

4.0 The Project Plan

4.1 Introduction

The Infrastructure and Ancillary Hospital Works which are the subject of this Project Application are essential elements of the Liverpool Hospital Redevelopment. The new internal and external roads will provide additional and efficient access to the Hospital facilities and will also help alleviate traffic pressures within the Liverpool CBD.

The construction of a new vehicular bridge across the rail corridor will address the future limits imposed on the present at grade crossing of the rail corridor and will enable direct secure access between the East and West Campus for both vehicles and pedestrians. The proposed pedestrian bridge linking the multi storey car park and the new Clinical Services Building will also address any access constraints associated with staff parking facilities located on the East campus and the core medical activities which are essentially located on the West Campus.

This Project Application provides for a significant expansion of car parking for both visitors and staff. Visitor car parking facilities are effectively contained within the West Campus while staff car parking is expanded and further developed by the construction of a 6 storey car park and expanded surface car parking in the East Campus.

The Project Application provides for landscaping works associated with the new road works both within and outside the Hospital grounds. Landscaping to the expanded surface car parking areas is also provided.

This Project Application includes the modification and expansion of the existing Child Care Centre to cater for the increased demand from 52 to 88 children.

The ancillary facilities include the construction of a single level Engineering Services Building. As noted earlier the Concept Plan provided for the expansion of the existing Central Energy Plant with a new building to the north of the existing building. Following the decision to integrate the additional Central Energy requirements into the new Clinical Services Building (refer Clinical Services Building Project Application) the defined site area has now been committed to a single level Engineering Services Building.

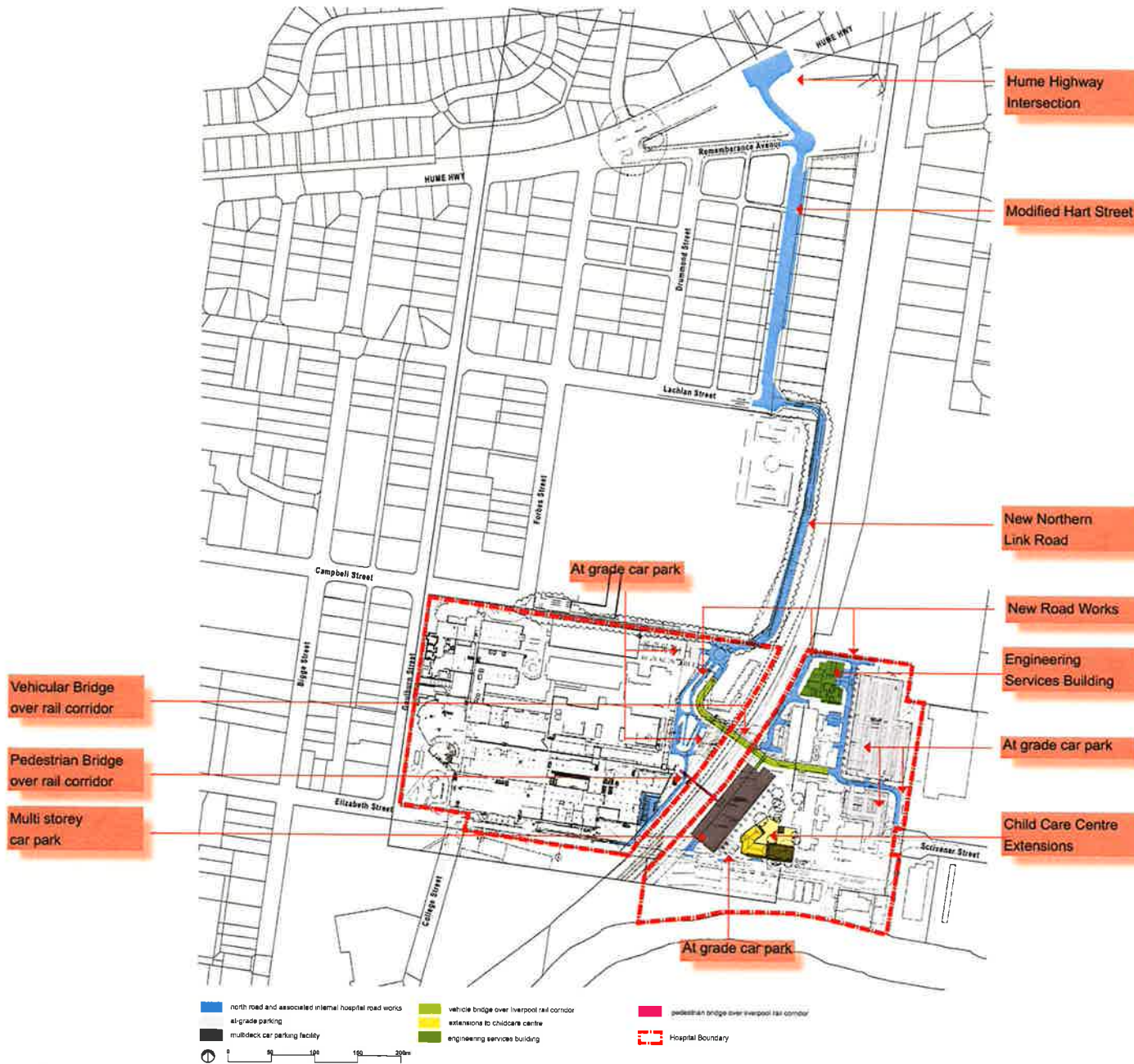


Fig 4.01 - Infrastructure and Ancillary Hospital Works

4.2 Site Access, Planning and Design Principles

The existing main entrance to the Hospital is located in the Clinical Services Building adjacent to the intersection of Elizabeth and Goulburn Streets and opposite Bigge Park. The Hospital is some 400m from the geographic centre of the CBD, 500m from the Liverpool train station/ Liverpool bus interchange and approximately 800m from Warwick Farm station.

The Project Application lodged in July 2008 with the Department of Planning provides for a new ambulatory entry to the new Clinical Services Building which is linked to the existing entry by the main Hospital concourse.

The Infrastructure and Ancillary Hospital Works identified in this project application provide access to the new ambulatory entry and for the significant changes in terms of access to and egress from both the East and West Campuses including the visitor and staff car parking areas.

The new internal and external roads, access and drop-off points will improve the efficiency of site circulation as well as enhancing emergency vehicle access and access from the broader road network. In summary the proposed changes to campus circulation are:

- A new northern access road linking the Hume Highway to the north eastern sector of the West Campus, the new ambulatory entry to the Clinical Services Building as well as access to an array of existing and new facilities, access to the multi storey car park and to enhanced surface car parks.

- The construction of an entry and egress roadway to the new Clinical Services Building basement car park and patient drop off areas.
- New vehicular bridge over the rail corridor including ramp approaches on both the East and West Campus
- New pedestrian bridge over the rail corridor providing direct access between the multi storey car park and the Clinical Services Building complex. The pedestrian bridge will also provide for staff access between East and West Campuses.
- Access to the multi storey car park at both ground level and at an elevated level from the new vehicular road bridge.
- Enhanced road access to the proposed Engineering Services Building
- Modified access and client parking associated with the expanded Child Care Centre.

Emergency and service vehicle access/egress

The close proximity of the hospital to the arterial road system affords ready access by emergency vehicles. Emergency access will be augmented with the proposed new northern road connection while the proposed bridge over the rail corridor will also provide emergency access to/from the east without reliance on access via the existing at-grade rail crossing at the privatised Elizabeth Street.



Fig 4.03 - Car Parking

West Campus	At Grade	Structure	Total	+ Short Stay
Existing Clinical Services Building basement		143		
New Clinical Services Building basement		150		
Campbell Street multi storey	84	522		
At grade	105			17
Elizabeth Street	15			
Total	204	815	1,019	17
East Campus				
New multi storey parking		800		
At grade	504			10
Total	504	800	1,304	10
Campbell Street Annex	40		40	
Total Parking	748	1,615	2,363	+ 27

Table 4.01 - Parking Distribution

Car Parking

The studies undertaken as part of the now approved Concept Plan highlighted the existing shortfall of car parking spaces within the Hospital Campus.

As a consequence the approved Concept Plan identified the need for a substantial increase from 1,500 to 2,400 car spaces. This Project Application provides for a total of 2,363 car spaces, 1,019 car park spaces on the West Campus equally balanced between staff and visitors and 1,304 spaces within the East Campus with a further 40 spaces located in the Campbell Street Annex (refer Table 4.01).

Within the East Campus provision has been made for a multi storey (6 storey) car park which will accommodate 800 cars is located immediately adjacent to the rail corridor. The multi storey car park will be accessed from the road bridge across the rail corridor at level 6 and at ground level from the existing Elizabeth Street which presently crosses the rail corridor at grade.

The multi storey car park has been designed with lift access to a pedestrian bridge across the rail corridor which will provide for a 24 hour secure pedestrian link between the new Clinical Services Building on West Campus and the multi storey car park. It will also provide a secure and safe access across the rail corridor for staff located within East Campus.

In addition substantial marked surface parking areas have been identified.

A number of informal existing car parks will be resurfaced and line marking undertaken to formalise parking arrangements (refer Appendices E and F). Entrance and exits will be upgraded and fencing constructed to improve security and delineation of the parking areas. The existing car park management agreement with IPG will be amended to reflect the modified parking arrangements and the new multi-storey carpark.

On the West Campus car parking provision includes the 150 spaces located in the basement of the new Clinical Services Building. This provision was addressed in the Clinical Services Building Project Application lodged with the Department of Planning in July 2008.

The surface car parking areas include an extension of existing surface car parking associated with the multi storey car park and surface car parking located along the northern boundary of the West Campus together with parking areas located immediately south of the vehicular road bridge across the rail corridor as well as car parking areas located immediately adjacent to the new Clinical Services Building. The total provision of car parking within the West Campus is as follows:

- Basement car parking 293
 - Multi storey car park structure 522
 - Surface car parking 204
- Total 1,019

It should be noted that additional basement car parking will be provided with the redevelopment phase of the Cancer Centre.

Bridges

During the preparation of the Concept Plan and discussions with RailCorp and the Australian Rail Track Corporation (ARTC) indicated the substantial proposed increase in rail traffic as well as future increases in the number of railway tracks immediately adjacent to the Hospital. There were also proposals to amend the width of the rail corridor to accommodate the necessary upgrading for the Southern Sydney Freight Line.

The increased railway traffic will significantly impact on the operation of the at grade crossing which presently provides for vehicular and pedestrian access between the East and West Campuses of Liverpool Hospital.

The analytical studies clearly demonstrated that the increase in the scale of Liverpool Hospital would place additional demands on the need for staff and vehicular access between campuses.

Following detailed negotiations with RailCorp and associated entities a Voluntary Planning Agreement has been prepared. The Agreement addresses the responsibilities and relationships between NSW Health, RailCorp, ARTC and Transport Infrastructure Development Corporation (TIDC) and provides for the construction a vehicular road bridge and a pedestrian bridge spanning the rail corridor and linking the East and West Campuses of Liverpool Hospital.

Vehicular Bridge

A two lane vehicular bridge will provide 24 hour, uninterrupted vehicular access across the rail corridor enabling unimpeded movement between the East and West Campuses of the Hospital.

The vehicular bridge will totally span the 39m rail corridor with 5x1800mm deep Super-T girders. Concrete parapets with steel railings will be incorporated on either side of the road carriageway together with security screens over the rail corridor.

The horizontal and vertical alignment of the approach ramps and bridge superstructure reflect the site constraints. The bridge deck will provide a clear width between traffic barriers of 7.6m allowing for a 3.5m wide traffic lane in each direction and 300mm shoulders.

The design of the bridge ensures that foundations, piers and other bridge elements will be constructed outside the rail corridor and hence not impact on train movements.

Pedestrian Bridge

The pedestrian bridge linking the Clinical Services Building with the multi storey staff car park will be a steel truss structure with glass clad sides and metal roof and will fully span the rail corridor.

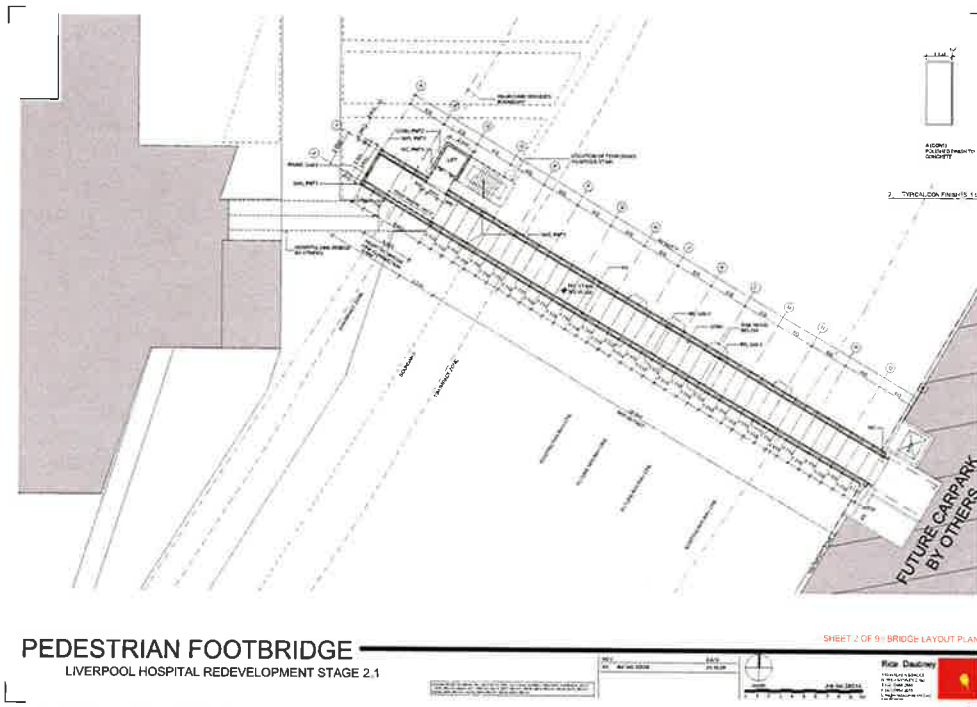


Fig 4.04 - Pedestrian Bridge Layout Plan

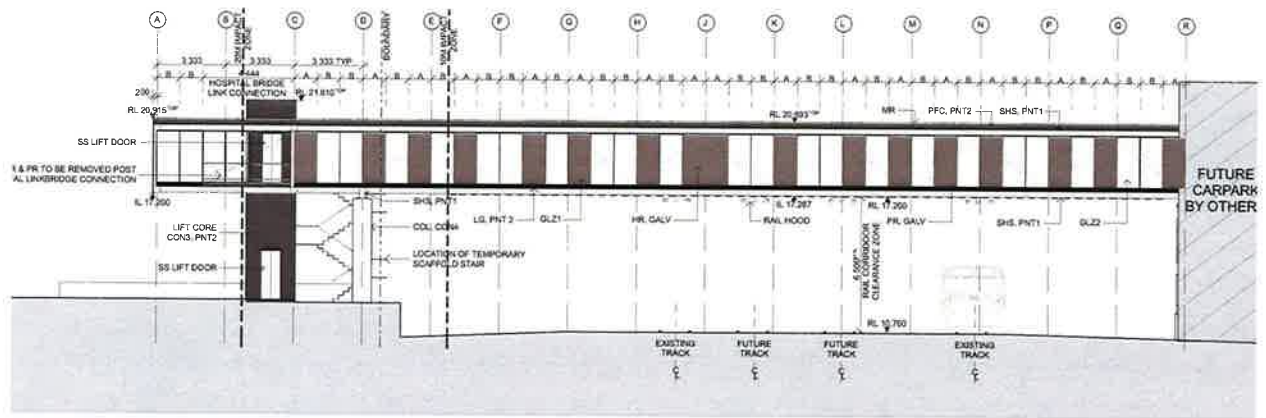


Fig 4.05 - Pedestrian Bridge South Elevation

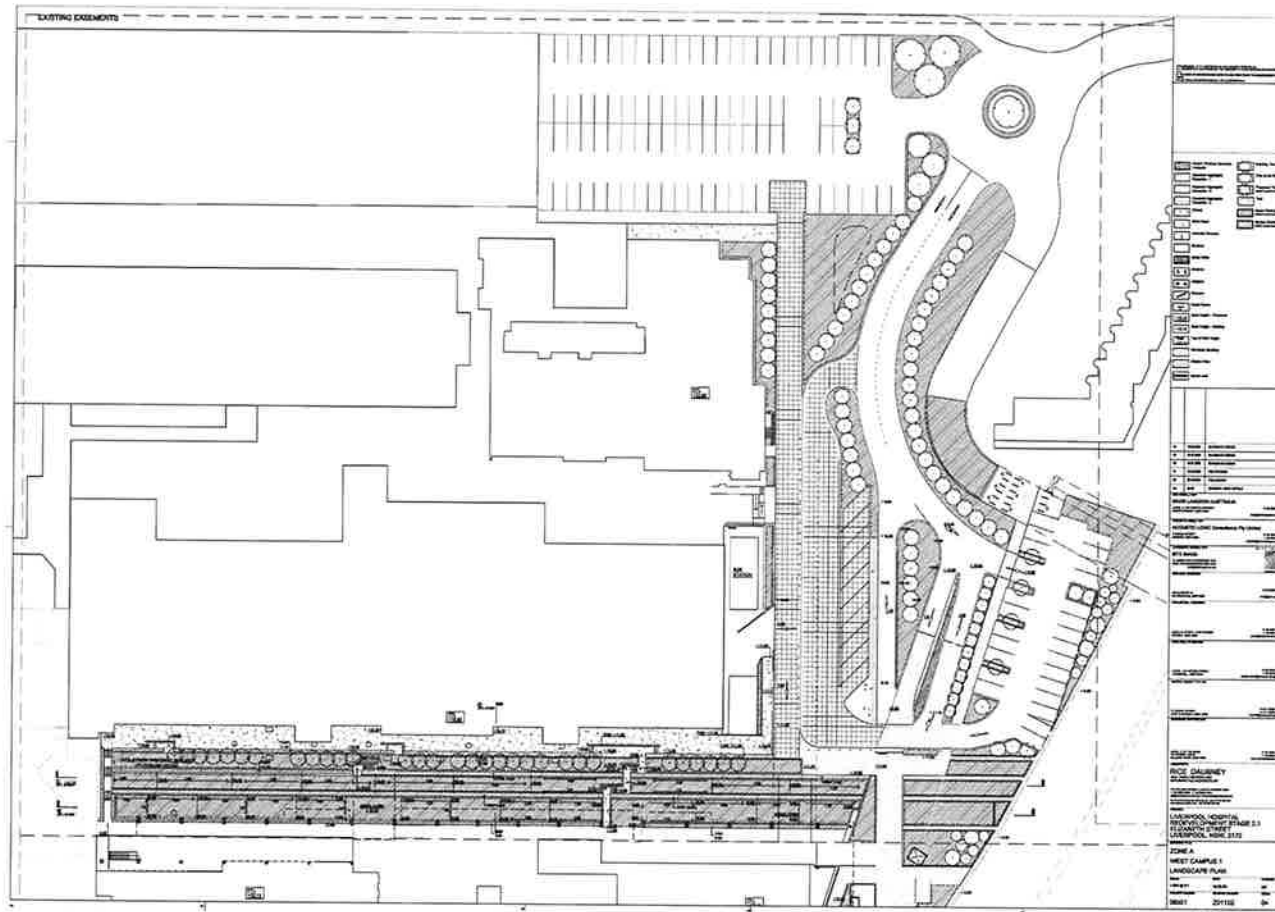


Fig 4.06 - West Campus Landscape

Landscaping

Hard and soft landscape elements have been selected to complement the architectural character, form and textures of proposed and existing buildings and infrastructure on the Liverpool Hospital campus, Hart Street and the new northern link road. Landscape works to be undertaken as part of this Project Application include:

- Street tree planting in the Hart Street median and minor landscape works on either side of Hart Street.
- Establishment of footpaths around Hospital buildings and facilities including the proposed Engineering Services Building, the Central Energy Building and the new Clinical Services Building.
- Planting of mature trees, shrubs and low massed planting in conjunction with the establishment of footpaths and new internal road pavements as detailed in Section 5 of this Project Application and the relevant technical appendices.
- Lighting, bollards, retaining walls and other hard landscape elements as appropriate.
- Minor landscape works including street tree planting adjacent to the new Clinical Services Building in Elizabeth Street.
- Massed low shrub planting in the courtyard immediately north of the Clinical Services Building. (This landscape element formed part of the Clinical Services Building Project Application lodged with the Department of Planning in July 2008.)
- Low massed shrub and tree planting in the vicinity of the short stay car parking areas associated with the new Clinical Services Building and the vehicular access ramps to the basement of the new Clinical Services Building.

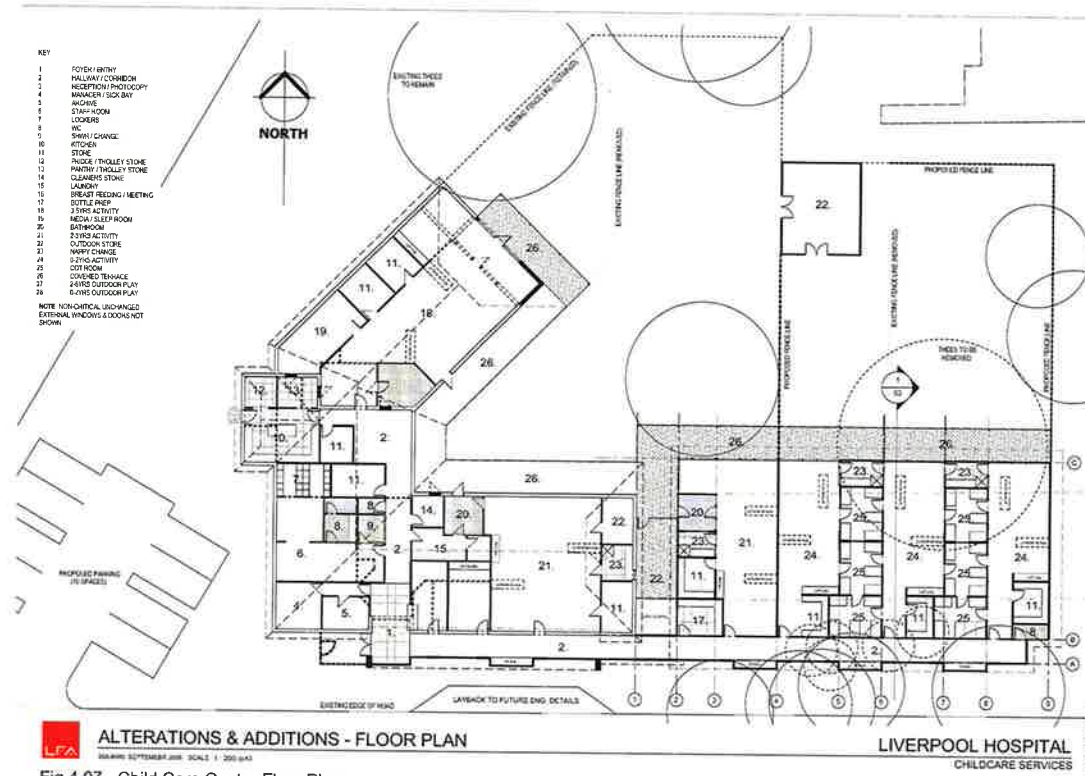


Fig 4.07 - Child Care Centre Floor Plan

Child Care Centre

The existing Child Care Centre (52 children) will be expanded to cater for 88 children. Expansion will provide facilities for three distinct groups including birth to under 2 years, 2 years to under 3 years and 3 years to under 6 years together with appropriate outdoor play areas.

The expansion will be achieved by extending the existing building to the north and to the east. Expansion to the east will involve the demolition of an existing single level building. Provision will also be made for a modified drop off/car park area which will allow parents to access the centre. Provision for Child Care Centre staff parking has been allocated within the overall staff parking in East Campus.

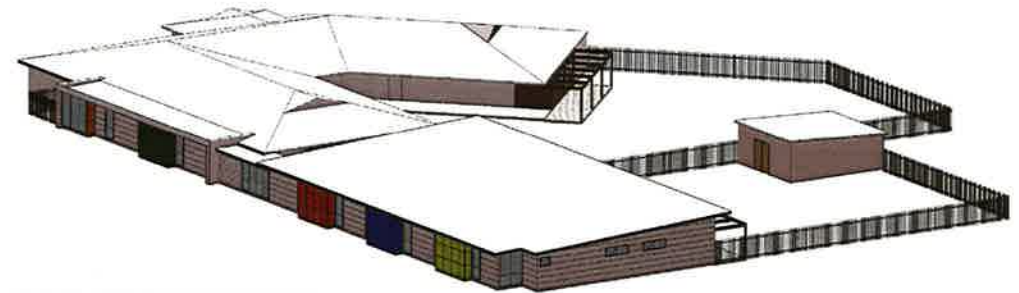


Fig 4.08 - Child Care Centre Perspective

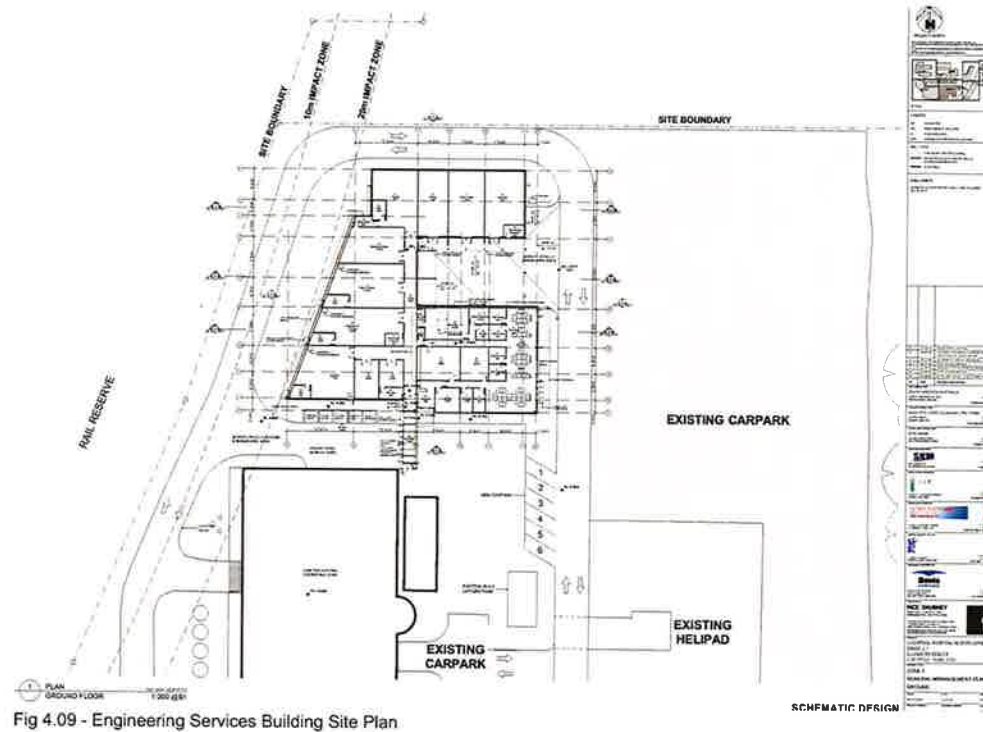


Fig 4.09 - Engineering Services Building Site Plan

Engineering Services Building

A new single level Engineering Services Building will be constructed on the East Campus to the north of the existing Central Energy Plant. The building will provide for a range of engineering facilities as well as storage associated with hospital maintenance activities.

The building site abuts industrial uses to the north and the rail corridor to the west. The building will not be visible from any public space.

The single level building has provision for a double loading dock, workrooms, offices, storage rooms and plant.

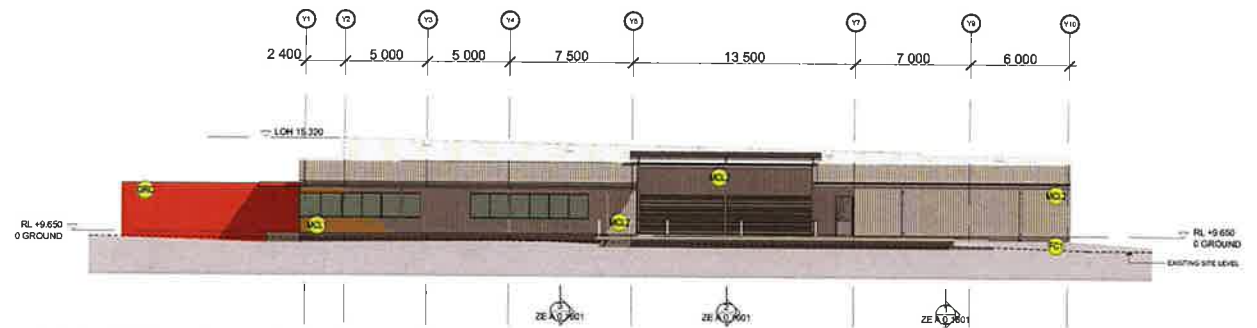


Fig 4.10 - Engineering Services Building East Elevation

4.4 Ecologically Sustainable Design

The approved Concept Plan defined, in general terms, the location of Infrastructure and Ancillary Hospital Works. In preparing this Project Application the following principles were adopted by the design team:

- Maintain compliance with environmental laws and regulations.
- Select materials to maximise the use of recycled and recyclable materials.
- Develop appropriate methods for the storage of dangerous goods.
- Minimise water usage and ensure water storage systems are maintained in a healthy state

Key ESD Opportunities

The design intent is that the Infrastructure and Ancillary Hospital Works at Liverpool Hospital will be environmentally sensitive.

The key opportunities for ESD to be implemented in the infrastructure and ancillary works include aspects of building design such as rainwater collection, natural ventilation and the provision of efficient waste management solutions.

The Engineering Services Building will incorporate a Variable Refrigerant Volume (VRV) air cooling system incorporating a condensing unit located on the north side of the building and the building has been designed in accordance with the energy performance requirements of the Building Code of Australia.

The proposed multi storey car park has been designed to incorporate natural ventilation practices wherever possible thus reducing the requirement for mechanically ventilated solutions.

Rainwater tanks will be installed the new Eastern Campus multi storey car park. The rainwater collected from the roof surface of the multi-deck carpark will be stored in rainwater tanks located on the eastern facade of the building. The rainwater will be reticulated to landscape areas between the multi-deck carpark and the existing Child Care Centre. Opportunities for recycling of waste in the facilities and infrastructure included in this Project Application are limited due to the nature of the facilities. However, the Engineering Services Building will incorporate waste sorting facilities and will be an integral element of the Operational Waste Management Plan which will be prepared prior to the operation of the building. Waste generated by the Child Care Centre including recyclable rubbish (eg paper/plastic bottles, disposable napkins, paper) will be sorted at the source and disposed of into nominated containers in accordance with existing hospital policy.