

REPORT TO ACCOMPANY THE RADIOTHERAPY SERVICE LICENCE APPLICATION

BACKGROUND

The new Clinical Services Building at Sydney Adventist Hospital (SAH) will provide approximately 25,000sqm of new clinical space including operating theatres and peri-operative services, inpatient wards and a new integrated cancer centre, as well as shell space for future expansion.

The Integrated Cancer Care Centre is located on levels 2 and 3 of the new CSB, and brings together facilities for day infusion, consulting, radiotherapy treatment and related support services which include a new entrance foyer and external healing garden.

The new radiotherapy treatment suite will be operated by The Radiation Oncology Institute (ROI) who operates the existing service at Sydney Adventist Hospital as well as the service at Gosford.

The design team for the new facility includes MBMO and HASSELL architects, who have been working closely with the individual clinical stakeholder groups during the design process.

The contract has been let on a Construction Management basis, and Buildcorp have been appointed to provide early advice on cost and build-ability, and to coordinate all of the various sub-contractors during the construction process.

Construction work on the CSB will commence in April 2012 with completion planned for Q1 2014.

DESIGN PROCESS

Designing an Integrated Cancer Centre is complex and typically involves a broad range of stakeholders from clinicians to patient focus groups.

For the design of the new radiotherapy treatment suite at SAH the design team have consulted with the hospital as the client, the ROI as the operator and patient groups, as well as receiving specialist design advice from potential equipment suppliers, Radiation Services Pty (radiation protection advisors) and Professor Lee Collins, an expert in radiation shielding based at Westmead hospital.

The design process began back in April 2011 with a clinical masterplan, followed by a detailed review of the internal flows and arrangement of rooms within the various departments. Currently the design team are reviewing the detailed equipment layouts with a view to completing this exercise in May 2012.

At all stages of the process the design has been informed by the operational policies provided by the client.

LINAC BUNKERS

The design of the LINAC bunkers has been driven by a number of factors including the need to achieve a functional environment that is efficient to build and operate and sufficiently flexible to accommodate a variety of LINAC machines.

The scheme includes space for 4 LINAC machines giving scope for future expansion of the service. All four bunkers are identical however the intention is that one of the bunkers will operate as a brachytherapy treatment suite in the short term.

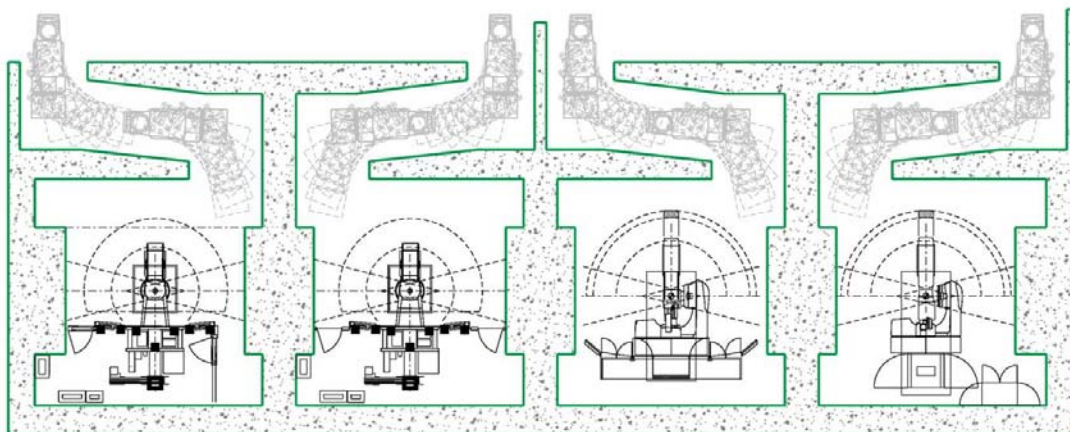


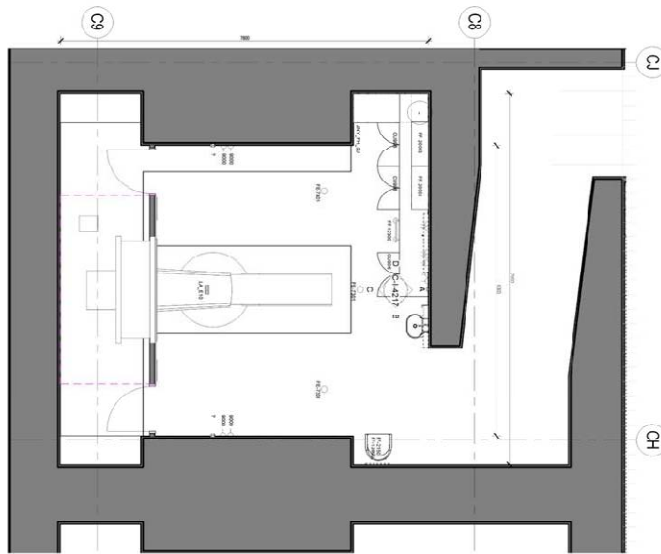
Diagram which shows the four bunkers at SAH with four different machine configurations. The dotted lines indicate the rotating radius of the extended table

Early in the design process the ROI suggested that the design team liaise directly with two potential suppliers, Elekta and Varian, on the space and access requirements for their machines.

The ROI expect to install machines with an output capacity of 10MV however it was agreed that to ensure future flexibility the design, including the radiation shielding, should be able to accommodate machines with an output of 18MV. This decision has influenced the thickness and specification of the main concrete structure and the design of the maze walls and services trenches due to the need to provide scope for the addition of neutron doors in the future.

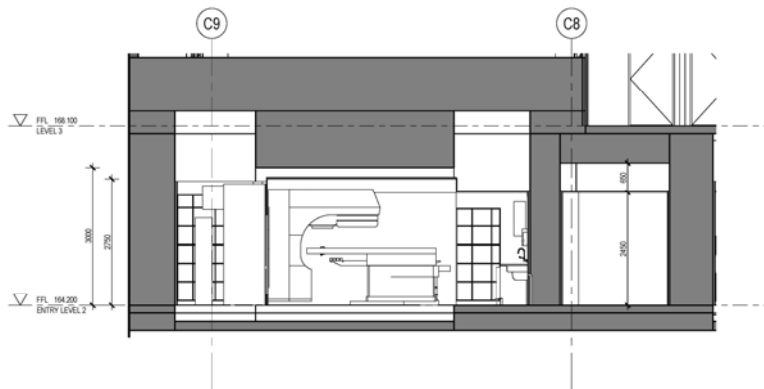
Based on the information provided by the potential suppliers the bunkers have been designed with a nett internal area of approximately 86sqm. This is below the AHFG recommended area of 150sqm; however the bunkers maintain a sufficient level of flexibility

We have compared this floor area to other LINAC bunkers currently being constructed and believe that this compares favourably. The existing bunkers at SAH are 44sqm and 65sqm. The existing bunkers at Gosford are 65sqm and 75sqm.



Layout of one of the proposed LINAC bunkers including equipment. Dashed line delineates extent of 86sqm

The bunkers sit within the main building footprint on level 2 (ground floor). Due to the requirement for radiation shielding above the bunkers, and the subsequent increase in floor to floor height, there are no occupied areas on the level above. Instead this space is used for the plant systems which provide fresh air to the bunkers.



Section of proposed LINAC bunkers including equipment.

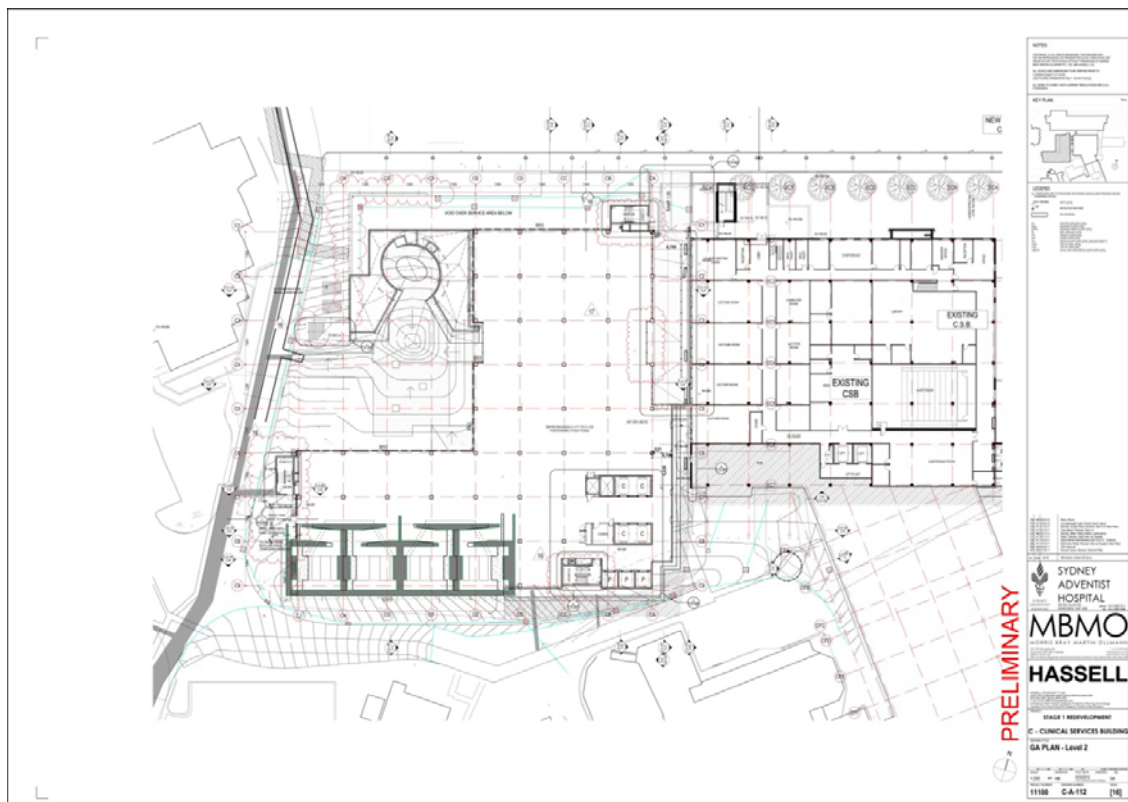
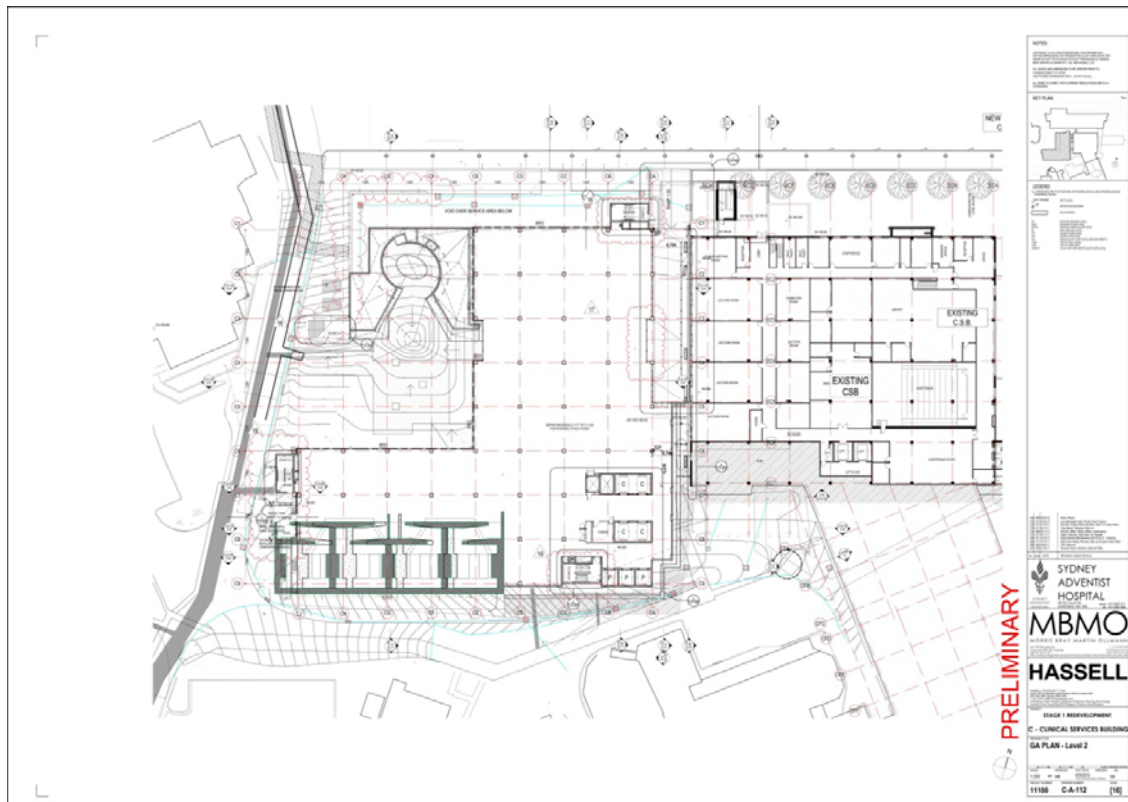
From a patient perspective it is important to consider the stress involved in receiving radiotherapy, and design the space around the LINAC machine to help reduce any feelings of anxiety.

A LINAC bunker is a threatening environment and we believe that by reducing the scale of the space as much as is practical we are helping to reduce the clinical feel and help to keep the patient calm.

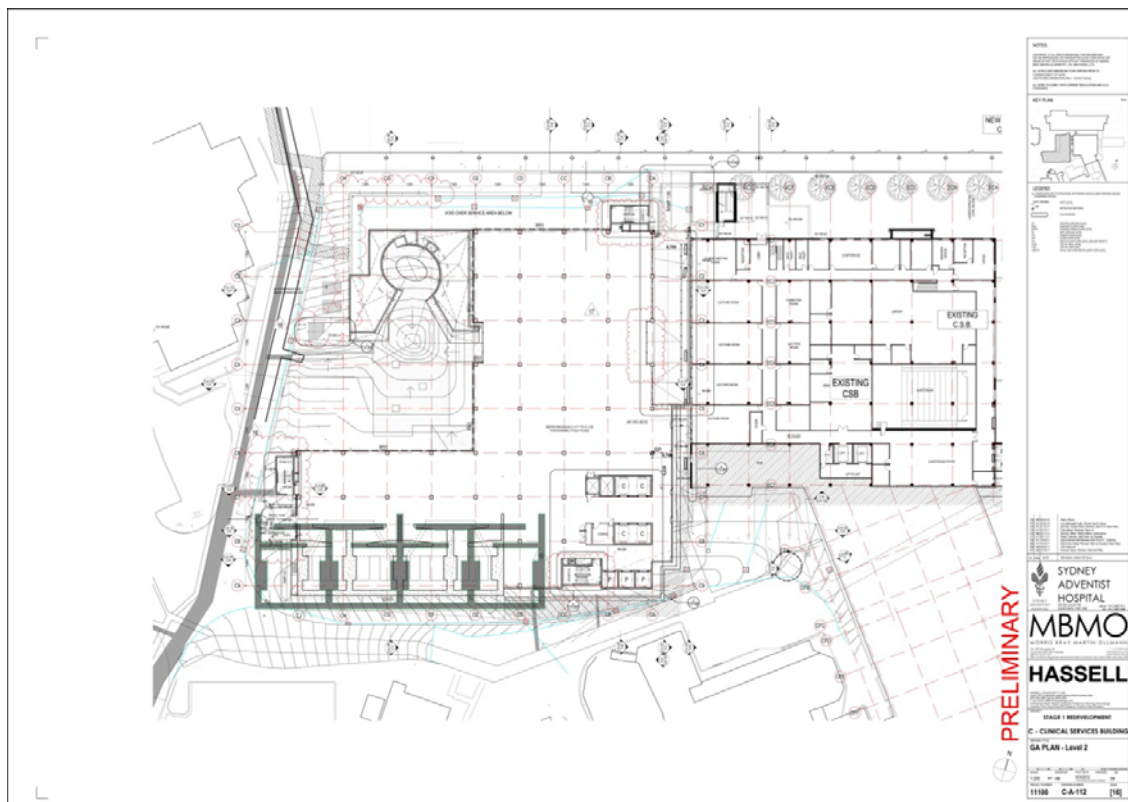
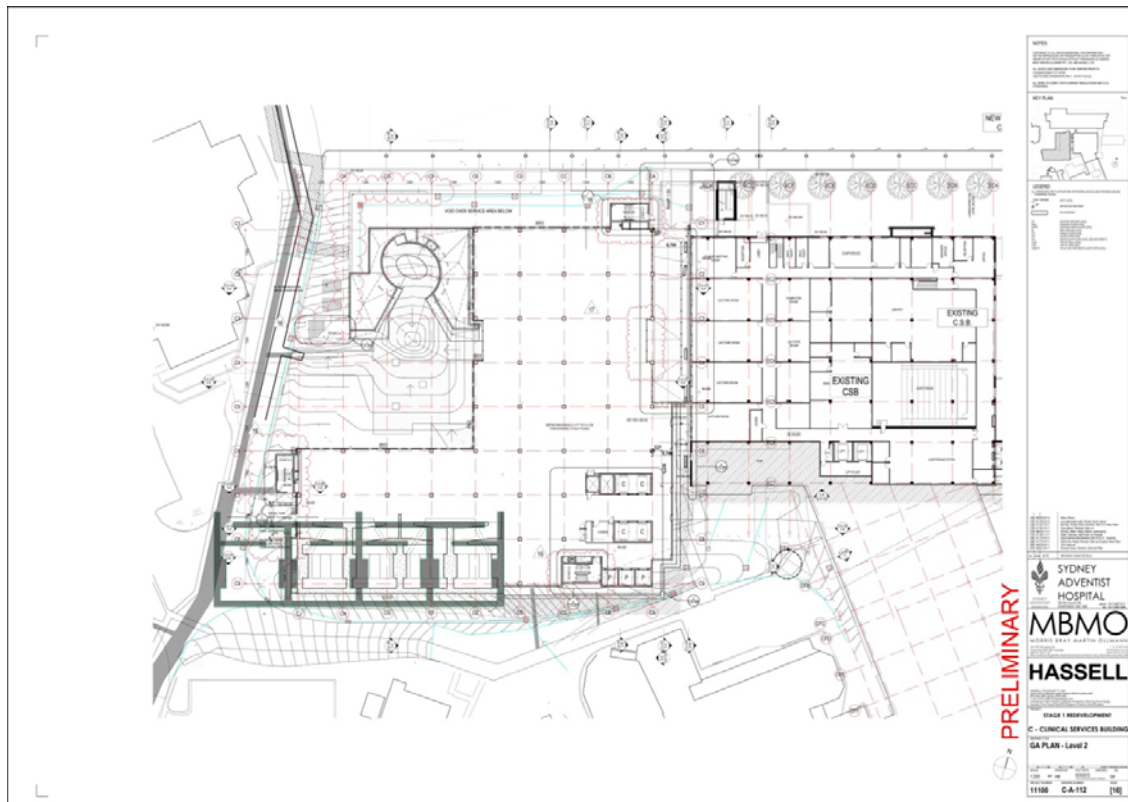


An example of how the interior design of the bunkers can influence the patient experience

The internal design of the LINAC bunkers is not yet finalised and the design team will continue to work with the user group to determine strategies for lighting, finishes and fitted equipment over the next few weeks.



Larger size bunkers overlaid on proposed ROI layout. 1m added to each bunker - 98sqm



AHFG size bunkers overlaid on proposed ROI layout