

LISMORE BASE HOSPITAL
INTEGRATED CANCER CARE CENTRE

PART 3A ENVIRONMENTAL ASSESSMENT

Prepared for
NSW Health - North Coast Area Health Service

Revision 02 Mar 2008

Table of Contents

1. STATEMENT OF VALIDITY	4
2. EXECUTIVE SUMMARY	6
2.1. Project Overview	6
2.2. Planning Process	6
2.3. Environmental Assessment Report	6
3. INTRODUCTION	8
3.1. Purpose of the Report	8
3.2. Background to the Lismore Base Hospital Integrated Cancer Care Centre	8
3.3. Development Objectives	12
3.4. Site Description	12
3.5. Statutory Planning Considerations	18
3.6. Development for which Approval is sought	20
3.7. Project Development and Design Process	20
3.8. Consultation Requirements	21
4. LISMORE BASE HOSPITAL INTEGRATED CANCER CARE CENTRE	22
4.1. Project Objectives	22
4.2. Project Design Overview	23
4.3. Integrated Cancer Care Centre Design Concept Summary	24
5. IMPACTS OF THE DEVELOPMENT OF THE INTEGRATED CANCER CARE CENTRE	35
5.1. Suitability of the Site	35
5.2. Environmental, Social and Economic Impacts	35
5.3. Public Interest	36
5.4. Environmental Impacts	37
6. DRAFT STATEMENT OF COMMITMENTS	48
7. CONCLUSION	51
APPENDIX 1 Department of Planning Environmental Assessment Requirements	52
APPENDIX 2 Geotechnical and Preliminary Environmental Assessment	53
APPENDIX 3 Architectural Drawings	54
APPENDIX 4 Traffic and Parking Impact Report	55
APPENDIX 5 Lismore Base Hospital ICCO Cost Plan	56
APPENDIX 6 Shadow Diagrams	57
APPENDIX 7 Building Elevations	58

LIST OF FIGURES

- 01 Lismore Base Hospital New Integrated Cancer Care Centre Site
- 02 Lismore Base Hospital New Integrated Cancer Care Centre Site Survey
- 03 Ground Floor Plan
- 04 First Floor Plan
- 05 View Analysis
- 06 Lismore Base Hospital Aerial View
- 07 Building elevations in relation to surrounding built environment

APPENDICES

- 1 Department of Planning Environmental Assessment Requirements
- 2 Geotechnical and Preliminary Environmental Assessment
- 3 Architectural Drawings
- 4 Lismore Base Hospital Stage 2 Traffic Study
- 5 Quantity Surveyor Cost Plan
- 6 Shadow Diagrams
- 7 Building Elevations

1. STATEMENT OF VALIDITY

Submission of Environmental Assessment
Prepared under Part 3 of the *Environmental Planning and Assessment Act 1979*

Environmental Assessment
prepared by

Name	Benson Abrahams
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In respect of	Lismore Base Hospital New Integrated Cancer Care Centre
Applicant & Land Details	
Applicant name	Health Administration Corporation
Applicant Address	73 Miller Street North Sydney NSW 2060 Australia Locked Mail Bag 961 North Sydney NSW 2059 Australia
Land to be developed	Lismore Base Hospital – Hunter St & Uralba St, Lismore NSW
Lot & DP	Lot 267 DP755718

Environmental Assessment

An environmental assessment is attached.

Statement of Validity

I certify that I have prepared the contents of the environmental assessment in accordance with the Director's Requirements dated 30 October 2007 and additional information received from NSW Planning on 27 February 2008, and that to the best of my knowledge, the information contained in the environmental assessment is neither false nor misleading.

Signature

A handwritten signature in black ink, appearing to be 'B. Allen', with a stylized flourish at the end.

Date 25 March 2008

2. EXECUTIVE SUMMARY

2.1. Project Overview

This Environmental Assessment relates to the redevelopment a new Integrated Cancer Care Centre at Lismore Base Hospital in Lismore, NSW. The proposed redevelopment forms part of the New South Wales Government objective to improve access to and expand the radiotherapy services in NSW.

The new Integrated Cancer Care centre (ICCC) is the second stage of a three-stage master plan upgrade to Lismore Base Hospital, which will develop the overall hospital campus to enhance clinical, support and community facilities within the current hospital site.

Lismore Base Hospital (LBH) is the major acute care and referral hospital for the North Coast Area Health Service. The hospital accommodates 210 inpatient beds and provides emergency care, critical care, general medical, surgical, paediatric, obstetric, mental health and clinical support services. The proposed development of the new ICCC will see the establishment of the following facilities:

- Radiation Oncology Clinics
- Radiotherapy Treatment
- Orthovoltage Treatment¹
- Chemotherapy Treatment
- Patient Support Facilities
- Staff Support and Office Accommodation Facilities

2.2. Planning Process

Section 75B of the Environmental Planning and Assessment Act, 1979 (the EP&A Act) provides that Part 3A of the EP&A Act applies to the carrying out of development that is declared to be a project to which this Part applies.

The Minister for Planning confirmed that the Lismore Base Hospital New Integrated Cancer Care Centre redevelopment is a project to which *State Environmental Planning Policy (Major Projects) 2005* applies and is thus declared to be a project to which Part 3A applies. The Minister has authorised the proponent to submit an application for the project.

The Director-General has issued the Environmental Assessment Requirements for the project, a copy of which is attached at Appendix 1. This Environmental Assessment report addresses these requirements.

2.3. Environmental Assessment Report

This report accompanies an application for the approval of the Lismore Base Hospital's new ICCC redevelopment project. It describes the site and its context and provides details of the proposed development. The report constitutes an environmental assessment of the project as required by Part 3A of the *Environmental Planning and Assessment Act 1979*.

The proposal demonstrates consistency with prevailing planning instruments at the State and local level.

An assessment of the impacts of the proposal indicates that the project and the principles guiding the future redevelopment of the site will result in positive social, environmental and health outcomes. In summary, the project involves the development of a new 'state of the art' Integrated Cancer Care Centre

¹ Orthovoltage treatment is the procedure related to skin cancers

that will provide new radiotherapy treatment facilities and replace outdated and dysfunctional medical oncology facilities currently on the site. The proposal involves the establishment of a new two bunker radiotherapy unit, chemotherapy treatment, clinics, clinical support and staff office accommodation facilities. The new unit will provide the population of the North Coast Area Health Service with a very high level of cancer treatment, which is in line with the NSW Government's Action Plan for Health.

This assessment concludes that the site is suitable for the proposal and that the implementation of the Lismore Base Hospital new ICCC redevelopment project is consistent with the public interest.

Accordingly, we seek the Minister's favourable consideration of this application.

3. INTRODUCTION

3.1. Purpose of the Report

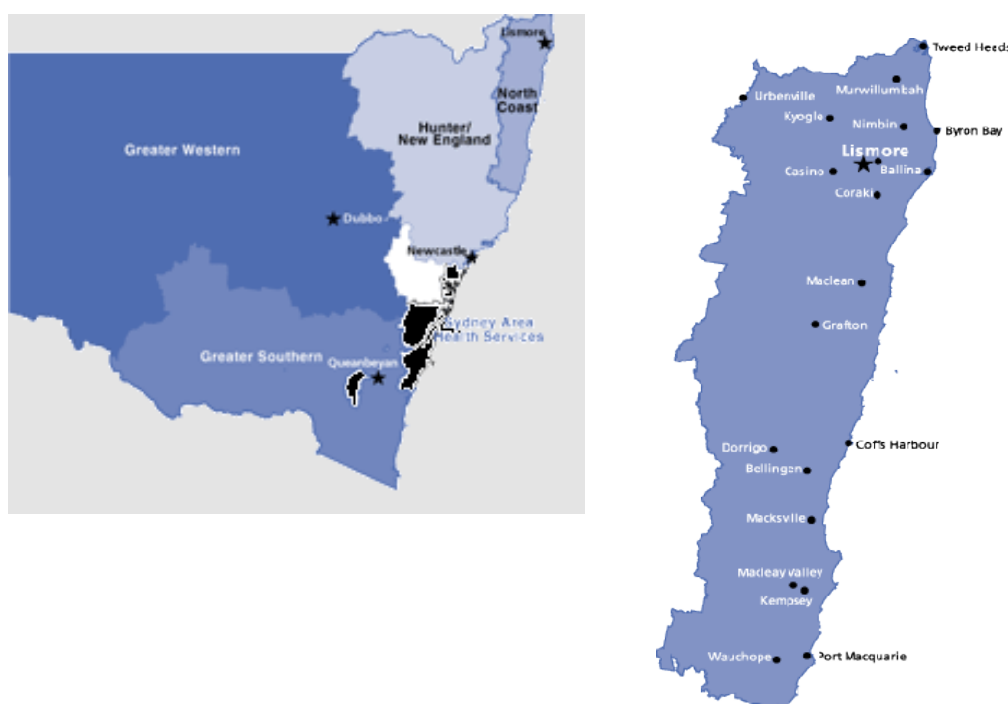
This Environmental Assessment report ("EA") has been prepared on behalf of the NSW Department of Health and North Coast Area Health Service (NCAHS) to accompany an application to the Director General under Section 75E of the *Environmental Planning and Assessment Act 1979* ("the Act") for approval to carry out a project as defined in Part 3A of the Act ("a major project").

The major project to which this application relates is the redevelopment of Lismore Base Hospital new Integrated Cancer Care Centre, Lismore.

The Minister for Planning has expressed an opinion that the proposed development is a major project for the purposes of the *State Environmental Planning Policy (Major Projects) 2005* ("the Major Projects SEPP"), and Part 3A of the Act.

3.2. Background to the Lismore Base Hospital Integrated Cancer Care Centre

The North Coast Area Health Service (NCAHS) covers an area of 35,570 square kilometres, extending from the Hastings Shire in the south to the Queensland border in the north, and extends westward from the coast to the Great Dividing Range. Lismore Base Hospital (LBH) has been nominated as one of the NSW Rural Referral Hospitals where specialty services such as cardiac catheterisation, diagnostic cardiology, cancer care, renal medicine, endocrinology, neurology, oral health and diagnostic imaging will be developed and enhanced over the next five years. Local population growth and the ageing population combined with a shift toward same day and ambulatory care and the Area's objectives in relation to self-sufficiency and flow reversal are the main factors influencing demand for health services across the North Coast and at LBH.



A primary objective of the NSW Health Department has been to improve access to and expand the radiotherapy treatment services in NSW. Currently there are 13 Radiation Oncology Treatment Centres (ROTCs) in NSW which operate within the framework of the NSW Cancer Care Model. This model consists of a networked approach utilizing multidisciplinary teams linked to community based services through formal links with GP's and major regional hospitals.

An integrated cancer service following this model has been planned for the North Coast Area Health Service with the completion and commencement of integrated cancer care services at Port Macquarie and Coffs Harbour Hospitals. As part of the development of a networked cancer care services a new Integrated Cancer Care Centre (ICCC) is planned at Lismore Base Hospital.

In 2006 there were 1,859 new Northern Rivers cancer patients. Of these radiotherapy treatment was received by 697 patients, 532 of whom travelled to Queensland and 165 travelled to elsewhere in NSW. This figure represents 37% of cancer patients receiving radiotherapy which is well below the NSW target of 52% of cancer patients who could benefit from radiotherapy treatment. Of the total number of new cancer patients each year within the Northern Rivers who would benefit from radiotherapy treatment, 15% or 279 patients did not seek radiotherapy treatment due to socio-economic disadvantage. There is a significant reduced quality of life for patients who could benefit from radiotherapy but who do not utilise this service. The estimated cost in relation to the reduced quality of life of the 15% of patients who do not seek radiotherapy treatment in 2006 figures is \$16.21 million/pa.

The high cost of travel and accommodation involved in seeking radiotherapy treatment outside the Northern Rivers area of the NCAHS is impacting on the low socio-economic status of the region. Total estimates of travel and accommodation costs of the 697 Northern Rivers cancer patients seeking radiotherapy treatment is \$2.318 million.

The cost to the NCAHS of the 532 patients per year who travel to Queensland for radiotherapy services is \$2.962 million pa.

In 2006 a Service Procurement Plan was developed for the Lismore Base Hospital which incorporated the development of an Integrated Cancer Care Centre at Lismore Base Hospital staffed by local cancer specialists offering multidisciplinary patient treatment and management.

The development of the ICCC at Lismore Base Hospital will incorporate the state of the art radiation and medical oncology treatment, will address the current situation of residents of the Richmond Valley having to travel out of the Area to access radiotherapy services, and will address the high costs imposed on the community and NCAHS.

Existing Lismore Base Hospital Cancer Service

NCAHS has recently been restructured into four geographic networks. The Richmond Network consists of the LGAs of Ballina, Lismore, Richmond Valley and Kyogle. Secondary catchment areas for Lismore Base Hospital include Byron Bay to the east and Maclean to the south.

There is a predicted overall population growth for the Richmond Network of 7.2% over the 10 years from 2006 to 2016. The population of 0-14 year olds in the Richmond Network is expected to decrease by 12.5%, while the total population of 70+ age group increases by 51% for the same period. Specific LGAs have higher populations in this age group, (e.g., Ballina), however LBH will be the major referral hospital for the entire catchment area.

The health needs of the catchment population of the LBH are consistent with those for the wider North Coast area. North Coast residents experience premature mortality rates similar to the NSW average for males (850/100,000 compared with 861/100,000 NSW average) and females (536/100,000 compared with NSW average 553/100,000). The main causes of premature death continue to be cardiovascular disease, cancers, respiratory disease and injury/poisoning.

Rapidly increasing numbers of new cancer patients in the Northern Rivers area will place pressure on radiotherapy services. According to NSW Health there were 1,859 new cases in 2006 which is forecast to increase to 2,185 new cases (+17.5%) by 2011 and to 2,560 cases by (+37.7%) 2016. The growing population of the Northern Rivers and the increasing ratio of aging population are putting pressure on radiotherapy services.

A Level 4 cancer unit supplying medical oncology/haematology and radiation oncology consultations and general surgical services is currently provided at Lismore Base Hospital. The nearest public sector radiotherapy facilities are based in Brisbane and the majority of flows for radiotherapy treatment is to Queensland for the catchment population.

The existing Cancer Centre at Lismore Base Hospital was originally built in the 1933 and modified in 1978 & 1984 to accommodate the current cancer services. The facility is not purpose built and currently does not meet staff and patient accommodation requirements or current healthcare guidelines. The limits created by this dysfunctional facility are preventing access to treatment by the community.

Background Planning

The Lismore Base Hospital Service Procurement Plan (SPP) 2006 incorporated Stages 2 & 3 of the 3 stage redevelopment of the Lismore Base Hospital Campus (Stage 1 was the new 48 bed Mental Health Unit currently completing the construction phase).

Stage 3 of the redevelopment envisages that the new Clinical Services Block would be located directly to the West of the existing Block C. This will require the demolition of the existing Cancer Care Unit along Uralba Street, which will be decanted into the new Integrated Cancer Care Centre (Stage 2), in addition to the demolition of Crawford House which accommodates the LBH Library, relative and staff overnight accommodation, NCAHS and LBH administration. The proposed accommodation established for Stage 3 within the SPP is:

- New expanded Emergency Department;
- Ambulatory services zone;
- Expanded Operating Suite;
- ICU/ HDU;
- A minimum of 60 new beds; and
- Clinical support services

Stage 2, the focus of this report, as identified in the SPP, develops a new Integrated Cancer Care Centre and Radiotherapy unit within the old Richmond Clinic zone (the existing mental health unit at LBH). A number of capital options were developed as part of a Project Definition Plan phase of planning to identify the most efficient, cost effective and clinically appropriate approach. The 5 options developed are outlined below.

Option 1 – being the development of a new two storey purpose built facility on the site of the previous Richmond Clinic of Lismore Base Hospital which would be completely demolished. This option established a new purpose built ICC

establishing all clinic area, radiation oncology, medical oncology and clinics, on the ground floor of the building with support services, staff facilities and offices located on the first floor of the building.

Option 2 - being the development of a new two storey purpose built facility on the site of the previous Richmond Clinic of Lismore Base Hospital which would be completely demolished. This option established a new purpose built ICCC establishing radiation oncology, medical and clinics and associated support facilities on the ground floor of the building with medical oncology, associated support services, staff facilities and offices located on the first floor of the building.

Option 3 – this option has similar planning configurations to Option 1, that is all clinic area, radiation oncology, medical oncology and clinics, on the ground floor of the building with support services, staff facilities and offices located on the first floor of the building, but has been planned to allow a higher integration of medical oncology with the clinic areas of the building.

Option 4 – this option is as presented in the SPP, being based on partial retention of the Richmond Clinic (existing mental health unit) and refurbishment of the existing building area for medical oncology and new build facilities on the site for radiation oncology, clinic and staff support and office accommodation.

Option 5 – this option is based on a privately developed integrated cancer care centre within Lismore providing cancer services to the public. This option would incorporate the development of a purpose built integrated cancer care unit incorporating radiation and medical oncology treatment. It is envisaged, for the purpose of evaluation that this facility would be a privately funded, capital and recurrent costs, facility built within the grounds of the St Vincent Private Hospital in Lismore.

Of the above 5 capital planning options, Option 2 was identified as the planning outcome that most closely met the physical and functional requirements for the new Integrated Cancer Care Centre at Lismore Base Hospital. The key issues which distinguish this option over the other options in relation to operational impacts were:

- The division of clinical areas between the two levels of the building (radiotherapy treatment and consultation on the ground floor with chemotherapy treatment on the first floor) allowed better management of patients through the unit, as treatment times for the two types of patients vary.
- The above division of clinical areas will also allow sections of the building to be secured while other parts of the building remain operational facilitating efficient staff utilisation.
- The establishment of key locations for staff stations and reception areas in relation to patient and visitor waiting/treatment areas also facilitated efficient staff utilisation.
- The separation of the building into clear zones for patients, visitors and staff reinforced clear traffic flows and staff and patient security.
- Efficient links to LBH existing clinical facilities will facilitate patient transport to and from treatment reducing delays and transports costs/impacts.

- Provision of expansion potential within the proposed built form of the facility will allow the centre to increase staffing as the second linear accelerator is installed without the need to endure additional building works while the unit is functional.

3.3. Development Objectives

The key planning principles expressed by the Lismore Base Hospital key stakeholders and the NCAHS that were seen as imperative to the design of the new facility included:

1. The design of the building will need to express the function of clinic activity being carried out within it.
2. The building needs to have a human scale
3. The building should not be overpowering and alienating to its users both staff and public.
4. The building needs to be energy efficient and planned to maximise positive orientation.
5. The building needs to support good wayfinding practice.
6. The building needs to meet OH&S, accessibility and security requirements of current health care facilities in NSW.
7. The building should logically setout primary areas for staff, visitors and patients and ensure that traffic flows for the above three groups are efficient and reduce overlapping that would compromise the security or privacy of each of the groups.
8. The building needs to have a direct link to the existing Lismore Base Hospital.
9. The majority of patient treatment areas, especially where patients undergo extended treatment times, are to have access to external views and light.
10. Visitors and patients should have the ability to access external spaces from the building.
11. The majority of staff offices are to have access to natural light.
12. Circulation patterns need to be direct and as short as possible.
13. Visually the impact of the bunkers need to be reduced.
14. Engineering systems employed in the building are to meet current health planning requirements and where applicable should interface with existing engineer services in Lismore Base Hospital.

3.4. Site Description

The site is located at 60 Uralba Street, Lismore, NSW. The site is situated to the north of the existing Lismore Base Hospital and is bounded by the Hospital to the south, Hunter Street to the west and Laurel Avenue to the north. The site is currently occupied by the existing Richmond Clinic building accommodating the 25 bed mental health unit. The staff and patient of the existing mental health unit will be decanted to the new 48 Bed Mental Health Unit currently completing construction. Once decanting of Richmond Clinic has been completed the existing building will be demolished and the site cleared for construction of the new Integrated Cancer Care Centre.

The site is located in the northwest portion of Lot 267 DP755718 and comprises an area of approximately 2,600m² and is owned by the Health Administration Corporation. The site is located within the Lismore Local Government Area, Parish of Lismore, County of Rous and is within a residential and commercial area of Lismore. The fall across the site is approximately 7 metres from the south eastern corner to the north western corner of the site. As discussed above the site is currently occupied by a three storey brick building accommodating the mental health inpatient unit, Pain Management Unit and Needle and Syringe Exchange Programme Unit of the Lismore Base Hospital.



Figure 01 Lismore Base Hospital New Integrated Cancer Care Centre Site

The site had been vacant prior to 1947, with a two-storey brick building, the Richmond Clinic, and a pool being built in 1947 to 1948. The mental health portion of the building was constructed approximately 20 years ago, the existing Richmond Clinic does not meet current guidelines for the delivery of healthcare services and it is now considered dysfunctional for its purpose. The subject site has been utilised for health care purposes the continuum of its developed stage. The site is located approximately 2 km north-east of the centre of Lismore CBD and forms the northern zone of the Lismore Base Hospital site. The site is Crown Land zoned for hospital use and is managed by the North Coast Area Health Service.

Being partially an existing hospital site the area has a high degree of existing overhead and in ground engineering services, a number of which will become redundant as surplus buildings are demolished to make way for the new Integrated Cancer Care Unit. Other engineering services will be maintained or redirected as they form part of the infrastructure of the existing Hospital or the new development.

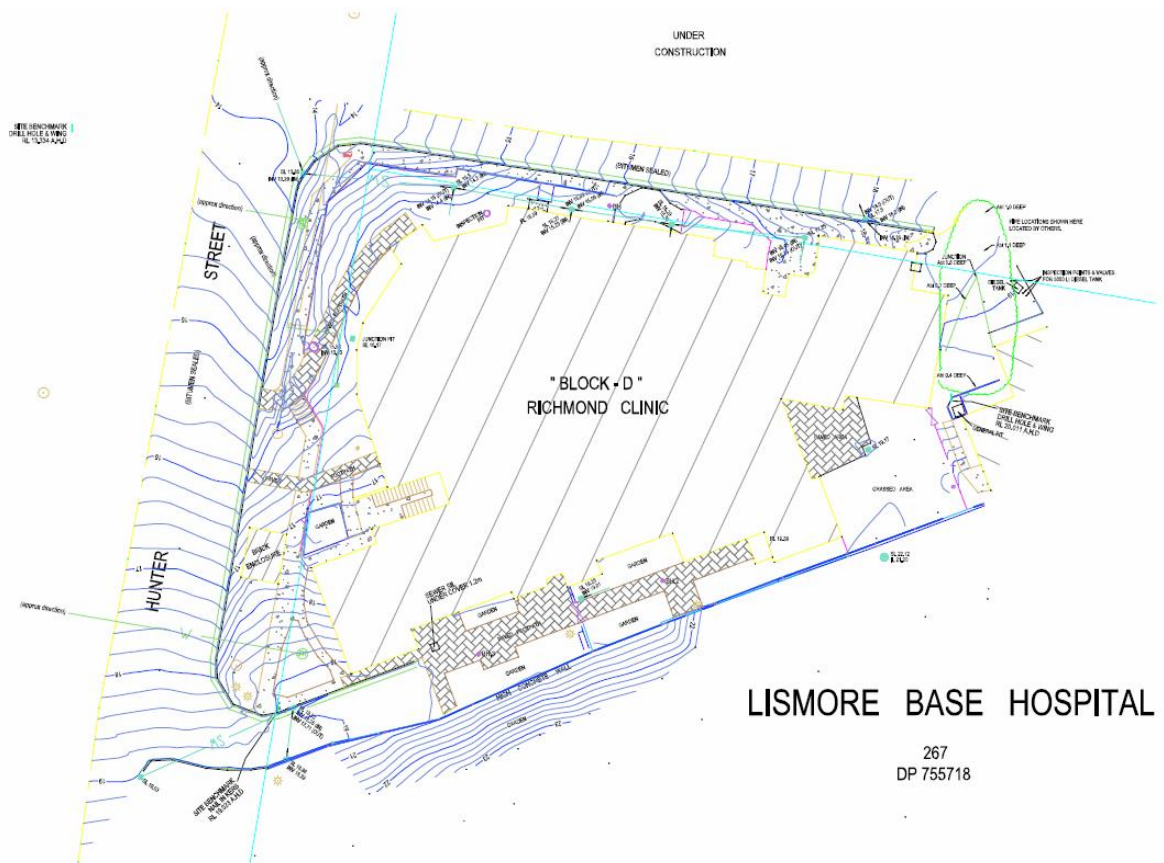


Figure 02 Lismore Base Hospital New Integrated Cancer Care Centre Site Survey

The Existing Hospital

Lismore Base Hospital is a 210 bed referral hospital on the North Coast of New South Wales. Lismore Base Hospital offers general and specialist medical and surgical services plus specialist paediatric services and mental health services. Midwifery and Women Care Services include Special Care Nursery up to Level 2.

Lismore is the major referral hospital for critical care services for the lower sector of the Far North Coast with a catchment area of clients from Murwillumbah in the north, to Grafton in the south, and as far as Tenterfield in the west. Lismore also provides post-graduate nursing courses in collaboration with Southern Cross University, Charles Sturt University, specialty development programs in Operating Theatre Nursing and Mental Health Nursing.

The existing Hospital buildings range from post second world war buildings to facilities built in the 1980's. The hospital is structured into 4 main buildings accommodating medical and surgical inpatient facilities, clinical services such as operating theatres, ICU, pathology, Imaging and Emergency departments. In addition to support and administrative facilities. Cancer services at the Hospital are limited to medical oncology providing consultation and chemotherapy treatment. The existing Cancer Centre at Lismore Base Hospital was originally built in the 1933 and modified in 1978 & 1984 to accommodate the current cancer services. The facility is not purpose built and currently does not meet staff and patient accommodation requirements nor current healthcare guidelines. The restrictions created by dysfunctional facilities are limiting access to treatment by the community.

Heritage Issues and Existing Architectural Character

The existing buildings on the Lismore Base Hospital site are not items of environmental heritage and are not listed on any heritage register. The majority of buildings date from the 1950-80's and have minimal architectural or heritage value.

The four main buildings on the Lismore Base Hospital site vary between five and eight storeys in height and have been constructed as a reinforced concrete frame with brick infill. Their architectural character at best can be described as utilitarian which does not in anyway address or respond to the surrounding residential context. The existing building, Richmond Clinic, on the proposed site of the new Cancer Centre would be considered as having low architectural character and does not have any heritage significance.

Surrounding Area

The site is situated within a suburban residential context, approximately 2 km north-east of the Lismore city centre. The surrounding area is characterised by low rise, low density housing. Surrounding residential development includes a mix of detached dwellings accommodated in single and two storey buildings. In addition there are a number of healthcare facilities, which are associated with the Lismore Base Hospital. Some of these facilities have been accommodated into existing residential buildings purchased by the NCAHS while others are purpose built units such as the new Drug and Alcohol Rehabilitation Centre on the corner of Hunter and Uralba Streets.

Access

The main Hospital and Emergency Department entry is off Uralba Street. This access point into the major Hospital is constricted and causes varying degrees of traffic congestion during peak operation times. There are a number of other access points onto the Hospital campus these being:

- **Crawford House** (Administration) – Entry to this building is off Hunter Street near the intersection of Uralba Street. Access is via a ramp to the lift lobby of the building.
- **Richmond Clinic** (Existing Mental Health Inpatient Unit) – Entry to Richmond Clinic is also off Hunter Street, further north of Crawford House. There is a secondary entry into this building off the extension to Laurel Avenue which comes off Hunter Street, this is a pedestrian entry but also serves as the police and ambulance patient admission point into the Clinic.
- **Block A** (primary inpatient wards building) – Access to Block A is via the main entry off Uralba Street with a secondary access via a small lane to the east of the building named Little Uralba Street, this secondary entry also forms the access point to the Hospital Morgue.
- **Block B** (inpatient wards and support services building) – Access to Block B is via the main entry off Uralba Street or through Block A. A secondary access via the extension to Laurel Avenue is also available.
- **Block C** (Clinical Services and support services building) – Access to Block C is via the Emergency Department or internal access via Blocks A and B.
- **Parking Facilities** – The primary on site parking area for the Hospital is to the north of the hospital campus between Hunter and Weaver Streets. This is an on grade parking facility with access off both Hunter and Weaver Streets. There is a secondary parking area off Little Uralba Street and a primarily staff parking area adjacent to the main

Hospital loading dock facility between Crawford House and the Richmond Clinic off Hunter Street.

- **Upgraded Parking Facilities** - As part of the Stage 1 redevelopment, New Mental Health Unit, the on grade parking to the north of the Hospital campus is being upgraded and expanded with the addition of considerable underground car parking being developed under the new adult inpatient unit and undercroft parking under the Child and Adolescent and Ambulatory Care bldg. This has increased the total parking available to the Lismore Base Hospital to 429 spaces. Based on the Lismore City Council DCP for parking the current Hospital would require 400 spaces, therefore the site has an excess of 29 car parking spaces.

Parking

The hospital currently has a mix of formal and informal parking on site which has the capacity to accommodate 331 cars. This largely comprises public and staff parking, located to the north of the main Hospital campus bounded by Hunter and Weaver Streets. Parking is also available on Hunter Street in the form of angled on street parking which has been agreed to by Lismore City Council as part of the overall parking allocation for the Hospital. Staff and some patient parking is available adjacent to the main Hospital loading dock with ancillary parking adjacent to the Richmond Clinic and the northern zone of Block A. The balance of the hospital's parking takes place on the surrounding streets.

As part of the Stage 1 redevelopment, New Mental Health Unit, the on grade parking to the north of the Hospital campus is being upgraded and expanded with the addition of considerable underground car parking being developed under the new adult inpatient unit and undercroft parking under the Child and Adolescent and Ambulatory Care bldg. This has increased the total parking available to the Lismore Base Hospital to 429 spaces. Based on the Lismore City Council DCP for parking the current Hospital would require 400 spaces, therefore the site has an excess of 29 car parking spaces.

Topography

The site is situated on a moderately sloping land with views to the north across to the ridges fringing Lismore. The proposed site follows a pronounced south-east to north-west slope with level differences of approx 7m from the highest point of the site on the south-east corner to the lowest point on the north-west section of the site. The existing Lismore Base Hospital is located to the south of the site.

Site Contaminants

A Preliminary Geotechnical and Site Assessment Report was carried out in November 2007 on the proposed site. The drilling of three boreholes (BH1 to BH3) to depths of 4.0m to 4.5m were carried out on the site. The boreholes were drilled in accessible areas around the existing Richmond Clinic. Soil samples were collected for subsequent geotechnical and environmental testing, and the subsurface conditions were logged by a qualified engineering Geologist.

Laboratory analysis was carried out on environmental soil samples for a suite of chemicals of concern including Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl-benzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAH), Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) and Organochlorine and Organophosphorous Pesticides (OCP & OPP) for the environmental assessment;

The concentrations of the contaminants tested for were below the adopted criteria for each sample analysed.

Given the limited number of sample locations, and the results of the laboratory testing, the report recommended that further assessment (sampling and analysis) be carried out in the fill materials, including fill in the former pool, on the site prior to construction of the Integrated Cancer Care Unit. This testing will most effectively be carried out during the demolition phase (enabling works) of the existing Richmond Clinic and a management plan for this stage of works will be developed prior to the commencement of the enabling works. In addition a contamination assessment will be carried out for the diesel underground storage tank adjacent to the northeast corner of the site.

The report is included in Appendix 2 of this Environmental Assessment Report.

Subsurface Soil Conditions

The geotechnical report identified the following sub surface conditions in relation to the three borehole investigations:

Fill	Ranging from silty clay to sand to gravel, generally moist, overlying,
Residual Soil	Silty clay, moist, grey-orange changing to red-brown, stiff to hard, overlying,
Extremely Weathered (XW) Basalt	remoulding as clayey gravel, moist, grey brown to pale brown-grey, very stiff to hard. SPT refusal encountered

The depth that the above soil conditions were encountered is outlined below:

Material	Depth of Material (m)		
	Bore Hole 1 (BH1)	Bore Hole 2 (BH2)	Bore Hole 3 (BH3)
Fill	0.5	0.4	0.9
Residual Soil	2.0	2.2	2.0
XW Basalt	> 4.5	> 4.1	> 4.0

The investigation reported that fill materials were observed in all boreholes at the site, however cohesive fill in excess of 0.4m was observed in BH3 only. Based on the degree of investigation carried out as part of the geotechnical report, the site was classified as Class P in accordance with AS2870-1996. Further investigation will be carried out in conjunction with the design phase of the project to determine the most appropriate structural design for the new Cancer Centre.

3.5. Statutory Planning Considerations

Environmental Planning and Assessment Act 1979 (EP&A Act) and Regulation 2000

Part 3A of the Environmental Planning and Assessment (EP&A) Act 1979 took effect on 1 August 2005 and provides an assessment and approvals process for major infrastructure and other projects where the Minister for Infrastructure and Planning is the approval authority.

The provisions of Part 3A apply to major projects where the Minister has made a declaration relating to the specific development or a class of developments to which that project belongs. The Minister may declare a development to be a major project:

- in a State Environmental Planning Policy (SEPP); or
- in an order published by the Minister in the Gazette.

State Environmental Planning Policy (Major Projects) 2005 (Major Projects SEPP) identifies development to which Part 3A applies.

The Minister for Planning has declared the Lismore Base Hospital Integrated Cancer Care Centre Project to be a Major Project to which Part 3A of the Act applies.

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) commenced on 16 July 2000. The Act introduces a new assessment and approvals system for:

- actions that have a significant impact on matters of national environmental significance;
- actions that have a significant impact on the environment of Commonwealth land; and
- actions carried out by the Commonwealth Government.

Under the assessment and approval provisions of the EPBC Act, actions that are likely to have a significant impact on a matter of national environmental significance are subject to a rigorous assessment and approval process. An action includes a project, development, undertaking, activity, or series of activities.

The Act identifies seven matters of national environmental significance:

- World Heritage properties;
- National Heritage places;
- Ramsar wetlands of international significance;
- nationally listed threatened species and ecological communities;
- listed migratory species;
- Commonwealth marine areas; and
- nuclear actions (including uranium mining).

The Government is considering amendments to the EPBC Act and its regulations to include “greenhouse triggers” and “access to biological resources”.

There are no relevant World Heritage properties, National Heritage places, Ramsar wetlands, Commonwealth marine areas or Commonwealth lands on the site.

It is concluded therefore that there will not be a significant impact on any matters of national environmental significance arising from the development of the site, and consequently the proposed activity is not considered to be a “controlled action” pursuant to the EPBC Act.

State Environmental Planning Policy (Major Projects) 2005

The State Environmental Planning Policy (Major Projects) 2005 is the principle instrument for nominating projects which are of State or regional environmental planning significance and are declared to be projects to be determined by the Minister under Part 3A. The SEPP includes three schedules which list major projects:

- Schedule 1 containing classes of projects that are major projects. For each class, specific criteria have been nominated – for example, capital investment value, scale of operation, number of jobs or environment sensitivity or risk.
- Schedule 2 containing major projects on specified sites. This schedule lists specified sites and nominates the criteria for major projects on those sites based on the State or regional planning objectives for the particular site.
- Schedule 3 lists State significant sites along with any planning provisions to apply to that site. It also lists the major projects on the site to be determined under Part 3A. At this stage only the Opera House is sited as a State Significant site with all development (except for exempted development) to be a major project on the site.

The Lismore Base Hospital Integrated Cancer Care Centre project falls within Schedule 1.

State Environmental Planning Policy No. 55 (Remediation of Land)

SEPP55 requires the consent authority to consider whether the subject land of any rezoning or development application is contaminated. If the land requires remediation to ensure that it is made suitable for a proposed use or zoning, the consent authority must be satisfied that the land can and will be remediated before the land is used for that purpose.

SEPP55 further requires the preparation of a report specifying the findings of a preliminary investigation of the land concerned, carried out in accordance with the contaminated land planning guidelines, to be considered by the consent authority before determining an application for consent to carry out development that would involve a change of use on that land.

The Stage 2 Environmental Site Investigation report carried out by Coffey Geosciences dated 12 December 2007, is attached as **Appendix 2**. The report concludes that the site is suitable for the proposed development.

Lismore Local Environmental Plan 2000

The site is situated within the Lismore Local Government Area. Planning controls applicable to the site are contained in the Lismore Local Environmental Plan (LEP) 2000. The site is zoned 5 Special Uses

The objectives of Zone 5 are:

- “(a) to designate land which is now used or is intended to be used for particular public or community purpose and*
- (a) to ensure the land is used for a purpose appropriate to its location, community needs and economic utilisation.”*

The proposed development is consistent with the relevant provisions of the Lismore LEP 2000.

Permissibility

The proposed development is permissible under Part 3A and Lismore City Council's planning controls.

3.6. Development for which Approval is sought

The project involves the development of a new Integrated Cancer Care at Lismore Base Hospital. Approval is sought for the following works:

1. The construction of a two storey Integrated Cancer Care Centre with undercroft parking.
2. The minor alteration to the original hospital building (Block A) to accommodate a new link from the existing Hospital to the new Cancer Centre at level 3.
3. Associated utility services.

3.7. Project Development and Design Process

This process of design for the Lismore Base Hospital Integrated Cancer Care Centre has incorporated a number of studies and master planning options, which include:

4. Services Procurement Plan (SPP) – Reviewing the Health Service Planning and Economic Feasibility of the redevelopment.
5. Project Definition Plan (PDP) – Reviewing the site planning options, Operational Policies, Cost Planning Issues, Schedules of Accommodation and Engineering Services Requirements.
6. Site Master Planning – Review of the new Integrated Cancer Care Centre in relation to the overall Lismore Base Hospital master plan
7. Concept Design Study – The development of the concept design for the new Integrated Cancer Care Centre in relation to the overall project site strategy. The development of functional planning aligned with the facilities operational policies and the development of access and traffic strategy for the new unit and links to the existing Hospital.

3.8. Consultation Requirements

Each of the above studies has involved a detailed program of community and consumer consultation including:

- Extensive clinical and support service user group consultations that began at the commencement of the planning process for the SPP & PDP and has been carried through to the Concept Design Stage.
- Community and consumer representation has been established within the LBH Integrated Cancer Care Centre project through the Project & Development committee guiding the projects outcomes. This representation has been the conduit for disseminating information to the wider community in relation to the new facility and also to address any issues raised by the community.
- NSW Health has been extensively involved in the planning for the redevelopment of the LBH ICC with representatives from NSW Health forming part of the Planning and Development Committee.
- A number of meetings have been held with representatives of Lismore City Council including Council Representatives and Council Planning Department officers. Ongoing discussions are taking place with Lismore City Council and issues raised by Council have been reviewed in the development of the planning for the Integrated Cancer Care Centre.
- Regular meetings with staff consultative groups including engineering, OH&S and infection control.
- The North Coast Area Health Service is currently organising a number of community information meetings, in the Lismore CBD area, which will be announced through the local media outlets and open to all community members with an interest in the development of the new Cancer Care Centre. These meetings will be facilitated by the project planning team, clinical and executive representation from the Hospital and will focus on providing ongoing information on the development of the project in addition to allowing the community input into the project direction.

4. LISMORE BASE HOSPITAL INTEGRATED CANCER CARE CENTRE

4.1. Project Objectives

The primary objectives for the redevelopment of the Integrated Cancer Care Centre at Lismore Base Hospital are:

- The new facility will integrate the existing medical oncology treatment and radiation oncology consultation with a new radiation therapy treatment unit within a purpose built facility. This will bring together a multidisciplinary approach to the treatment of cancer meeting the needs of cancer patients and their carers.
- The establishment of the Integrated Cancer Care Centre at Lismore Base Hospital with direct physical links to existing clinical services will allow integration with a number of existing sub-specialities such as palliative care and rehabilitation. Medical oncology will be an integrated service within the proposed Integrated Cancer Care Centre.
- As discussed above the new Integrated Cancer Care Centre will have a direct physical link to the existing clinical services at LBH, this will establish the required clinical support with diagnostic imaging, pathology, intensive care unit, pharmacy and in the future nuclear medicine services to support the delivery of quality services.
- The establishment of the new Integrated Cancer Care Centre at Lismore will facilitate the access of patients in rural areas who have previously not been able to access oncology services or who have had to travel outside the state for treatment and incur extensive costs related to travel, accommodation and loss of income for accompanying carers.
- Partnerships will be established by the Lismore Integrated Cancer Care Centre to ensure that the effective delivery of care is provided in a co-ordinated and holistic manner. The delivery of cancer services will occur within a matrix service delivery structure. Partnerships within Health will include working across the care streams within the Clinical Operations Directorate with specialised Cancer, Palliative Care and Breast Screen staff working in an integrated way with hospital based inpatient services, and allied health services and private sector health providers.
- Ongoing discussions are being held with key community groups in relation to establishing appropriate and affordable patient and carer accommodation.
- Through the networking of the Lismore, Coffs Harbour and Port Macquarie Integrated Cancer Care Centre a critical mass will be established that will facilitate workforce enhancement, improved treatment rates and expansion of geographical area serviced by integrated oncology services in the NCAHS.
- Reduced travel and accommodation costs for patients within the NCAHS seeking Cancer treatment.
- Reduced waiting times for patients seeking access to cancer treatment services.
- Provision of cancer services to patients of the NCAHS earlier will facilitate early diagnosis and treatment with associated positive health outcomes.

- Travel time and access for carers and family of patients will be improved.
- Improved community health outcomes will be achieved through the establishment of a integrated facility that can quickly respond to community needs for cancer treatment.
- Meets NSW Health Clinical targets in provision of radiotherapy services to meet community demand.
- Improved community education in relation to cancer services and treatment through access to services previously too distant to gain entry to.
- NCAHS ability to attract and retain specialist staff will be enhanced through the establishment of a state of the art cancer care facility.
- Reduced recurrent costs to NCAHS due to outflow of patients to other areas or interstate and the resultant payments made by the NCAHS to these other service providers.
- Will provide NCAHS ability to meet self sufficiency targets in relation to the treatment of cancer within the Area Health Service.
- Strengthens the network of North Coast Cancer Institute, the Lismore centre will form the third hub of the institutes existing services at Port Macquarie and Coffs Harbour, to allow it to provide an enhanced service to the NCAHS catchment population.
- Better recognition of Lismore base Hospital by tertiary teaching institutions and therefore reinforce health and education services in rural NSW.
- Establishment of a purpose built facility for the provision of integrated and enhanced cancer services to the Northern Rivers region of NCAHS.
- Development of an energy efficient building and the removal of outdated energy and maintenance dependent building stock.
- Establishment of the ground works for the future stages of the upgrade for the Lismore Base Hospital campus (Stage 3).

4.2. Project Design Overview

The key planning principles developed by the planning team that were seen as imperative to the design of the new facility included:

1. The design of the building will need to express the function of clinic activity being carried out within it.
2. The building needs to have a human scale.
3. The building should not be overpowering and alienating to its users both staff and public.
4. The building needs to be energy efficient and planned to maximise positive orientation.
5. The building's architectural character needs to reflect its function, the important role in the service it provides to the community and address the existing character of the Hospital and surrounding built environment.
6. The building needs to support good wayfinding practice.

7. The building needs to meet OH&S, accessibility and security requirements of current health care facilities in NSW.
8. The building should logically setout primary areas for staff, visitors and patients and ensure that traffic flows for the above three groups are efficient and reduce overlapping that would compromising security or privacy of each of the groups.
9. The building needs to have a direct link to the existing Lismore Base Hospital.
10. The majority of patient treatment areas, especially where patients undergo extended treatment times, are to have access to external views and light.
11. Visitors and patients should have the ability to access external spaces from the building.
12. The majority of staff offices are to have access to natural light.
13. Circulation patterns need to be direct and as short as possible.
14. Visually the impact of the bunkers needs to be reduced.
15. Engineering systems employed in the building are to meet current health planning requirements and where applicable should interface with existing engineer services in Lismore Base Hospital.

4.3. Integrated Cancer Care Centre Design Concept Summary

The design concept for the Integrated Cancer Care Centre at Lismore Base Hospital is based on a two storey building with the ground floor containing the main entry/reception facilities and the consultation clinics and radiotherapy facilities. Staff support facilities related to the two clinical functions are also established on the ground floor facilitating efficient staff and patient flows. The ground floor also accommodates the main staff conference and meeting areas.

An area, which is part of the building circulation factor, has been set aside forming part of the entry zone for a future café. It is envisaged that this would be a privately run facility and the fitout costs would be borne by a third party. The café would provide a secondary waiting/breakout area for visitors and staff of the unit.

The configuration of the building has been designed to facilitate a logical division of clinical, patient, staff and visitor zones, with patient areas established close to primary entry or circulation points to ensure clear wayfinding by first time visitors to the facility.

The building is stratified with its axis running east-west ensuring that the majority of patient and staff areas face north benefiting from optimal natural light and reducing solar heat gain. The site's natural slope from the south-east to the north west has been capitalised on by placing the bunkers into the bank of the high side of the site to the south of the building and effectively burying them into the side of the "hill". This in turn has reduced the bulk and impact of what in effect is a solid mass of concrete and therefore enhancing the "human scale" of the building and reducing the visual impact of the building from the surround neighbourhood and the Hospital.



Figure 3 Ground Floor Plan



Figure 4 First Floor Plan

The first floor of the building accommodates the medical oncology treatment areas, the related support facilities, staff office accommodation and facilities and the link to the existing Lismore Base Hospital. The treatment areas have been planned to ensure that all patient treatment areas have access to natural light and that the majority of patient areas have northerly orientation and external views. Staff support and staff base zones within the treatment areas have been located centrally to facilitate patient observation.

A two storey atrium has been planned at the centre of the building with its major axis running east-west and primary orientation north which will allow a high degree of natural light to penetrate the centre of the building reducing the institutional feel of the facility, eliminating the “deep planning” inherent in modern health care facilities and acting as a primary wayfinding element for the building. This atrium links the main entry, reception, primary patient waiting areas on both floors, lifts and primary circulation areas of the building.

The massing of the building has been based on two primary building elements traversed by the two storey atrium acting as a light gathering element. This has in turn reduced the overall mass of the building, this in conjunction with “slotting” the bunkers into the high side of the site will reduce the impact of the facility and engenders a non-institutional character that will not alienate patients who are undergoing complex treatment for a life threatening condition.

Traffic, Parking & Access

The number of car parking spaces that will be provided for the Lismore Base Hospital (LBH) campus after Stage 1 completion (New mental Health Unit) is 429. On-site car parking at LBH is provided in a number of separate areas. The main car parking area is located between Hunter and Weaver Street. As part of the number of spaces provided by the LBH, an agreement between LBH and Council included the onstreet car parking that borders the hospital site. On-street parking in the vicinity of the hospital is extensively used by staff, visitors and patients of the hospital and surrounding services. Most of the on-street parking in the vicinity of LBH is unrestricted. Time restrictions apply only in Uralba Street between the intersections of Hunter Street and Bent Street and in Bent Street. A parking study was conducted as part of the initial redevelopment study to gauge the existing levels of parking demand on LBH grounds and in the surrounding streets. It was observed in course of the survey that some off-street parking areas were over parked, whereas some areas did not achieve their maximum capacity.

Traffic conditions around the hospital site are relatively calm, except for Uralba Street which is used as a secondary route from Lismore CBD to Goonellabah. The speed restriction on the streets surrounding LBH is 50km/h. All streets provide one lane of traffic in each direction of travel and kerbside/verge parking. On-street parking on the LBH boundaries is formalised by painted markings and signposting. Intersections of Uralba Street with Hunter and Dibbs Streets, at the corners of the LBH site, are controlled by roundabouts. There is also a roundabout at the intersection of Uralba Street and Brewster Street, where Lismore Square, a large shopping complex, is located. Other four-way intersections in the vicinity of LBH are controlled by Give Way or Stop Signs.

Uralba and Hunter Streets provide most opportunities for visitor and staff parking and, as a result, substantial pedestrian activities are generated along and across these streets. Both these streets, as well as Laurel Avenue west of Hunter Street, provide footpaths on each side of the carriageway. There is a pedestrian zebra crossing in Uralba Street opposite the main Hospital entry. This crossing has kerb extensions on both sides of the road, and a refuge island.

Public Transport

There are four bus routes passing the LBH site that have a frequency of three buses every hour with the longest wait of half an hour. Bus services connect the Lismore CBD with Lismore Heights and Goonellabah. The bus service is privately owned and runs to both the main entry of the Hospital on Uralba Street and to Hunter Street.

Traffic and Parking Impacts of the new Integrated Cancer Centre

Stage 1 of the LBH redevelopment (The new Mental Health Unit) was approved when the requirements of Lismore Council's Development Control Plan (DCP) No. 18 "Off-street car parking" were in place. The total car parking requirement for LBH after Stage 1 was calculated as 400 spaces. The total parking provision after Stage 1 will be a total of 429 spaces.

Current requirements for off-street parking provision for various types of land use, including that of hospitals, are contained in DCP 2000 Chapter 7 "Off Street Parking". The current DCP does not have specific parking rates for hospitals and requires that parking be provided in accordance with RTA Guidelines. It is understood that RTA (2002) Guide to Traffic Generating Developments is the relevant document in this respect. It is noted that RTA (2002) does not contain special parking requirements for public hospitals either. It requires traffic studies to be carried out for the land uses not covered by the Guide.

This is particularly relevant for the proposed Integrated Cancer Care Centre, which has a specific mode of operation. The assessment of parking requirements has therefore been carried out based on staff/visitor requirements and its mode of operation as well as the traffic related data. Please refer to the Traffic & Parking Impact report in Appendix 4.

The existing Oncology service, at LBH, has 21 FTE staff, which translates into 19 persons on duty during peak times. These staff members are part of the existing LBH staff compliment and are already provided with parking within the existing and Stage 1 parking areas of 429 spaces. The existing number of Oncology staff will not increase as part of the development of the new Integrated Cancer Care Centre and therefore there will be no increase in parking demand arising from this part of the proposal. It is proposed that the number of treatment bays within medical oncology be increased from 10 existing to 15. It must be noted, however, that treatment of oncology patients typically takes in the order of 6 to 8 hours per person. Due to the length of the treatment and the effect that the treatment has on the patients, they are typically dropped off and picked up and require only a small number of short term parking spaces in the morning and in the afternoon. The additional 5 treatment bays would thus result in a very short term additional parking demand for one or two cars at a time. It is considered that the drop offs may be accommodated within the proposed new drop -off area of the Mental Health Unit currently nearing completion. Pick ups will occur in the afternoon after the daytime nursing shift changeover.

The proposed Radiotherapy service of the new Integrated Cancer Care Centre will engage 27.6 FTE staff (equivalent to 25 staff on duty at any one time). Car usage rate of staff were determined in the previous traffic studies for LBH as 90% (9 out of 10 staff driving their cars to work). This rate has been applied to the number of staff on duty, resulting in the parking demand of 22.5 cars. Radiotherapy patients will receive treatment at 6 clinics, similarly to other outpatient clinics in LBH. Treatments and consultations will be done by appointment and will typically last 0.5 to 1.0 hour per patient. One additional patient at a time will be treated using a new radiotherapy machine. For the purposes of car parking calculations an assumption has been made that there will be one patient waiting for every two patients treated / consulted, which would amount to 10 - 11 patients present at any one time on average, assuming 100% occupancy of the clinics and the machine. The conservatively high car usage rate of 90% has been applied to the number of patients to determine their parking demand, which was thus estimated as 9 to 10 cars.

A new Cardiac Catheterisation Unit has been developed on the site in parallel with the planning of the new Integrated Cancer Care Centre, the approval process for the Cardiac Catheterisation Unit will be processed

through Lismore City Council. This cardiac unit is based on a single angiography treatment area and three recovery bays. The cardiac service will run for three half days a week with an average of ten patients per half day (40% will be inpatients and 60% will be outpatients). In relation to the staffing the facility will need to engage 7 new staff to work on the 3 half day service. Inpatients do not require parking provision. The average number of outpatients present at any one time was estimated to be between 3 and 4 (3.6). Car usage rate of 90% has been applied to both staff and outpatients of the CCU.

The following table outlines the existing and proposed parking requirements at the completion of the Integrated Cancer Care Centre and the Cardiac Catheterisation Unit (CCU)

		Existing		Proposed		Increase	No of cars
		FTE(*)	No. of Persons	FTE	No. of Persons		
Medical Oncology	Staff	21	19	21	19		
	Patients		10		15	5	4.5
Radiotherapy	Staff			27.6	24.8	24.8	22.3
	Patients				10.5	10.5	9.5
Cardiac Unit	Staff				7	7	6.3
	Patients				6	3.6	3.2

(*) FTE – Full Time Equivalents

TOTAL ICCC parking demand	41
Current No. of parking spaces at LBH	429
Current DCP requirements at LBH	400
LBH excess parking (existing)	29

Proposed parking provision at ICCC	23
Parking required within main LBH areas	18
LBH excess parking (with ICCC)	11

It is proposed to utilise part of the excess parking provision achieved as a result of the Stage 1 mental health development to satisfy part of the additional parking demand likely to be generated by ICCC and CCU. The existing excess parking provision is $429 - 400 = 29$ spaces. It is proposed that a new 16 space basement car park be provided within the new ICCC building. It is proposed that the basement car park will be accessible from Laurel Avenue. In addition, 7 new angle parking spaces are proposed on the southern side of the ICCC accessed off Hunter Street. It is also proposed that some parallel spaces are to be located on the southern side of Laurel Avenue. The design of these spaces will have to be assessed when the road construction is complete to ensure the correct dimensions can be achieved. Therefore these spaces are not accounted for in the proposed parking provision. Therefore there will be a total of 23

new car parking spaces provided within the development works of the ICCC. The total parking demand for the ICCC, was calculated as 41 cars. The proposed parking provision will cater for 23 cars. The remaining 18 cars will be able to park within the existing car parking areas, reducing the excess parking provision from 29 to 11 parking spaces. The proposed ICCC and CCU are not expected to require additional servicing and delivery truck movements. The additional demand for supplies will be accommodated by existing LBH services.

Additional traffic volumes generated as a result of the proposed redevelopment were estimated to be in the order of an additional 45 to 55 vehicle movements in the morning and afternoon commuter peak hours respectively (in and out combined). When distributed on the road network, this would constitute a negligible proportion of the existing traffic volumes at the LBH Campus entries and at the surrounding intersections. It will also be within the overall traffic generation estimated for the LBH Master Plan. Traffic modelling carried out for the LBH Master Plan indicated that no problems were to be expected in terms of operational characteristics of the road network. Given that Stage 2 is part of the Master Plan, its additional traffic will not have any adverse effects either.

Access strategy

There are a number of access issues relating to the diverse mix of visitors, patients and staff that will be associated with the Lismore Base Hospital ICCC. An Access Strategy will be established to ensure that all requirements are identified as early as possible during the design phase of the project.

Accessible facilities and services are to be designed to provide access or accessible information to the widest range of people, not just patients utilising treatment.

An essential element in the achievement of accessible environments is the planning and implementation of consistent linkages in and between the new facility and the rest of the Hospital campus. The key objectives of this Access Strategy include:

2. Easily understood and available information and communications regarding the facilities and activities.
3. Quality implementation of accessible fixtures, fittings and equipment throughout the facilities.
4. Clear wayfinding strategy that supports and enhances access.

Access policies, requirements and legislation at Federal and State level are undergoing significant change in response to the DDA (Disabilities Discrimination Act) and this requires a continual proactive approach during the implementation process.

The design of the facilities will permit effective, appropriate, safe and dignified use by all people, including those with disabilities and will be in accordance with:

1. NSW health Facility Guidelines, in particular Part B – Design for Access, Mobility, OH&S and Security.
2. DDS32 Improved Access for Health Care Facilities.
3. AS 1428.
4. The Building Code of Australia.

The needs of disabled users will be addressed through a variety of means including:

- The use of ramps both internally and externally.
- Lifts with appropriate controls.
- Signage.
- Door types and hardware.
- Interior design including appropriate colour differentiation.
- Reception counters design.
- Fixtures and fittings including grab rails.
- Staircase design.
- OH&S requirements.

Sustainability

The key sustainable development objectives for the project, based on the three principles of social, environmental and economic sustainability are:

- Increase employment opportunities for the community through the development of staffing opportunities for the new ICCC and derivative support structures related to partnership created with both the public and private sector.
- Efficiencies realised in purpose built facility in relation to existing medical oncology unit which will be decanted into the ICCC facility at the completion of the project.
- Improved staff efficiency - existing medical oncology 24 FTE staff for 10 bays will now provide treatment facilities for a 15 bay unit.
- Improved efficiency of network in utilisation of existing staffing positions at Coffs Harbour and Port Macquarie for new Lismore facility.
- Reduced cost to community in travel outside of Northern Rivers to seek Radiotherapy treatment.
- Improvement in quality of life through access of local cancer treatment facilities will contribute to community overall.
- New purpose built, energy efficient building will replace outdated and energy hungry and maintenance dependent Richmond Clinic.
- Improved clinical integration will reduce staff duplication and need for users to access multiple sites for treatment.
- Attraction of specialist staff to the new ICCC will improve medical services to LBH, the Northern Rivers and NCAHS.
- Energy efficiencies in new building will help realise better space utilisation and improved energy usage in relation to cost/m².
- The strengthening of the North Coast Cancer Institute with the addition of the Lismore ICCC will attract higher level of research staff and strengthen the role and presence of academic institutions within the rural health service.
- Recurrent costs of new service will be less than the current costs impacts to the NCAHS of Northern Rivers cancer patients seeking treatment outside of the Area or not seeking treatment due to socio-economic implications and placing a higher load on health services in the Area.
- Functional, healthy and safe indoor environment (in terms of thermal comfort, visual comfort, acoustic comfort and indoor air quality).

- Minimised non-renewable resource consumption and environmental impacts (greenhouse, other air and water emissions, solid waste).
- Cost-effectiveness over the whole life cycle of the proposed facilities.
- In conjunction with the functional requirements, the building form will incorporate passive design considerations to minimise the capacities and operation of engineering services, and to minimise energy use.
- The building's passive design and engineering services will complement each other, through an integrated design process involving all disciplines right from the beginning, to achieve the sustainable design outcomes for the whole building.
- The required sustainable design outcomes include thermal comfort, visual comfort and acoustic comfort for the building users, as well as ensuring good indoor air quality.
- The building form will be optimised to minimise solar heat gain in summer and maximise in winter, maximise day lighting access and benefits, and provide optimum energy efficiency outcomes.
- The engineering services and building passive design shall complement each other in design and operation to jointly achieve the functional outcomes for the building. This will include providing an energy efficient, healthy, thermally comfortable and acoustically acceptable indoor environment.
- Only environmentally sound materials will be used wherever possible. There will be limited use of non renewable resources and hazardous substances.
- Renewable energy systems will be used where possible and economically viable.

Key issues to be embraced in developing an energy efficient outcome for the project fall under the following criteria:

Building Fabric

Where temperature and humidity control is not critical (e.g. offices, circulation and non-critical treatment spaces such as the Chemotherapy treatment areas) space conditioning, during times of favorable weather conditions, will be achieved through natural ventilation and the design will need to address the requirements through the placement of building elements to facilitate this. Air-conditioning will only be provided in areas where temperature control is critical for operation or human comfort, areas such as consulting/interview rooms and specialist treatment zones of the LBH ICC, that may need to be enclosed due to privacy issues, or where passive design techniques will not meet an acceptable level for human comfort. Mixed-mode systems that provide natural ventilation for the majority of time and air-conditioning only in extreme temperatures should be investigated where the cost benefits allow.

Where natural ventilation is proposed for summer cooling of a building, a thermal model of the proposed building design shall be undertaken to confirm performance and ensure that the optimal building design has been achieved which will support natural ventilation. Opening windows are to be included as part of a passive ventilation system.

The building has been designed with the longest faces of the building facing north/south. Integration of thermal mass in the internal building fabric is encouraged to provide temperature moderation in all temperature extremes.

The insulation of the building to achieve thermal performance will be critical, the minimum thermal rating for complete roof systems on enclosed internal areas will be R4.0. This is a system rating that includes bulk insulation, foil, airspaces and roof structure. The minimum thermal rating for complete wall systems will be R2.5. Where an on-ground slab floor construction is utilised this is to have a minimum R2.0 rigid insulation installed on the slab edge. Elevated floors shall have a minimum thermal rating of R2.0.

Overall building glazing to the east and west facades to be kept to a minimum. Windows are not to extend below 600mm height where anticipated standard usage is likely to obstruct low windows with furniture and fixtures. Likewise glazing above 2000mm should only be installed if it can provide glare-free daylighting and displace electric lighting. Access to daylighting will be maximised without introducing excessive glare or unwanted heat gain. It is to be ensured that the window assemblies must include appropriate weather stripping to prevent air leakage, in addition suitable external shading to the windows based on orientation is to be provided to all facades subject to solar gain that will negatively impact on the building's internal environment.

All external doors to be adequately protected with storm seals and draught excluders. Entries should be provided with some form of cover and wind protection.

Mechanical Systems

The following principles are recommended to ensure that HVAC systems are both designed and operated to achieve maximum energy efficiency.

- An economy cooling cycle with up to 100% outside air and the potential for heat recovery shall be assessed for all HVAC systems where cost effective.
- Effective zoning and control shall be provided to deal with different usage within a building.

Lighting

Reducing the wattage of installed lighting whilst still meeting required lighting standards is a central part of lighting energy efficiency. All lighting with the new facility is to meet the energy efficiency requirements of the Building Code of Australia. Where possible, movement detectors to be installed in rooms of infrequent use to allow for lights to be automatically switched off if the room is not in use, cost effective considerations need to be weighed.

Hot Water

To reduce energy use from hot water systems length and size of supply pipes are to be minimised and insulated accordingly. In additions options for solar hot water system or solar augmented systems are to be investigated.

Pipe Work and Duct Work

To reduce friction losses in piping from bends (and thus reduce pumping energy costs) due consideration must be taken when designing pipe layouts. Hot water supply piping should be fitted with a minimum 25mm insulation to reduce heat losses.

Operation & Maintenance (O&M) Manuals

Operating instructions for all mechanical systems to include energy efficient operating procedures.

Water

The following requirements in relation to reducing water consumption are recommended:

- All hand basins and showers will be fitted with water efficient (AAA rated) fixtures or a flow restriction system that achieves a flow rate of no greater than 9 liters per minute.
- All landscaping will use drought tolerant plants and efficient irrigation systems to reduce irrigation water consumption.
- The option for local capture and use (e.g. rainwater tanks) and/or absorption of storm water (e.g. through landscaped swales) will be assessed by the design team for the new facility.
- The option for reuse of grey water in the building will be assessed by the design team.
- Impervious landscape surfaces that encourage stormwater surface runoff will be minimized.
- Prevention of loss of soil during construction through effective surface water and wind erosion control. This will also assist in reducing sedimentation to storm water drains and dust pollution.
- Stormwater drains are to be located so that the storage or handling of waste and chemicals could not result in the pollution of the stormwater system. This will require effective bunding of waste and chemical storage facilities and the provision of a drain to sewer.

Materials & Waste

The following standards aim to reduce waste production and the environmental impacts from materials used in building construction.

- Sufficient permanent covered space shall be provided to install waste and recycling facilities to service co-mingled, cardboard, paper and general waste collection within the building precincts. Further, the internal design of the building should include appropriate space for the installation of recycling, general and contaminated waste bins that service the needs of building occupants.
- The use of recycled or remanufactured materials over virgin products should be considered where this does not attract a significant lifecycle cost or performance penalty.
- The use of durable and recyclable materials should be considered.
- Use of plantation, recycled or composite timbers and avoidance of all unsustainably harvested exotic timbers should be considered.

In addition the project will address guidelines delineated in Lismore City Council DCP No. 47 on Waste Minimisation.

Building Finishes

Internal finishes are to be selected that minimise the release of Volatile Organic Compounds (VOCs).

Site Design and Internal Design

The key factor in developing the Integrated Cancer Care Centre was the establishment of a clear building design strategy to reinforce the following issues:

- Delineation between public and patient areas.
- Establishment of patient areas with associated support facilities
- Comprehensible primary and secondary access links and corridors within the new facility.
- Cluster of like functions in proximity to each other within the building.
- Delineation between staff and patient areas.
- Development of a planning outcome that supports both staff and patient safety and is inline with Hospital OH&S policies.
- Development of a facility that would support current practice in the care and treatment of cancer patients
- Development of a planning strategy that would allow the service to expand to the next stage of development without the need to engage in additional construction process with the resultant disruption to a functioning facility.
- The development of planning that would maximise natural light into the facility and reduce the stress associated with cancer treatment.

The external materials and colours have been selected with regard to the proximity of the new building to the existing hospital building and the requirements for the special needs of the patients.

The buildings will be built in accordance with the requirements of the Building Code of Australia.

An interior design concept will be developed for the new facility to address the varying population utilising the Cancer centre. This population will include staff, patients and visitors to the unit. The interior of buildings will be conducive to a caring and healing environment.

5. IMPACTS OF THE DEVELOPMENT OF THE INTEGRATED CANCER CARE CENTRE

5.1. Suitability of the Site

The Lismore Base Hospital Integrated Cancer Care Centre Project has evolved following extensive master planning studies of this stage and the following stages for the overall Lismore Base Hospital campus. The results of the master planning studies have been used to determine the most appropriate pattern and scale of development across the site.

The new building is compatible with the adjoining development and will not adversely impact on the neighbouring properties or roads. The buildings will be served by new pedestrian and vehicular access roads currently under construction as part of the Stage 1 New Mental Health Unit. The nature and siting of the new work will not result in any overshadowing or privacy problems to neighbouring properties.

It is considered that the proposal is compatible with surrounding land uses. Importantly, the development will contribute to the need of providing an essential health service to the North Coast community.

The selection of the site has been based on the following key parameters:

- The site is at the periphery of the hospital providing optimal public access with direct links back to existing clinical and support services.
- The site has good orientation and supports the establishment of external staff/patient areas.
- The site is configured to allow clear links between the proposed Cancer facilities and the main hospital.
- The site is situated within a “quiet” precinct of the Hospital campus supporting the care and treatment of patients.
- The site and this phase of the project coalesce with the overall master plan for the Lismore Base Hospital.
- The site will allow the new facility to establish a community presence as a major support facility for the North Coast Area Health Service.

5.2. Environmental, Social and Economic Impacts

The new Integrated Cancer Care centre facility is located within the existing site of the Lismore Base Hospital. The facility is Stage 2 of a three stage master plan which will ultimately see the total upgrade of the Hospital. New South Wales Health has recognised the need for upgrading of integrated cancer care treatment throughout NSW and the development of the new unit at Lismore is part of this upgrade. It has also been recognised that the North Coast of New South Wales has one of the greatest needs in relation to cancer treatment facilities due to current poor access and low socio-economic status. The benefits that are expected from the introduction of an Integrated Cancer Care Service to Lismore Base Hospital are founded on the provision of an accessible locally based service meeting the needs of the Richmond Valley catchment population. This in turn will address the current issues experienced in this region of having the lowest percentage of cancer treatment per head of population within NSW. The ability of the new centre at Lismore to fully network with similar units at Coffs Harbour and Port Macquarie Hospitals will further enhance the residents of the NCAHS ability to access state of the art cancer care services.

The primary benefits of establishing the service at Lismore Base Hospital are:

1. Reduced travel and accommodation costs for patients and their carers.
2. Reduced waiting times to access services by patient in the Northern Rivers catchment area.
3. Provision of services earlier will facilitate early diagnosis and treatment
4. Travel time and access for carers and family of patients will be improved.
5. Improved community health through comprehensive treatment of cancer
6. Improved community education through access to services previously too distant to gain entry to.
7. Increased cancer care services to the community
8. NCAHS ability to attract and retain specialist staff will be enhanced through state of the art facility
9. Reduced costs to NCAHS due to outflow of patients to other areas or interstate
10. Provision of Cancer treatment services to the North Coast community by expanding existing services, introducing new Child and Adolescent inpatient facilities and providing facilities that meet current practices in treatment and care of patients.
11. Establish the second stage of the upgrade to the overall Hospital site, therefore establishing a planning strategy that is sympathetic to the precinct and will guide the future development of the campus.
12. Provision of employment during both the construction stage and the ongoing operation of the unit. It is envisaged that the new unit will employ up to 30 additional hospital staff. This will have a flow on effect to the wider community in relation to employment and economic impact.
13. The development of new engineering services and an energy efficient building will result in lower running costs for the Hospital in relation to the provision of health services as compared with current facilities.
14. The development of the new Cancer Care Centre will result in improved working environments for staff achieving a high degree of safety and security.

5.3. Public Interest

The redevelopment of the ICCC at Lismore Base Hospital is considered to be in the public interest in that:

1. It is consistent with the objectives of the Environmental Planning and Assessment Act 1979 of encouraging the economic and orderly development of land;
2. The design of the new facility has been progressed to minimises the impact on the natural and built environment;
3. It will be the second stage of a three stage master plan which will provide the community with a state of the art healthcare facility.
4. The design approach has been developed to be consistent with principles of ecological sustainability;
5. The development is in keeping with the requirements of Lismore City Council.

6. The development of the site will generate significant economic, social and environmental benefits.

The proposal is in accordance with the provisions and requirements of the relevant planning instruments and will not have any known negative impact on the environment, property values or public health. The proposal will not pose undue risk to the safety and security of the surrounding community and public in general. The proposal is not unusual in nature and will enable more efficient and effective operation and provision of health services to the North Coast of New South Wales. .

With reference to the above it is considered that the proposal is in accordance with the public interest.

5.4. Environmental Impacts

Environmental Amenity – Solar Access

Shadow diagrams for the new ICCC facility have been plotted based on the following dates.

- 21 December
- 21 March
- 21 June
- 21 September

Refer to Appendix 6 for shadow diagrams for the above dates. There is no adverse overshadowing of surrounding developments by the new Cancer Care Centre, as the majority of the new facility's building mass is below the levels of the occupied buildings surrounding the site. The immediate buildings surrounding the new ICCC are Lismore Base Hospital buildings, there is some limited residential development to the west of the site, being the opposite side of Hunter Street but these facilities are not impacted by overshadowing caused by the new building.

Environmental Amenity – View Loss

The new ICCC will be built in the north-western zone of the Lismore Base Hospital campus on a section of the site that is relatively low compared to the surround buildings. The primary views from this sector of the Hospital are towards the north and the east overlooking the Lismore Valley. The primary hospital buildings around the new ICCC facility that benefit from these views are Block B containing support Clinical and cafeteria facilities, Block C containing clinical and inpatient facilities and Block N containing administration and North Coast Area Health Offices. Block B view amenity is not impacted by the development of the new ICCC facility as this building is aligned with the new facility and the new ICCC does not obstruct its views. The clinical and inpatient facilities in Block C view over the new ICCC building with the lower levels of this building being, the loading docks and stores servicing the Hospital. Similarly the offices in Block N are elevated above the new ICCC facility with the lower levels of this building being stores and basement facilities. The existing residential development on the western side of Hunter street will not have views impacted as these are either elevated above the roof line of the new ICCC or further north than the new building and will not be impacted. Refer to the site plan below outlining view loss impact and the elevation of the new ICCC facility with existing Hospital buildings surrounding showing the relative scale and height of these buildings.

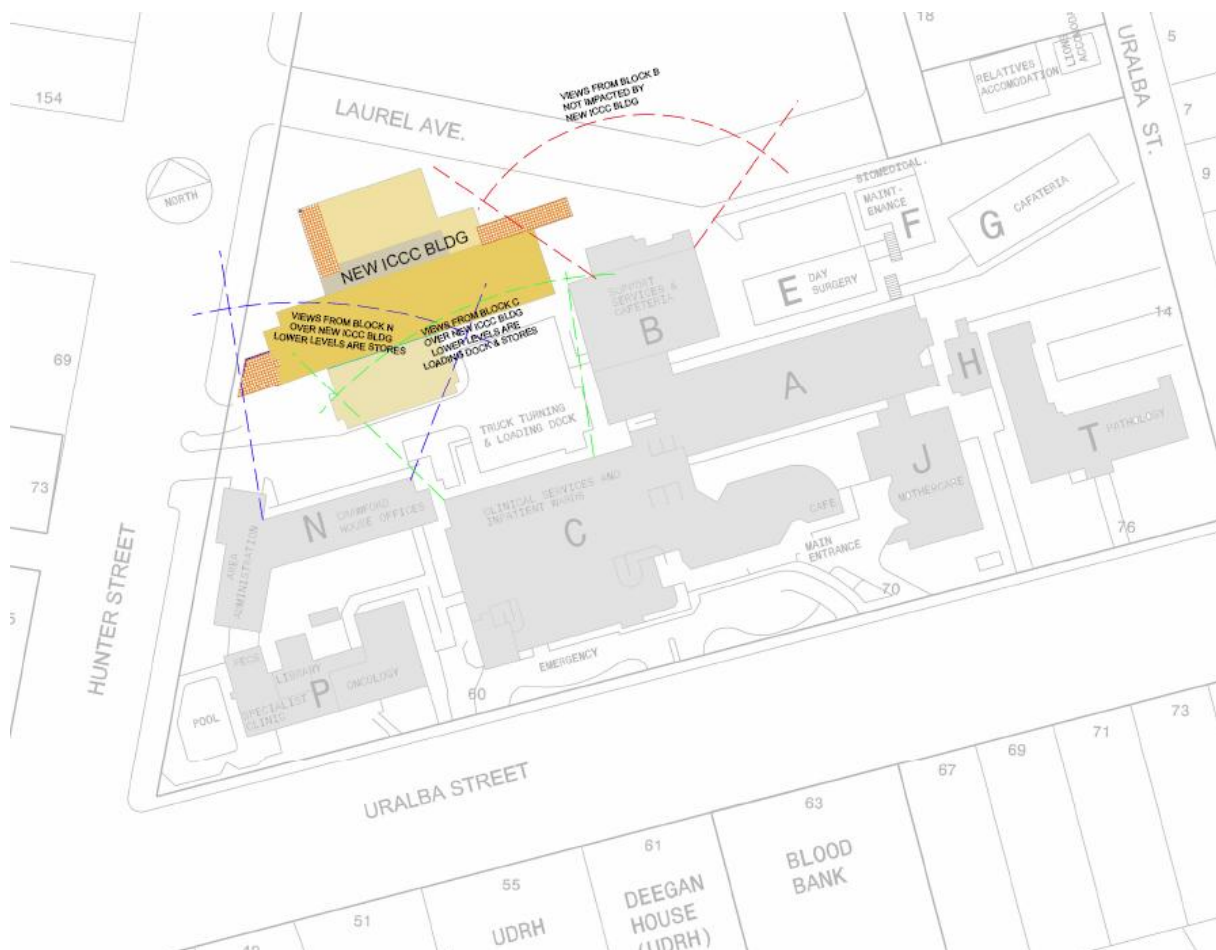


Figure 05 View Analysis

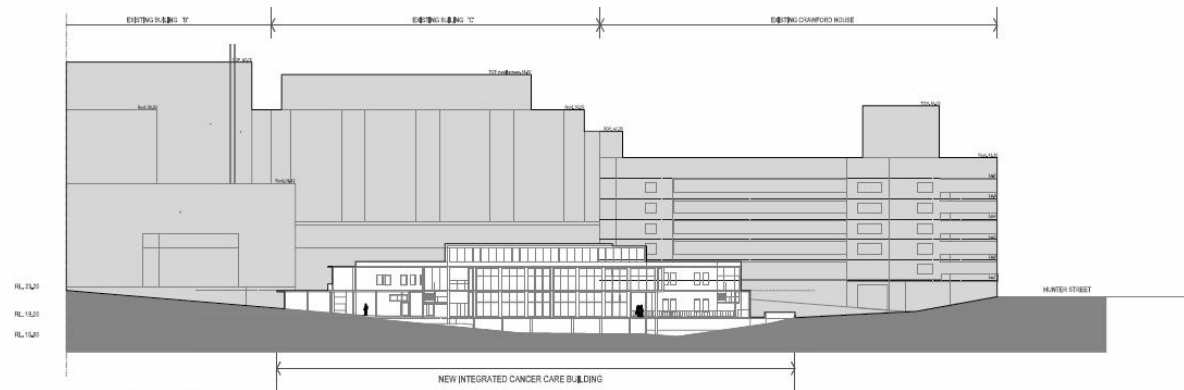
Design Quality – Height Bulk & Scale

Lismore Base Hospital is situated at the apex of a ridge that culminates at the intersection of Hunter and Uralba Streets at approximately RL27. The primary clinical buildings vary in height from five to seven storeys forming a commanding cluster of buildings overlooking the valley. The Hospital is visible from many parts of the Greater Lismore region. The immediate surrounding developments vary from single storey single dwelling residential developments to two to three storey multi-dwelling buildings, there are also a number of health facility related buildings surrounding the Hospital ranging from purpose built rehabilitation centres to rural health education facilities. Over the last twenty years the Hospital has acquired a number of existing residential buildings which have been converted to health care facilities and health administration related functions.

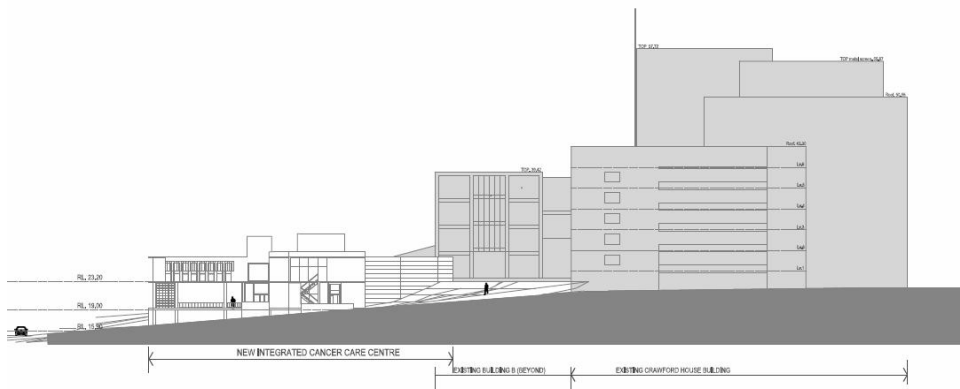


Figure 06 Lismore Base Hospital aerial photo

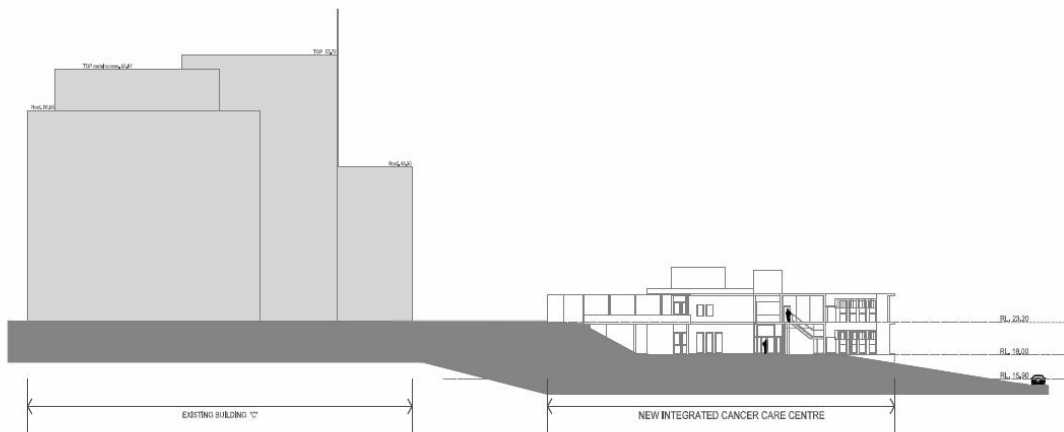
The above areal photo demonstrates the location of Lismore Base Hospital in relation to surrounding developments. The new Integrated Cancer Care Centre's overall height will establish a primary roof line of approximately RL27 being nominally height of the ground floor levels of the majority of the Hospital. In addition the significant gradient of the proposed site effectively nestles the building into the ridge and reduces the bulk and scale of the new facility. This is clearly demonstrated on the following page showing the north, east and west elevations of the new Integrated Cancer Care Centre relative to the surrounding Hospital buildings, refer also to Appendix 7 for building elevations.



LISMORE BASE HOSPITAL
NEW INTEGRATED CANCER CARE CENTRE
NORTH ELEVATION



LISMORE BASE HOSPITAL
NEW INTEGRATED CANCER CARE CENTRE
WEST ELEVATION



LISMORE BASE HOSPITAL
NEW INTEGRATED CANCER CARE CENTRE
EAST ELEVATION

Figure 07 Building elevations in relation to surrounding built environment

Design Quality – Façade Massing & Articulation

As outlined in section 4.3 of this report the design concept for the new Integrated Cancer Care Centre at Lismore Base Hospital is based on a two storey building with the ground floor containing the main entry/reception facilities and the consultation clinics and radiotherapy facilities. Staff support facilities related to the two clinical functions are also established on the ground floor facilitating efficient staff and patient flows. The ground floor also accommodates the main staff conference and meeting areas.

The configuration of the building has been designed to facilitate a logical division of clinical, patient, staff and visitor zones, with patient areas established close to primary entry or circulation points to ensure clear wayfinding by first time visitors to the facility.

The building is stratified with its axis running east-west ensuring that the majority of patient and staff areas face north benefiting from optimal natural light and reducing solar heat gain. The site's natural slope from the south-east to the north west has been capitalised on by placing the bunkers into the bank of the high side of the site to the south of the building and effectively burying them into the side of the "hill". This in turn has reduced the bulk and impact of what in effect is a solid mass of concrete and therefore enhancing the "human scale" of the building and reducing the visual impact of the building from the surround neighbourhood and the Hospital.

The use of masonry as a façade cladding integrates the new facility with the existing masonry façade treatment on the existing hospital buildings and forms a logical progression of the Hospital campus. The new building has incorporated some of the architectural language of the existing Hospital in the form of exposed structural elements and infill masonry panels but has applied these concepts to the new facility with a higher degree of articulation allowing the different elements of the building to be expressed in a clearer form.

Externally the building form accentuates the functional layout of the facility with the linear accelerator bunkers forming the "anchor" to the building. This "anchor" has been built into the highest section of the site and partially exposed to both express the concept of the bunkers being the foundation of the building while at the same time reducing the considerable bulk of the of the bunkers. The central zone of the building, the section immediately to the north of the bunkers, accommodates the radiotherapy treatment support areas on the ground floor and staff offices support facilities on the first floor. This section of the facility is the operational part of the building and forms the central portion of the building linking the Bunkers to patient care areas. The third section of the building accommodates the primary patient clinic areas on the ground floor and patient medical oncology treatments areas on the first floor. This portion of the building has been articulated with a high proportion of glazing to the façade facilitating better outlook for patients within the building, a higher degree of natural light entering the building and establishing a transparent element acting as a counterbalance to the mass of the bunkers.

Connecting the central operational portion of the building and the northern patient treatment element is a two storey atrium overarched by a skylight running east-west for the majority of the length of the building. This skylight is orientated to the north and south and provides a high degree of natural light to the centre of the building at both levels. This in turn reduces the institutional character of current deep planned health care facilities. The atrium also forms the primary wayfinding element for the building linking the main entry, reception, and patient treatment zones on both levels of the building.

The building has been setback from the site boundaries (note that the majority of the building is located within the Hospital Campus boundary) to allow open area for site landscaping. The new facility will be

articulated to a higher degree than the existing Richmond Clinic. This inturn will further contribute to reducing the impact on the public boundary of the site.

As illustrated in the previous sections of this report the new Integrated Cancer Care Centre at Lismore Base Hospital will be built into the existing site contours and will be considerably lower in height than the surrounding existing Hospital buildings and will therefore have a minimal visual impact on the surrounding environment. The majority of existing buildings around the proposed new facility are either owned or managed by the Lismore Base Hospital and are functioning as health care facilities or patient/carer accommodation. There are no adverse impacts from overshadowing from the new facility. The building will also establish the required onsite parking and will not create any adverse traffic impact on the surround road network. External lighting which will be introduced as part of the redevelopment will increase the security of the area but will be designed to minimise impact on surrounding residential development.

Drainage/Flooding

Flood Risk

Lismore City Council's DCP 7 Flood Prone Lands sets the following objectives:

7. To permit development on flood prone land that is appropriate to the degree of flooding hazard experienced on that land.
8. To minimise the risk to life and damage to property as a result of floods.
9. To provide guidelines for determination of the merit of development on flood prone land as required by Section 79(c) of the Environmental Planning and Assessment Act 1979.

Through DCP 7 Lismore City Council has identified three categories of flood prone land for the purposes of guiding future land uses within the municipality. Each category is based upon adopted criteria of depth and velocity likely to be experienced in the 1 in 100 year ARI flood. The three categories are:

10. Floodway;
11. High Flood Risk Area; and
12. Flood Fringe Area.

The three categories above are identified in Map 1 of the Control Plan with Lismore Base Hospital adjacent to a Flood Fringe Area. Lismore City Council's established 1:100 year flood levels for Hunter St Lismore, which adjoins the lowest part of the LBH site is AHD 12.400. DCP 7 states that for new commercial developments an equivalent of 25% of gross floor area of the building to be at or above the Flood Planning Level. The Flood Planning Level is defined with the Control Plan as is the equivalent of the 1 in 100 year ARI flood level plus freeboard. The freeboard adopted for the purposes of this Plan is 300mm. Therefore the Flood Planning Level may be calculated by adding 300mm to the 1 in 100 ARI level for the relevant area.

The proposed Integrated Cancer Care Centre at Lismore Base Hospital will establish all building floor levels at a finished floor level of AHD 19.000 which is 6.8 metres above the 1:100 year flood level. The lowest part of the development site is at AHD 14.000. Based on the above, it is concluded that there is no flood risk to the proposed development.

Stormwater

In relation stormwater management the NSW Health are committed to water sensitive urban design principles and will incorporate design philosophy to ensure water quality targets are addressed. The project planning team has had a number of meetings with Lismore City Council in relation to the new Integrated Cancer Care Centre and ongoing discussions will be held with the Council as planning is progressed. Key issues in relation to water sensitive urban design will be incorporated into the planning of the new will be hard surface areas, landscaped areas, roof water and subsoil drainage systems shall be designed so that all water is directed to a Council approved drainage system to prevent an intensification of discharge runoff onto adjoining land. This system shall be constructed in accordance with Council's Development, Design & Construction Manuals. As required, onsite detention will be utilised to further assist in managing the flow into the drainage systems.

Infrastructure Requirements

Hydraulic Engineering

Hydraulic services shall be installed to all areas in accordance with NSW Health Engineering Guidelines TS-11. Building Code of Australia, and relevant Australian Standards.

The existing site building hydraulic service provisions have sufficient capacities as required for the associated works. Further investigation relating to the capacity of existing service supply provisions to the building area will be carried out during the latter design phase of the project.

Sewer drainage provisions from the proposed building shall be connected to the existing site sewer drainage provisions as per local Authority requirements.

The proposed Sewer and Sanitary Drainage services will be designed using gravity, fully vented modified system, all sanitary drainage and plumbing shall comply with AS 3500.2 and NSW Code of Practice.

Fire hydrant coverage shall be provided via dual headed external fire hydrant landing valve provisions as per AS2419.

Electrical Engineering & Supply

The Hospital site is served by an existing Country Energy surface chamber substation (No 382) at the northern end and lower level of Block B. The following key points as they relate to the substation and incoming high voltage supply were are outlined below.

- The existing substation is equipped with 2-off 1,000KVA transformers which are capable of delivering a full load in the order of 2,800 amps per phase.
- The substation is fed from 2 independent high voltage feeds from Country Energy's street network, one of which will be relocated as part of the early works related to the development of the LBH ICCC.
- With the recent introduction of the new Mental Health facility the existing substation is approaching its full rated capacity.
- It is considered that the existing substation No382 is not adequately sized to accommodate the needs of the new Integrated Cancer Care Centre development.

To facilitate the introduction of the new ICCC a new 1,000KVA kiosk substation to supplement the existing. The new kiosk substation will be located opposite the existing Richmond Clinic (to be demolished) and in close proximity to the new Mental Health Facility currently under construction and the proposed Integrated

Cancer Care Centre. This new substation has been sized to serve both the new Mental Health Unit currently nearing completion and the future LBH ICCC.

Site Contamination

A Preliminary Geotechnical and Site Assessment Report was carried out in November 2007 on the proposed site. The drilling of three boreholes (BH1 to BH3) to depths of 4.0m to 4.5m were carried out on the site. The boreholes were drilled in accessible areas around the existing Richmond Clinic. Soil samples were collected for subsequent geotechnical and environmental testing, and the subsurface conditions were logged by a qualified engineering Geologist.

Laboratory analysis was carried out of environmental soil samples for a suite of chemicals of concern including Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl-benzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAH), Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) and Organochlorine and Organophosphorous Pesticides (OCP & OPP) for the environmental assessment;

The concentrations of the contaminants tested for were below the adopted criteria for each sample analysed.

Given the limited number of sample locations, and the results of the laboratory testing, the report recommended that further assessment (sampling and analysis) be carried out in the fill materials, including fill in the former pool, on the site prior to construction of the Integrated Cancer Care Unit. This testing will most effectively be carried out during the demolition phase (enabling works) of the existing Richmond Clinic and a management plan for this stage of works will be developed prior to the commencement of the enabling works. In addition a contamination assessment will be carried out for the diesel underground storage tank adjacent to the northeast corner of the site.

The report is included in Appendix 2 of this Environmental Assessment Report.

Ecological Impacts

The site for the proposed development has been used continually for the past fifty years as a hospital and health care zone. The proposed development will take place in a developed urban environment and therefore will not have an impact on threatened species, populations or ecological communities.

There are no significant trees on the site, as part of the landscape design comprehensive planting will be undertaken as part of the redevelopment.

Heritage Impacts

The existing buildings on the Lismore Base Hospital site are not items of environmental heritage and are not listed on any heritage register. The majority of buildings date from the 1940's-80's, have been occupied fully as healthcare facilities related to Lismore Base Hospital and have negligible architectural or heritage value.

Landscaping

The landscape of the Lismore ICCC has been designed as a composite of spaces that respond to the articulation of the building. In addition, the facilities suburban setting, the articulation of the building façade and the sites abiding events influenced the design outcomes. Access to sunlight and passive open

space in the form of external paved areas, are considered to be highly beneficial in the healing process with each space designed to take advantage of these elements to enhance the experience for the whole hospital community. Robust building materials and plants with low water requirements are to be used to ensure the unit's longevity and reduce the environmental impact.

The landscape spaces include the front entry court, terraces, and residual landscape space. The terraces have all been designed as multifunctional spaces that create a supportive and healing environment for all and a passive area. Access to the terraces from the building has been provided for ambulant and non-ambulant alike.

The entry court is the facility's primary address coming off the new round about drop-off areas currently being constructed as part of the New Mental Health unit redevelopment. The concept of marking the facility's main entry is reinforced through planting, and in particular the "street" tree design.

Drought tolerant plant species most appropriate to the specific uses and microclimatic conditions of the site will be used. Tree species provide scale and shade to the site and buildings will be selected. Smaller exotic deciduous trees provide a lower canopy that helps control microclimatic conditions allowing sun into spaces in winter and deep shade in summer. Appropriate shrub and groundcover species with low levels of allergens have been used in all areas accessible by staff and patients. The potential for patients to engage physically with plant materials has been considered and allowed for in the design. It is well documented that patient recovery is improved through direct and indirect contact with landscape elements such as plants and water. Refer to Appendix 3 for preliminary landscape concept plan, this concept plan will be further developed during the design phases of the project.

Acoustics and Noise

This Environmental Assessment report has clearly identified the North Coast Area Health Services' community's need for expanded and updated Cancer Care facilities. The proposed facility will not generate any undue noise levels as part of its operation. EPA guidelines for noise management in planning of developments set out a number of parameters for the management and reduction of intrusive noise. Following is an extract from EPA's Noise Guideline for Local Government:

Controlling noise in the transmission path

Noise can be controlled in the transmission path by using separation distances, barriers and sound absorptive materials.

Increasing the separation distance (distance attenuation) between the noise source and receiver reduces the noise level. As a rule of thumb, each doubling of the distance from a source equates to a reduction of sound pressure level of 6 dB (the inverse square law). This does not apply close to a loud noise source. It may also be affected by wind and temperature inversions for source–receiver distances over 300 m.

Careful site selection for a new noisy activity can help minimise noise impacts where it is possible to provide adequate separation distances. Taking advantage of topographic features by siting the noisy activity behind a hill can reduce the distance needed to adequately reduce noise levels.

Barriers are most effective when they are located close to the noise source and when they block the line of sight between the source and receiver. The amount

of noise reduction achieved depends on the height and mass of the barrier and the frequency of the noise (barriers are less effective for low-frequency noise). Noise barriers should have no gaps. Use of absorptive material on the side of the barrier facing the noise source can also help to reduce noise levels by reducing noise reflections.

Materials commonly used for noise barriers include solid brick walls, concrete blocks or panels, earth mounds, trenches and cuttings. Natural topography and existing buildings can also provide an effective noise barrier and should be considered when developing a new noisy activity. Trees or other vegetation do not provide an effective noise barrier. Some limited attenuation may be gained where trees are densely planted, but little attenuation is achieved for low frequencies.

Barriers and fencing can be placed on the residential boundary to protect a house and external areas. Barriers and fencing can also be used within a property to provide a protected external recreation area such as a walled courtyard or garden. Solid building facades closest to the noise source will also act as noise barrier. Other options include providing solid balconies designed to reflect sound away from a building.

Building construction methods are also an important noise control strategy for receiver locations. The major controls are insulating building elements such as doors, walls, windows, floors, roof and ceilings. Options for window design include sealing air gaps around windows and doors, laminated or thick glass, and double-glazing. All external building elements need to be considered to ensure that noise insulation is effective. This is because even small gaps can significantly reduce the effectiveness of noise insulation measures. Ventilation needs to be considered in conjunction with any noise insulation work; mechanical ventilation (such as air conditioning) may be necessary.

As part of the design phase of the project, acoustic consideration will be given to the planning of the unit in the following key parameters:

- Location of high activity areas and the provision of suitable sound attenuation strategies.
- Placement of plant areas to minimise acoustic impact on surrounding buildings
- Treatment of building façade to ensure noise insulation is efficient.
- Planning and design of external areas to ensure that their use by staff, patients and visitors will not create unnecessary acoustic intrusion into adjacent buildings

Construction Impacts – Noise and other impacts

There will be noise during construction associated with normal construction activity including materials delivery and handling, concrete pumping, excavation machinery building superstructure and fit out work. Construction of the new facility will comply with all relevant BCA, EPA, WorkCover and other relevant Australian Standards.

Prior to commencing construction, a Construction Environmental Management Plan will be prepared. This plan will include:

- Development of a site specific soil erosion and sediment control plan,
- Construction hours,
- Air quality/dust control procedures,
- Noise management procedures,
- Waste management plan,
- Flora and Fauna Protection Plan,
- Community Safety Plan,
- Arrangements for temporary pedestrian and vehicular access,
- Storage and Handling of Materials Procedures,
- Environmental Training and Awareness,
- Contact and complaints handling procedures,
- Emergency Preparedness and Response.

Operational Impacts

Traffic - Noise and other impacts

Redevelopment of the site will greatly improve the existing access and car parking arrangements at the site over the current traffic impacts of the Richmond Clinic building.

The segregation of vehicular traffic, service vehicles, emergency vehicles and pedestrians will greatly improve safety and will ensure a logical vehicle access system.

Operational Noise

Potential sources of noise impacts associated with the development during the operational phase include:

- Air conditioning plant;
- Ventilation systems;
- Car parking and vehicle movements;
- Waste handling and other deliveries; and
- Exhaust systems from kitchens and the like.

Acoustic consultants will be engaged to advise on the appropriate acoustic treatments for buildings within the site and to assess the likely noise impacts of the development on neighbouring residential properties.

The operations of the facility are unlikely to have a significant adverse impact on the amenity of adjacent residential development. After hours access to the site will be limited.

6. DRAFT STATEMENT OF COMMITMENTS

Introduction

Under S.75F (6) of the Act, the proponent may be required to include a Statement of the Commitments within the environmental assessment outlining the measures the proponent is prepared to make in respect of environmental management and mitigation at the site.

NSW Health's proposed Statement of Commitments for the project specifies how the project will be managed to minimise potential impacts both during construction and operation.

General

1. The development will be undertaken generally in accordance with the Environmental Assessment Report dated December 2007 prepared by HASSELL Sydney (including accompanying Appendices) and drawings.
2. The proponent is committed to the principles of sustainability as defined in the *Environmental Planning and Assessment Act 1979*. The construction and operation of the hospital will be undertaken in accordance with Premier's Memorandum No.2003-2 High Environmental Performance for Buildings and the requirements of the Environmental Performance Guide for Buildings (EPGB).
3. The proponent will obtain all necessary approvals required by State and Commonwealth legislation in undertaking the project.
4. The proponent will continue to liaise with the local community during the development process.
5. The proponent will continue to liaise with Lismore City Council during the development process.
6. The proponent will develop an environmental management plan, which identifies and demonstrates a commitment to positive environmental management for the project.

Demolition

1. Demolition will be undertaken in accordance with the requirements of Australian Standard AS2601 – 2001: The Demolition of Structures which is incorporated into the Occupational Health and Safety Act 2000 administered by WorkCover NSW.
2. A Hazardous Building Materials Management Plan will be prepared prior to demolition commencing.
3. Measures to control soil erosion during demolition will be introduced in accordance with currently accepted principles, as described in Managing Urban Stormwater (EPA NSW) and Soil Erosion and Sediment Control (The Institution of Engineers, Australia).

Access and Movement

1. An Access and Safety plan will be prepared to ensure that access during the redevelopment of the ICCC site maintains the safety of staff, visitors and patients.

Services

1. The proponent will comply with the requirements of the relevant public authorities in regard to the connection to, relocation and/or adjustment of services affected by the construction of the proposed development.

Water Management

1. The design of the stormwater disposal system will be based on the latest edition of AR&R and Bureau of Meteorology ARI statistics, Authority guidelines and AS3500.

Vegetation

2. The proponent will provide landscaping in accordance with the developed landscape drawings.

Construction Management

Prior to commencing construction, a Construction Environmental Management Plan will be prepared and a copy submitted to the Department of Planning for information. This plan will include:

- Development of a site specific soil erosion and sediment control plan,
- Construction hours,
- Air quality/dust control procedures,
- Noise management procedures,
- Waste management plan,
- Flora and Fauna Protection Plan,
- Community Safety Plan,
- Arrangements for temporary pedestrian and vehicular access,
- Storage and Handling of Materials Procedures,
- Environmental Training and Awareness,
- Contact and complaints handling procedures,
- Emergency Preparedness and Response.

Measures to control soil erosion during construction will be introduced in accordance with currently accepted principles, as described in Managing Urban Stormwater (EPA NSW) and Soil Erosion and Sediment Control (The Institution of Engineers, Australia).

Access for People with Disabilities

The design of the facilities will permit effective, appropriate, safe and dignified use by all people, including those with disabilities and will be in accordance with:

- NSW Health Facility Guidelines, in particular Part B – Design for Access, Mobility, OH&S and Security.
- DDS32 Improved Access for Health Care Facilities.

- AS 1428.
- The Building Code of Australia.

Operation

An operational environmental management plan will be prepared prior to the opening of the hospital to the public, a copy will be submitted to the Department of Planning for information. The plan will address, but will not be limited to, the following matters:

- Protection of flora and fauna
- Minimisation of anti-social behaviour.
- Visitor safety.
- Site security.
- Noise management.
- Traffic and pedestrian management.
- Storage of materials.
- Emergency and evacuation procedures.
- Fire safety.
- Waste management and ESD initiatives.
- Lighting.
- Signage.

Planning Agreements

The New South Wales Department of Health and North Coast Area Health Services are committed to establishing the scope and degree of planning agreements and contributions with the relevant Statutory Authorities. Due to the early stage of the project it is not possible to establish the extent and magnitude of contributions and agreements and these will need to be reviewed and assessed by the Department of Health and the Area Health Service once established.

7. CONCLUSION

This report, together with the appended technical reports, comprises a comprehensive environmental assessment of the Lismore Base Hospital New Integrated Cancer care Centre Project. This report describes the process of site analysis and the details of the proposed development.

The proposed development involves the development of Cancer Services at Lismore Base Hospital. It represents an appropriate use of the site, and will continue the strong historical association of the site and its buildings with the provision of health care. The development is strongly in the public interest and will provide substantial benefits to the local community.

The proposal demonstrates a high level of consistency with prevailing planning instruments including the provisions of the Lismore LEP 2000 and relevant SEPPs.

The assessment has concluded that the site is suitable for the proposal and that the implementation of the Lismore Base Hospital New Integrated Cancer Care Centre Project is consistent with the public interest.

The Minister is requested to consider the application favourably.