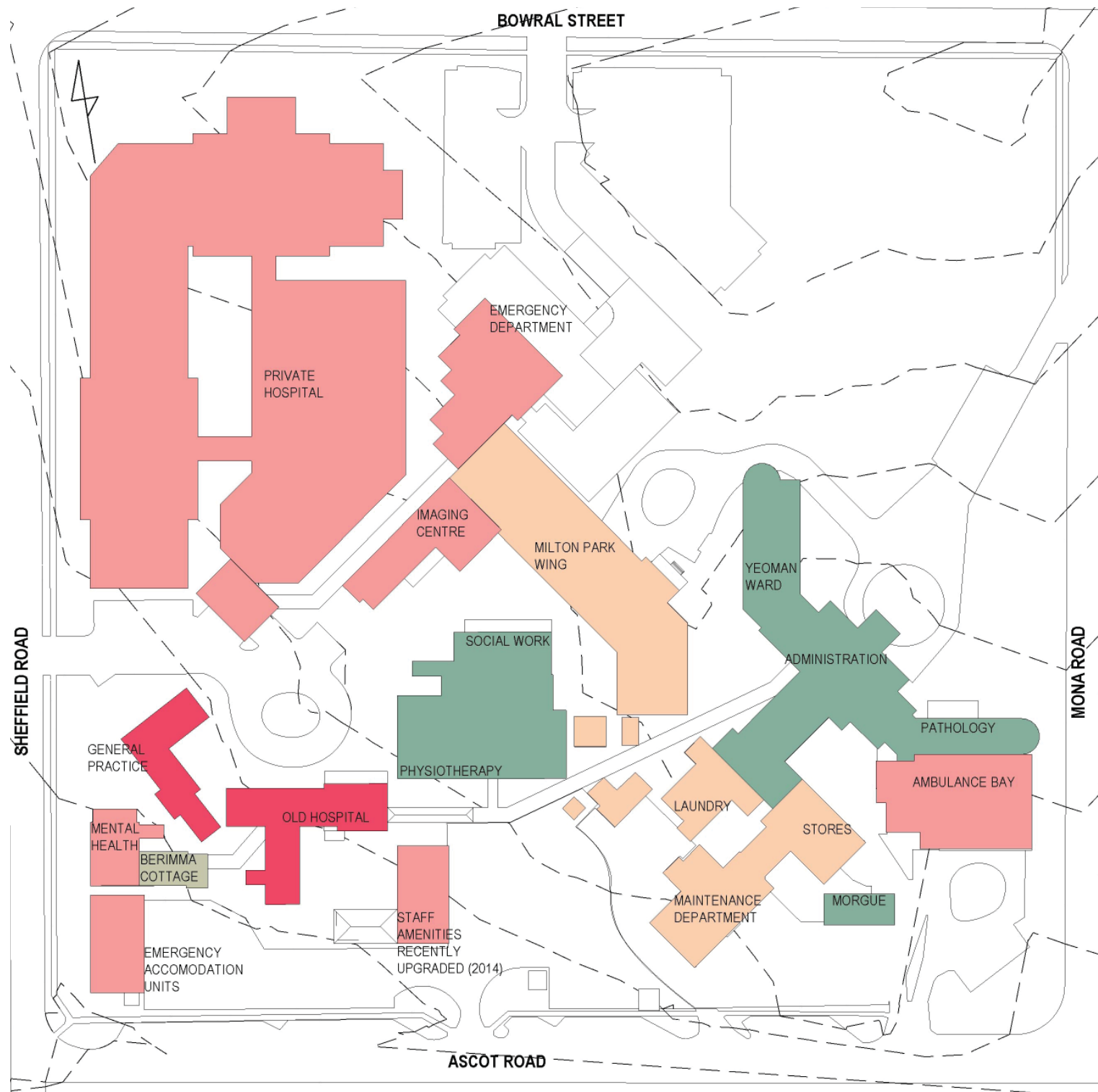


Figure 4.1.3 Hospital Zoning



## 04 4.3 Existing Building Study



### Existing Building Study

The original hospital buildings were constructed in the south west corner of the site and are oriented to the north and north-east.

Milton Park Wing and the Administration Building are the most prominent buildings on site, with heights of 3 storeys and 2 storeys respectively.

Many of the older buildings have undergone alteration or extensions over the course of their lives.

### Building Age Study

- 1889 - 1902
- 1910 - 1920
- 1928 - 1935
- 1985 - 1996
- 1960 - 1980

## 04 4.4 Town Planning Parameters

### Title & Ownership

BDH is located in the Southern Highlands, which is approximately 2 hours southwest of Sydney. The campus occupies a large site of 8 acres, on the eastern side of the town of Bowral and is bound by residential and recreational areas. The site is bounded by Bowral Road to the north, Mona Road to the east, Ascot Road to the south and Sheffield Road to the west.

The site is approximately 32,485m<sup>2</sup> (8 acres) excluding the area of the private hospital and is a fairly regular rectangular shape.

### Site Lots

The main part of the hospital is on LOT 4 DP858938.

The northern corner of the campus was also sub divided and a long term ground lease till 2056 to Southern Highlands Private Hospital (LOT 3 DP858938). Whilst a collocated service, the ambulance station does not form part of the hospital service proper.

## 4.5 Site Survey & Topography

The site has a 7.5m fall from the south west corner, where the Old Hospital is located, to the north east corner, where the hospital gardens are located. The fall is distributed fairly evenly across the site.

The hospital grounds contain approximately 150 trees, ranging in maturity, size and species. Most of the soft landscaping is concentrated to the north east corner of the site. An existing meandering driveway and turning circle is contained within this landscape.

The southern end of the site is largely unformed hard landscaping and contains an assortment of buildings, plant areas and carparking.

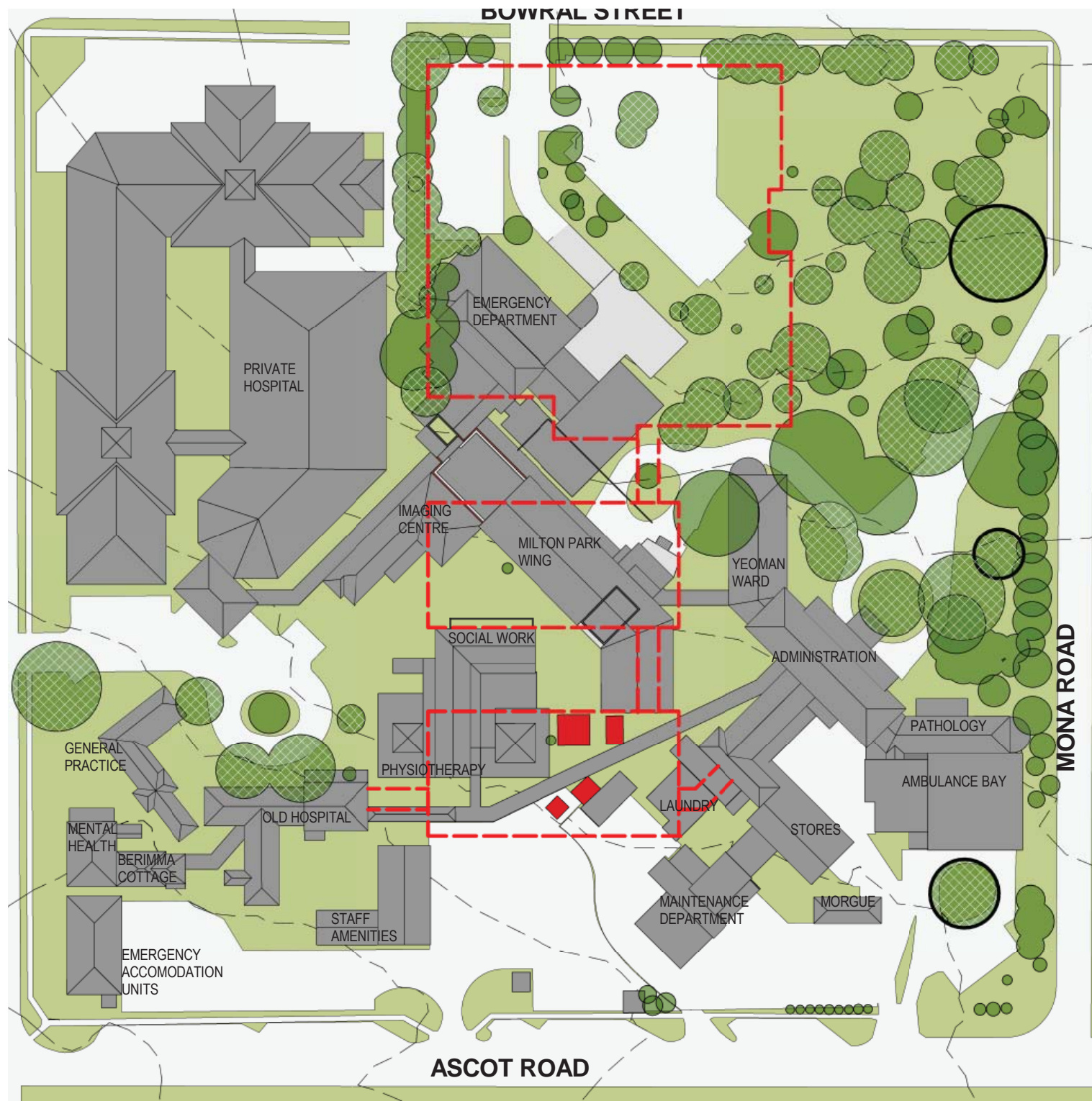
The spaces between buildings is composed of a mixture of enclosed and covered ramps as well as grassed and planted areas.

The hospital grounds and context can be described as having a leafy, picturesque quality. The site contains, and is surrounded by, some large mature trees.

A surveyor has been engaged to undertake a detailed and topographical survey of the site and will inform the planning and design.



## 04 4.6 Environment



### Arborist Tree Assessment

A Tree Assessment was carried out by Naturally Trees to identify trees of high quality. Three trees located along Mona Road have been identified as of extreme high significance. The bulk of the remaining trees of high significance are located in the north east pocket of the site as well as along the eastern boundary of the private hospital.

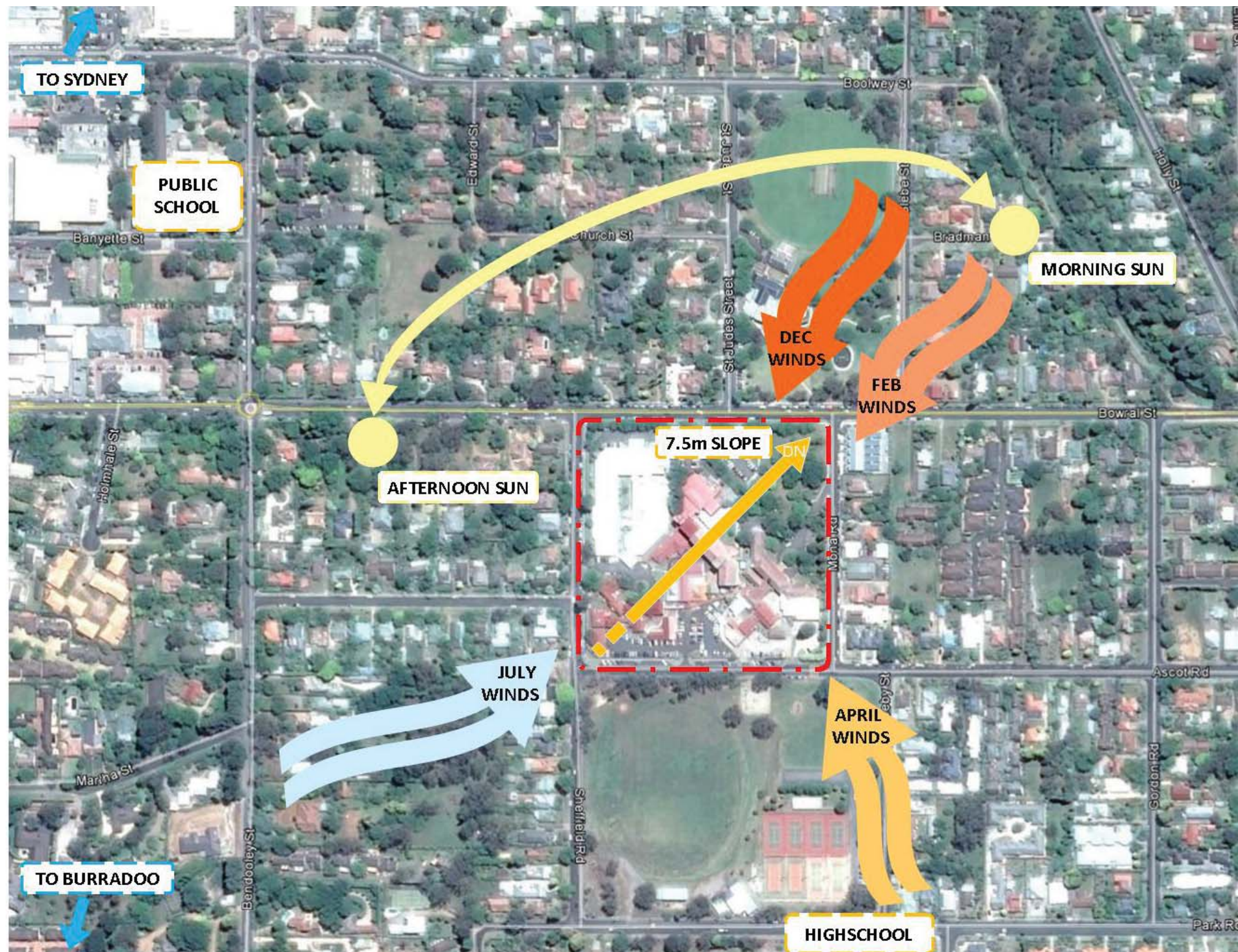
The Masterplan has been developed to largely preserve these two areas of landscape. Some removal of trees will be unavoidable and could be ameliorated by replanting in the courtyards formed by the new buildings.

### Arborist Study

-  Trees of High Value
-  Trees of Moderate Value
-  Trees of Low Value
-  Proposed Development Footprint
-  Proposed Expansion Area Footprint



## 04 4.7 Climate, Sun & Wind Orientation



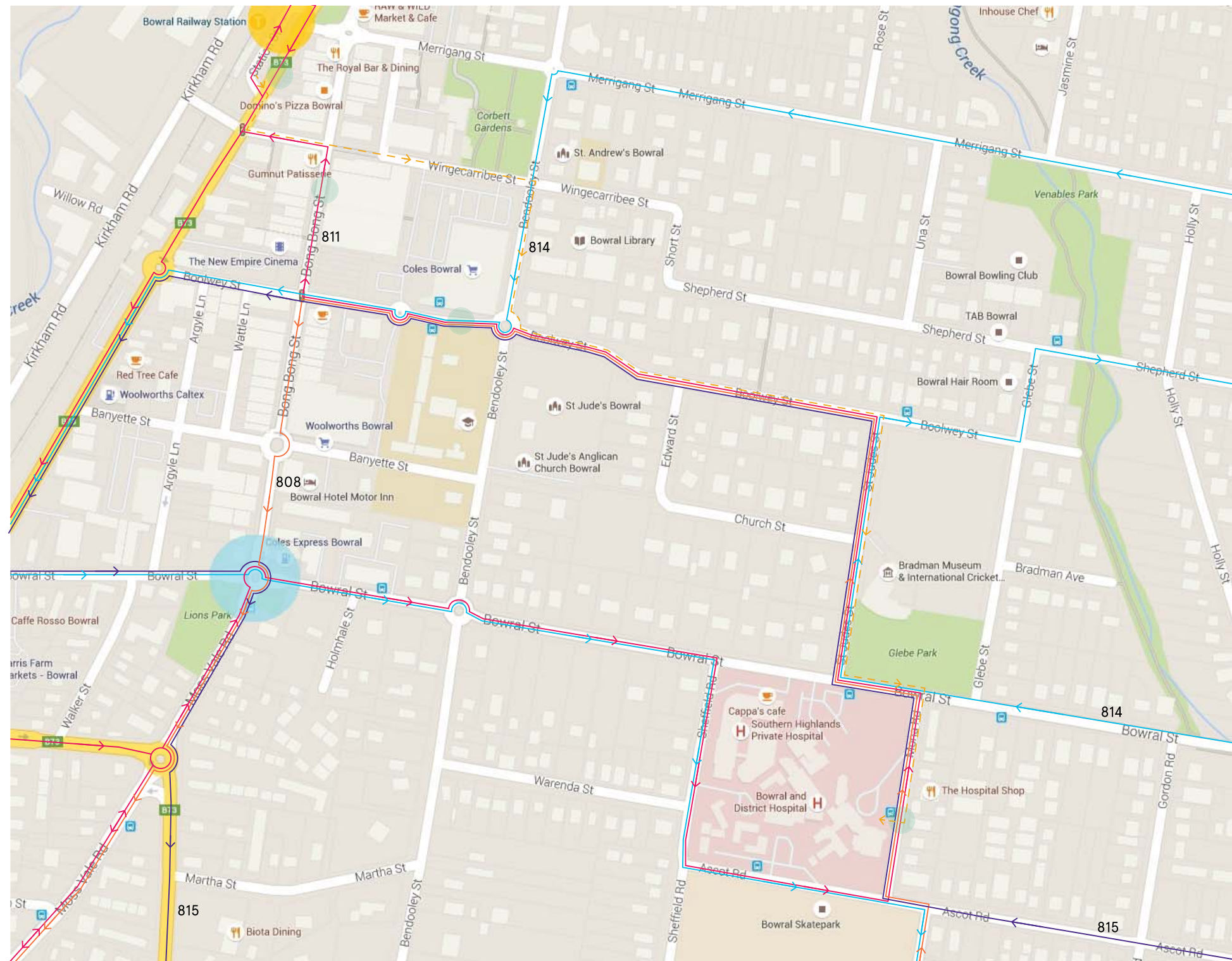
There is a 7.5 metre fall from the south west corner to the north east corner of the site. The larger buildings, Milton Park Wing and Administration Building, are favourably oriented to the north east and benefit from the garden outlook.

Bowral enjoys warm summers and cool to cold winters. The mean temperature ranges from 2.1°C to 11.6°C in Winter and from 13.4°C to 25.5°C in Summer.

The mean rainfall ranges from 45.3mm to 98.4mm. Peak rainfall occurs in February, March and November.



## 04 4.8 Site Access



Bowral Transport Links

### Access

The hospital is easily accessed by road and is well serviced by public transport. There is on-site car parking at the northern and southern ends of the site. There is an opportunity to re configure and formalise the southern parking zone to increase the number of parking spaces. Adjoining streets currently allow a mixture of unmetered 2 hour and unlimited parking.

There are five bus routes servicing the hospital with bus stops located around the site boundary, with Bowral Street and Mona Road being the most intensely serviced streets. There are multiple pedestrian entry points and pathways available.

The site currently has road access from all four boundary streets. Ascot Road is for logistics. The private hospital utilises its Bowral Street entry for logistics.

Ambulance access to the Emergency Department is currently via a shared, inclined road. The width of the current road poses some accessibility issues, as there is no formal short term parking for patients. An Ambulance Station is located at the eastern wing of the Administration Building, with road access via Ascot Road.

The hospital currently utilises Loseby Park Oval for helicopter transfers to other hospitals.

### Transport Links

- Line 808 Bus Route
- Line 811 Bus Route
- Line 814 Bus Route
- Line 815 Bus Route
- Walking Route (19 min)
- Bowral Railway Station
- Taxi Rank
- Major Intersection

## 04 4.9 Service Providers on the Site

Existing service provision agreements are currently in place between B&DH and Souther Highlands Private Hospital (SHPH) and third party operators for Pathology and Medical Imaging services.

SHPH is located on the north west corner of the site. There is main entrance off Bowral Street and a secondary entrance off Sheffield St. The private hospital has inpatient accommodation as well as an operating suite and CSSD.

A Medical Imaging unit, located in a standalone building within the public hospital grounds, is privately operated and provides radiological imaging services, including X-ray, ultrasound and computed tomography (CT). This service is used by both the public and private hospital as well as outpatients.

A privately operated Pathology Unit is located in the eastern wing of Administration Building.

## 4.10 Site Acquisition / Consolidation Requirements

Requirements for consolidation are not determined at this stage. Notably, the adjacent private hospital has an existing lease that will expire in 2056.



## 05 5.1 Existing Hospital Plan

### Existing Hospital Plan

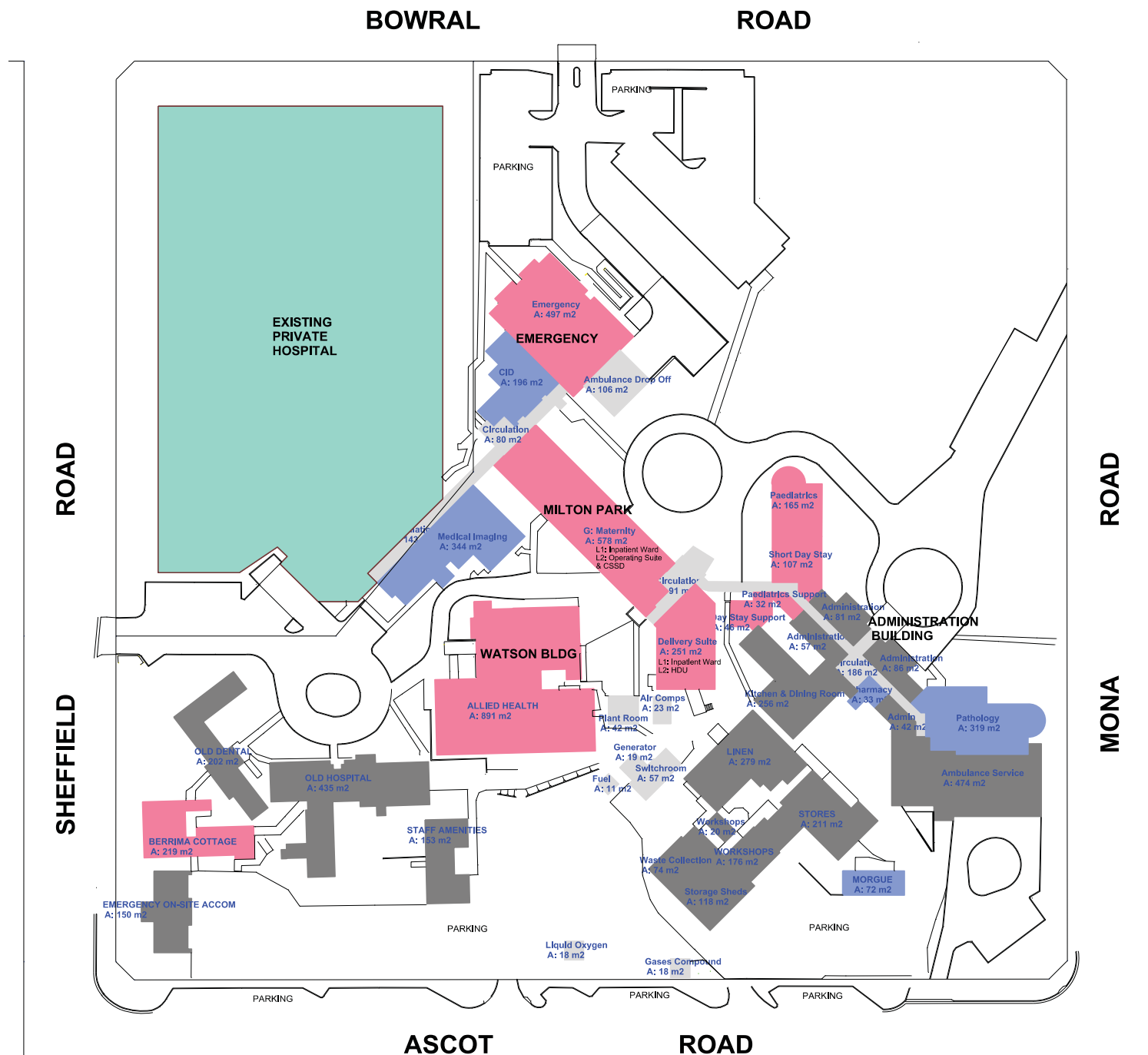
The majority of clinical services are concentrated around the centre of the site; with non-clinical functions mostly occupying the Original Hospital and Administration Building.

Numerous covered ramps have been constructed to provide link-ages behind the building.

The department areas shown in this drawing were provided as part of the existing documentation. A detailed building measure and audit is yet to be carried out.

### Hospital Plan

- Patient Care Area
- Clinical Support Area
- Non Clinical Support Area
- Travel & Engineering
- Private Hospital



## 05 5.2 Existing Schedule of Accommodation

The areas provided in this Schedule of Accommodation are based on site observations and extrapolations from available documentation. A survey is currently being completed and will be used to inform planning moving forward.

Gross Area m <sup>2</sup>	
<b>Emergency Building</b>	
Emergency Department	497
Short Stay Unit	196
<i>Subtotal</i>	693

<b>Milton Park Wing</b>	
Main entry	40
Maternity IPU	578
Delivery Suite	251
Adult Inpatient Unit	860
Operating Suite	578
High Dependency Unit	251
<i>Subtotal</i>	2558

<b>Administration Building</b>	
Paediatric IPU	165
Paediatric Short Stay	107
Paediatric Support	32
Paediatric Short Stay Support	46
Administration	630
Pathology	319
Pharmacy	33
<i>Subtotal</i>	1332

<b>Extensions to Administration Building</b>	
Ambulance Service	474
Kitchen & Dining Room	256
Linen	279
Stores	211
Workshops	196
Waste Collection	74
Storage Sheds	118
<i>Subtotal</i>	1608

<b>Morgue</b>	72
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<b>Medical Imaging</b>	344
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<b>Medical Records</b>	350
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<b>Watson Building</b>	
Cardiac Investigations & Allied Health	891

<b>Old Hospital</b>	
Administration	435

<b>University of Wollongong Building</b>	
GP Clinics	202

<b>Berrima Cottage</b>	
Mental Health Unit	219

<b>Emergency On-site Accommodation</b>	150
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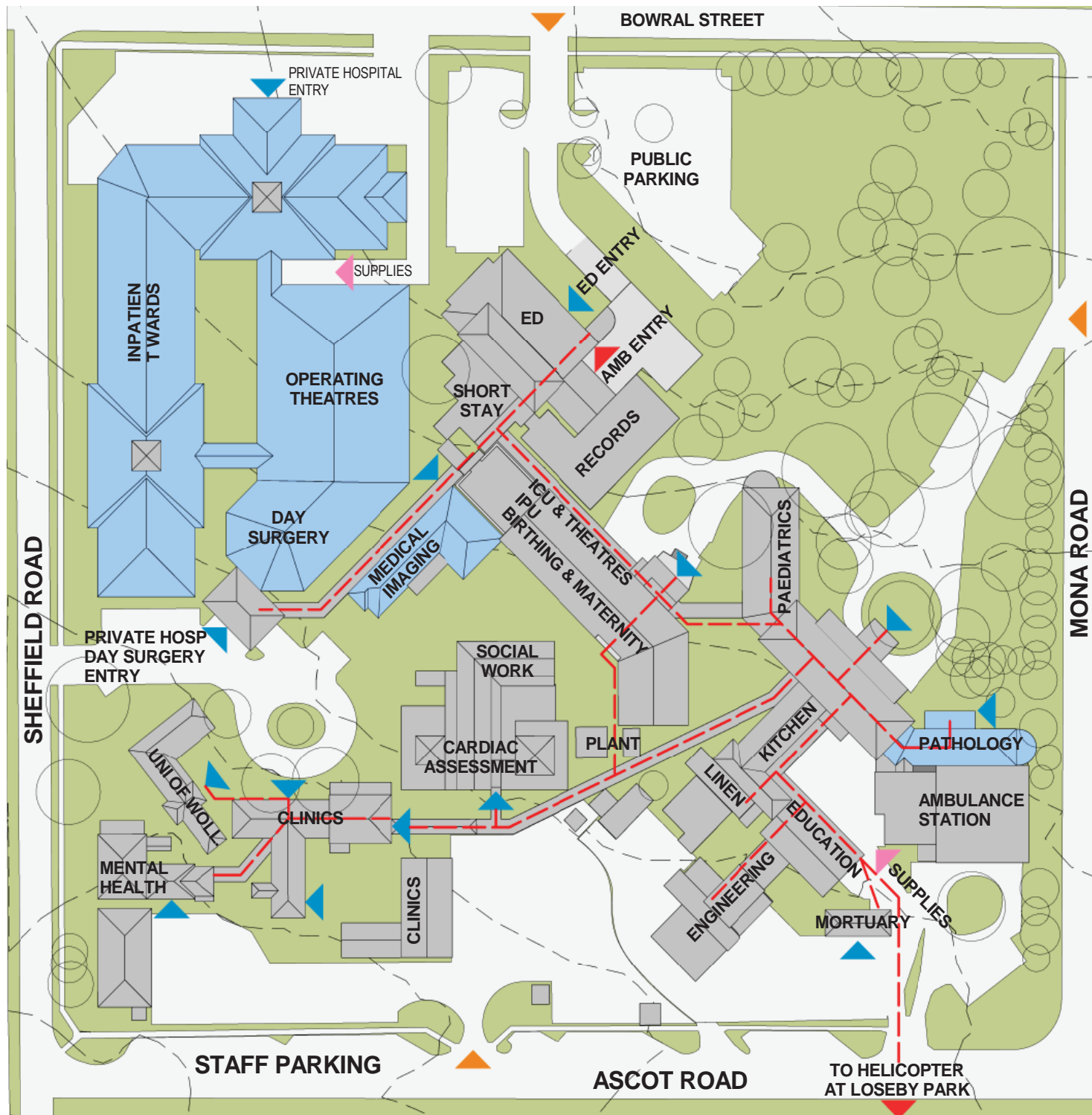
<b>Staff Amenities</b>	153
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<b>TOTAL GROSS INTERNAL AREA</b>	<b>9007</b>
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<b>Site Services (various enclosures)</b>	
Plant Room	42
Air Comps	23
Generator	19
Switchroom	57
Fuel	11
Liquid Oxygen	18
Gases Compound	18
<b>TOTAL ENGINEERING</b>	<b>188</b>

<b>Approximate Gross Area of Carparking</b>	
Ambulance Canopy (external)	106
Emergency Dept Short Term	75
Main Visitor Carpark	1740
In Hospital Garden	70
Near Old Hospital	170
Unformed south carpark	4300
<b>TOTAL CARPARKING</b>	<b>6461</b>

## 05 5.3 Existing Functional Relationships



### Existing Functional Relationships

Without a clear masterplan, the hospital has sprawled haphazardly across the site. There are various floor levels on site, with numerous ramps and raised walkways connecting the buildings. Notably, there doesn't seem to be a distinct main entry point to the hospital.

Most patients and visitors reportedly go directly to the required service once they are acquainted with the campus. For first time visitors, the Milton Park Wing lobby and Administration Building lobby are the most apparent points of entry.

The key issues that impact on the delivery of clinical services at Bowral Hospital are:

- The sprawl and disconnected nature of clinical services across the site.
- The ageing nature of buildings and service infrastructure.
- The size constraint and inflexibility of existing buildings.
- Unclear wayfinding undermines patient confidence in the hospital.

### Existing Hospital Plan

- Privately Operated Services
- ▲ Public Entrances
- ▲ Bus Stop
- ▲ Ambulance Entry
- ▲ Supplies & Deliveries
- Connections
- Service Plant Areas

## 05 5.4 Existing Functional Assessment: Functional Suitability

### Adult Inpatient Accommodation

A 40 bed inpatient ward is located on Level 1 of the Milton Park Wing. The building is of load bearing masonry construction with ageing service infrastructure. The following issues negatively impact on the clinical function of the ward:

- Long ward layout and lack of internal windows to bedrooms means that staff observation of patients is difficult.
- Oversight of ward from a Staff Station is not possible within the existing building fabric. Staff are required to walk long distances to observe patients individually.
- Bedrooms are under the AHFG guideline areas. Substation structural rework would be required to achieve AHFG guideline room areas.
- The bedrooms do not have ensuites. Patients are required to walk long distances to shared bathroom facilities.

### Emergency Department

The Emergency Department is located in a standalone building near Bowral Street. Though relatively new, some key deficiencies have been identified through user group consultation.

- The Emergency Department is raised above the natural ground level. Patient access via stairs or ramp is problematic.
- Ambulance access and public vehicular access is via a narrow raised road, posing congestion issues.
- The patient reception area does not provide for the “triage first” principle of emergency management.
- A ‘hub’ model with the Close Observation Unit is not possible within the building footprint.
- Linkage to the Operating Suite, Adult Inpatient and Paediatric Inpatient Accommodation is via an outdoor covered walkway.

### Operating Suite

The hospital currently operates 2 Operating Rooms and a CSSD. It is located on Level 2 of Milton Park Wing. The load bearing masonry construction, combined with dated service infrastructure would pose acute challenges to updating the unit to contemporary standards.

- At 28m<sup>2</sup> the Operating Rooms are severely below AHFG guideline areas.
- The Operating Rooms are not equipped to meet contemporary standards. For example, there is insufficient space for medical services pendants to be installed.
- The current configuration means that there is a cross-over of clean and dirty flow.
- There aren't any Operating Rooms setup for specialist activity, such as endoscopy.
- There is no room for expansion to meet the projected activity.

### Close Observation Unit

A Close Observation Unit (COB) is located in a refurbished part of Level 2 of the Milton Park Wing.

- The isolation of the unit means that there is restricted medical cover for the HDU. Patients are admitted under a Visiting Medical Officer and after-hours a Physician on-call roster provides an on-call service for emergencies and deteriorating/unstable patients. The Career Medical Officers (CMO) staffing the ED are also available for emergency assistance.
- The current configuration, and the limitations of an existing building fabric, does not allow further expansion to meet projected activity.
- Patient and workflow issues arise from the distance between the Emergency Department and key liaison departments, such as Pathology.



## 05 5.4 Existing Functional Assessment: Functional Suitability continued

### **Ambulatory Care**

Outpatient services are delivered in various buildings on site. Some General Practice clinics are located in the Old Hospital, whilst Allied Health Services are located in the Watsons Building.

- Wayfinding and access to the various buildings is difficult. Ramps, alternate entrances and ad hoc signage have been installed to partly ameliorate this issue.
- Its disconnection from the 'main hospital' and administration areas means that staff have to traverse long distances.

### **Clinical Support**

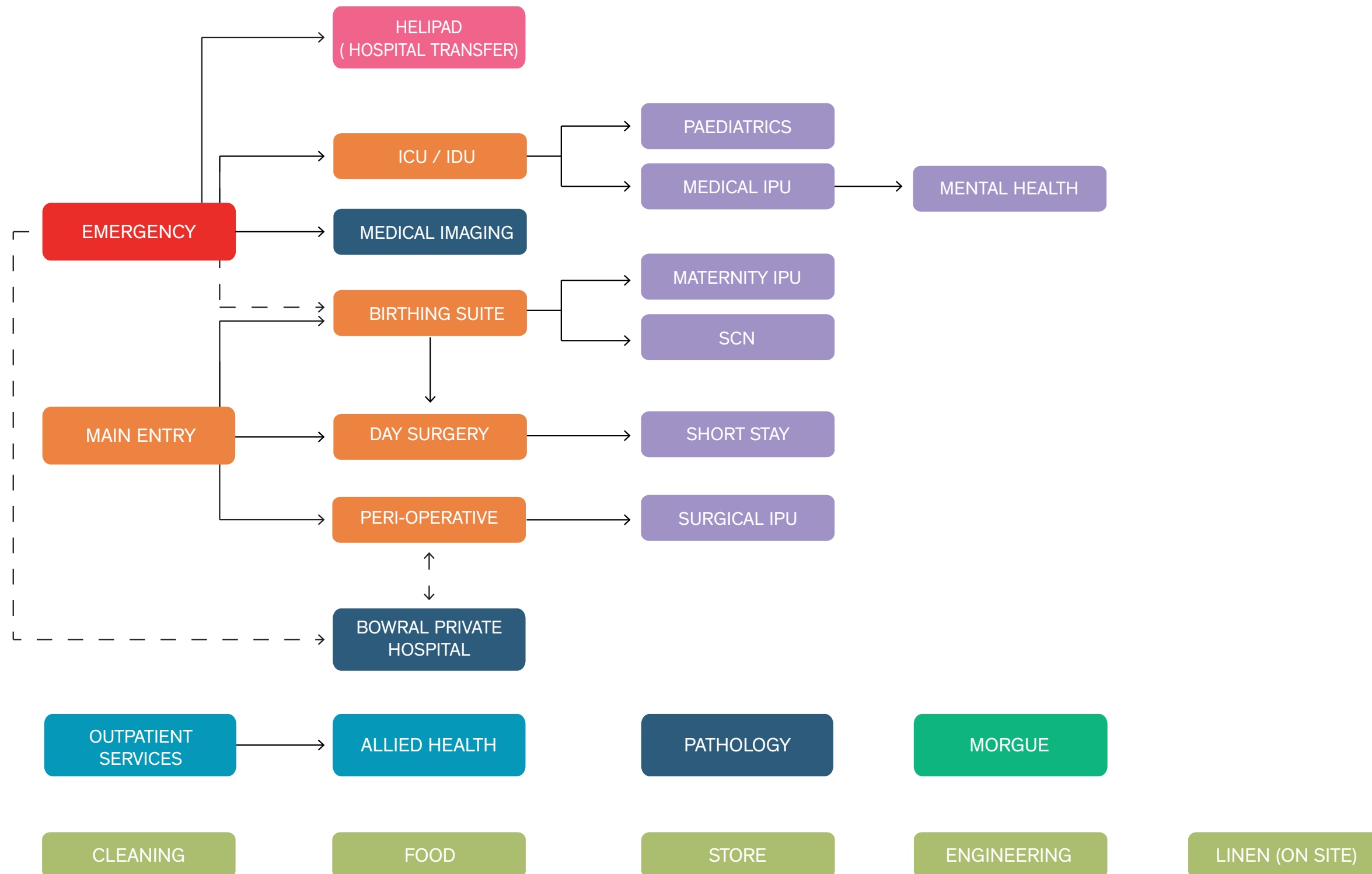
The Clinical Support areas are clustered around the back of the Administration Building and are well served by Ascot Road. It is expected that these will remain in the current location in the short to medium term. There would be an opportunity, and a logical imperative, to include these in future redevelopments so that they are closer and more connected to a new hospital building.

### **Non Clinical Support**

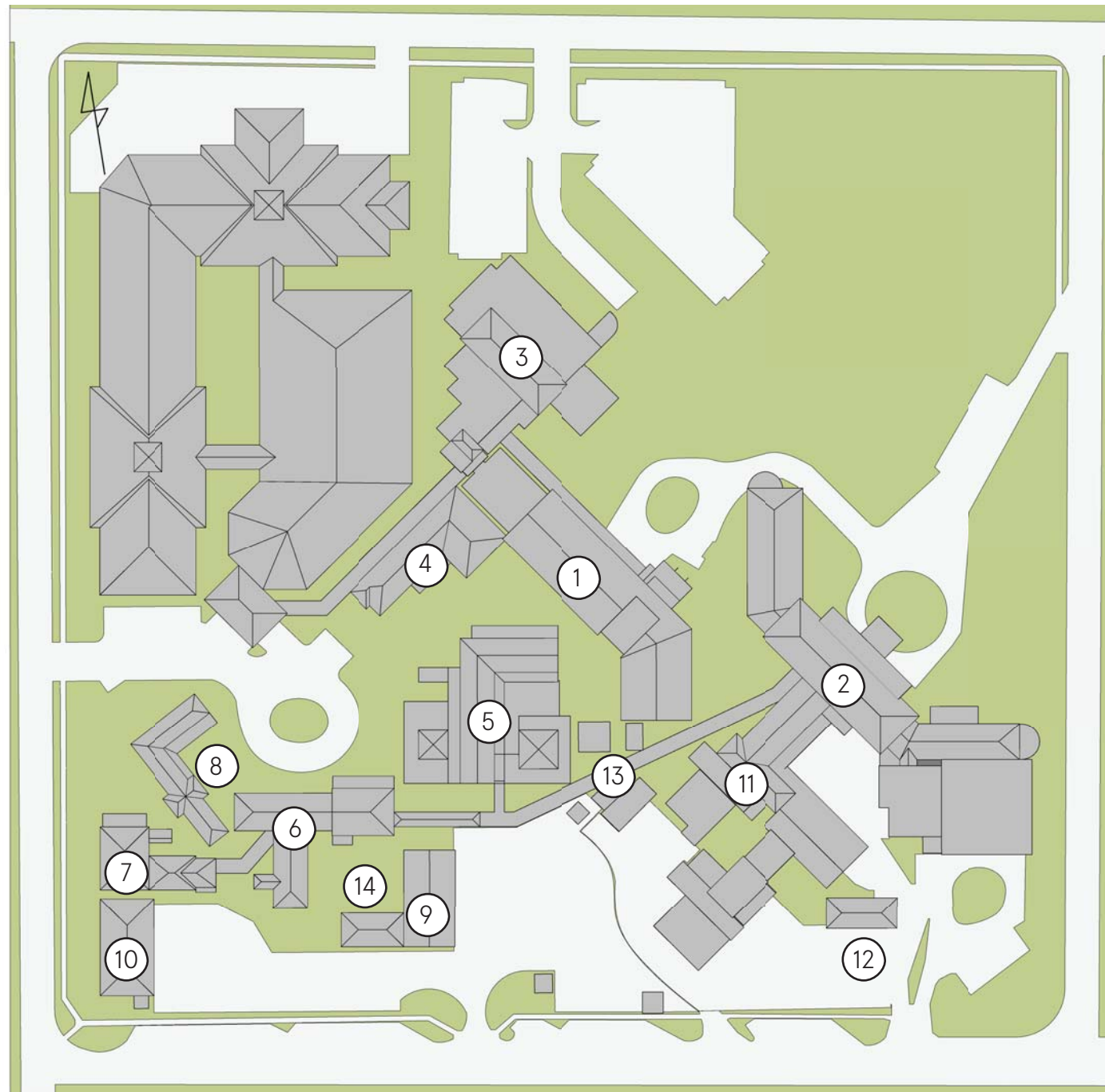
The bulk of administration activity is concentrated within the Administration Building. The Administration Building is also home to an assortment of services, including the Paediatric Ward, Pathology Unit, Clinical Support and Ambulance Station.

Given the prominence and public nature of the Administration Building, it would be more suitable to relocate administration to another part of the site so that the building could be used for more public functions. The masterplan identifies an opportunity to repurpose the Administration Building for Ambulatory Care activity, given its location to the main public interface.

## 05 5.3 Existing Functional Relationships



## 06 6.1 Architectural Assessment of Existing Buildings



MSJ undertook an audit of the existing buildings to ascertain their suitability for reuse. Further commentary on the building services is detailed in the Service Engineer Masterplan Reports.

- 1 Milton Park Wing
- 2 Administration Building
- 3 Emergency Department Building
- 4 Medical Imaging Building
- 5 Watson Building
- 6 Old Hospital (Former Berrima District Cottage Hospital)
- 7 Berrima Cottage
- 8 University of Wollongong Building (Former Nurses' Quarters)
- 9 Staff Amenities Building
- 10 Emergency Accommodation Units
- 11 Laundry, Kitchen, Stores & Maintenance Buildings
- 12 Mortuary
- 13 Plant Room, Air Comps, Generator, Fuel & Switchroom
- 14 Staff Commemorative Garden



## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Milton Park Wing

Total Area: Approx. 2760m<sup>2</sup>

Built: 1960m Modified in 1994.

Existing Use: Clinical

#### Description:

Three storey face Post-War Functionalist styled brick building with load bearing walls. It is oriented to the north east, presumably to address the hospital gardens and to take advantage of natural light. There is a veranda on the ground floor and a steel framed and glassed atrium over the entry and circulation stairs. The floorplan on each level generally consists of a central corridor with rooms on either side. There is a generous amount and distribution of external windows.

Ground Floor: Maternity IPU, Delivery Suite

Level 1: Adult Inpatient Unit

Level 2: Operating Suite, CSSD, HDU

Significance: Low heritage significance.

#### Considerations for refurbishment:

- The load bearing masonry construction would require substantial structural work to open up the floor space.
- The current lift sizes pose challenges for safe bed movement.
- Ageing service infrastructure may need to be replaced. Limited floor-to-ceiling height could pose challenges.

#### Recommendation:

- Opportunity to repurpose for administrative use given the existing floorplate of small rooms and the availability of windows.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Administration Building

Total Area: Approx 2100m<sup>2</sup>

Built: 1935. Modified in 1983.

Existing use: Clinical, Administration & Clinical Support

#### Description:

Two storey winged masonry building in a classical style. There is an entry portico and a driveway and turning circle leading to it. The building was oriented to address the hospital gardens and is an identifiable 'face' of Bowral Hospital. Parts of the interior has been refurbished for various clinical and clinical support uses. There is a generous amount and distribution of external windows.

Ground floor west wing: Paediatric Unit

Ground floor central section and level 1: Administration

Ground floor east wing: Pathology, Ambulance Station

Heritage Significance: High aesthetic value and social significance.

#### Considerations for refurbishment:

- Load bearing internal walls would require structural work to reconfigure.
- Given its aesthetic value, any refurbishment work would need to be sensitive and respectful of the classical architecture.

#### Recommendation:

- Opportunity to adapt for a public use given its prominence in the hospital garden.
- Opportunity to adapt for outpatient clinics given the existing layout of medium sized rooms.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Emergency Department Building

Total Area: 690m<sup>2</sup>

Built: 1996

Existing use: Clinical

#### Description:

Single storey face brick building with corrugated steel hipped roof. The floor level is raised above the natural ground level, presumably to provide a level connection to Milton Park Wing. A raised road, ramp and stair provide access to the building. A covered ambulance bay is located to the east.

Heritage Significance: No heritage significance. Low aesthetic value.

#### Considerations for refurbishment:

- Internal layout can be easily changed as the internal walls are not load bearing.
- Access to the building is currently problematic and should be addressed in a refurbishment.
- Building appears to be in good condition.

#### Recommendation:

- Could continue as current use.
- Expansion space could be provided by relocating Short Stay Beds to another building.
- Consideration of access to building and connections to any new development would be of priority.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Medical Records

Total Area: 350m<sup>2</sup>

Built: Unknown

Existing use: Storage of medical records

Description: Raised temporary shed.

Heritage Significance: No heritage significance. Low aesthetic value.

#### Recommendation:

- Could continue as current use.
- Demolition in the event of development of new medical records.



## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Medical Imaging Building

Total area: 344m<sup>2</sup>

Built: 1996

Existing use: Clinical – radiological imaging

#### Description:

Single storey face brick building. Access is off an internal walkway. The building is nestled between buildings and does not have a visible entry from the outside. It has indoor connections to the Emergency Department and the private hospital.

Heritage significance: No heritage significance.

#### Considerations for refurbishment:

- Building appears to be in good condition.
- Small footprint and landlocked location poses expansion challenges.
- Jagged building outline could pose difficulties in achieving an efficient layout if it were to be repurposed

#### Recommendation:

- Could continue as current use.
- Could be demolished to make way for new development if necessary.

#### Note:

Third party operator provides this service. Investigation of the lease agreement and B&DH's obligations is required to be undertaken.

### Staff Amenities Building

Total Area: 153m<sup>2</sup>

Built: 1985

Existing use: Staff Amenities

#### Description:

A utilitarian single storey brick building with high level windows.

Heritage significance: No heritage significance.

#### Considerations for refurbishment:

- Building appears to be in good condition.
- Given its small footprint and isolation, it is unlikely to be of much use for clinical or administrative use.

#### Recommendations:

- Continue current use.
- Can be demolished if required for additional carparking space.



## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Watson Building

Total Area: 891m<sup>2</sup>

Built: 1928. Modification in 1970, 1994.

Existing use: Clinical – Cardiac Assessment & Allied Health

#### Description:

Single storey face brick building with corrugated steel roof. The building has an address to the turning circle off Sheffield St. The building has some high level windows and a high ceiling, bringing natural light into the interiors. The floorplate offers some flexibility for reconfiguration as the majority of walls appear to be non-load bearing.

**Heritage significance:** No heritage significance. Moderate social significance, as building was funded through voluntary contributions.

#### Considerations for refurbishment:

- Assessment of structure, asbestos and other building condition required.

#### Recommendation:

- Continue current use.
- Given the large floorplate, relative flexibility of internal walls and quality of natural light, the building could be suitable for clinical function such as therapy gym or outpatient services.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Old Hospital (Former Berrima District Cottage Hospital)

Total Area: 435m<sup>2</sup>

Built: 1889. Additions in 1890, 1906, 1990.

Existing use: Administration & Outpatient Clinics

#### Description:

Single storey weatherboard building with verandah and corrugated steel hip roof. This was the original hospital building and is framed by mature magnolia trees. Foundation stone is located in the adjoining garden. The building currently houses meeting rooms and offices and outpatient clinics.

Heritage significance: High heritage significance.

#### Considerations for refurbishment:

- Assessment of structure, asbestos, damp and other building condition required.
- Extensive work is likely required to refurbish as the building appears to be in poor condition.
- Participation of a heritage consultant would be required to ensure a sensitive and respectful refurbishment.
- Original features evident in the interior.

#### Recommendation:

- Given the high heritage significance of the building, changes to the external fabric would not be recommended.
- Restoration of the exterior is recommended.
- A careful adaptation of the interior for administration use could be undertaken.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Berrima Cottage

Total Area: 219m<sup>2</sup>

Built: 1910-20

Existing Use: Mental Health Unit

#### Description:

Single storey brick cottage with corrugated steel roof.

Heritage significance: High heritage significance.

#### Considerations for refurbishment:

- Assessment of structure, asbestos, damp and other building condition required.
- Original features evident in the interior.

#### Recommendation:

- As there are no reported issues with the current function, the building could continue in its current use.
- Given the small footprint, and heritage value of the building, there is an opportunity to repurpose for staff education or administration function.
- A sensitive extension would be possible if the neighbouring Emergency Accommodation building were demolished.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Uni of Wollongong Building (Former Nurses' Quarters)

Total Area: 202m<sup>2</sup>

Built: 1902. Modified in 1911, 1983, 2003.

Existing Use: General Practice clinics

#### Description:

Single storey face brick building with corrugated steel roof. The building is oriented to the north east, directly facing the turning circle.

Heritage significance: High heritage significance.

#### Considerations for refurbishment:

- Assessment of structure, asbestos, damp and other building condition required.
- Original features evident in the interior.
- Building appears to be in poor condition. Extensive refurbishment would be required.

#### Recommendation:

- Refurbish for education or administrative use.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Emergency Accommodation Units

Total Area: 150m<sup>2</sup>

Built: 1988

Existing use: Staff accommodation

#### Description:

Utilitarian single storey brick building with terracotta tile roof. High level windows and garage roller shutter facing the carpark.

Heritage significance: No heritage significance.

#### Considerations for refurbishment:

- Building appears to be in good condition.

#### Recommendation:

- Continue current use.



## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Laundry, Kitchen, Stores & Maintenance Building

Total Area: 1134m<sup>2</sup>

Built: 1960s – 1970s

Existing use: Support & logistics

#### Description:

A series of utilitarian adjoining extensions to the Administration Building. They are connected by covered walkways. They form a courtyard for vehicular access. The buildings appear to have been built in an adhoc sequence without a clear circulation strategy.

Heritage significance: Low heritage significance.

#### Considerations for refurbishment:

- Given the specific functions for which they were built, the buildings are unlikely to be easily repurposed for other uses.

#### Recommendation:

- Continue current use in the short term.
- There is an opportunity to consolidate back-of-house functions into a new hospital building. Demolition of these buildings would be recommended in this scenario.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Mortuary

Total Area: 72m<sup>2</sup>

Built: 1932

Existing use: Mortuary

#### Description:

Small rectangular face brick building. The Gothic-esque styling has aesthetic value.

Heritage significance: Low heritage significance.

#### Considerations for refurbishment:

- Given its aesthetic nature, there is value in retaining the building fabric in the event that a new mortuary is constructed in/closer to the main hospital.

#### Recommendation:

- There is an opportunity to repurpose the building as a chapel or spiritual place. It's location affords direct vehicular access to Ascot Road.





## 06 6.1 Architectural Assessment of Existing Buildings Continued

### Plant Room, Air Comps, Generator, Fuel, Switchroom.

Total Area: m2  
Built: Unknown  
Existing use: Plant

#### Description:

Various small buildings and enclosures housing plant equipment. Assessments and recommendations are detailed in the Service Engineer Masterplan Reports.

Heritage significance: No heritage significance.



### Staff Commemorative Garden

Total Area: Approx 50m2  
Built: Unknown  
Existing use: Garden

#### Description:

Located between the Old Hospital and Staff Amenities building, the garden was built by staff to commemorate a hospital anniversary.

Heritage significance: Low heritage significance. High social significance to the hospital staff.

#### Considerations for refurbishment:

- Garden is composed of commemorative stones, artwork and planting.
- A relocation brief would be required to relocate the garden.

#### Recommendation:

- Continue current use.
- If required, the garden could be relocated to a more prominent location, with the approval and consultation of hospital staff.



## 06 6.2 Heritage Assessment

Weir Phillips Heritage were engaged to provide a heritage assessment of the site and the proposed masterplan. Though Bowral and District Hospital does not have any formal heritage listing, parts of the site have been identified as having historical or social significance.

The hospital is located in the vicinity of the Bowral Conservation Area and is home to an award-winning landscaped parkland and a cluster of original cottage style hospital buildings.

The masterplan aims to:

- Preserve and enhance a large section of the historically and socially significant landscape.
- Designate development zones to have the least impact on the cluster of original hospital buildings.
- Propose a scale and setback that meets the clinical requirements of the hospital whilst balancing the impact on the streetscape.

Weir Phillips reviewed the proposed masterplan and concluded that:

“the current option for the construction of new facilities on vacant land adjacent to Bowral Street has the least possible impact on parts of the existing hospital that may have heritage significance. The lack of formal listing does not mean that heritage issues can be ignored. There is also an obligation to minimise impact on the heritage items and the conservation area in the vicinity of the site. Careful use of landscaping can mitigate any impacts in the vicinity of the hospital site. Other constraints should not hinder the design of an efficient new hospital building.”

Weir Phillips Heritage’s full report is appended.



## 06 6.3 BCA Assessment

**Blackett Maquire + Goldsmith (BMG) were engaged to provide a high level BCA review of the proposed masterplan.**

Storeys: New build of 4 storeys

Class: 9a

Construction: Type A

The key issues identified by BMG were:

1. The new-build will consist of a three (3) storey patient care facility. Possible 4 storeys. The building (in isolation) will be Class 9a and Type A Construction.
2. It is understood the new build facility will be primarily free standing with minimal integration into the adjoining stock. It is important that we maintain appropriate fire separation where the new-v-existing buildings physically connect (i.e. link ways, roof voids, etc), to mitigate the need to upgrade the existing buildings in relation to fire & life safety and accessibility.
3. The new-build should be located not less than 6m to the adjoining existing buildings. If located less than 6m we need to start protecting openings (doors & windows) which can complicate matters with respect to drencher systems etc. If the buildings are within 6m then we will look at the most cost-effective fire separation compliance options.

All effort will be applied to remove the need to apply any retrospective fire rating up grade to existing facades of adjoining buildings if the new-build is to be located less than 6m.

4. Egress systems will use horizontal exits within the buildings as much as

possible, noting egress strategies in healthcare are primarily focused on containing the patients within the building rather than existing the building via fire isolated stairways. Fire (and smoke) walls will be determined when layouts have been developed.

5. The egress stairways within the building are required to be fire isolated and pressurised. Alternatively we can look to position the stairways to the external perimeter of the building and create 'external' stairs in lieu of fire isolated stairways. This will remove the need for pressurisation.
6. The new-build facility does not seem to offer much setback to permit discharge of fire isolated stairways (6m setback required between external egress discharge paths and the façade of the subject building).

We will focus advice and discussion on this issue once we understand the layout of the new-build. Implications of the location of the new facility on existing egress paths from the surrounding buildings to be determined from site audit.

## 06 6.3 BCA Assessment

7. Based on the limited information provided to date, and on the assumption the new-build will be fire separated from the existing buildings, we confirm the following essential fire safety systems will be required throughout the new three storey facility (See Table on Right)
8. Details on suitability of existing FH system and existing booster assembly (if they are to be retained) are to be advised by services consultant. We need to understand capability of existing system to accommodate the new works.
9. We assume a new main FIP will be provided to the new-build facility. The need to integrate the new fire panel and dry fire system into the fire systems for the existing surrounding buildings will be determined once we understand the design strategy to interconnect between the buildings.
10. Specific BCA requirements will apply with an atrium proposed, including focus on compartmentation.
11. New main entry to have suitable provision for access for people with disabilities – this includes accessible path connection from the street and also form any onsite accessible parking areas. The new-build facility is to be compliant throughout in relation to access and facilities for people with disabilities

Access to Premise upgrade of existing buildings in relation to accessible paths need not occur if the new-build is erected with a new main principal entrance and access into the new facility does not necessitate travel through or via the existing surrounding buildings.

We will need to ascertain what (if any) impacts the new-build has in relation to accessibility to and within the adjoining buildings.

BMG's full report can be found in the appendices.

Statutory Fire Safety Measure	Design / Installation Standard
Access Panels, Doors & Hoppers	BCA Clause C3.13 & AS 1530.4 – 2005 and Manufacturer's specifications
Alarm Signalling Equipment	AS 1670.3 – 2004
Automatic Fail Safe Devices	BCA Clause D2.21
Automatic Fire Detection & Alarm System	BCA Spec. E2.2a & AS 1670.1 – 2004
Automatic Fire Suppression Systems	BCA Spec. E1.5 & AS 2118.1 – 1999
Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5, Clause 8 and / or Clause 3.22 of AS 1670.1 – 2004
Emergency Lifts	BCA Clause E3.4 & AS 1735.2 – 2001
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 – 2005
Emergency Evacuation Plan	AS 3745
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8; and AS 2293.1 – 2005
Fire Blankets	AS 3504 – 1995 & AS2444 – 2001
Fire Dampers	BCA Clause C3.15, AS 1668.1 – 1998 & AS 1682.1 & 2 – 1990 and manufacturer's specification
Fire Doors	BCA Clause C2.12, C2.13, C3.2, C3.4, C3.5, C3.6, C3.7, C3.8 & C3.11; and AS 1905.1 – 2005 and manufacturer's specification
Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
Fire Hydrant Systems	Clause E1.3 & AS 2419.1 – 2005
Fire Seals	BCA Clause C3.15, AS 1530.4 & AS 4072.1 – 2005 and manufacturer's specification
Lightweight Construction	BCA Clause C1.8 & AS 1530.3 – 1999 and manufacturer's specification
Mechanical Air Handling Systems	BCA Clause E2.2, AS/NZS 1668.1 – 1998 & AS 1668.2 – 2012
Paths of Travel	EP&A Regulation Clause 186
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
Pressurising Systems (stairways)	BCA Clause E2.2 & AS/NZS 1668.1 – 1998
Required Exit Doors (power operated)	BCA Clause D2.19(b)
Smoke Dampers	AS/NZS 1668.1 – 1998
Smoke Doors	BCA Spec C3.4 & C2.5
Sound System & Intercom Systems for Emergency Purposes (SSISEP)	BCA E4.9, Clause 5 of BCA Spec G3.8 and AS1670.4-2004
Stand-by Power Systems	BCA Clause E1.3, E3.4, E4.2 & E4.5; and AS 3000 – 1991
Wall-Wetting Sprinklers	BCA Clause C3.4 & AS 2118.2 – 1995
Warning & Operational Signs	Section 183 of the EP&A Regulation 2000, AS 1905.1 – 2005, BCA Clause C3.6, D2.23, D3.6, E3.3



## 06 6.4 Engineering Services Assessment

As part of the masterplanning process, consultant engineers were engaged to undertake evaluations of the existing service infrastructure as well as preliminary assessments of the proposed masterplan strategy.

The existing service infrastructure has developed in a piecemeal manner on site. There is a cluster of plant areas to the south of the site, including boiler room and pumps, generator, switchroom and VIE bulk storage tanks. It appears that various standalone DX systems have been installed.

Parts of the existing infrastructure has been assessed as near end-of-life or requiring upgrade to meet expected increase of activity.

### Key Infrastructure Connections

The new building footprint is located in the northern part of the site, clear of existing buildings. The key service mains – electricity, water, sewer and gas – are located along Bowral Street. An existing PABX room is located in the Administration Building. The electrical consultant has identified to retain this location, with a new Telstra pit to be located on Mona Rd. As the design is developed, consideration should be given to planning for future expansions and to minimising disruption to existing services. The Engineering Services reports have identified a need to upgrade much of the existing infrastructure, and there is an opportunity to consolidate sitewide infrastructure in the new building footprint.

### Engineering Services Assessment

Engineering Service consultants were engaged to provide audits of the existing site and assessment of the proposed masterplan. A summary of each discipline is provided below. The full reports can be found in the appendices.

### Structural

This Structural Masterplan Report describes the proposed structural engineering strategy to meet the requirements of the Bowral and District Hospital Masterplan and future works covering the following:

- Condition of existing structures and suitability for re-use in future phases;
- Options for new buildings in future phases;
- Structural engineering options for the proposed new buildings for preferred

option;

- Key structural engineering issues and risks.

This Structural Master Plan Report has been prepared to set the basis for planning and delivery phases of the structural engineering requirements for the proposed next phase of works on the site.

The structural principles developed specifically address issues including:

- The new structures will utilise the HI systemised design approach;
- Design in accordance with HI floor vibration requirements;
- Structure to be efficient and make adequate allowance for future flexibility in accordance with HI Guidelines;
- Structural systems will need to be developed to minimise disruption to existing services on site.

The proposed structural system for the development is as follows:

- Either high level stiffened raft slab or piled foundation system (subject to geotechnical advice).
- Likely to be concrete framed buildings.
- Either shear wall or hybrid shear wall/sway frame lateral system.
- On grade structure for on grade slabs(subject to geotechnical advice;

The project may include the demolition of a number of the existing buildings on site and some level of refurbishment to an existing building. The works to date have undertaken non-invasive investigations of these structures to confirm the suitability for refurbishment and identification of structural systems to provide input into demolition requirements of these buildings. However it is noted that as is the case with all works on existing structures that until construction works are commenced and the existing structure fully exposed there remains a risk of additional structural works being required due to unexpected deterioration or arrangement of existing structure. To minimise this risk ongoing investigation into the existing structure will need to be undertaken during the following planning and delivery phases of the works however the risk cannot be eliminated until such time as the structure is completely exposed during construction works.

## 06 6.4 Engineering Services Assessment

### Civil

The Civil Masterplan Report has been prepared to discuss the proposed site civil infrastructure and the impacts of the proposed on the existing site and public infrastructure. This report establishes the framework for the development of the civil infrastructure design.

#### *Stormwater Drainage*

The strategy for stormwater drainage is to develop an independent drainage system that improves existing drainage systems where possible and provides neutral or beneficial impacts to the receiving drainage system in Bowral Street.

In addition, water sensitive urban design principles will be applied to ensure water quality of water discharging from the development is not degraded and, where possible, water is retained for beneficial re-use.

#### *Car Parking and Road Infrastructure*

The access roads for the new development will include a new on-grade car park to replace and augment an existing car park and a new ambulance entry. Both of these will be from Bowral Street and will be designed to meet relevant standards.

### Traffic

GTA Consultants were engaged to provide a high level assessment of the proposed masterplan. Their summary identifies the removal of approximately 75 parking spaces and proposes that the existing south parking be reconfigured. Additional parking spaces are also recommended at the proposed new drop off.

A preliminary review of temporary ramping to enable operation of the existing Emergency Department was also undertaken.

### Electrical, ICT and Security

The new site will require around 1MVA power supply to accommodate the new building. The requirement for HV upgraded switching maybe required and will be investigated in concept stage.

The other risk is for the existing lead-in Communication cabling new Telstra lead-in will be required which will have a cost impact to the project.

The Security systems will be upgraded to the new concept type integrity there will be a requirement for the other main controllers in other buildings to be upgraded to allow for one card chip to remain.

There is a requirement for the full site to be surveyed to allow a full understanding of all electrical, ICT routes round the external areas of the site to make sure all expansions can be accommodated without major disruption to the hospital.

A new Main switchboard and standby generator will be provided in the New Hospital Services Building.

There will be scope to accommodate a new Campus Distributor room within the new building to allow for the relocation of the existing PABX in the Central and South Options this could be used as either a server room or Communication room which has been sized slightly bigger in the new development.

A new UPS room and associated submains and switchboards will be provided to serve the new Hospital Building and be modular type system to allow for future expansion. The condition of existing electrical systems has only had a visual investigation and not in detail at this stage, however any future refurbishment of or decanting into existing buildings will be limited to working within the capacity of the existing electrical infrastructure.

### Mechanical, Acoustics, Medical Gases and Vertical Transportation

WGE has been engaged by Health infrastructure to undertake the Masterplan Design Report (MDR) for Bowral & District Hospital redevelopment. The report aims to identify major project decisions which will affect the services budget in the final project.

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

- Identification of the impact on Mechanical, Acoustic, Medical Gases, and Vertical Transportation services of various proposed options as per Masterplan presentation.
- Identify works that will be required in order to execute construction of the new building.
- Identify Systems that serve more than one building so that inter-relation of infrastructure and its potential impact on the project are identified.
- The impact on existing systems within refurbished buildings – the associated capability of



## 06 6.4 Engineering Services Assessment

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

- Identification of the impact on Mechanical, Acoustic, Medical Gases, and Vertical Transportation services of various proposed options as per Masterplan presentation.
- Identify works that will be required in order to execute construction of the new building.
- Identify Systems that serve more than one building so that inter-relation of infrastructure and its potential impact on the project are identified.
- The impact on existing systems within refurbished buildings – the associated capability of existing systems to support refurbished.

The major consideration for future planning for mechanical, medical gases and vertical transportation services on the site in respect to site wide infrastructure are:

- Possible Expansion of VIE Bulk oxygen storage infrastructure
- Possible Relocation of Medical Gases Storage
- Introduction of new Scavenge/Suction System
- Pneumatic Tube System
- The impact of demolition of existing systems on site wide infrastructure.
- The impact on existing systems within refurbished buildings should refurbishment be required
- Introduction of new lifts.

The following are proposed for the HVAC systems:

- Water Cooled Chillers
- Cooling towers
- Gas fired Boilers for space heating
- Pumps for HHW and CHW
- Air side VAV boxes
- Dedicated AHU's
- Exhaust systems
- Isolation wards served by dedicated FCU's and Exhaust

Plant spaces will be nominated in locations that allow independent access for maintenance staff to avoid interruption to the ongoing running of the hospital. Plant will be located on either the roof or perimeter areas to allow for future removal / replacement.

Measures to reduce energy costs will include:

- Introduction of a 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.

### Hydraulic Engineering & Wet Fire Protection Services

The Bowral & District Hospital Redevelopment Master Planning project will be provided with "fit for purpose" hydraulic services systems.

This report addresses authority utility supply services available for the proposed development. Scope of services covered within this report include:

- Sewerage systems provided by Wingecarribee Council
- Potable and Fire Water supplies provided by Wingecarribee Council
- Natural gas supply provided by Jemena

Authority supply services can be summarised as follows:

ACOR have assessed and reported on the condition, capacity, compliance reliability and efficiency of the existing Wingecarribee Council sewerage infrastructure system and have found them to be suitable for connection. Capacity of downstream system is still to be determined by the Council and will be subject to servicing head works charges.

ACOR have assessed and reported on the condition, capacity, compliance reliability and efficiency of the existing Wingecarribee Council water supply infrastructure system and have found them to be suitable for the proposed building

New development works will be subject to Wingecarribee Council servicing head works charges. ACOR have requested the Wingecarribee Council water performance data for flows and pressures. The council has provided this information – refer to Appendix 'C' of this report. ACOR have assessed and reported on the condition, capacity, compliance reliability and efficiency of the existing Jemena natural gas infrastructure system and have found them to be suitable for the proposed building works.

## 07 7.1 Zonal Masterplan

The diagram identifies potential site usage zones and aims to group like services together within appropriate existing building stock. The zoning strategy also endeavours to reduce the number of public entry points so that a distinct and identifiable hospital entry can be created.

It is important to note that the strategy does not propose an overhaul of the existing hospital zoning (refer to section 4.2). Instead it solidifies the zones that are already apparent in the existing hospital plan.

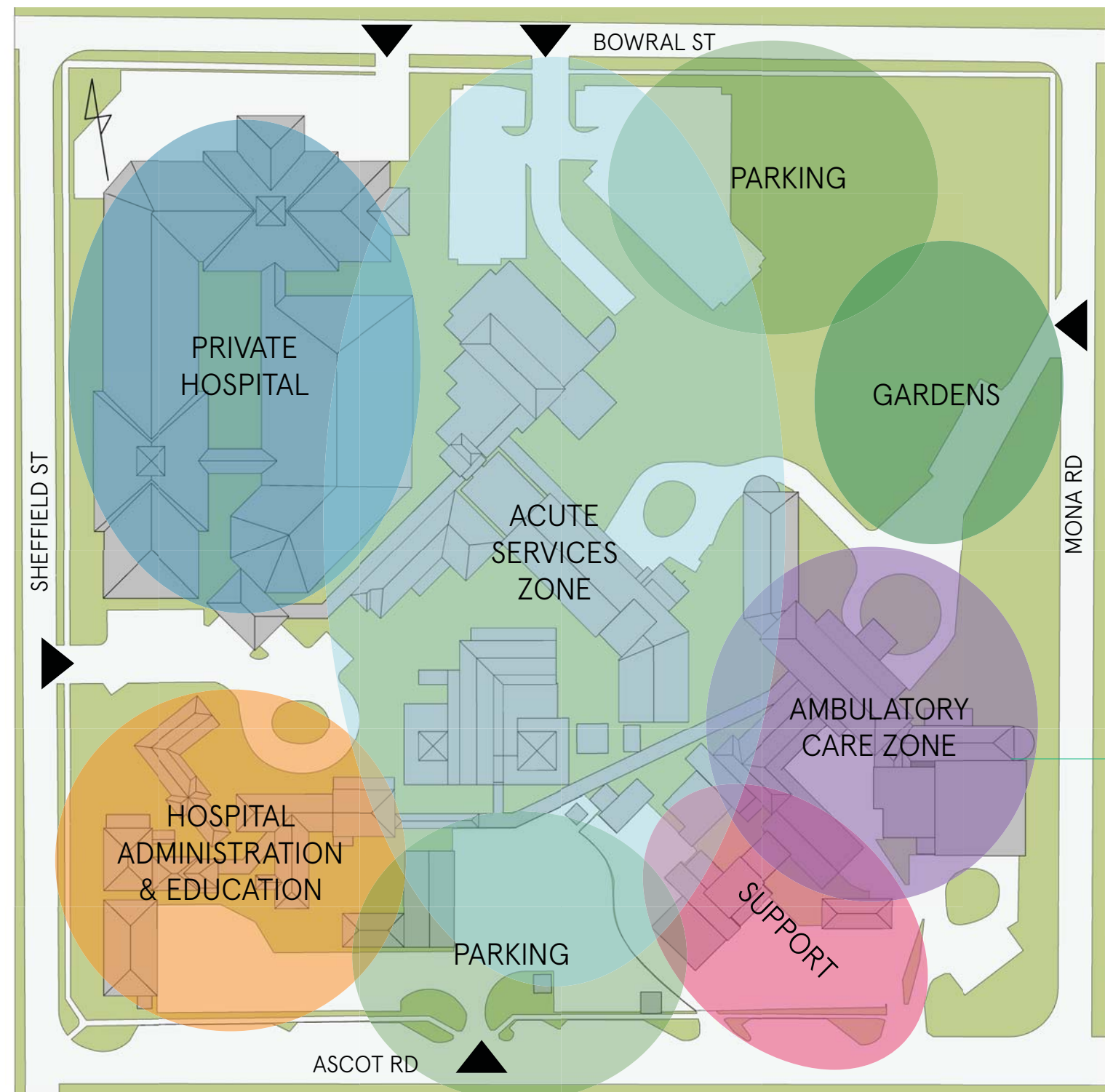
The Acute Services Zone has been identified as the spine of the campus. Most of the current acute services are already located within this zone. Its central location allows for close connections to the proposed Ambulatory Care, Support and Administration zones on the campus. It's collocation with the private hospital maintains opportunities to share resources in the future.

The existing gardens are bound by the north and east site boundaries, Milton Park Wing and the Administration Building. The Arborist and Heritage assessments have both identified the portion directly in front of the Administration Building to be of high significance. There is an opportunity to improve patronage of the gardens by considering ways to activate the landscape.

The Administration Building is of distinguished architectural character and lends itself to being re-purposed as an ambulatory care zone. Its location encourages visitors to walk through and stop in the garden. Its adjacency to the Acute Zone allows for sharing of resources.

The current Support Areas are located in the south east corner of the site. Its access from a secondary road, and its adjacency to the proposed Acute Services and Ambulatory Care zones, suggests this is a suitable location.

The cluster of heritage buildings to the south west have a separate Sheffield Street entry point and are ideally located near staff parking, rendering them ideal for hospital administration and education. The heritage nature of these buildings limits potential for reuse as clinical space.



Proposed Site Zoning Plan



07 7.2 High Level Schedule of Accommodation

Project: Bowral and District Hospital Redevelopment																	
Function	Scheduled Area (Master Plan Scenario)			AHFG Area	Vic. Planning benchmark Guide	All Top Priorities Only				Designated Area DD			Designated Area DD only			Diff Designed AHFG	Comments / Notes
	No	Area	S Total			No	Area	S Total	Vic. Planning benchmark Guide	No	Area	S Total	No	Area	S Total		
INPATIENT ACCOMMODATION:																	
Children's Ward	8	61	488		224	0	61	0									
High Dependency Unit	11	71	781		517	11	71	781	517								Top Priority
Surgical Short Stay	7	20	140		203	7	20	140	203								Top Priority
Surgical Longer Stay	30	32	960		870	30	32	960	870								Top Priority
Medical	30	32	960		870	30	32	960	870								Top Priority
Maternity	12	49	588		384	0	49	0									
Special Care Nursery	12	28	336		228	0	28	0									
Total covered by aIM	110					78											
Emergency Department	14	56	784		672	14	56	784	672								Top Priority
MPG Mental Health Ward	2	53	106			2	53	106									Top Priority
Rehabilitation (incl Stroke and other non-acute incl allied health)	10	45	450		490	10	45	450	490								Top Priority
Total additional to aIM	41					41											
Total	151					119											
PROCEDURAL:																	
Operating Suite (3 ORs)	4	275	1100		1160	4	275	1100	1160								Top Priority
OUTPATIENT/ AMBULATORY CARE:																	
Consultation/ Treatment Space	30	50	1500		1650	0	50	0									
Renal Dialysis	0	33	0			0	33	0									
GP Clinics			200														
Mental Health			220														
Community Health																	
CLINICAL SUPPORT SERVICES:																	
Medical Imaging			350														
Pathology			320														
Pharmacy			50														
Medical Records			324														
Mortuary			100														
Biomedical Engineering			30														
Ambulance Service			474														
CSSD																	
NON CLINICAL SUPPORT SERVICES:																	
Kitchen & Dining			260														
Switchboard			3														
Data centre - existing switchroom			57														
CORPORATE SERVICES:			1333														
Stores (Supply)			250														
Cleaning																	
Engineering Workshops			350														
Transport			12														
Volunteer Services			20														
Laundry (Linen)			300														
Staff Amenities			200														
Waste Management			100														
Mail Centre			20														
Emergency On-Site Accommodation			150														
CLINICAL/ ADMIN OFFICES:																	
Main Entry & Administration			300														
Administration			400														
Conference/Library/Offices			450														
Total HPU			13064					5281									
Total T & E allowance @ 30% FPU			3919.2					1584.3									
Total Area HPU + T & E			16983		7268			6865	4782								
EXTERNAL AREAS:																	
Coverd ED Ambulance Bay			106														
Inpatient outdoor area			220														
Other																	
Total			326														

## 07 7.3 Masterplanning Design Principles: Architectural

### The masterplan options were developed with the following design considerations:

- **Articulate a full redevelopment strategy.**

The project team was commissioned to plan a full redevelopment for the public hospital. The design has been carefully considered to unlock the site for initial and subsequent redevelopment.

- **Maximise the capital investment, value for money and operational benefits.**

Flexibility has been designed into the masterplan to allow for the Top Clinical Priorities to be constructed early on. The masterplan has been designed to allow staged construction of the new acute services building. The number one priority, Adult Inpatient Accommodation, has been stacked vertically in Stage 1 of construction.

- **Optimise use of site conditions including fall, access, orientation and landscaping.**

The new hospital building has been located at the lower end of the site on par with the natural ground level to permit level access from Bowral Street and the hospital gardens. The building has been oriented to take advantage of a northerly aspect as well as a park and garden outlook. The existing hospital gardens are integral to the architectural setting.

- **Establishing functional linkages and facility integration**

Key to resolving the linkages across the site is negotiating the difference in levels. There are two primary floor levels on site. Milton Park Wing, Emergency Department and Medical Imaging are at RL 682.75; and Southern Highlands Private Hospital is at RL 680.00.

The masterplan adopts a floor level of RL 680.00 at the Ground Entry Level. This level was selected to create seamless flow between the hospital garden, entry drop off and lobby area. This also sets the building close to the natural ground level, minimising the scale and bulk along Bowral Street. The impact of overshadowing of existing buildings is also reduced.

This floor level is also in line with the Private Hospital building, permitting level connections between the two buildings if services were to be shared in the future.

- **The need to create one identifiable hospital main entry.**

The masterplan aims to create one public entry point, a separate ambulance entry and back-of-house access points. An existing path and turning circle outside the Administration Building is of great aesthetic value and the masterplan recognises and extends on this.

An entry loop has been created to service the Ambulatory Care entry as well as the new Acute Services Building.

- **Flexibility to stage the construction in order to deliver Top Clinical Priorities (refer section 3.3).**

The masterplan has been designed to allow staged construction of the new acute services building. The number one priority, Adult Inpatient Accommodation, has been stacked vertically in Stage 1 of construction.

Consideration has been given to locating Medical Imaging and the Perioperative Unit in a subsequent stage of construction to allow flexibility of funding and timing. Facility configuration options are to be developed further during feasibility development.

- **Minimising the need to decant existing services during construction and minimising disruption to services through delivery of initial and subsequent stages.**

The new building has been located on the northern end of the site, in part, to minimise the need for demolition or decanting of existing services.

The masterplan allows for the current Emergency Department to remain operational during Stage 1 construction. The existing ambulant and ambulance entry points and podium have been accommodated to minimise disruption to the service.

- **Design for future flexibility, staged expansion and service enhancement.**

Consideration has been made to services identified by the LHD as having potential for future service enhancement.

The new Acute Service Building has been sited to accommodate links between the public and Private Hospital. The Perioperative Unit is located on Level 1, allowing direct and level access to Operating Rooms and CSSD in the Private Hospital.



## 07 7.4 Masterplanning Design Principles: Landscaping

Bowral Hospital is in the vicinity of the Bowral Conservation Area and is set within a tree lined streetscape. The hospital also has landscaped parkland to the north east corner, which has high social and historical value to the community.

Inclusion and careful consideration of the landscape, the location of mature trees and specimen plantings will be of utmost importance to any development on the site.

The objectives of the masterplan in regards to landscaping are:

- **Capitalising on the presence of a significant hospital garden.**

The masterplan seeks to engage with and activate the garden, whilst preserving significant sections of it. The inpatient areas have been located to the north and east to take advantage of the therapeutic nature of garden and park views.

There is an opportunity to include pathways and some hardscape to accommodate memorial stones, public artwork and seating.

- **Appropriate siting of new hospital building within the landscape to conserve historically or socially significant sections.**

The main entry has been located so that one pathway section to the north east corner of the site has been identified as having high significance due to its concentration of mature and specimen plantings. The main building has been sited in such a way to largely preserve this landscape. Careful consideration has been given to locating the drop off so that it is a continuation, and in the same language, as the existing roadway.

- **Capitalising on the presence of a tree lined streetscape.**

Bowral Street is home to a row of large mature trees and will play a significant role in mitigating the perceived building bulk of the new hospital building. The masterplan has been careful to set the new building back from the boundary line to accommodate these trees and to afford opportunity for additional soft landscaping on Bowral Street.

- **Balancing the desire to conserve the landscape and the deliver contemporary healthcare.**

The site is currently composed of 40% soft landscape, made up of a mixture of tree planting and grassed areas. The masterplan proposes a balanced approach to conserving the landscape and to providing expanded and contemporary health care services. Approximately 33% of the site will be retained or new soft landscape when the main building is constructed. This will increase to 38% when the full redevelopment, with expansion zones, is completed. The masterplan also proposed opportunities for some hard landscaping to provide activity areas for staff and patients.

## 07 7.5 Masterplanning Design Principles: Wayfinding

One of the key deficiencies of the current hospital site is the lack of clear wayfinding. The lack of a clear main entry, the numerous entry points and the distributed nature of services on site have contributed to a poor visitor wayfinding experience.

The objectives of the masterplan in regards to wayfinding are:

- **Identify a main entry point for public**

The masterplan seeks to consolidate public entry points by way of one drop off road around the hospital garden. The garden, a key part of the identity of the hospital, plays a key role in creating this entry precinct.

- **Set up clear flows for staff, public and back-of-house flows across the hospital site**

The masterplan establishes a key staff circulation spine down the centre of the site, with expansion zones linking in. Connections between public areas as well as access point for back-of-house functions have also been planned for.

- **Create an identity for the hospital**

The main hospital has been deliberately located at Bowral Street to establish a presence and 'face' to the hospital on the main street.

Future wayfinding strategies should also consider:

- The full patient journey, from arrival by public transport or car, to entry to either the acute services zone or ambulatory care precinct.
- How architecture, landscape or artwork could form part of the wayfinding strategy as opposed to a reliance on signage.
- How wayfinding to existing buildings and services could be integrated in the interim. This could be through visual sightlines, construction of straightforward pathways or integrating artworks as landmarks.



## 07 7.6 Site Masterplan Strategy: Preferred Option

MSJ were commissioned to undertake a range of option studies to unlock the site for future development. The masterplan strategy outlined in this report will form the benchmark by which Options Development can be assessed.

The key aims of the masterplan strategy are to:

- Identify optimal zones for development.
- Develop a strategy and zones for future expansion.
- Consider the full scope of projected activity as identified in the Clinical Services Plan.
- Identify key public, ambulance and back-of-house access points.
- Test fit an evolving Schedule of Accommodation to ensure development zones could realistically accommodate the full scope of services.

The key principles of the masterplan strategy for Bowral Hospital are to:

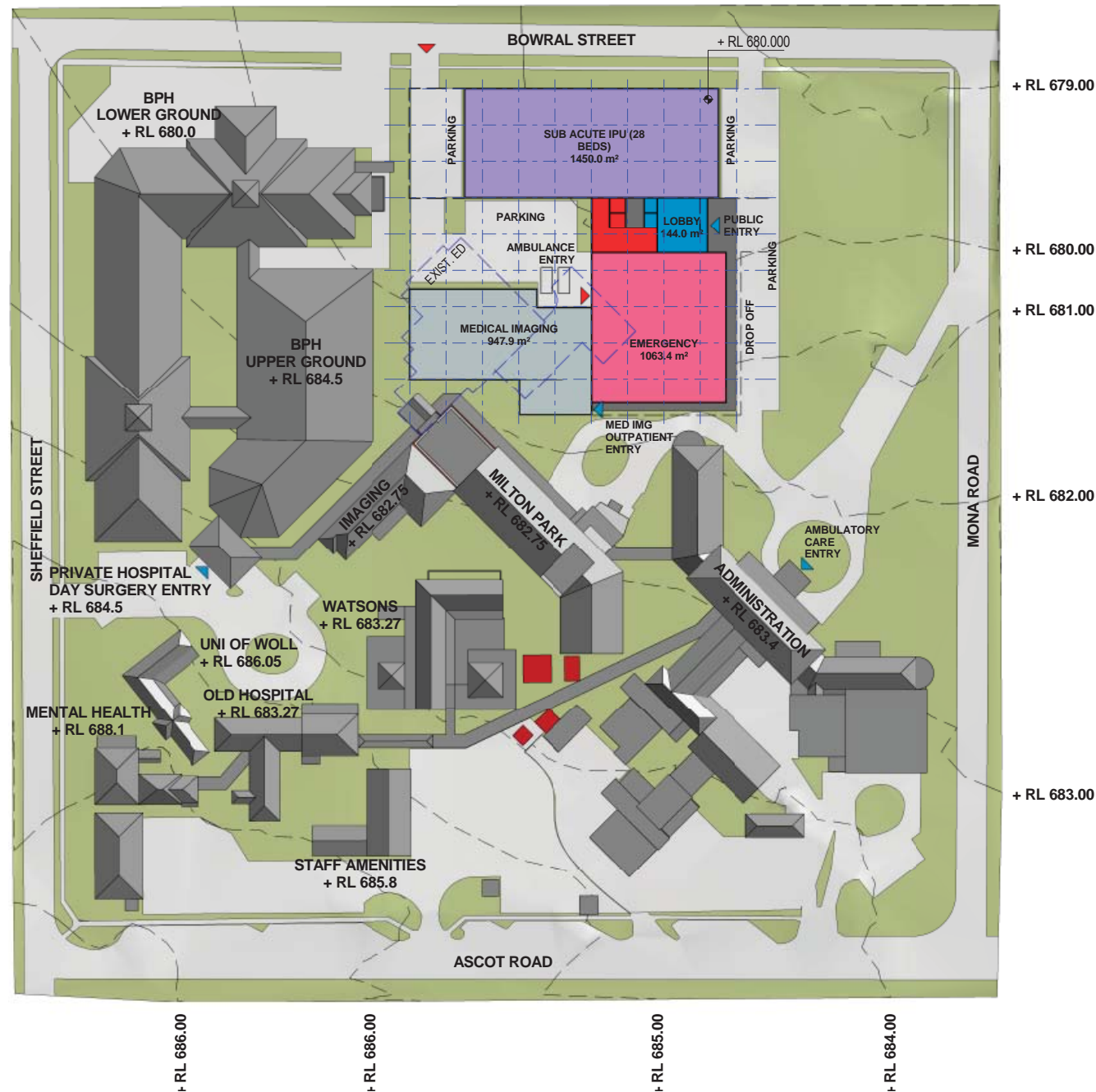
- Create a clear hospital identity and presence on Bowral Street.
- Create one entry path for Ambulatory Care and Acute Services.
- Position a new building that activates and engages with the hospital garden.
- Create a central circulation spine through the hospital with clear links into key existing buildings.
- Minimise decanting of existing services to accommodate construction.
- Locate and orient a new hospital building that would capitalise on sun access into patient areas.
- Locate a new hospital building to make best use of the sloping topography.
- Siting of a new hospital building that would accommodate direct connections to the private hospital

Zones for future expansion to the south of the new hospital building have been identified. Two additional wings, linking into a central circulation spine, could house Support, HIS, Mortuary and a new Ambulatory Care Zone. The strategy is designed to be flexible enough to accommodate changes in service delivery, whilst ensuring that these services are sufficiently connected and accessible.

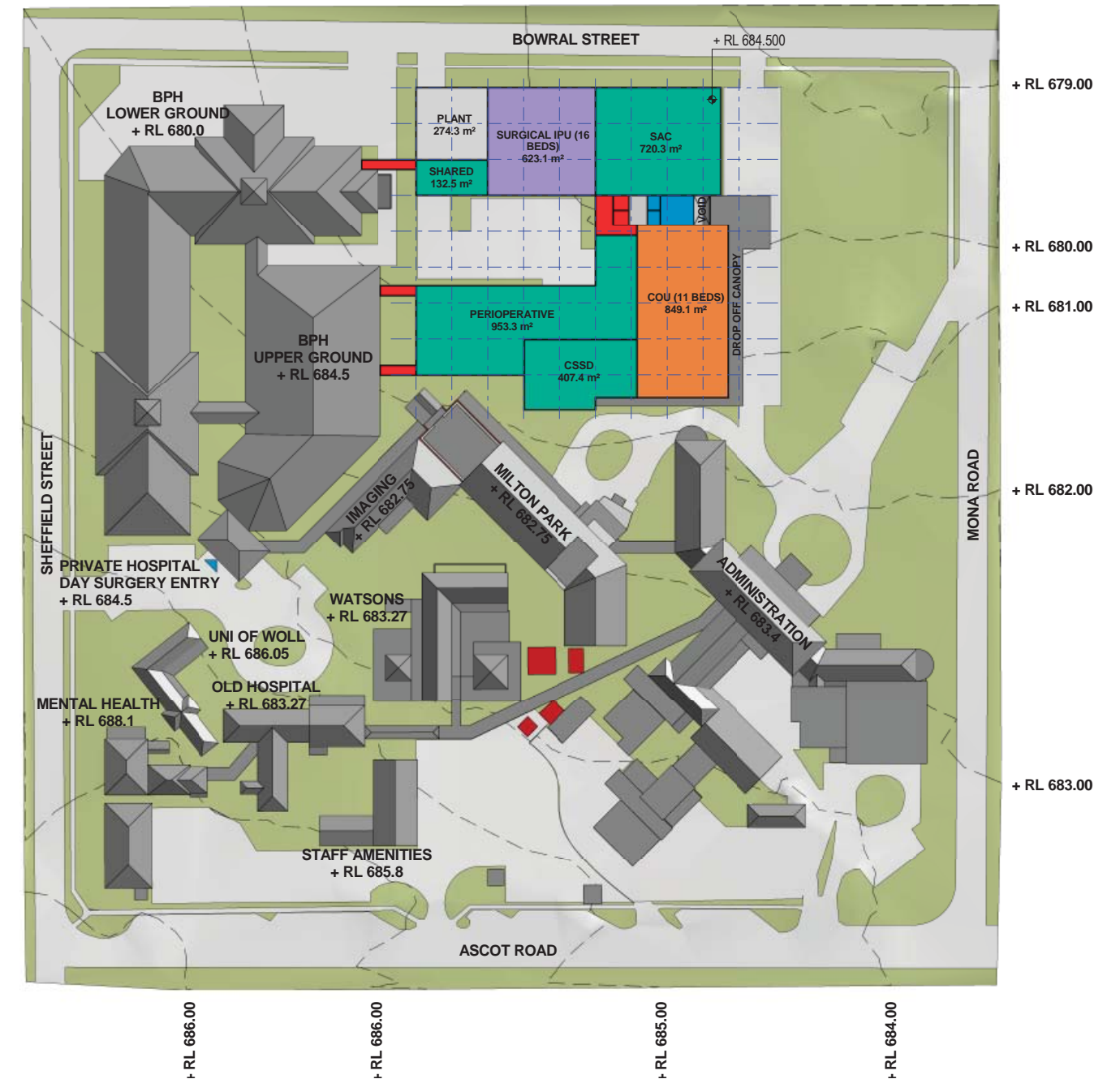


## 07 7.7 Site Masterplan: Preferred Option

Ground Level



Level 1

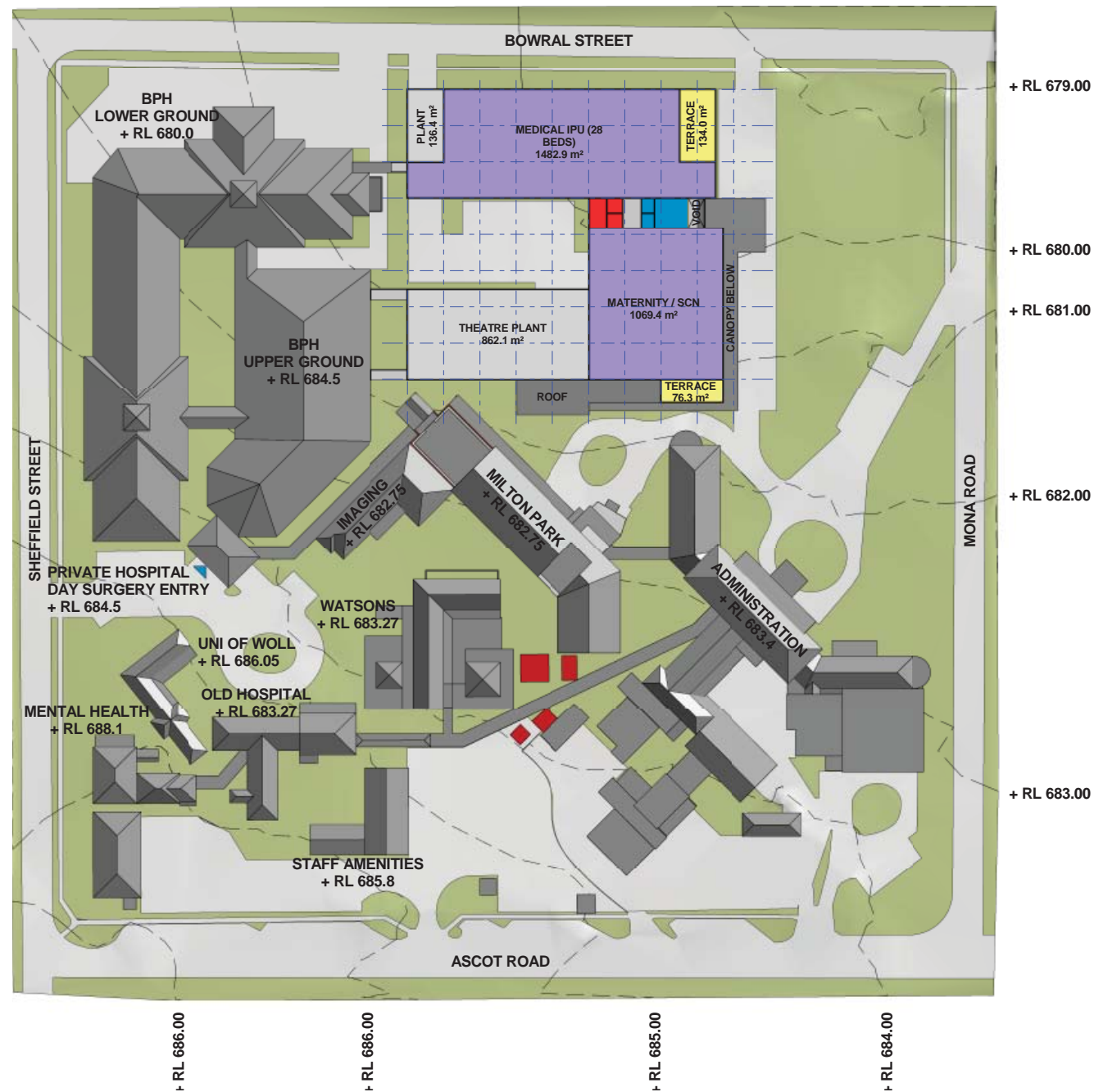


Note: Location of services identified in these drawings will be assessed further during Feasibility Development and Options Development.

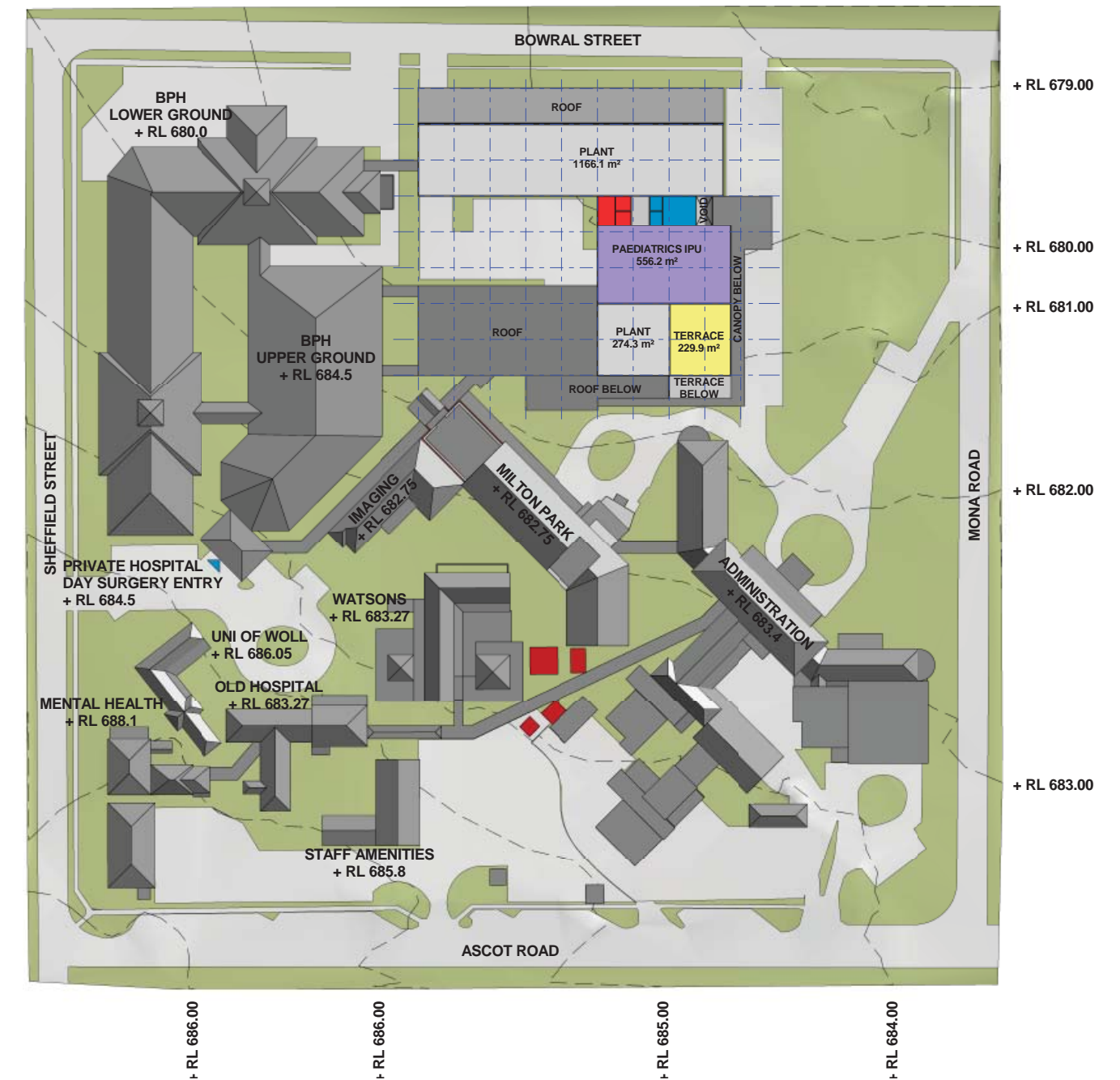


## 07 7.7 Site Masterplan: Preferred Option

Level 2



Level 3



## 07 7.8 Masterplan Sequencing: Preferred Option

The Masterplan has been designed so that the new hospital building could be built in two stages with additional provision for expansion. The first wing, on the northern side, contains the main entry, lift core and all the Adult Inpatient Accommodation. It is envisaged that the drop off would also be constructed in the first stage.

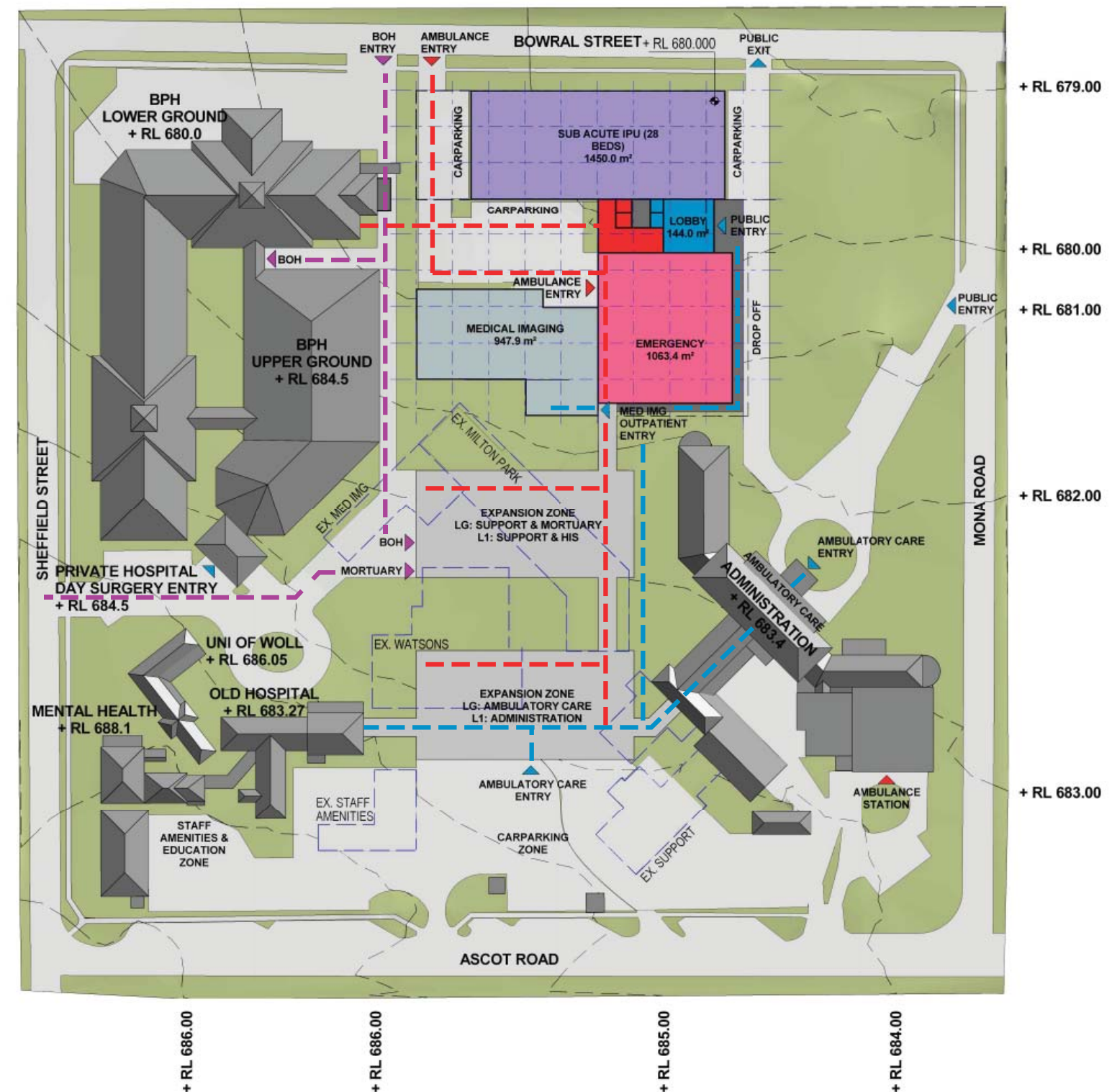
The second wing would be constructed in Stage 2 and includes Emergency Department and the Perioperative Unit. Medical Imaging (Ground Floor), Maternity IPU (Level 2) and Paediatric IPU (Level 3) could be provisioned for as shell or vertical expansion space.

The existing Emergency Department can remain operational with the construction of temporary ramping to meet the existing podium.

MSJ undertook a sequencing exercise to demonstrate how construction could be staged to minimise disruption to existing services and to address the order of clinical priorities.

1. IPU Wing of new Acute Services Building (ASB) is constructed whilst existing Emergency Department remains operational.
2. Adult Inpatient Accommodation and High Dependency Unit are decanted from Milton Park Wing into the new ASB.
3. Temporary Medical Records building is decanted into vacated areas in Milton Park Wing.
4. Remaining Wing of new ASB is constructed whilst existing Emergency Department remains operational. Medical Imaging is constructed as a shell.
5. Emergency Department is decanted into new ASB.
6. Operating Suite is decanted into new ASB.
7. The existing Emergency Department is demolished.
8. Maternity IPU and Paediatrics IPU are constructed on Levels 2 and 3 of the new ASB.
9. Maternity IPU is decanted from Milton Park Wing to new ASB.
10. Paediatrics IPU is decanted from Administration Building to new ASB.
11. Medical Imaging shell is fitted out.
12. Demolish existing Medical Imaging Building and Milton Park Wing. Temporary relocation or digitising of Medical Records.
13. HIS, Support and Mortuary built in Expansion Zone 1.
14. Existing Administration Building extensions housing Support Functions decanted into Expansion Zone 1 Building.
15. Existing Administration extensions demolished.
16. Allied Health relocated temporarily whilst Watsons Building is demolished.
17. Ambulatory Care and Administration built in Expansion Zone 2.
18. Decant Allied Health and Ambulatory Care into new Expansion Zone 2 Building.
19. Decant Administration and Staff Education into new Expansion Zone 2 Building and Old Hospital Buildings.
20. Expanded Ambulatory Care services refurbished in Administration Building.

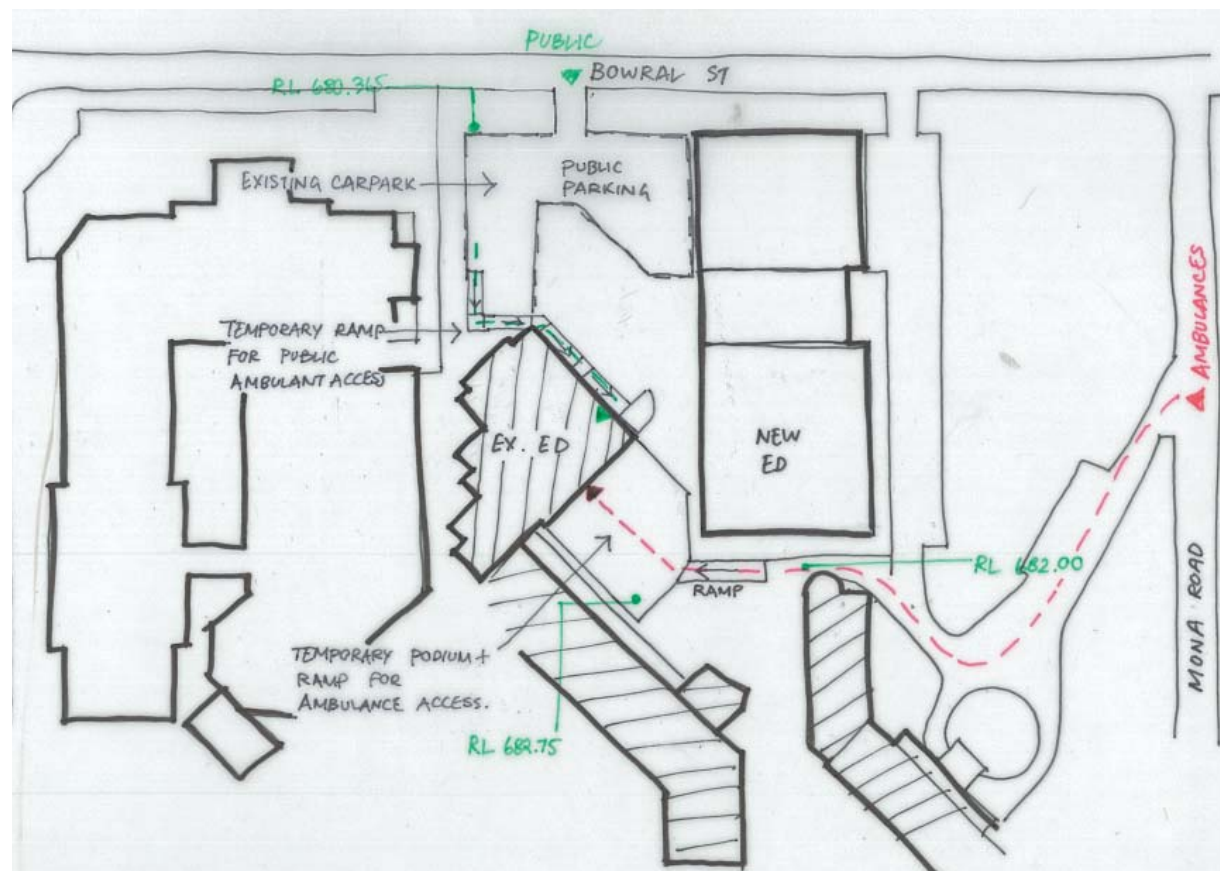
The configuration of services, in particular the location of the new Emergency Department, will impact on timing at which the existing Emergency Department and/or Milton Park can be demolished. This will be assessed during Options Development.



### Temporary Ramp to Existing ED



## 07 7.9 Strategy for Maintaining Current Emergency Department Access



Scenario 1

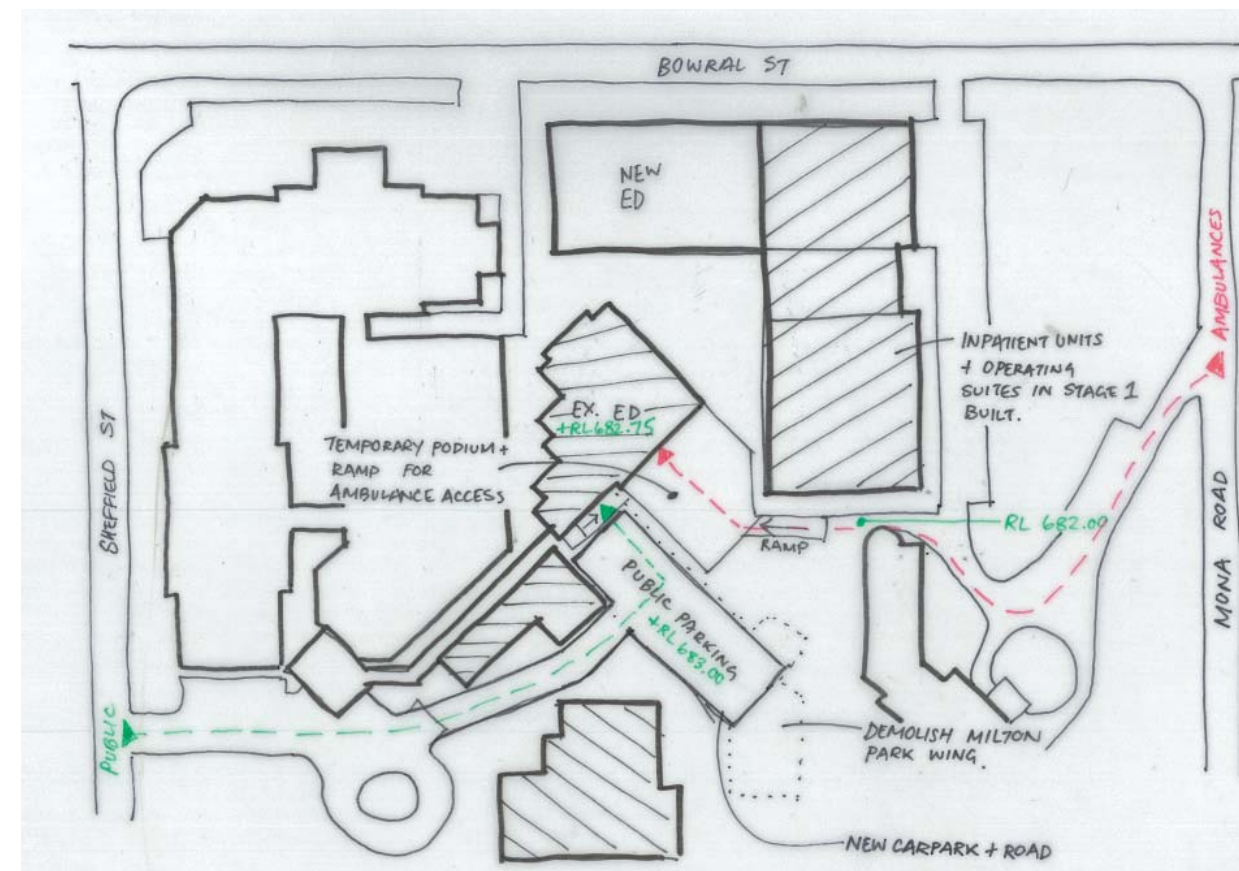
A strategy was developed to ensure access to the existing Emergency Department could be maintained during construction. These strategies were developed on the basis that the new Emergency Department could be built in Stage 1 or Stage 2 of the development. It was assessed that the likely Stage 1 development would be a north-south section of the building, as this would provide the best connections back to the rest of the hospital.

The key design criteria are:

- Ambulance drop off should be directly accessible to ED.
- Public drop off should be reasonably close, in visual sight of the ED. Can be accessed via stairs/ramp.

Scenario 1 (ED in Stage 1):

- Temporary podium and ramp for ambulance access from Monna Road
- Public can park in existing car park.
- Existing stair and ramp demolished (to make room to construct the new ED ambulance drop off).
- Temporary ramp for public access from car park to current ED entry.



Scenario 2

Scenario 2 (ED in Stage 2):

- Access during Stage 1 construction is as per Scenario 1.
- Once Stage 1 is completed, Milton Park services are decanted into the new build.
- Milton Park can be demolished to make way for carparking.
- ED public access is via Sheffield St.
- This scenario assumes that Maternity IPU would be constructed in stage 1 or relocated. Alternatively, Medical Imaging could be temporarily relocated to make way for parking (instead of demolishing Milton Park).

Staging will continue to be refined as the design is developed.

## 08 8.1 Master Planning Options Considered

MSJ developed a range of option studies for development of the site. Consultation with the hospital Executive User Group, Health Infrastructure Executive Review Group and South Western Sydney LHD informed the assessment and development of these options.

The options were assessed against the following criteria:

- Design for future flexibility, staged expansion and service enhancement.
- Design to achieve functional linkages and integrations.
- Minimise disruption to service delivery through a robust decanting and staging process.
- Optimal use of site conditions, including fall, access and orientation.
- Identify the capital investment options which maximise value for money and benefits.

MSJ also undertook test fits against an evolving Schedule of Accommodation to ensure the spatial and flow requirements could be achieved.

Option studies 1, 2, 6, 7, 8, 9 and 10 consider a development on the northern end of the site. These were assessed to have the most merit and were ultimately developed into the final masterplan strategy. The key opportunities presented by these options are:

- Space to flexibly grow, with minimal disruption to existing services.
- Presents a strong presence and identity on Bowral Street.
- Potential links to the private hospital.
- Activation of existing hospital garden.

Option studies 3 and 4 consider a southern development. This approach allowed the hospital gardens to remain untouched but presented numerous constraints:

- Disruption and temporary relocation of existing services required.
- Ineffective wayfinding due to location of main entry on a secondary road.
- Preclusion of direct connections to the private hospital.

Option study 5 was developed to consider how Milton Park Wing could be repurposed for clinical use. This approach was assessed to be of least merit as:

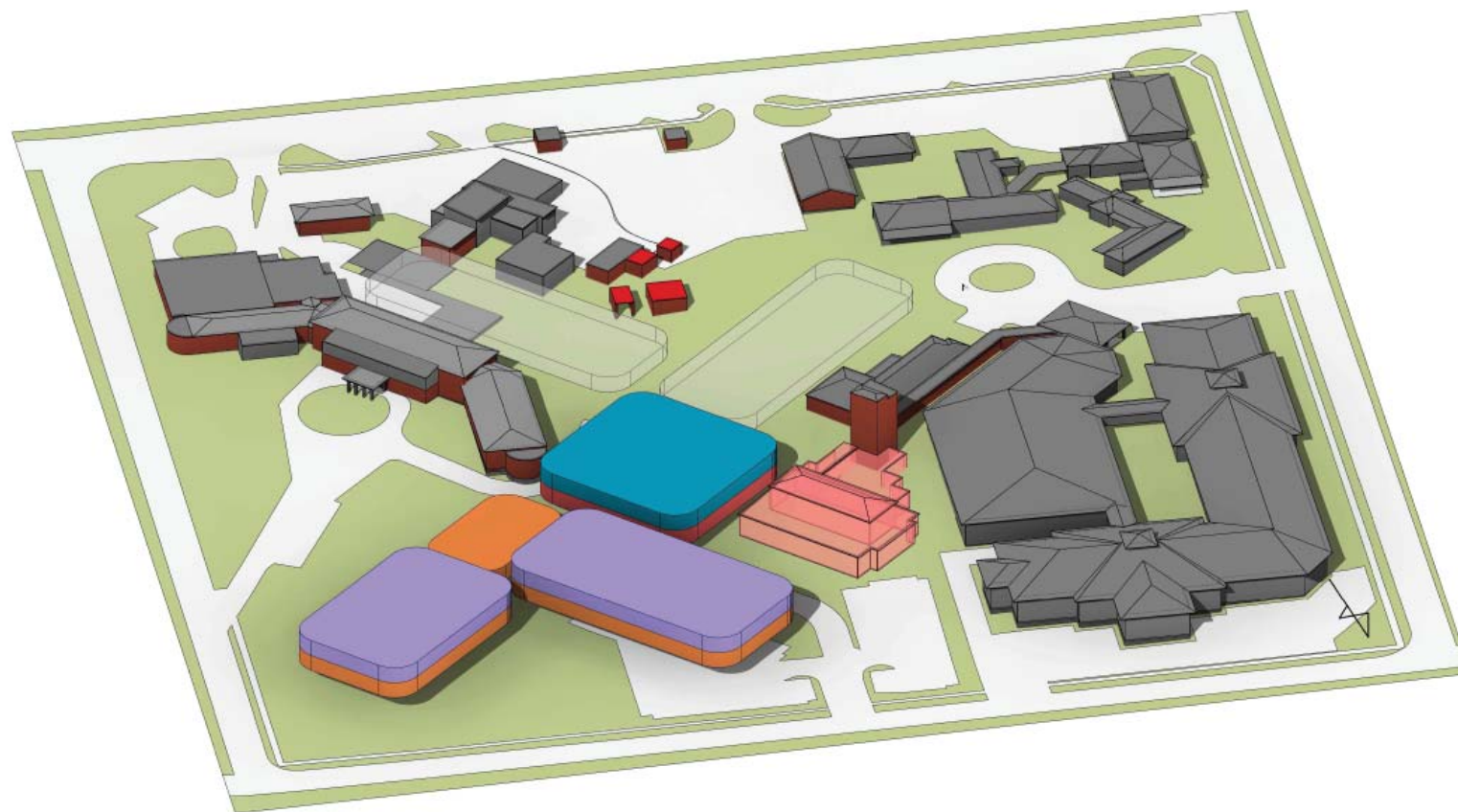
- Connections through an existing building were inefficient.
- Travel distances between key clinical functions too great.
- Inflexibility of an existing building prevented efficient and value-for-money development.



## 08 8.2 Master Planning Options Considered: Option 1

### North Options

These options explored development at the northern end of the site. The key features in these options is the activation and inclusion of the hospital gardens by the new hospital development and the strong hospital identity created by a Bowral Street presence. The North Options were further tested and developed.



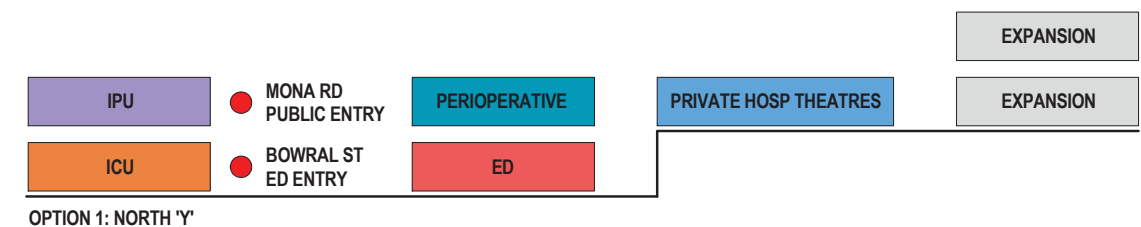
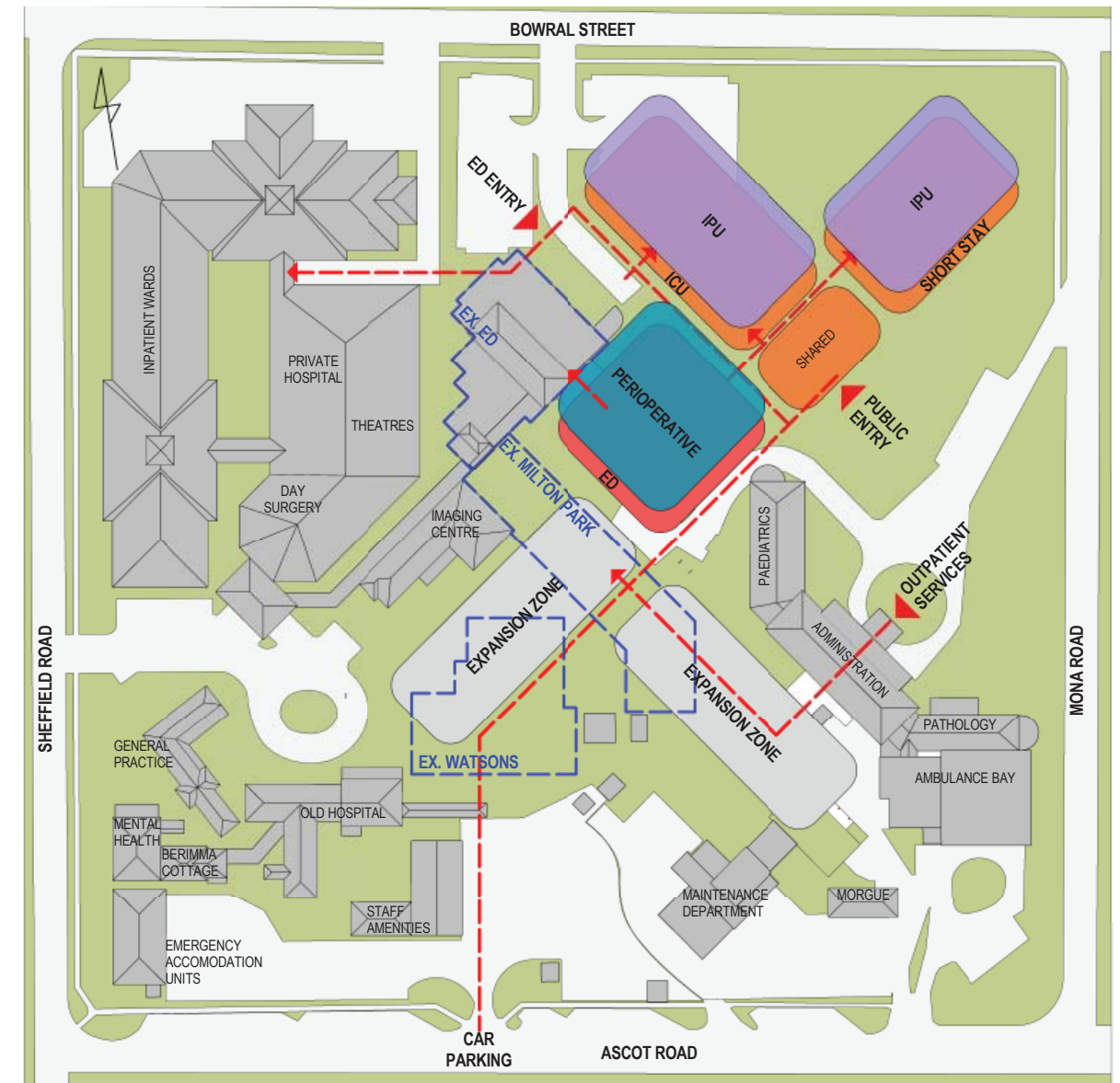
Option 1: North 'Y'

#### Pros:

- Existing Emergency Department could remain operational during construction phase.
- The new inpatient accommodation benefits from a leafy outlook.
- One garden entry forecourt to serve Ambulatory Care and Acute Services and Inpatient Accommodation
- Separate ambulance access road.
- New hospital could link into existing Milton Park Wing entrance.
- Minimal disruption to existing buildings and services.
- Establishes a good drop off area near Administration Building.

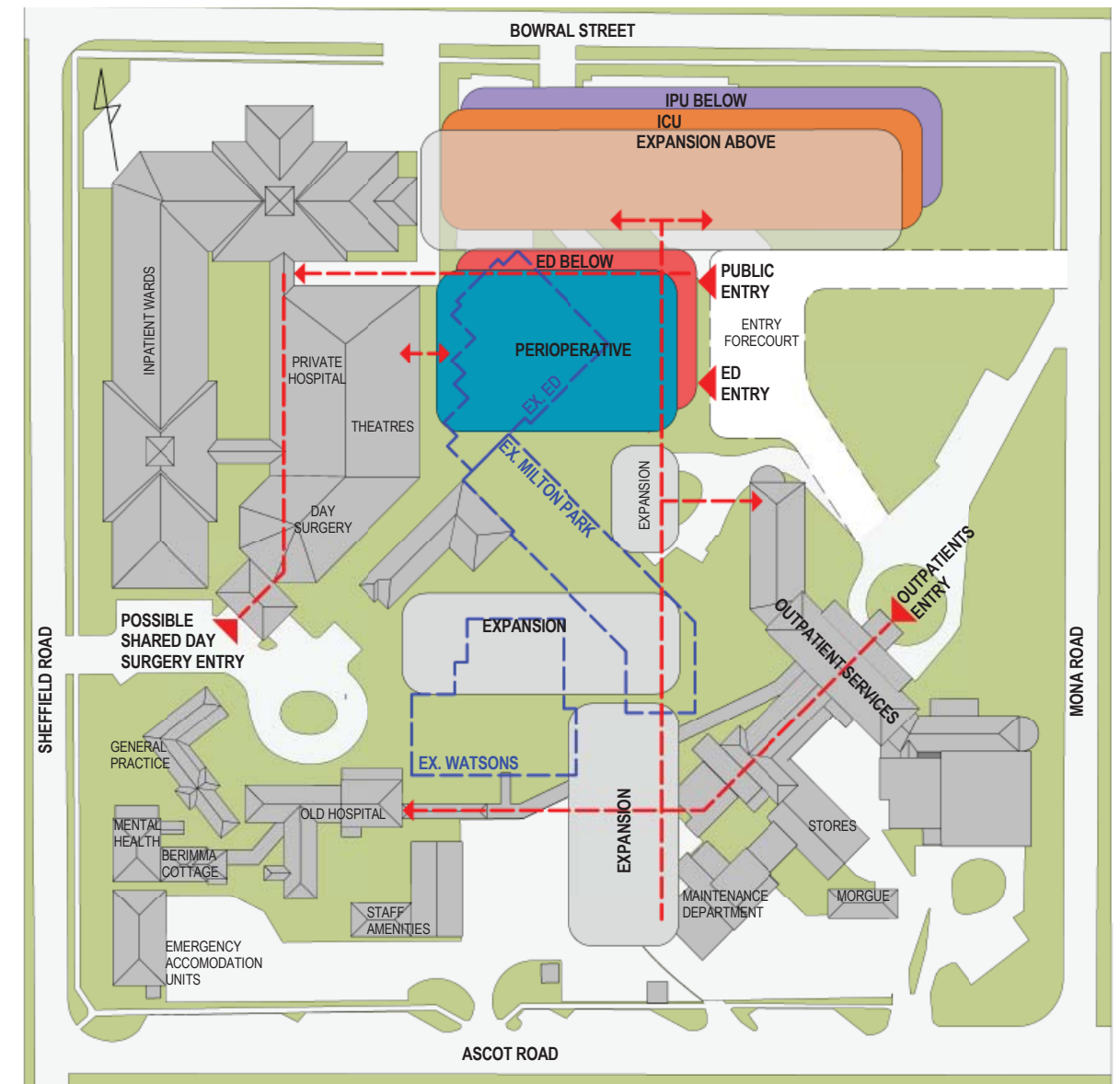
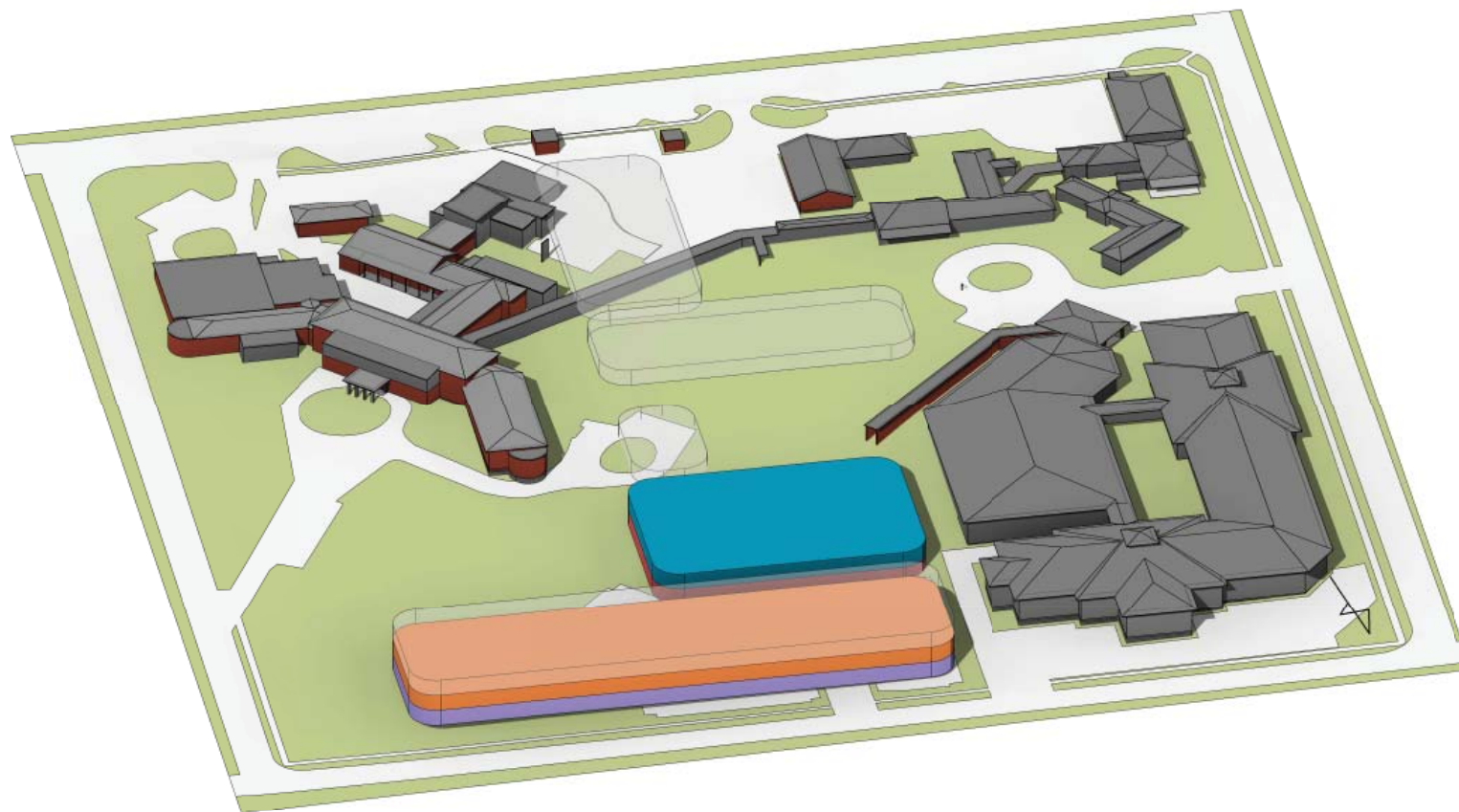
#### Cons:

- Doesn't enhance look of the site as it takes up too much landscape.
- Expansion zones moving away from Private Hospital.



## 08 8.3 Master Planning Options Considered Option 2

### North Options



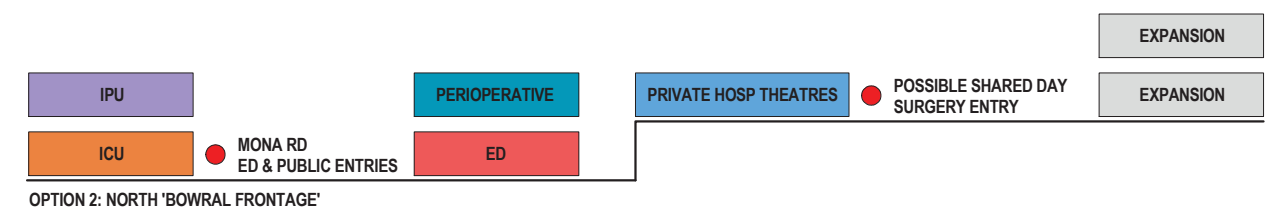
### Option 2: North Bowral St Frontage

#### Pros:

- Strong presence and identity for hospital on Bowral Street.
- Perioperative Unit directly adjacent to Private Hospital Operating Rooms and CSSD, permitting sharing of resources in the future.
- One garden entry forecourt to serve Ambulatory Care, Services.
- Minimal disruption to existing buildings and services.

#### Cons:

- Requires double decanting of Emergency Department.
- Directs traffic via Mona Road, which is narrow.
- Development zone may be perceived as imposing, as it is located along the Bowral St boundary.

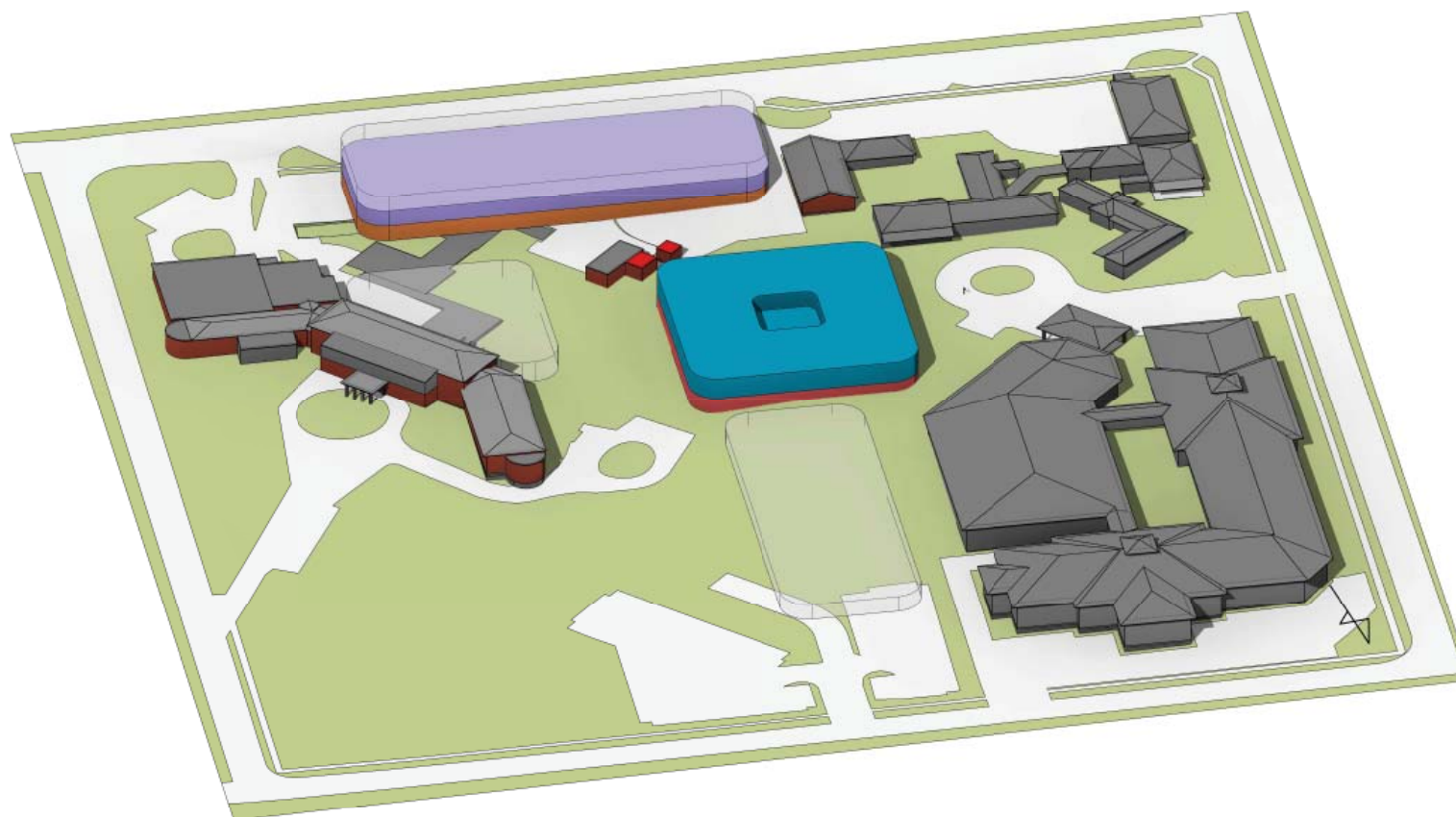




## 08 8.4 Master Planning Options Considered Option 3

### South Options

These options concentrated development to the South of the site on the premise of leaving most of the hospital garden untouched.



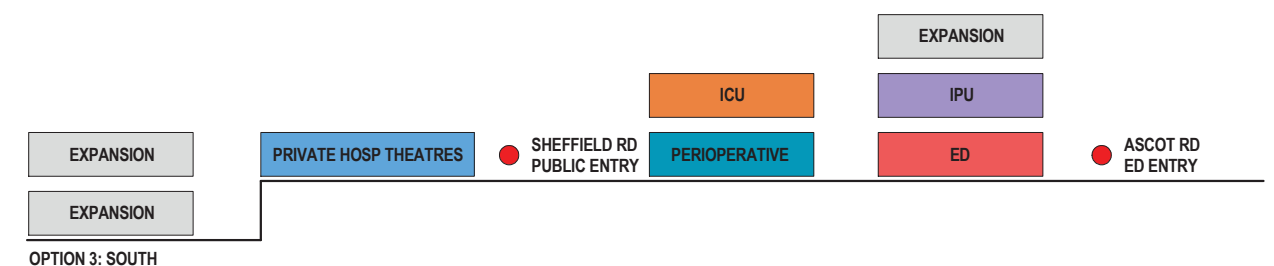
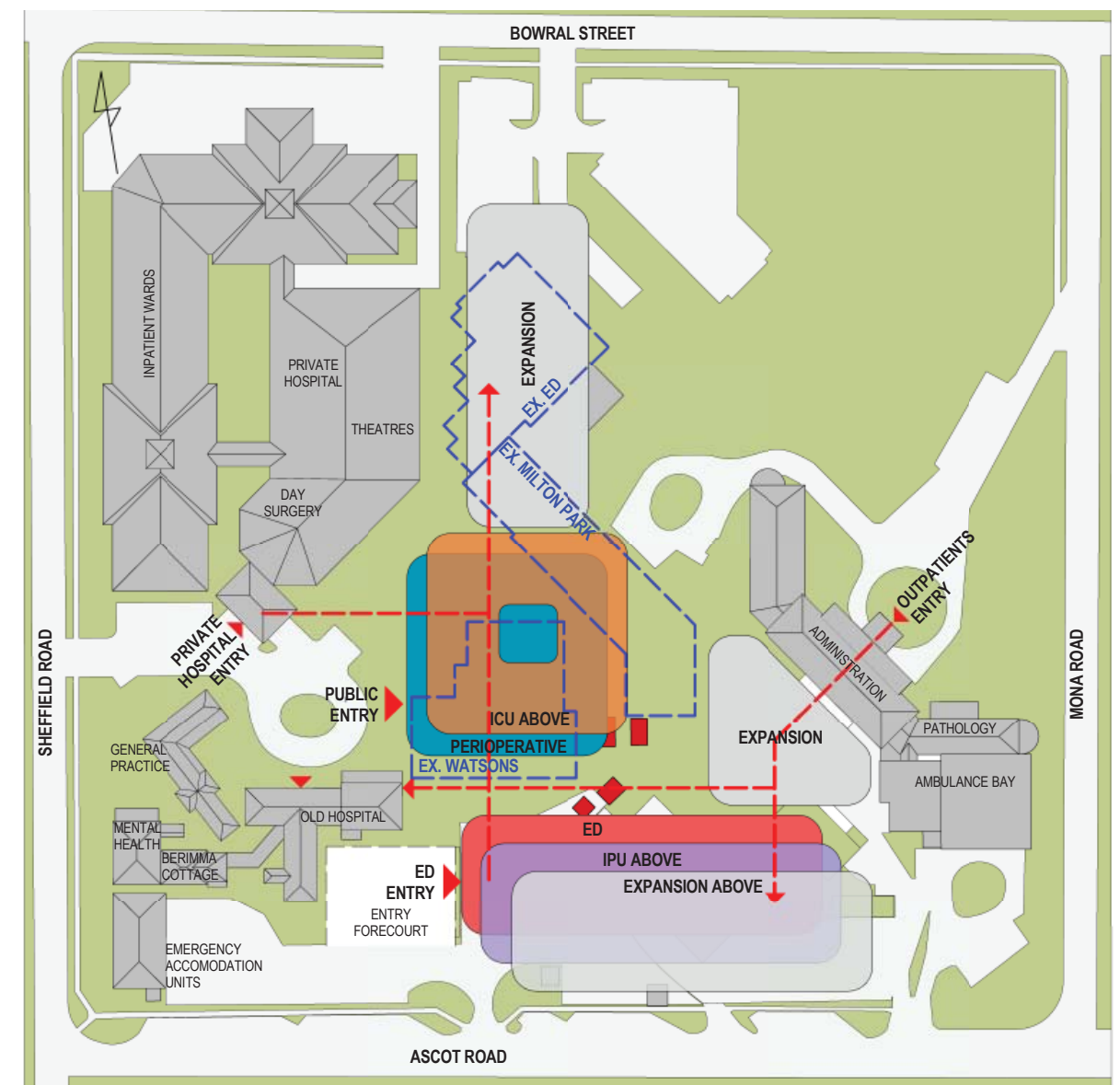
#### Option 3: South

##### Pros:

- Hospital garden is not impacted by development.
- New hospital building is located on Ascot Road where there is ample car parking available.
- Opportunity to engage heritage buildings in public entry forecourt for both the private and public hospital.

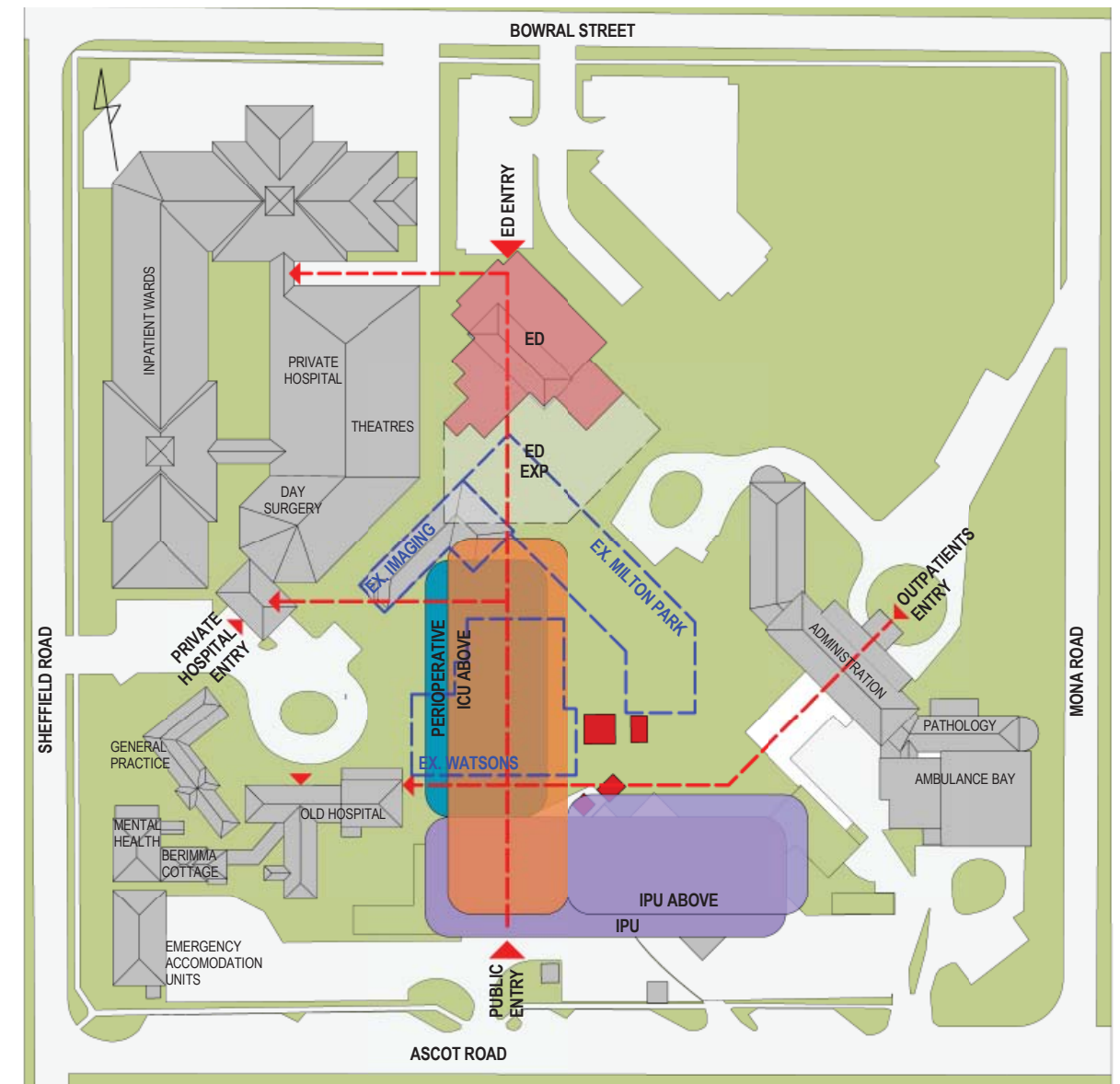
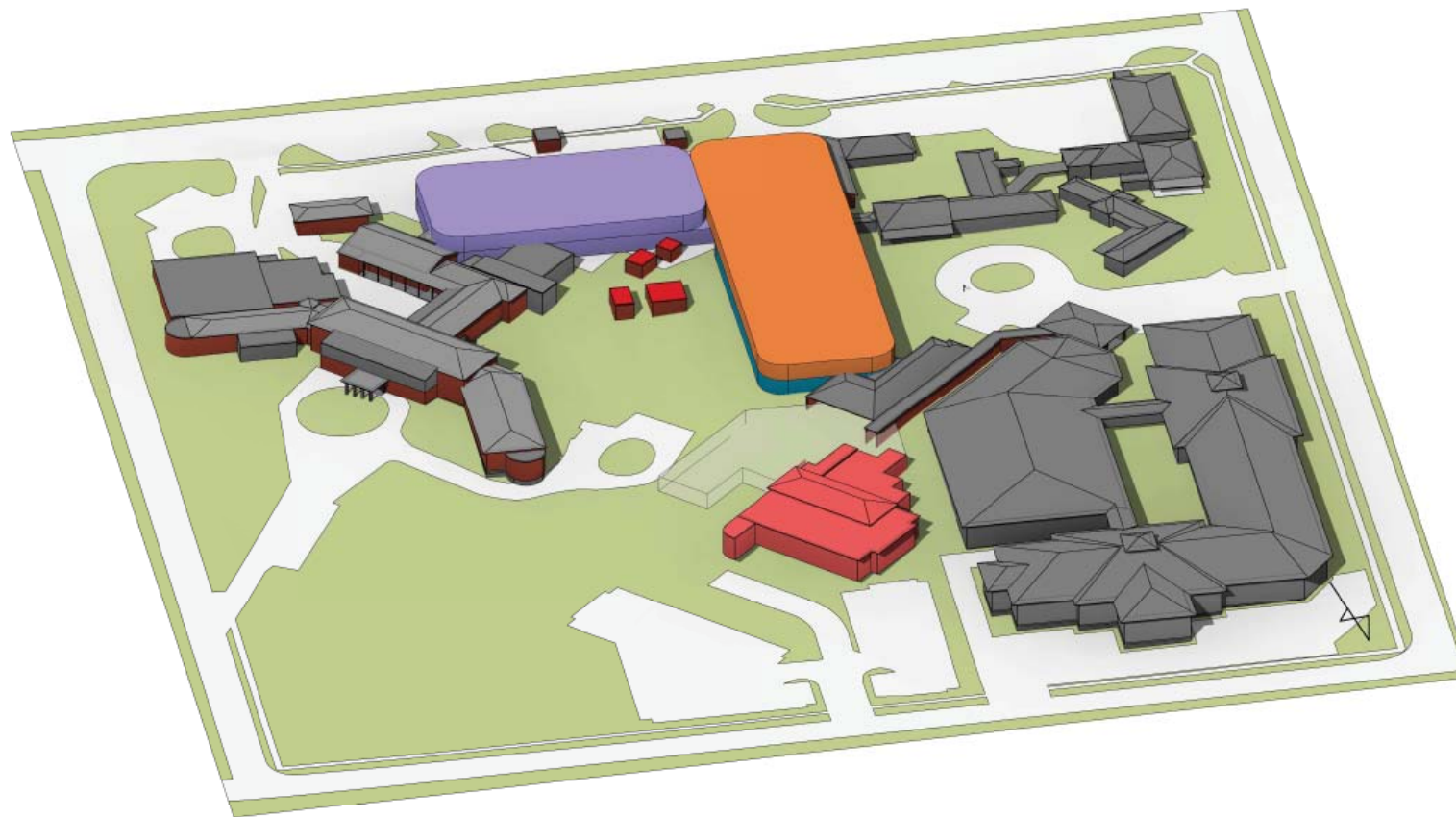
##### Cons:

- Development zone is disconnected and far from existing services.
- Expansion is moving away from the Private Hospital.



## 08 8.5 Master Planning Options Considered Option 4

### South Options

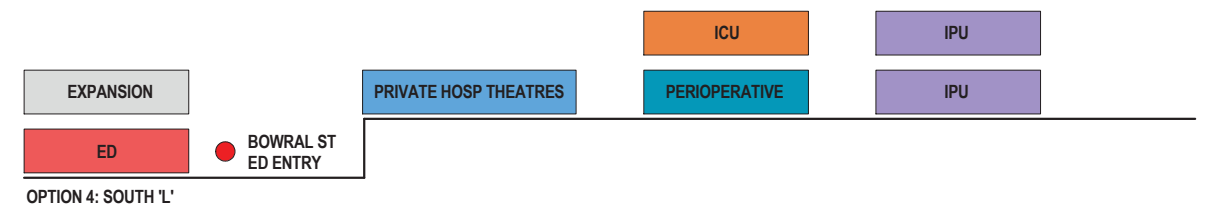


#### Option 4: South 'L'

- Existing Emergency Department is retained, with room for expansion. However, travel distance between the Emergency Department and the new hospital is vast.
- Potential link between Public Hospital Perioperative Unit to the Private Hospital Day Surgery entry.

The South options (Option 3 and Option 4) were precluded due to the following constraints:

- Decanting and relocation of numerous existing buildings, services and plant areas required.
- Lack of presence for the public hospital on the main street.
- Entry is not prominent and is off a secondary street.
- Hospital Garden is remote and unengaged by new hospital development.
- Expansion is moving away from the Private Hospital.

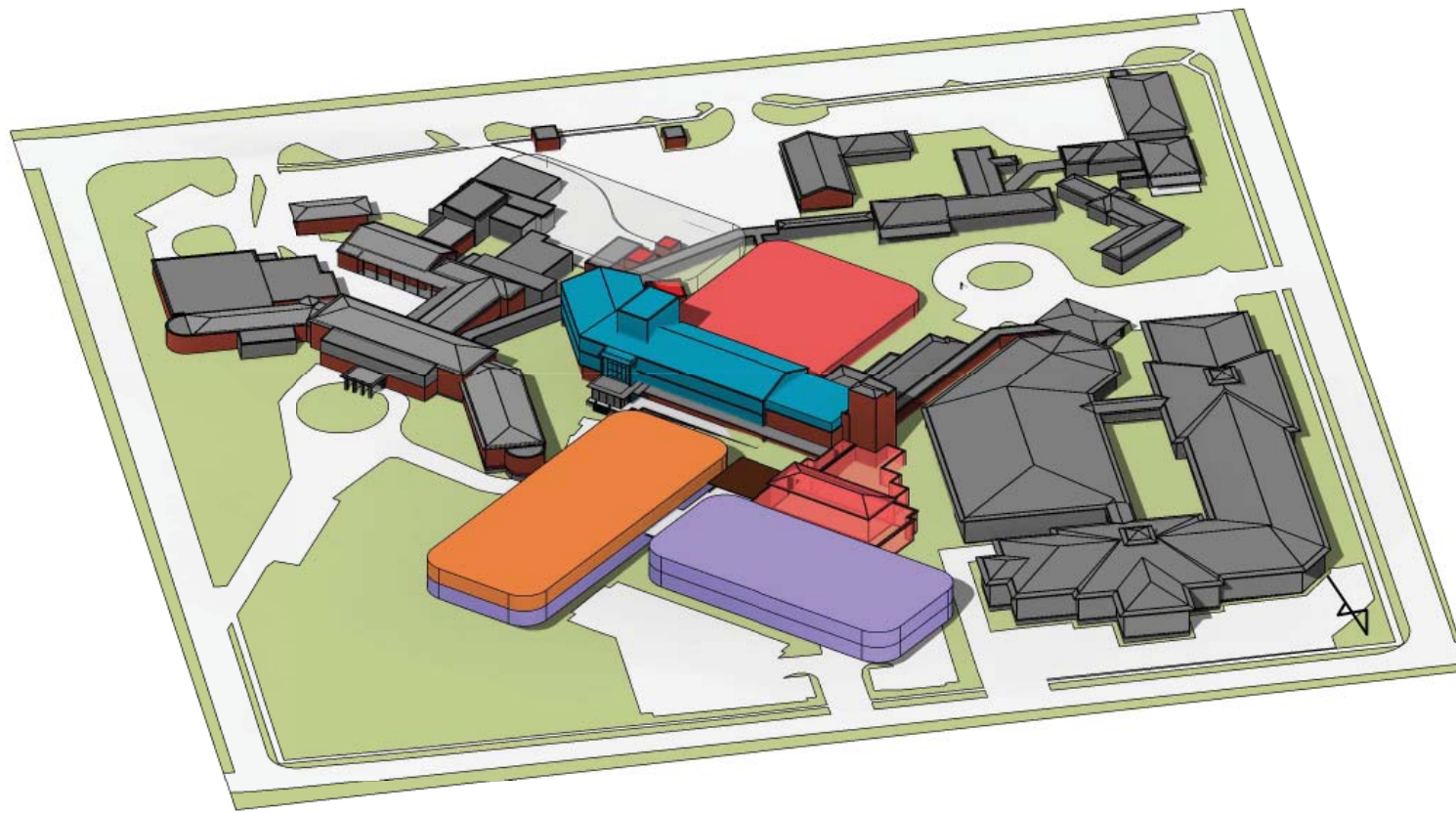




## 08 8.6 Master Planning Options Considered

### Central Options

A central option was developed to explore ways in which Milton Park Wing could be retained. Flexibility to build the Emergency Department at a subsequent stage was also considered.



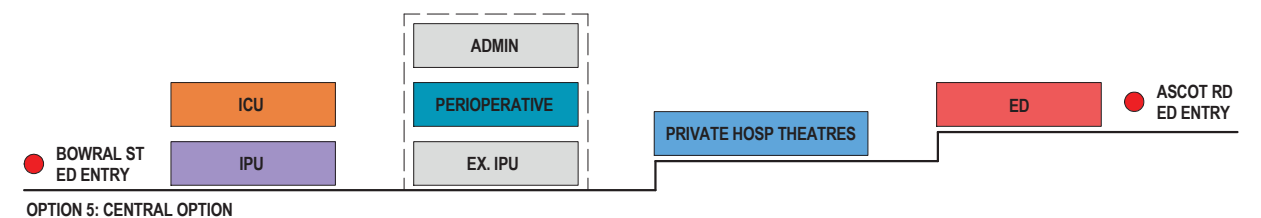
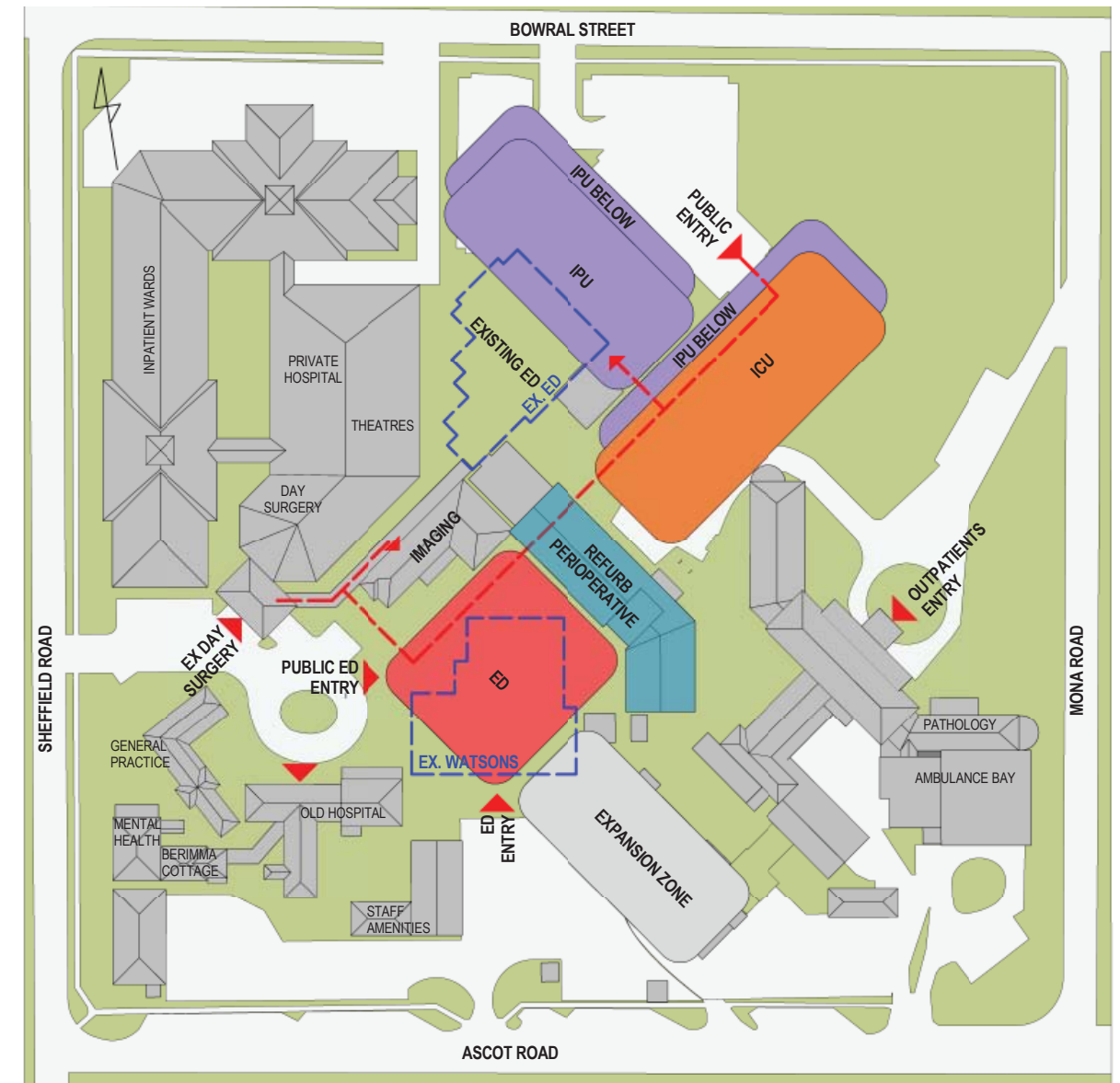
Option 5: Central

#### Pros:

- Milton Park Wing is refurbished to house a new Perioperative Unit.
- New Hospital has a strong presence on Bowral Street, whilst much of the garden is retained.
- The emergency department could be built at a later stage whilst existing emergency remains in operation. Reinstates Bowral Street for main access to the hospital.
- Optimal use of site conditions, including fall, access and orientation.

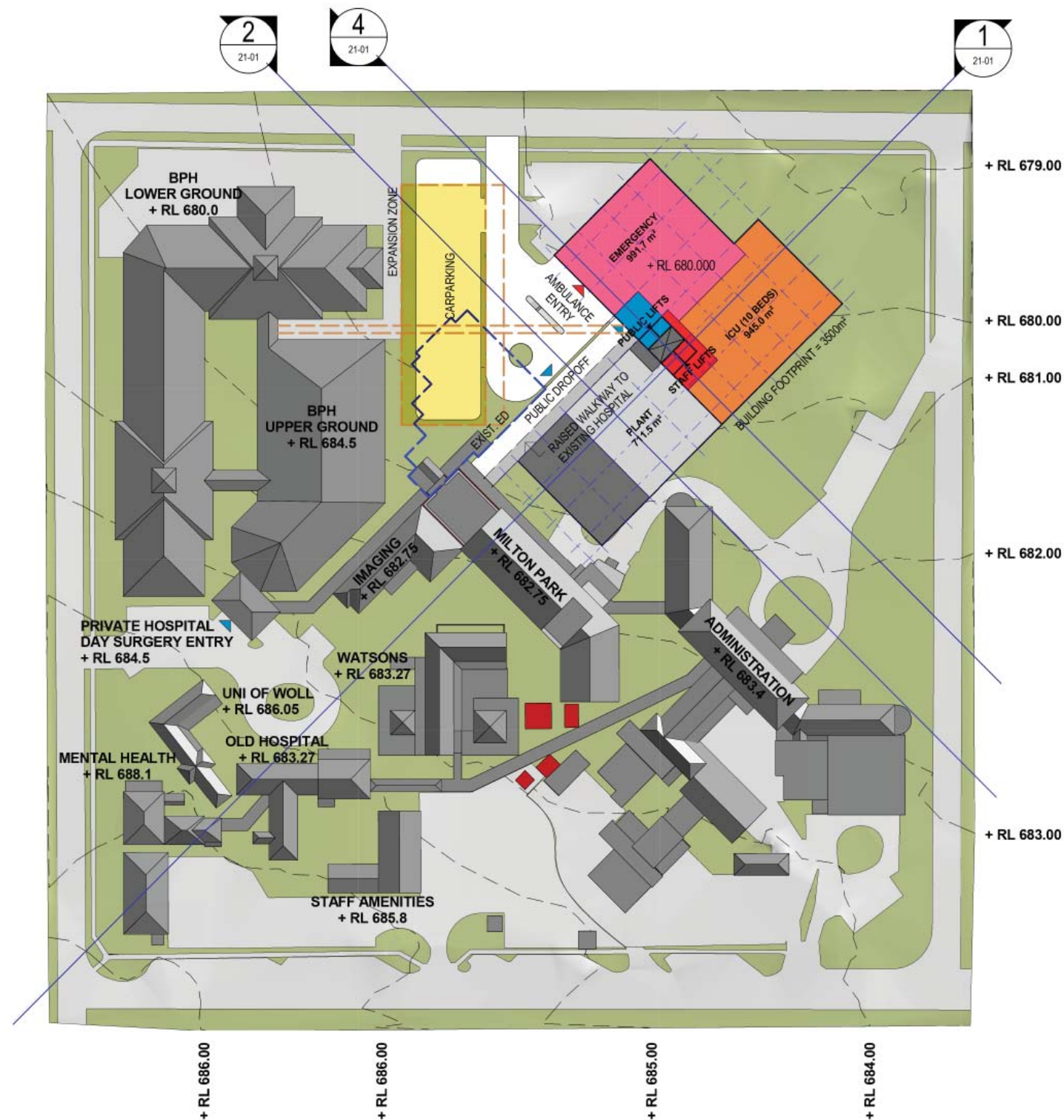
This option was precluded due to the following constraints:

- Milton Park Wing, being of load bearing masonry construction, would be difficult to repurpose for clinical use. Hospital administration would be the likely function for this building, and would be inappropriately placed in the middle of a clinical services zone.
- Setting the new hospital level to the level of Milton Park Wing would prohibit future level connections to the Private Hospital.
- The travel distance between the Emergency Department and new hospital is too large, and would require access through an existing building.



## 08 8.7 Master Planning Options Considered Option 6

### Ground Level



### Angled Options

These options are developments of the Northern Early Options. These options were not recommended as the proposed development zone is moving further away from the current services.

#### Option 6: Development to address Top 4 Clinical Priorities

This option explores a Northern development with the Top 4 Clinical Priorities accommodated in a new three storey hospital building. Consideration was also given to how a connection, with a 2.75m level change, to the Milton Park Wing could be accommodated.

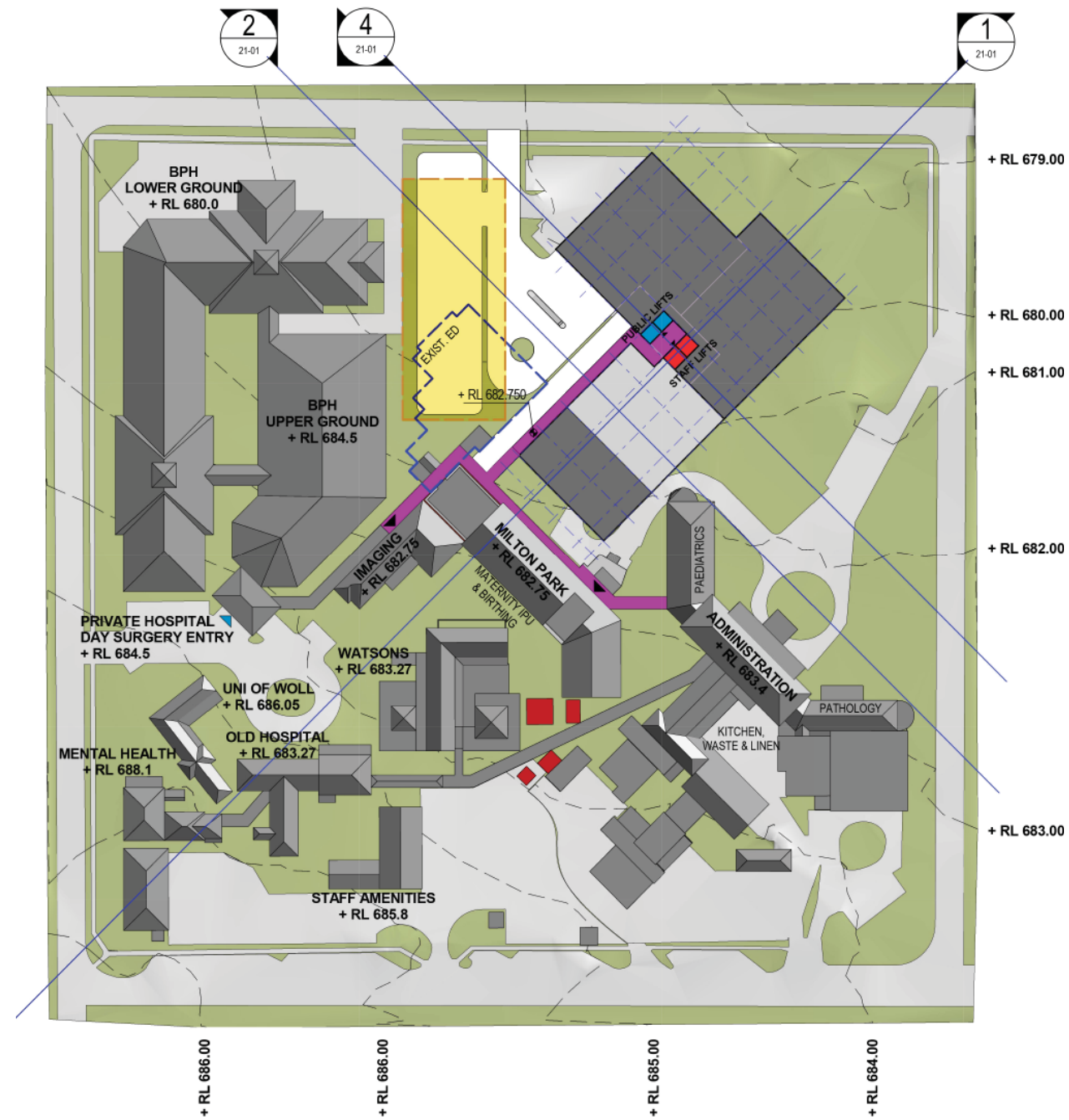
- One public and ambulance entry off Bowral Street.
- Potential expansion zone adjacent to Private Hospital, which could be utilised for shared resources.
- Lifts in new hospital building caters for level difference between new and old



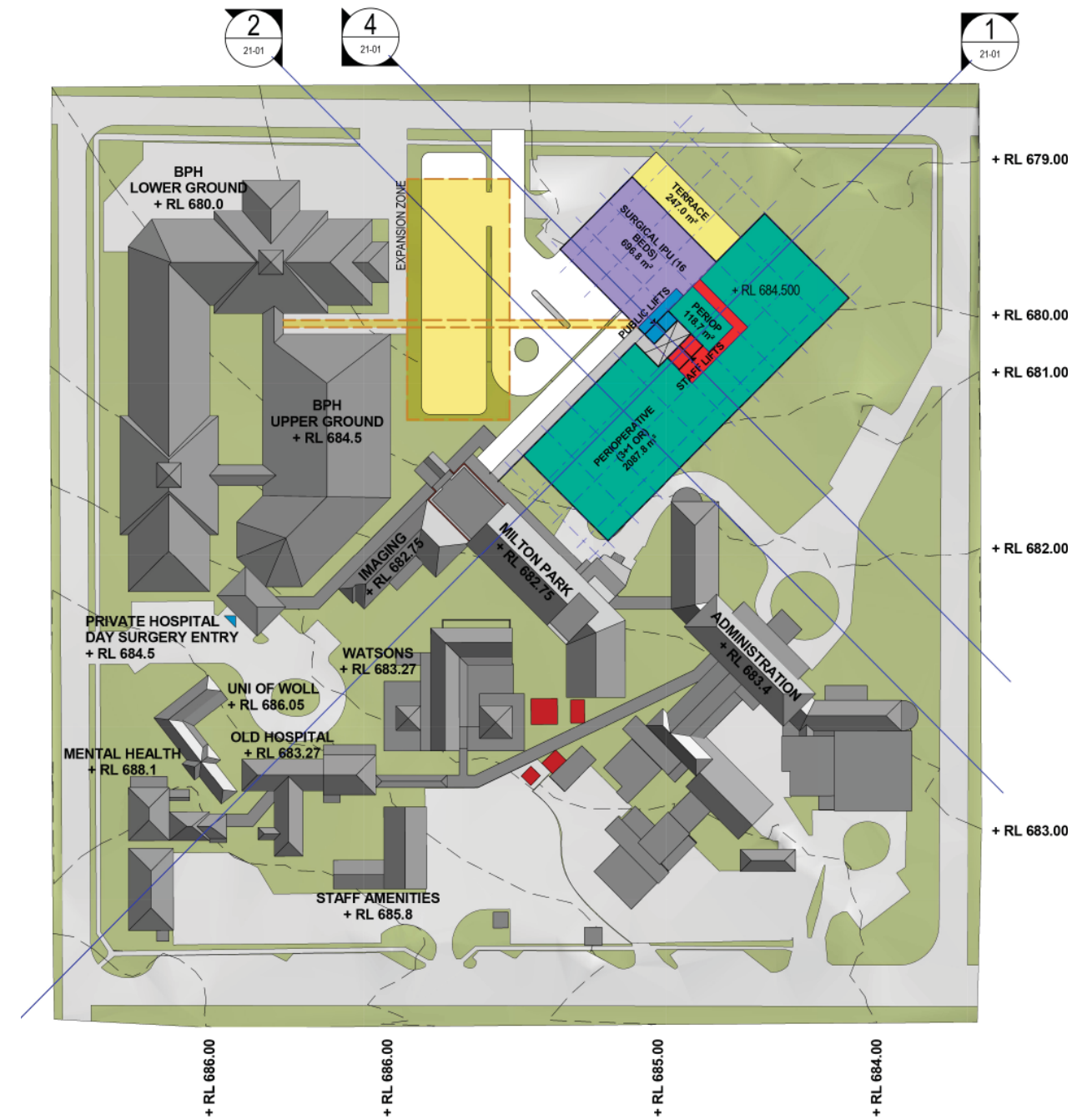
## 08 8.7 Master Planning Options Considered Option 6 Continued

### Angled Options

#### Level 1



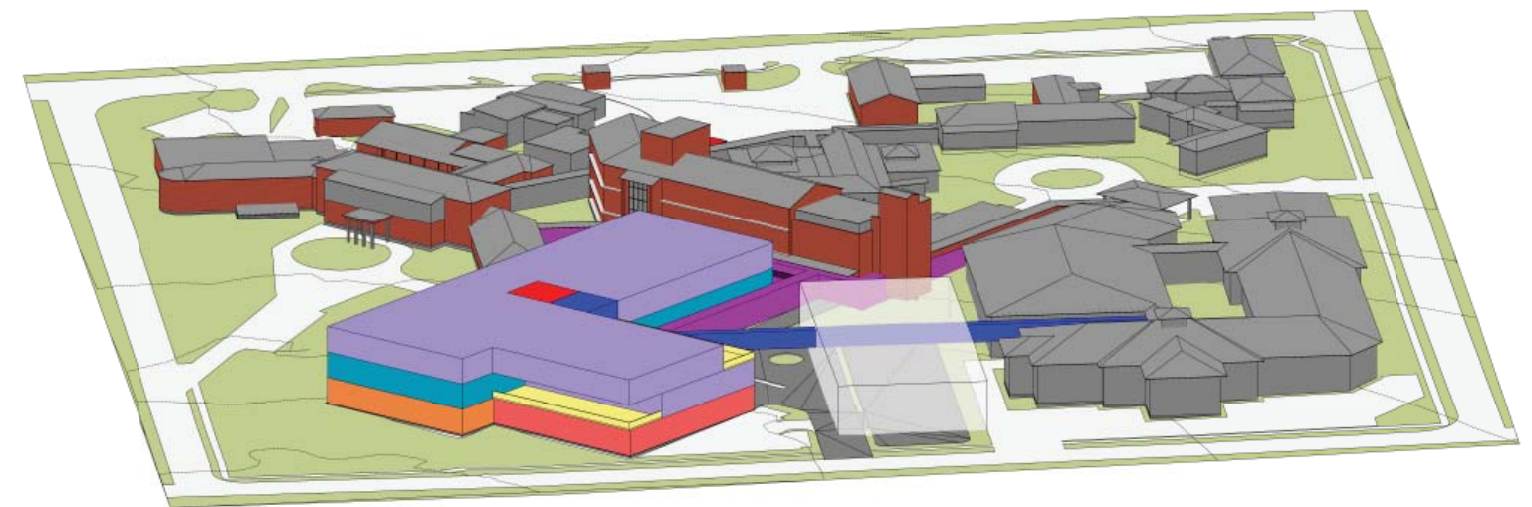
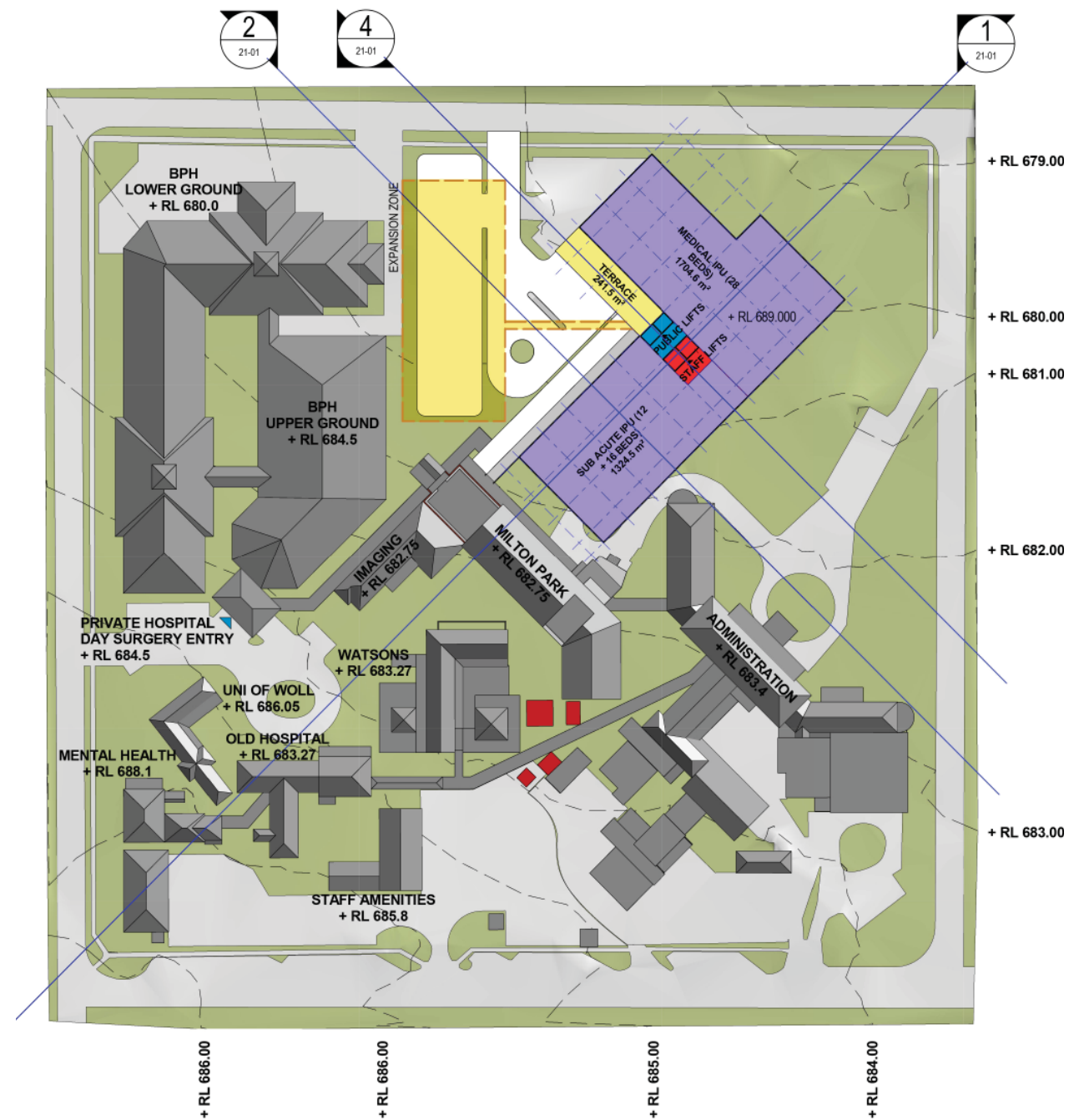
#### Level 2



## 08 8.7 Master Planning Options Considered Option 6 continued

## Angled Options

## Level 3

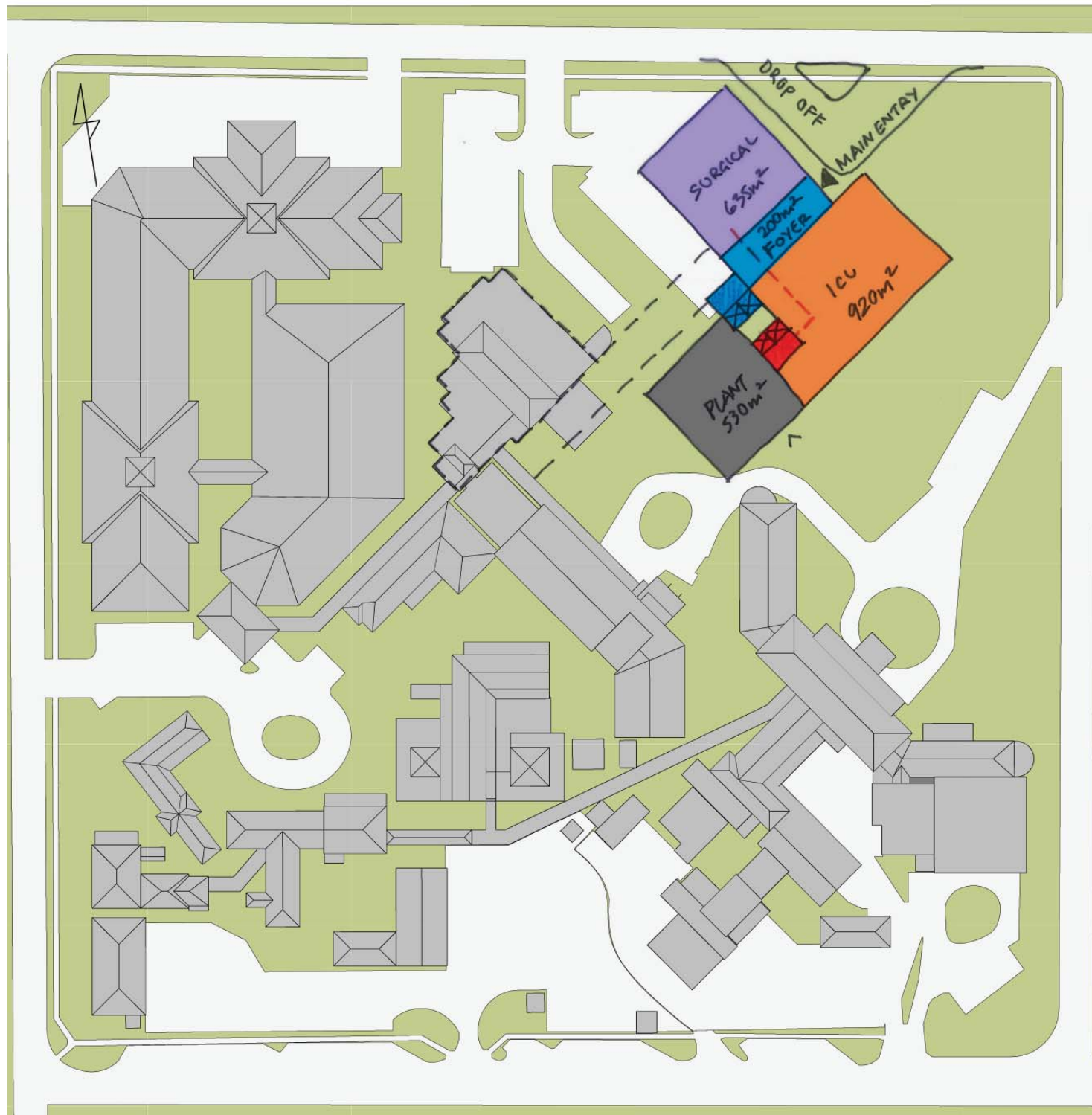


3D Perspective



## 08 8.8 Master Planning Options Considered Option 7

### Ground Level



### Angled Options

These options are developments of the Northern Early Options.

#### Option 7: Development to address Top 3 Clinical Priorities

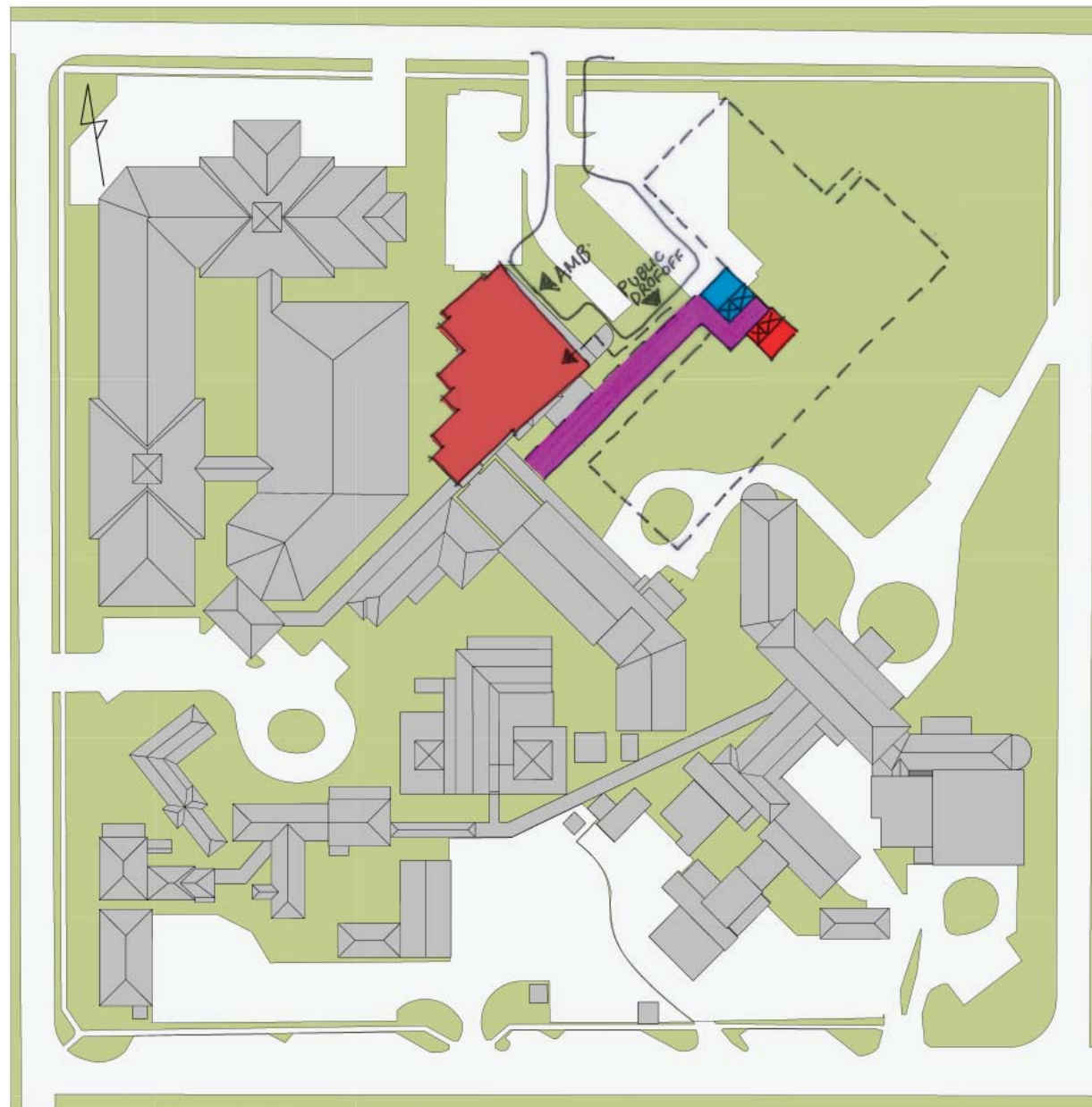
This option was developed to investigate how the existing Emergency Department could work with an adjacent new hospital building.

- Expanded ambulance and public drop off could serve existing Emergency Department and connect with the main entry lobby of the new hospital building.
- Design works with the sloping nature of the topography.

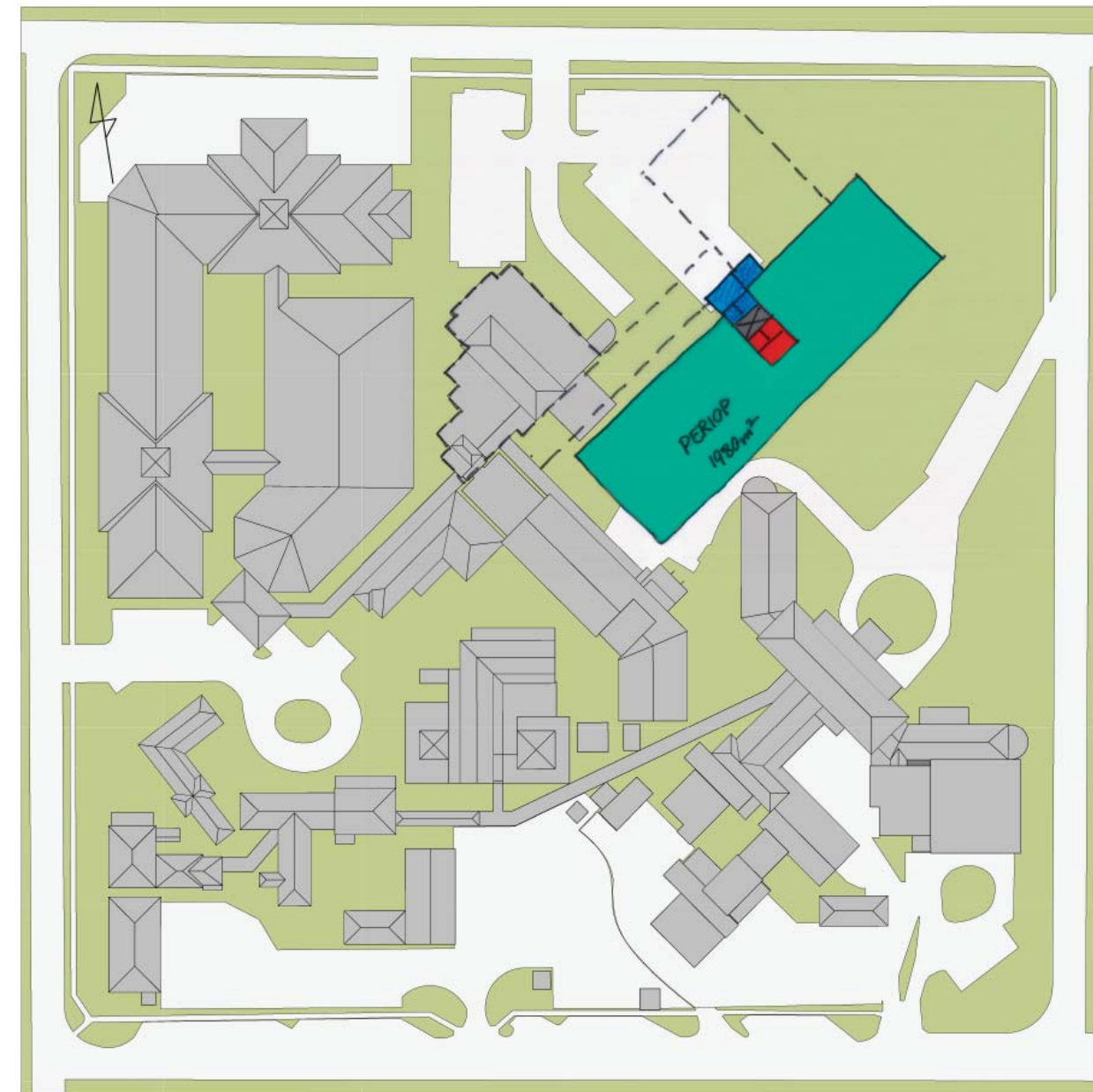
## 08 8.8 Master Planning Options Considered Option 7 continued

### Angled Options

#### Level 1



#### Level 2

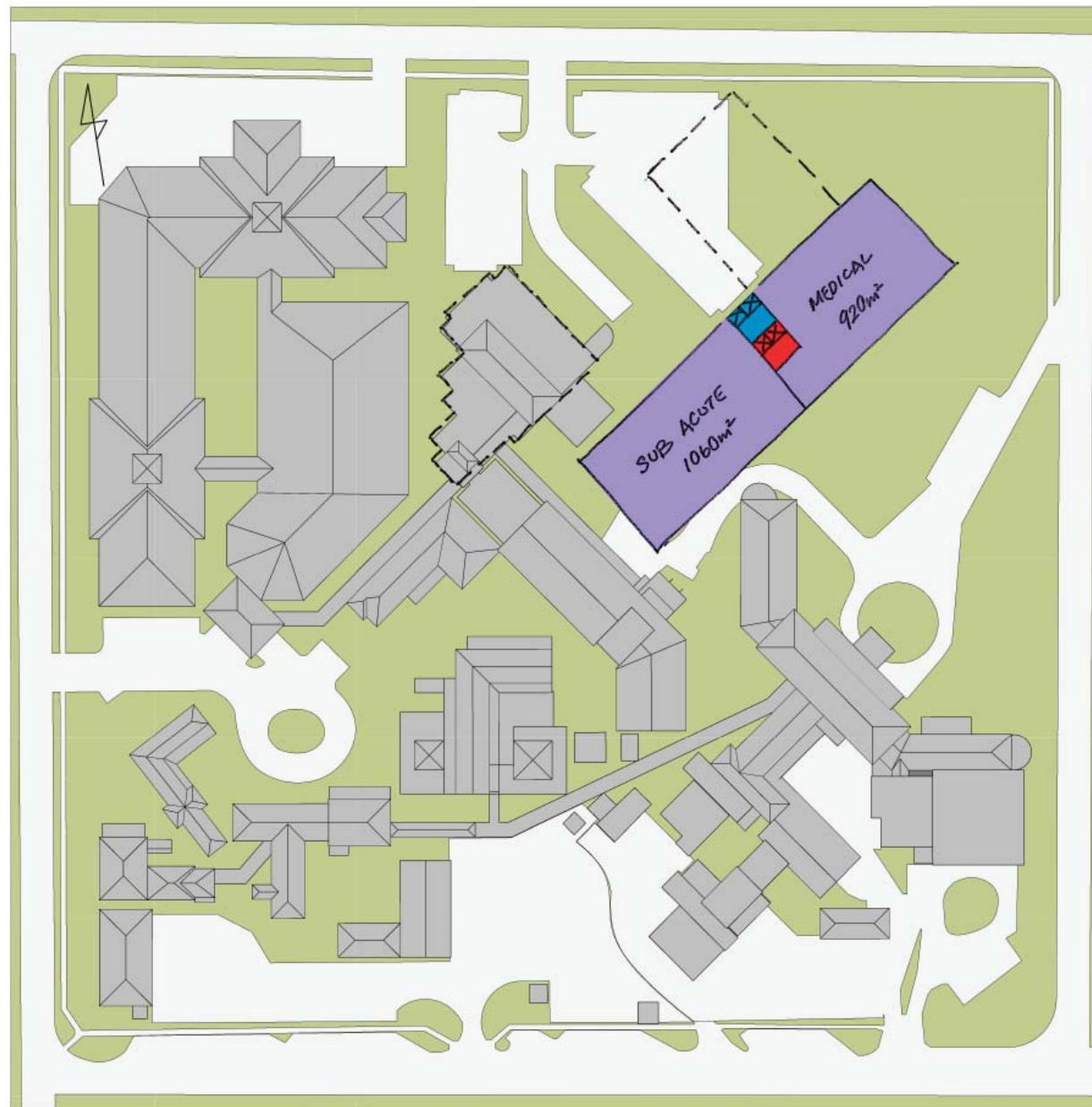




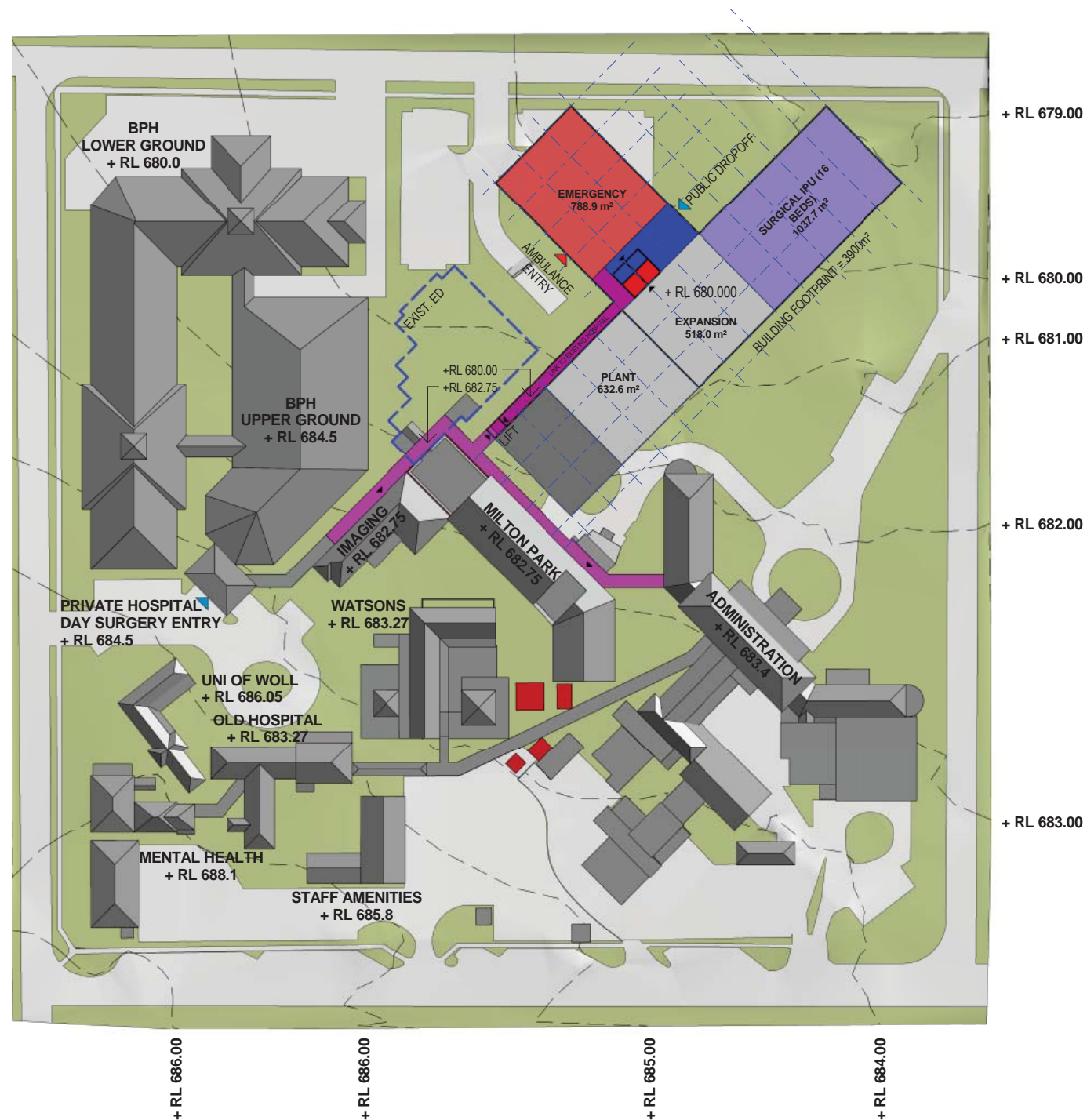
## 08 8.8 Master Planning Options Considered Option 7 continued

### Angled Options

#### Level 3



## 08 8.9 Master Planning Options Considered Option 8



Ground Level

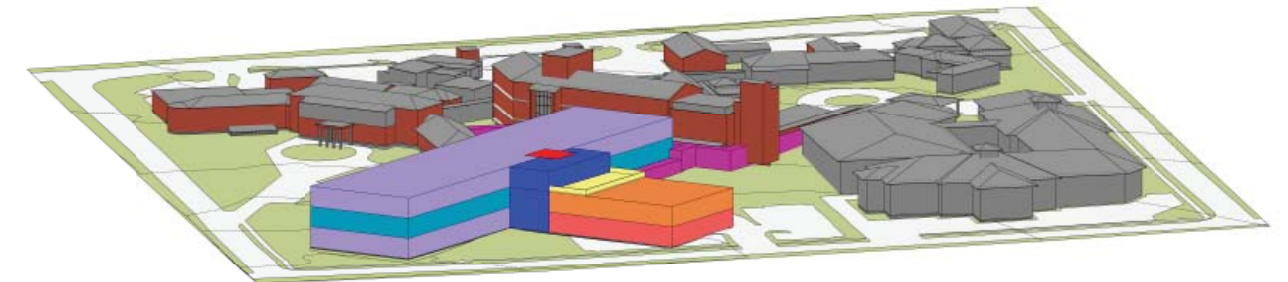
### Angled Options

These options are developments of the Northern Early Options.

#### Option 8: Development to address Top 4 Clinical Priorities

This option concentrates the Top 4 Clinical Priorities in one wing, allowing flexibility to construct a new Emergency Department at a later stage.

- Public entry off Bowral Street, allowing potential direct access from hospital to gardens.
- Larger building footprint, occupying more of the hospital garden.

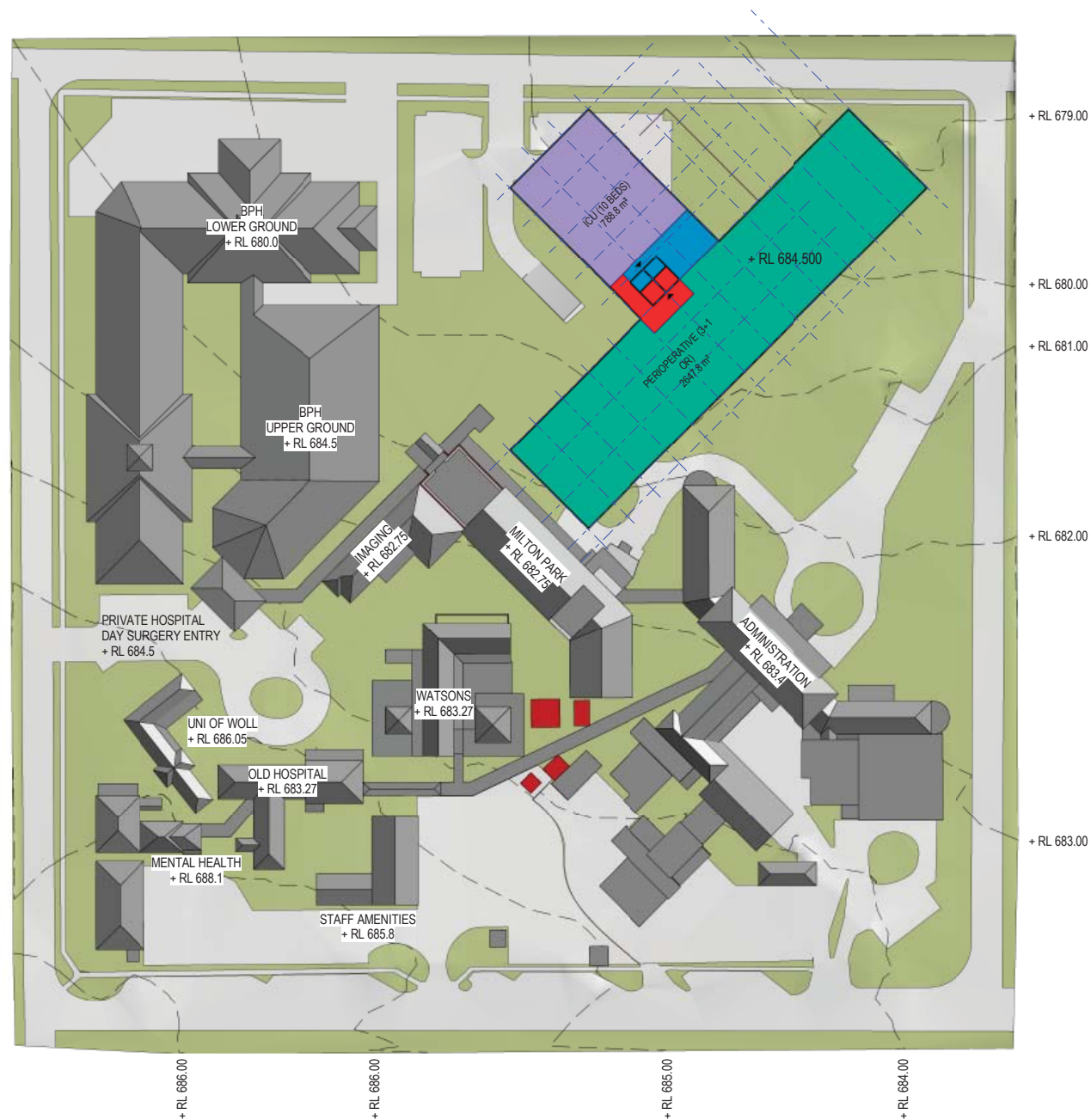




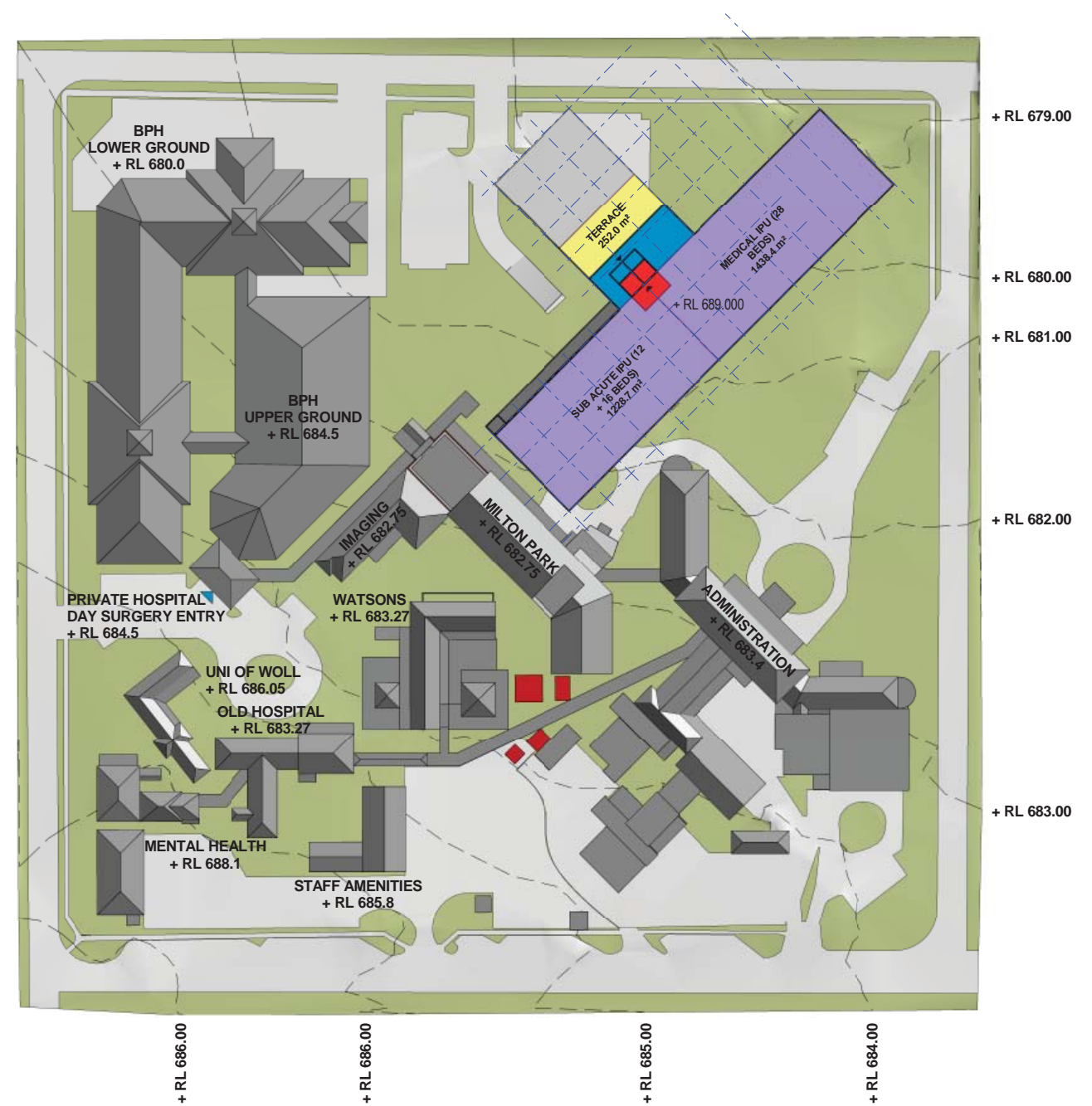
## 08 8.9 Master Planning Options Considered Option 8 Continued

### Angled Options

#### Level 1

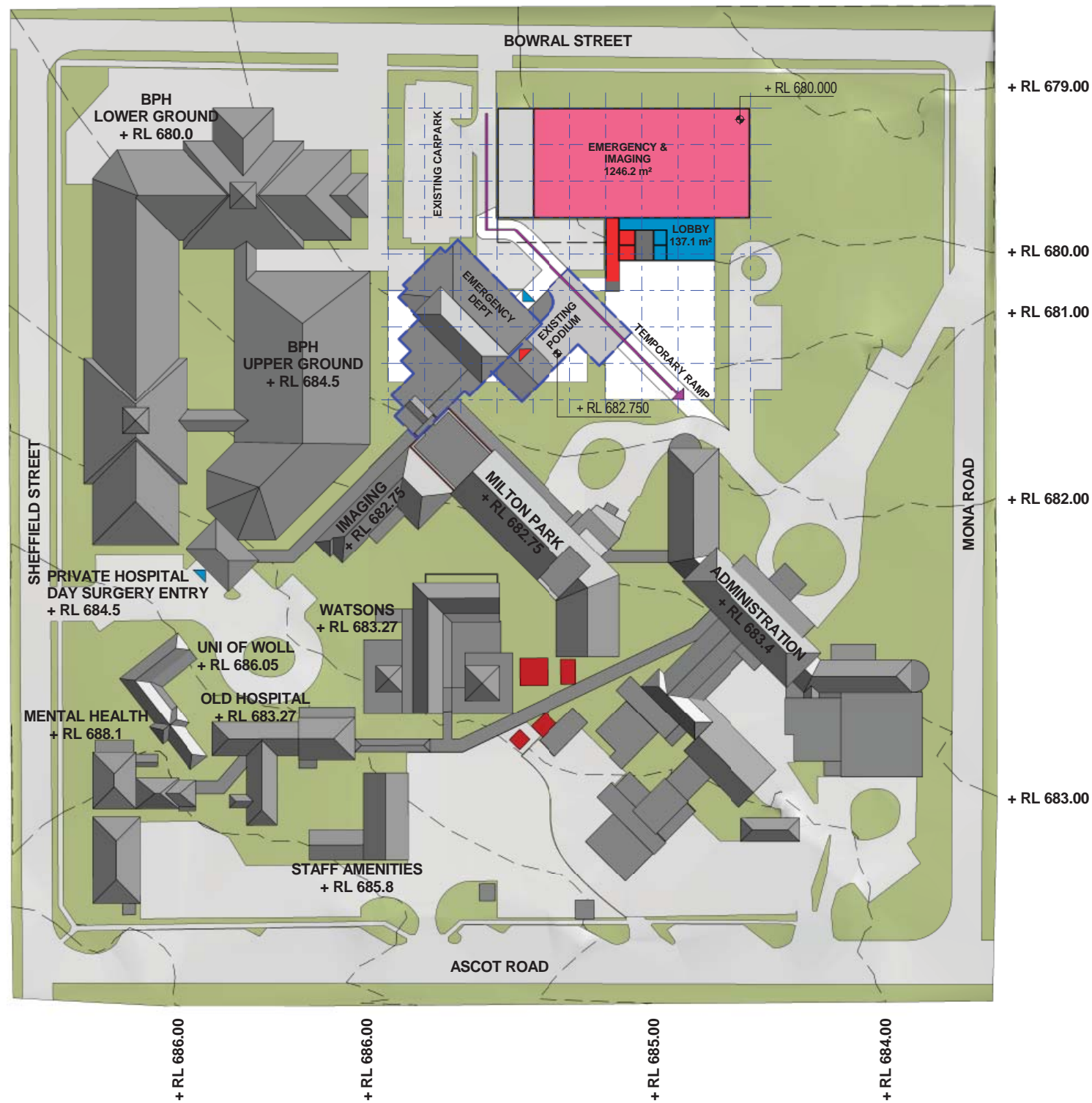


#### Level 2



## 08 8.10 Master Planning Options Considered Option 9

### Ground Level Stage One



### Bowral St Frontage Options

These options are developments of the Northern Early Options.

#### Option 9: Development to address Top 4 Clinical Priorities

This option concentrates the Top 4 Clinical Priorities in one wing, allowing flexibility to construct a new Emergency Department at a later stage.

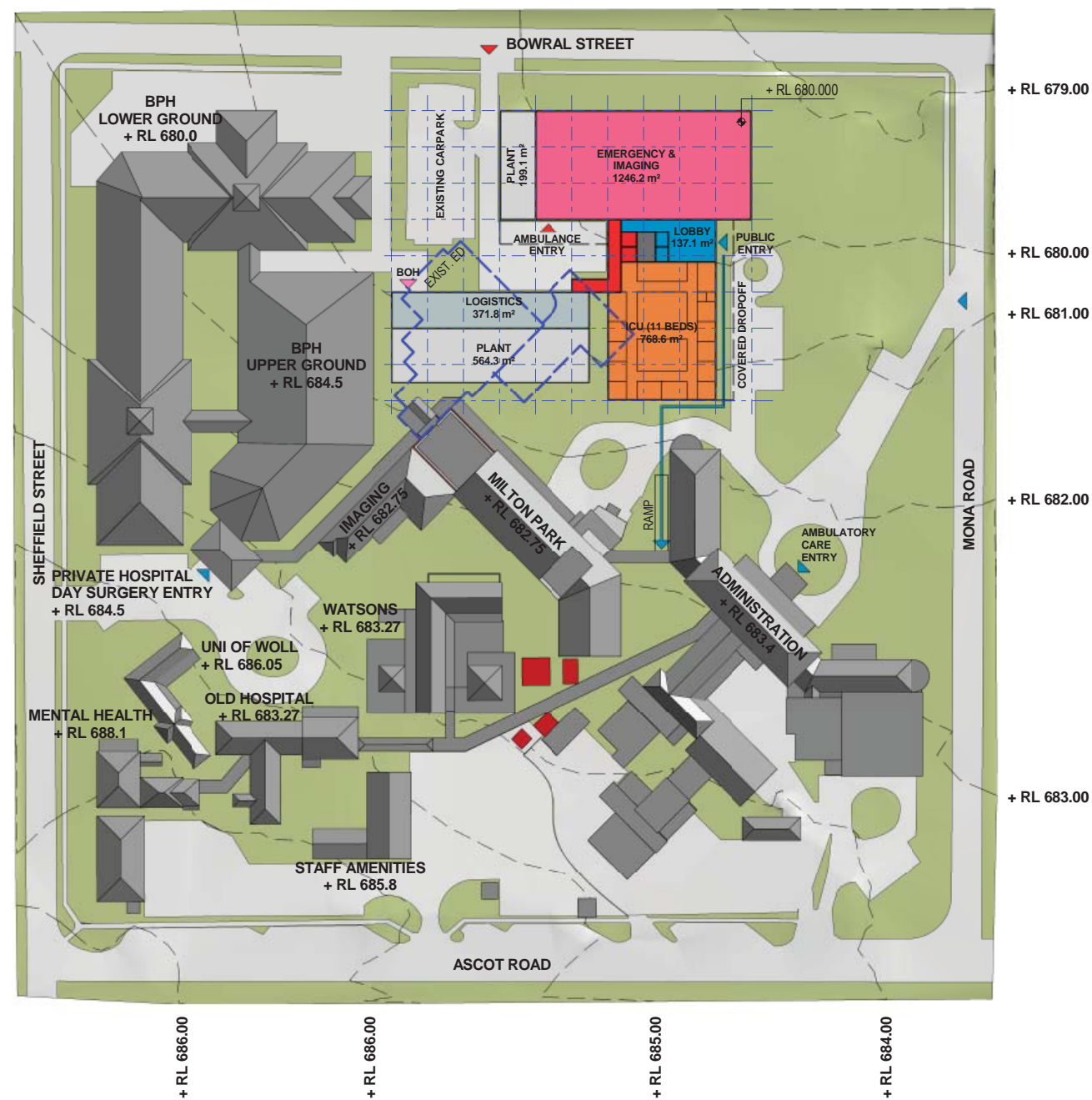
- Public entry off Bowral Street, allowing potential direct access from hospital to gardens.
- Larger building footprint, occupying more of the hospital garden.



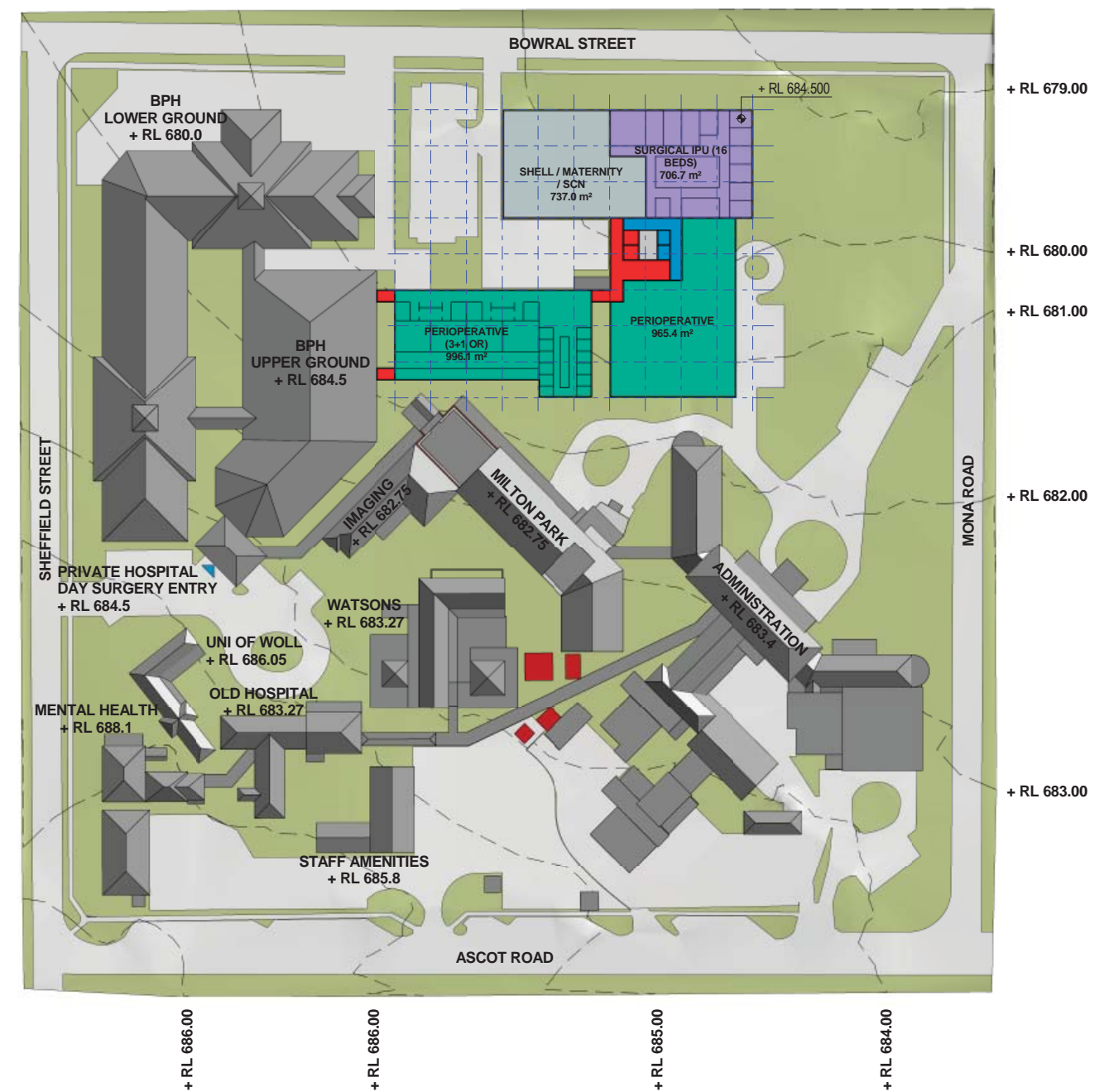
## 08 8.10 Master Planning Options Considered Option 9 continued

### Bowral St Frontage Options

#### Ground Level



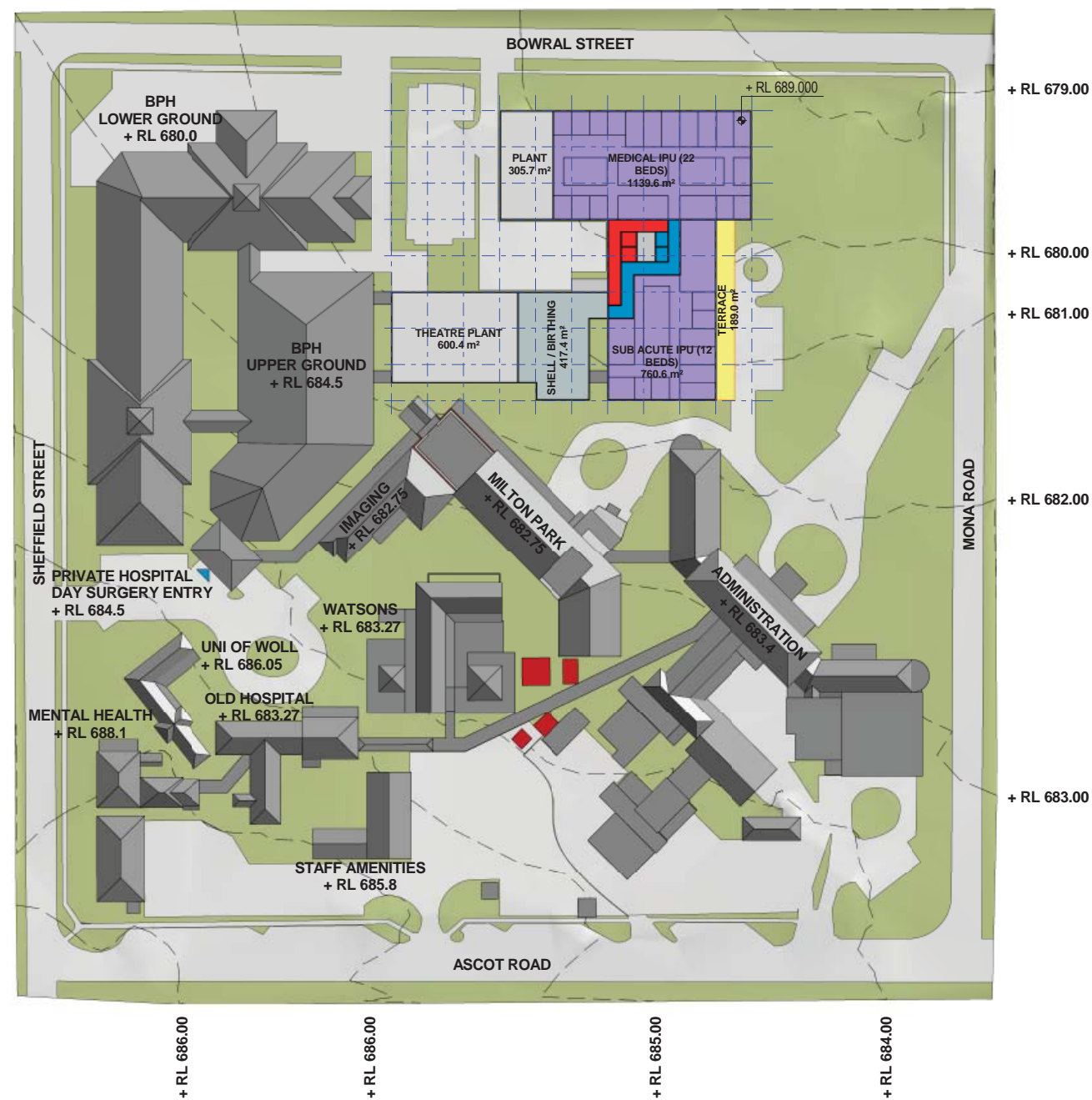
#### Level 1



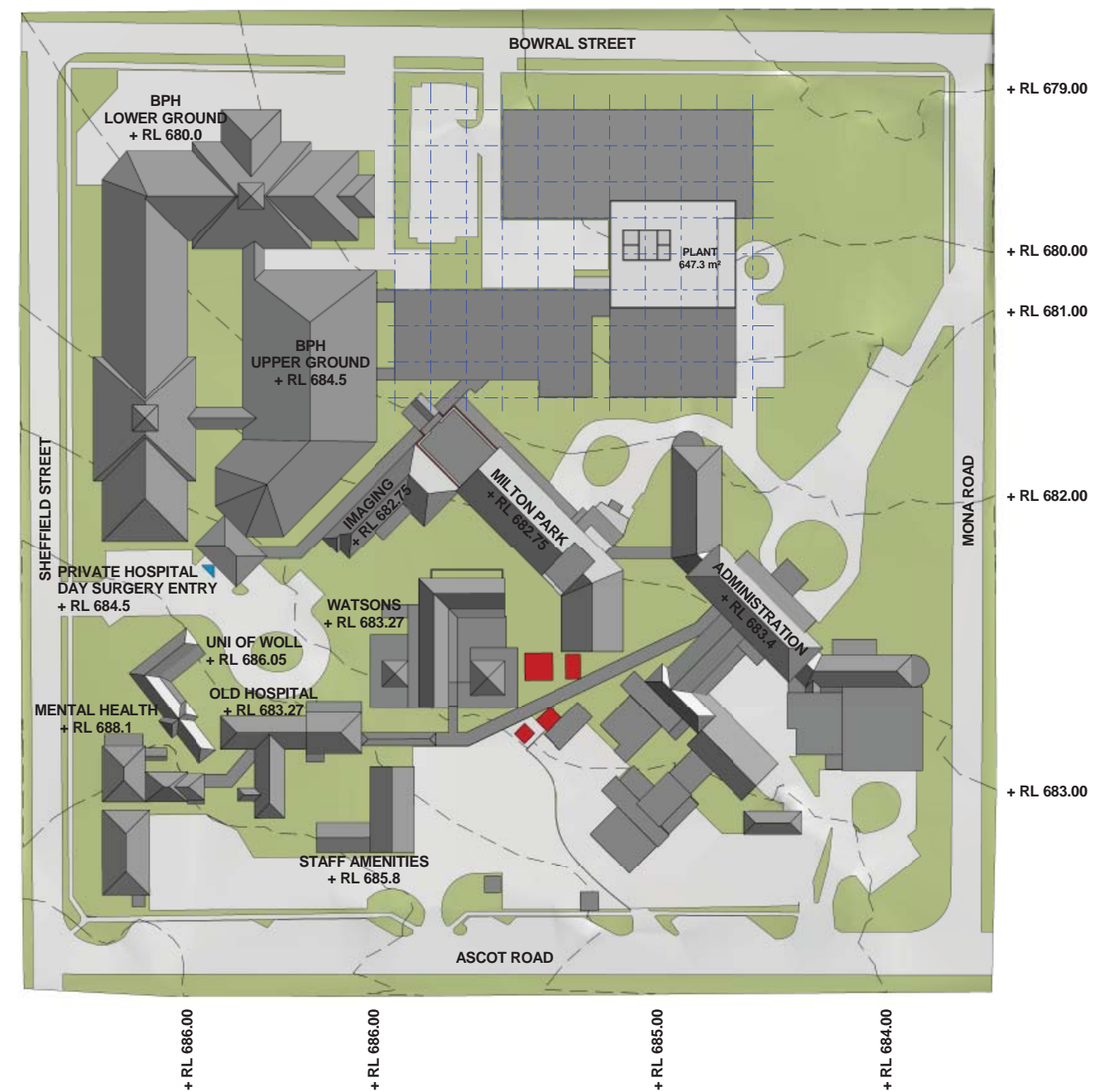
## 08 8.10 Master Planning Options Considered Option 9 continued

### Bowral St Frontage Options

#### Level 2

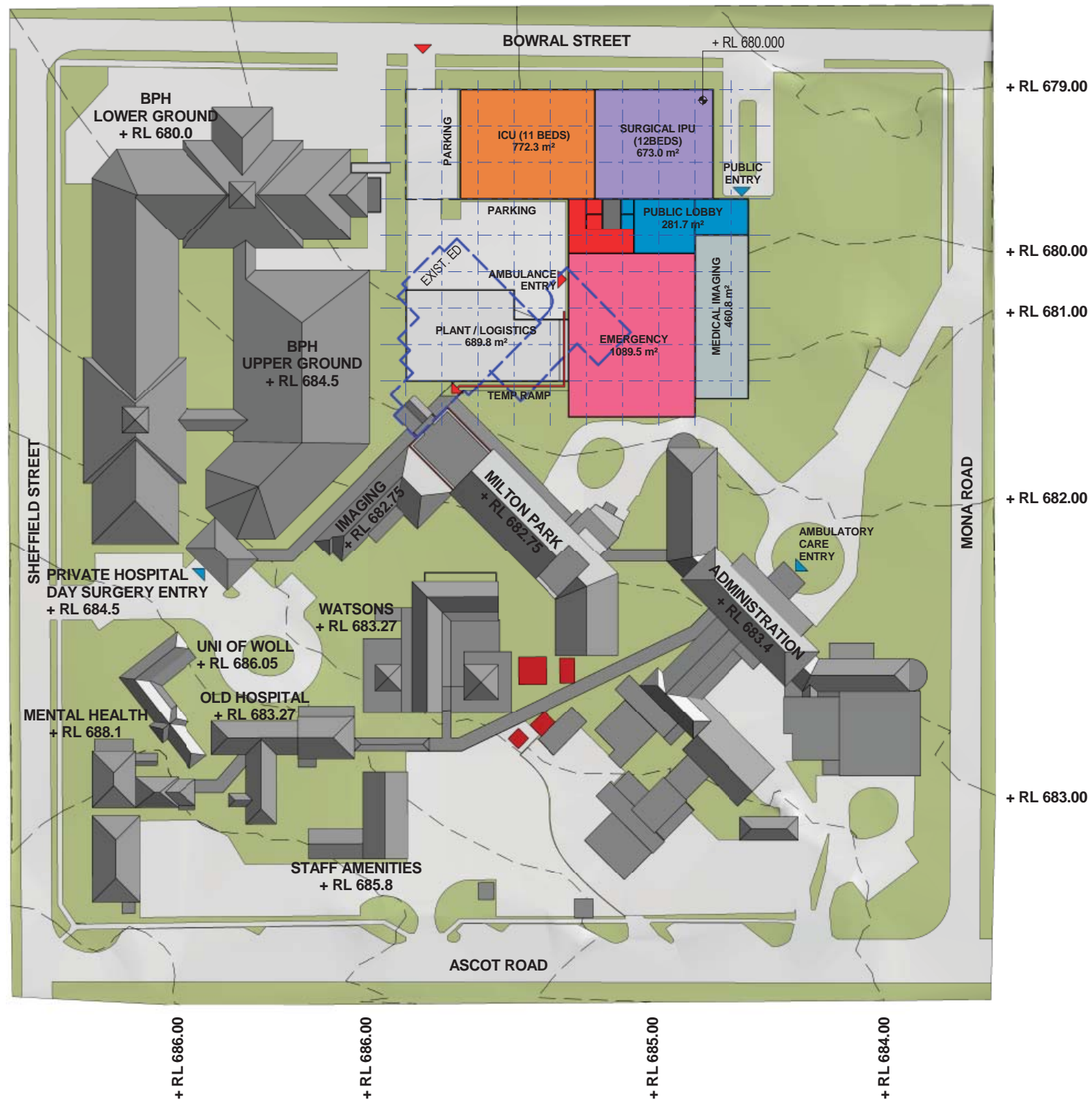


#### Level 3





## 08 8.11 Master Planning Options Considered Option 10



### Bowral St Frontage Options

These options are developments of the Northern Early Options.

#### Option 10: Staged development to deliver Adult Inpatient Accommodation in Stage 1

- Adult Inpatient Accommodation, the Top Clinical Priority, can be delivered in the first stage.
- Emergency Department, which is the 4th Clinical Priority, can be delivered in a subsequent stage.
- Medical Imaging can be constructed in future development and is in position to be independently operated.

This option was assessed against the performance criteria outlined on page XX and was deemed to provide the best opportunities for the site. This option was developed into the final Master Plan.

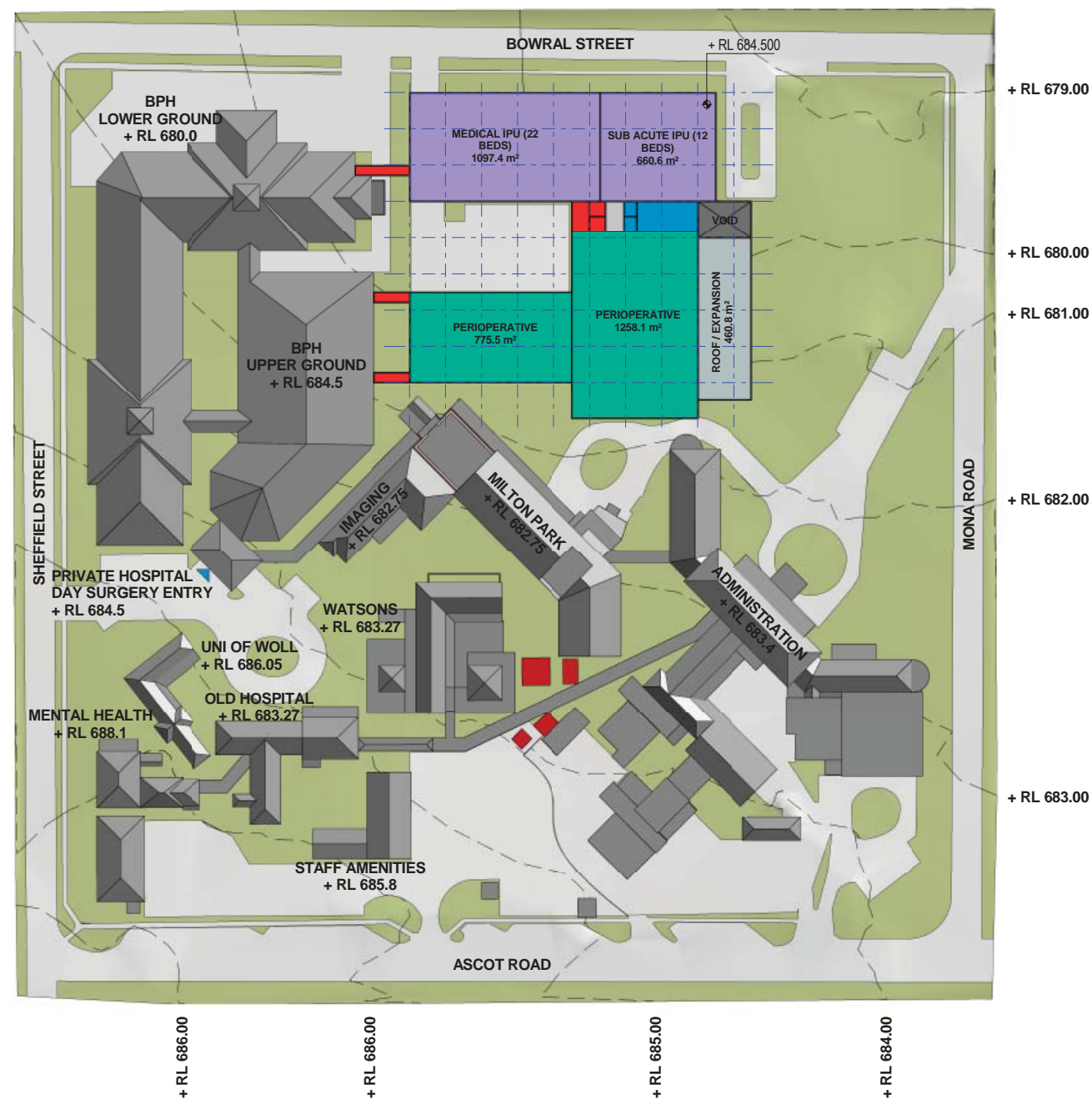
- The configuration provides a flexible framework to construct in stages.
- A logical, staged expansion down the centre of the site.
- Clear inpatient and outpatient zones are identified.
- Linkages to the private hospital are accommodated for.
- Existing services are minimally impacted by construction of the initial stage.
- Siting of the new building makes optimal use of the sloping topography.

Ground Level

## 08 8.11 Master Planning Options Considered Option 10 continued

### Bowral St Frontage Options

#### Level 1



#### Level 2

