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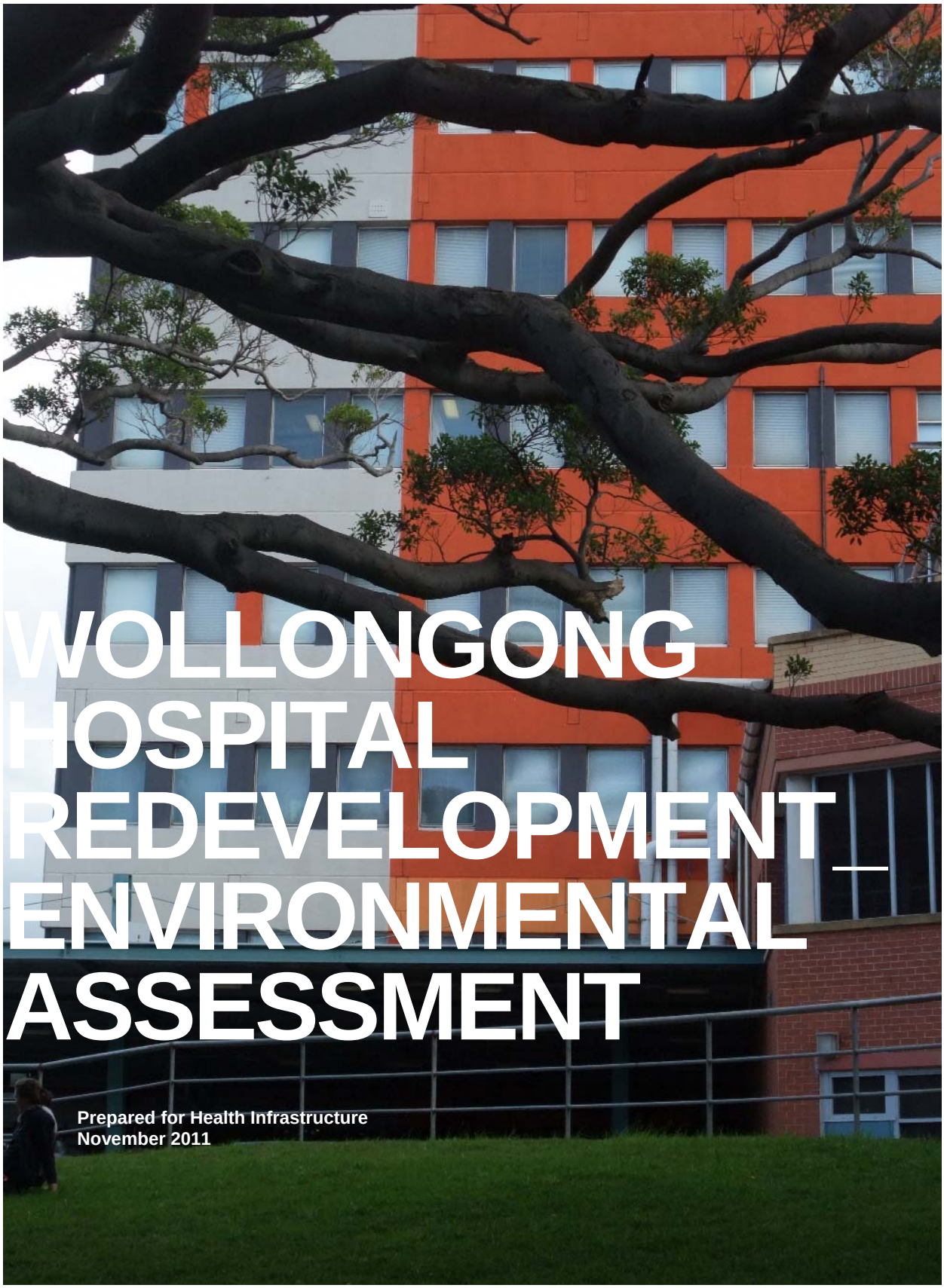

WOLLONGONG HOSPITAL REDEVELOPMENT – ENVIRONMENTAL ASSESSMENT

Prepared for Health Infrastructure
November 2011

HASSELL

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Statement of Validity

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

Environmental Assessment prepared by

Name	Kristen Saul
Qualifications	Bachelor of Urban Planning and Development (Hons) University of Melbourne 2005
Address	HASSELL Level 2 88 Cumberland Street Sydney NSW 2000

Applicant and Land Details

Applicant	Health Infrastructure
Subject site	Wollongong Hospital Crown Street, Wollongong
Lot and DP	Lot 13 in DP 884182, Lots 58 to 69, Section 3 in DP 1258 and Lot 95, Section 3 DP 1258

Project Summary

The proposal seeks Project Approval for the Wollongong Hospital Redevelopment project which includes the Illawarra Elective Surgical Services (IESS), Emergency Department (ED) expansion and Ambulatory Care Unit (ACU) projects. The proposal will significantly increase the facilities at the Wollongong Hospital through 98 new beds and 7 new operating theatres plus additional consult, administrative and hotel services.

The proposed development consists of a new 6 storey building on the northern side of the site fronting Loftus Street and linking into the existing Clinical Services Building. There will also be a smaller expansion to the eastern side of the existing ED in an area currently occupied by Hospital Road.

To facilitate this work the following additional works will also occur:
_Various demolition works including part removal of Elouera House a State Listed Heritage Item
_Modifications to Elouera House to ameliorate the demolition works
_Landscape and public domain works
_Excavation works for basement
_Utility works including new water main connections, relocation of gas meter and new substations
_Removal of 21 trees including two trees listed as Local Heritage Items in the Wollongong LEP
_Sustainable transport, operational and waste procedures

Environmental Assessment

An Environmental Assessment is attached.

Declaration

I certify that I have prepared the contents of the Environmental Assessment in accordance with the requirements of the *Environmental Planning and Assessment Act* 1979 and that, to the best of my knowledge, the information contained in this report is not false or misleading.

Signature

Name Kristen Saul
Date 03 November 2011

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___ Supporting Documentation

Appendix Volume 1 (this volume)

A	Director General's Requirements	HASSELL	
B	Accessibility Report	Morris Godding and Associates	07 September 2011
C	Transport and Traffic Assessment	TTW	July 2011
D	Heritage Significance Assessment	Goddon McKay Logan	September 2011
E	Heritage Impact Statement	Goddon McKay Logan	September 2011
F	Archaeological Impact Statement	Goddon McKay Logan	September 2011
G	Tree Assessment Report	Earthscape Horticultural Services	October 2010
H	Arboricultural Hazard Assessment	Urban Tree Management	December 2010
I	Civil Report (includes Geotechnical Report)	TTW + Douglas Partners	06 September 2011
J	Acoustic Assessment	Norman Disney and Young	23 August 2011
K	Electrical Utilities Report	Norman Disney and Young	28 August 2011
L	Hydraulic Utilities Report	Acor Consultants	09 August 2011
M	Phase 2 Contamination Assessment	Douglas Partners	July 2011
N	ISLHN Waste Management Policy	ISLHN	March 2011

Appendix Volume 2 (A3 reports)

Site analysis and context plans	HASSELL	September 2011
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View analysis	HASSELL	September 2011
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Executive Summary

This Environmental Assessment (EA) relates to the proposed Wollongong Hospital Redevelopment project which includes the Illawarra Elective Surgical Services (IESS), Emergency Department (ED) expansion and Ambulatory Care Unit (ACU) projects.

The EA was prepared in accordance with Part 3A of the *Environmental Planning and Assessment Act* 1979 and State Environmental Planning Policy (Major Development) 2005. The Major Project application number for this project is MP10_0213 and the applicant is NSW Health Infrastructure.

Site
Wollongong Hospital is located approximately 1 kilometre to the west of the Wollongong CBD. The site is bounded by Crown Street, New Dapto Road, Loftus Street and Darling Street and is held in 14 allotments being Lot 13 in DP 884182, Lots 58 to 69, Section 3 in DP 1258 and Lot 95, Section 3 DP 1258.

This application relates to the northern half of the site fronting Loftus Street. The site contains a range of existing hospital buildings with a main building at 10 storeys. The site also contains a State Heritage Register listed item, the Wollongong Nurses Home which includes Elouera House and Lawson House. Three large figs on the site have local heritage significance.

Development Proposal
Wollongong Hospital is a teaching and major referral hospital and the largest hospital in the Illawarra Shoalhaven Local Health District (ISLHD). To meet the needs of its aging and growing population catchment in the Illawarra (Kiama, Wollongong and Shellharbour), the then South Eastern Sydney Illawarra Area Health Service Strategic Plan 2010-2015 identified a critical need for additional surgical services in the Illawarra. The demand for additional surgical beds, critical care beds, theatres and elective surgery clinic-consulting rooms for pre and post admission consults will be met through the development of a new Illawarra Elective Surgical Services (IESS) facility, a new Ambulatory Care Unit (ACU) and an expansion to the existing Emergency Department (ED) at Wollongong Hospital. These additional services will also demand significant enhancements to health support services (e.g. stores, kitchen etc).

The development will consist of a new 6 storey building on the northern side of the site fronting Loftus Street and linking into the existing Clinical Services Building. There will also be a smaller expansion to the eastern side of the existing ED in an area currently occupied by Hospital Road.

To facilitate this work the following additional works will also occur:
_Various demolition works including part removal of Elouera House, a State Listed Heritage Item
_Modifications to Elouera House to ameliorate demolition works
_Landscape and public domain works
_Excavation works for basement
_Utility works including new water main connections, relocation of gas meter and new substations
_Removal of 21 trees including two trees on listed as Local Heritage Items in the Wollongong LEP
_Sustainable transport, operational and waste procedures

Environmental Assessment
The conclusions of the EA are as follows:
_ The Project Application demonstrates a high level of consistency with the relevant planning instruments and fully addresses the issues identified in the Director General's Assessment Requirements.
_ The proposal will result in minimal environmental impacts, all which can be mitigated through the recommendations outlined in the Statement of Commitments (Section 4).
_ The proposal will have a substantial positive social impact for Wollongong and the Illawarra Region by increasing the capacity of the Wollongong Hospital in line with the *South Eastern Sydney Illawarra Area Health Service, Area Strategic Plan 2010-2015*
_ The proposal is consistent with the provisions of the Wollongong LEP particularly in regard to land use, height and FSR for the subject site.
_ The proposal will not unreasonably impact the heritage significance of Wollongong Nurses Home, which is an item listed on the State Heritage Register.

Statement of Commitments
Health Infrastructure has prepared a Statement of Commitments to detail how the Wollongong Hospital Redevelopment project will be managed to minimise its impacts both during construction and operation. The Statement of Commitments cover issues such ESD, accessibility, landscaping, stormwater and construction management. They are detailed in Section 4 of the EA.

Conclusion
The EA addresses the Director-General's Environmental Assessment Requirements and demonstrates the impacts of the proposal can be satisfactorily managed. Given the planning merits above, the proposed development is justified and warrants approval by the Minister for Planning and Infrastructure.

Covering Note
On January 1 2011 New South Wales (NSW) put in place seventeen new Health Districts as part of a key requirement of the National Health Reform Agreement, which was finalised in April 2010. These seventeen Health Districts replaced the previous eight Area Health Services (AHS). The current boundaries of the Illawarra Shoalhaven Local Health District (ISLHD) were formally a part of the now dissolved South Eastern Sydney Illawarra Area Health Service (SESIAHS). At the time of the drafting of this project's Strategic Business Case in late 2010, the new LHDs were not in place. Both the Strategic Business Case which appeared before Gateway in November 2010 and the Services Plans which underpinned the impetus of this project were based on the former SESIAHS geographical boundaries. This document therefore references the previous AHS model's statistics in parts, and plans in accordance within this former Area Health Services. These statistics were applicable at the time of drafting the Strategic Business Case in November 2010. For the purposes of this document the current ISLHD will not be described in the context of service planning parameters provided, yet rather all statistics are given based upon the AHS model, i.e. SESIAHS service demands and catchment.

1 Site Context and Analysis

1.1 Location

Wollongong Hospital is located approximately 1 kilometre to the west of the Wollongong CBD fronting Crown St. As shown in the Site and Context Analysis (**Appendix Vol 2**), Wollongong Hospital is located across two sites with the main hospital facilities being on the land bounded by Crown Street, New Dapto Road, Loftus Street and Darling Street. A multistorey car park, helicopter pad and additional health buildings (occupying dwellings) are located to the west of the main hospital site, across New Dapto Road. The facilities are linked by a pedestrian overbridge.

As shown in Figure 1.1, the areas subject to this application occupy the northern portion of the main hospital site, along Loftus Street.

1.2 Ownership and Title Information

Wollongong Hospital is held in 14 allotments being Lot 13 in DP 884182, Lots 58 to 69, Section 3 in DP 1258 and Lot 95, Section 3 DP 1258. There are also additional allotments on the western side of New Dapto Road (Lot 101 in DP 1043216) and a future Teaching, Training and Accommodation building on 48 Loftus Street (Lot 50, Section 3 in DP 1258) which are used by the Hospital. All sites are currently owned by Health Administration Corporation. The Survey Plan in **Appendix Vol 2** confirms that the site is encumbered by seven easements, however these are all located outside the area subject to this application.

Figure 1.1: Site plan of Wollongong Hospital- yellow denotes land owned by HAC (Source: Google Maps)

1.3 Topography

Wollongong Hospital is located on an elevated site with a fall across the site from the highset point to the lowest of approximately 14 metres. The site stratification extends from its lowest point on the corner of Loftus St and New Dapto Rd having an RL 40 up to Crown St at RL 50 but the site rises to approx RL 54 close to its centre. Detailed contours are shown on the Survey Plan in **Appendix Vol 2**.

1.4 Landscape Character

Wollongong Hospital sits at a high point of the city with significant city and mountain views of the surrounding areas. The existing landscape has been modified over time to accommodate new developments within the hospital boundary. As a result, there is a small amount of external space available on the site to be developed as public domain spaces to service patients, employees and visitors to the hospital. The site currently gives a high priority to vehicular circulation, however pedestrian prioritised circulation is relatively poor. The existing landscape plantings include a combination of heritage listed plantings, layered with more recent native plantings. Refer to the Existing Vegetation Plan in **Appendix Vol 2** for further detail.

1.5 Existing Improvements

The majority of the site is highly developed and the site is dominated by the three major clinical blocks of the Hospital being Blocks A, B & C plus the buildings of Elouera House and Lawson House, which represent the historical development of the site. The remaining areas are small landscaped areas.

The majority of buildings on the site are orientated in a north-east, south-west axis with their primary facades facing northwest or southeast. The site is bounded by New Dapto Rd to the east, Loftus St to the north, Crown St to the south and Darling St to the east. Main hospital entry being of the corner of New Dapto Rd and Loftus St with vehicular access from Loftus St.

As shown in the Building Height Analysis in **Appendix Vol 2,** building heights on the Hospital campus vary from 2 to 10 storey with the most dominant buildings being Blocks B & C at 10 and 9 storeys respectively. Block C was the last major development on the site having been completed in 2004.

1.6 Existing Access and Internal Linkages

The site currently has three major access points being from Loftus Street (public entry with drop-off zone), Darling Road (emergency vehicles) and from New Dapto Road to the internal services road and pedestrian link called Hospital Road. There is also service vehicle access to the loading dock situated at the corner of New Dapto Road and Loftus Street. Entry to the loading bay is via Loftus Street and egress from New Dapto Road.

The main car parking area for the hospital is located on the western side of New Dapto Road in a multi-deck car parking structure. The helipad is located above the multi-deck car park and both emergency (from helicopter) and public access from the car park to the main hospital site is via the above ground walkway that spans New Dapto Road. There is a range of smaller car parking areas on the main hospital site; these are detailed in the Traffic and Transport Assessment Report in **Appendix C**.

There are multiple pedestrian entry points to the Hospital from the surrounding street network. Entries on New Dapto Road and Crown Street provide access directly into the Illawarra Cancer Care Centre and Block A respectively. Other entries are located on Loftus Street. Hospital Road also provides an important internal pedestrian and cyclist link through the site extending from the New Dapto Road/Crown Street intersection through to Darling Street. All pedestrian entries link to the surrounding footpath network. There are limited cyclist facilities located across the site.

Hospital Road is an internal circulation road from the south western end of the site (from New Dapto Road) through to Crown Street. It provides limited vehicular access for ambulances and mortuary vehicles and is also used by pedestrians.

1.7 Heritage Values

Development of the hospital on its current site commenced in 1907. Whilst none of the buildings from this era remain on the site, there are some later buildings and landscape which are significant in that they represent the historical development of the Hospital.

1.7.1 Wollongong Hospital Nurses' Home

Wollongong Hospital Nurses' Home comprises of the two storey cream brick building Elouera House (constructed 1937 and extended in 1941) and a seven storey redbrick building Lawson House which was constructed in 1954. Both are located on the north-eastern corner of the site, fronting Loftus Street (refer **Appendix Vol 2- Section 01**).

Wollongong Hospital Nurses' Home, is currently listed as a heritage item on the State Heritage Register (SHR), the Wollongong LEP 2009 and the NSW Health Section 170 Heritage and Conservation Register. As detailed in the Heritage Significance Assessment (HSA) (refer **Appendix D**) each agencies listed areas and components vary significantly and it has been necessary for the proponent to clarify the curtilage of Elouera House and Lawson House as well as the nature and degree of its heritage significance.

The HSA confirms that the 1937 component of Elouera House has a 'high' grade of heritage significance. Whilst the 1941 extension to Elouera House, Lawson House and the Loftus Street/Darling Street setting plus the open landscape areas and access pathways located to the south-west and bound by Hospital Road are considered to have a 'moderate' or 'moderate/low' grade heritage significance in that they have low heritage value and little contribution to the overall significance of the Wollongong Hospital Nurses' Home.

1.7.2 Revised Heritage Curtilage

The SHR defines the boundary to the Wollongong Hospital Nurses' Home as Lot 95 DP 1258 which encompasses the majority of the site. The HSA confirmed that this boundary has little relevance to the historical development of the Wollongong Hospital Nurses' Home and considered an alternate heritage curtilage which is defined by Loftus Street, Darling Street, Hospital Road and the small area of lawn west of the end of the 1941 Elouera House addition, as shown in **Appendix Vol 2- Section 01**. The revised curtilage has been discussed with the NSW Heritage Office.

1.7.3 Fig Trees

Three Moreton Bay Fig Trees are listed in the Wollongong LEP as having local heritage significance. Two are located to the south of the 1941 extension to Elouera House and the other is located on the south-eastern corner of the site towards Crown Street. Whilst the trees are linked to the historical development of the Hospital, the HSA confirms that the trees have little relationship with the Wollongong Hospital Nurses' Home.

1.8 Existing Services and Utilities

Consultant studies have reviewed and confirmed the capacity of existing infrastructure to support future development at the Hospital. This is summarised in the table below.

Utility service	Existing supply	Required works	Further information
Potable water	Sufficient capacity to support redevelopment	Nil	Appendix L
Sewer	Sufficient capacity to support redevelopment	Additional connections, refer 3.13.1	Appendix L
Natural gas	Additional capacity availability in Authority infrastructure	Relocation of gas meter, refer 3.13.1.	Appendix L
Electrical	Additional capacity availability in Authority infrastructure	Additional substation required, refer to 3.13.3.	Appendix K
Info & Comm Technologies (ICT)	Sufficient capacity to support redevelopment	Nil	Appendix K

1.9 Existing Ground Conditions

1.9.1 Geotechnical

The subsurface profiles for the site have been overlaid with site works associated with previous site developments. The soil profile includes 1m shallow topsoil and silt clay to depths of 4-5m overlaying sandstone. The bedrock is

typically extremely low to very low strength in the upper 1 – 2 m but rapidly increases to medium to high strength with depth.

The existing site is in a highly developed urban catchment with flow paths to the east and northwest from the site. The site storm water system drains to the street storm water system.

1.9.2 Contamination

The Phase 2 Contamination Assessment in **Appendix M** considered site history, drilling of bore holes and laboratory analysis of soils and groundwater and Acid Sulphate Soils. A review of the results for contamination, preliminary waste classification and acid sulphate soil purposes was also undertaken. The Assessment found that the proposed development sites are compatible for the continued use as part of Wollongong Hospital.

The analysis of soil and groundwater found a low concentration of contaminants which are not considered to be significant for the proposed land use. Low levels of contaminants in the groundwater were not considered a cause of environmental concern based and most likely representative region background levels and not likely associated with contamination from the site. Further testing and monitoring of ground water is recommended and included within the Statement of Commitments.

Wollongong Council mapping indicates that whilst acid sulphate soils are present in the local area, they have not been recorded on the subject site. The Phase 2 Contamination Assessment did not find evidence of acid sulphate soil on the site.

1.10 Previous and Pending Approvals

There have been a number of recent and pending approvals for development at the Hospital which relate to the proposed development. These are:

Expansion of the Illawarra Cancer Care Centre (ICCC)
Works to expand the ICCC located on the western side of the site between New Dapto Road and Hospital Road were recently approved under Part 5 of the EP&A Act. The extent of works are shown on the Site Analysis plan in **Appendix Vol 2**. These works included a new radiation bunker, treatment bays and refurbishment of internal areas. The works also resulted in the closure of the western extent of Hospital Road as a vehicular linkage and new public domain works to consolidate the future pedestrian usage of this link. Mortuary vehicles will retain limited access along the western extent of Hospital Road. New car parking spaces for the ICCC were approved on the existing site at 14 Dudley Street. These works will commence in early 2012.

Teaching, Training and Accommodation Unit
Development of a free standing Teaching, Training and Accommodation Unit (TTA Unit) to replace existing teaching facilities was approved in June 2011 under Part 5 of the EP&A Act. The works include development of a two storey plus open basement mixed use (educational and accommodation) building on 42 Loftus Street, directly opposite the Hospital, refer to Building Height Analysis plan in **Appendix Vol 2**. It is envisaged that the TTA Unit will start construction in October 2011.

Upgrade to Ambulance Bay
The existing Ambulance Bay on the south-east corner of the site will be enlarged to assist in easing the current pressure on the Emergency Department Ambulance Bay. Currently there is a backlog of ambulances waiting in this area which reduces the efficiency and flow of the dropping off of patients to the unit. With the provision of these new bays, unloaded ambulances can now remain parked in the new zone until they have adequately handed over the patient to ED staff, ensuring that their vehicle does not block or impede any newly arriving vehicles to the ED drop off. A number of existing car parks in from of Lawson House will also be redeveloped to enable the relocation of Patient Transfer Vehicles from Hospital Road. These works are in the concept phase.

1.11 Local and Regional Context

Wollongong is the second largest city in New South Wales and a strategic employment and services hub for the South Coast region. Over the next 20 years it is anticipated that the population of Wollongong LGA will grow by more than 50,000 people, creating demand for 32,000 new dwellings within the LGA. The majority of this new growth will be located as medium to high density housing around the Wollongong city centre.

Wollongong Council recognises that expanding service and knowledge based industries such as health and education are important long term growth strategy. The existing specialist health services also have an important role in servicing the wider Illawarra region.

Wollongong Hospital is the largest medical infrastructure in the Illawarra region and the centre of a cluster of medical and allied uses located directly to the east of the Wollongong city centre. Health is the largest industry in the Wollongong city centre employing over 3500 people, nearly a fifth of all jobs.

In recognition of the impact of regional population growth and services, the Wollongong City Centre Vision (2006), prepared by the Department of Planning, identified that the existing cluster of health activities in Crown Street West has the potential to double by 2031. In response the Department formally identified the 'Wollongong Hospital Precinct' to promote and enable the development of long term health activities to meet regional demand. The recent proposals for a 160 bed private hospital further west along Crown Street and 7 storey private medical clinic at 42 Loftus Street (since approved) further reinforces this regional medical precinct.

2 ____Development Proposal

2.1 Project background and overview

Wollongong Hospital is a teaching and major referral hospital and the largest hospital in the Illawarra Shoalhaven Local Health District (ISLHD). To meet the needs of its aging and growing population catchment in the Illawarra (Kiama, Wollongong and Shellharbour), the *South Eastern Sydney Illawarra Area Health Service, Area Strategic Plan 2010-2015* has identified a critical need for additional surgical services in the Illawarra. This demand for additional surgical beds, critical care beds, theatres and elective surgery clinic-consulting rooms for pre and post admissions consults will be met through the development of a new Illawarra Elective Surgical Services (IESS) facility, a new Ambulatory Care Unit (ACU) and an expansion to the existing Emergency Department (ED) at Wollongong Hospital. These additional beds will also require a significant enhancement to health support services (e.g. stores, kitchen etc).

Across the IESS Building, ACU and ED expansion the following additional services will be provided:
_7 new operating theatres
_60 new surgical/overnight beds
_14 new recovery beds
_12 extended day only beds
_12 new close observation beds
_New Central Sterilising Services Department (CSSD)
_Additional consult, administrative and hotel services

Illawarra Elective Surgical Services
The IESS Building at Wollongong Hospital will address current constraints on surgical services by separating elective surgery from the emergency surgery services. It will also support and enhance existing teaching, training and research programs at Wollongong Hospital. The IESS will provide 7 new operating theatres including pre and post operative zones, two new 30 bed surgical wards (60 beds), additional ICU beds, close observation beds, CSSD and administrative and consult areas.

The IESS Building is the largest component of the Wollongong Hospital Redevelopment; accordingly, its location on the site was informed by a comprehensive master planning process. The proposed location along the Loftus Street frontage was selected as it had the greatest potential to link into the existing hospital functions in the Clinical Services Building (Block A) and minimised resource duplication in terms of staffing, hospital connectivity and use of existing services. The preferred location also had the least impact on existing buildings on the site.

Ambulatory Care Unit
The ACU will be located within the IESS Building. It will provide dedicated clinics and outpatient services and will enable clinicians to provide appropriate timely quality care to ambulatory patients for adults and children in an appropriate clinical environment that currently does not exist at the site. It will also reduce demand on the ED by providing care to patients who do not require immediate or emergency care. The ACU will include consultant and treatment rooms, procedure rooms, discharge lounge and associated support areas.

The proposed location for the ACU within Level 1 of the new IESS building a allowing direct access from the main entry for patient drop-off plus a direct link to the existing emergency department.

Emergency Department (ED) expansion
To accommodate the continued increase in volume of ED activity at Wollongong Hospital the ED be expanded to meet current and projected activity demands and to ensure patients receive timely access to care.

The new areas of the ED will be co-located with the existing ED at level 1 of the Hospital ensuring effective and safe patient management. The ED expansion will occupy the area to the east of the Emergency Department, currently occupied by the existing Hospital driveway.

The expansion to the ED will include 14 new Stage 1 recovery beds additional 11 treatment bays, resuscitation facilities, waiting area and 11 new acute treatment areas.

Additional works
To facilitate this work the following additional works will also occur, each of these are detailed in Section 2.
_Various demolition works including part removal of Elouera House a State Listed Heritage Item
_Modifications to Elouera House to ameliorate demolition works
_Landscape and public domain works

_Excavation works for basement
_Utility works including new water main connections, relocation of gas meter and new substations
_Removal of 21 trees including two trees on listed as Local Heritage Items in the Wollongong LEP
_Sustainable transport, operational and waste procedures

2.2 Siting and Layout of Hospital Redevelopment

The built form and configuration of the project has been carefully conceived through a master planning process to address the particular attributes and features of the site and its impact on the surrounding development.

The proposed IESS Building will span between the existing Clinical Services Building and the northern boundary of the site towards Loftus Street. This location ensures the IESS building is directly and functionally linked to the existing Clinical Services Building and to utilise the existing loading dock on Level 0, located on the north-western corner of the site. Whilst this location meets the functional and clinical requirements of the IESS building it also necessitates the removal of the more recent 1943 western portion of Elouera House and two locally listed heritage trees (T1 and T2). Further discussion on the proposed removal of these heritage objects is in Section 2.3 and Section 2.8.

The IESS Building will span over 6 levels and will have direct connections back into the Clinical Services Building. The eastern extent of the IESS Building will be separated from the Clinical Services Building through a reinterpretation of Hospital Road as an external and covered pedestrian link. The closure of Hospital Road is a site wide strategy which has already been approved for implementation along the western extent adjacent to the ICCC (refer Section 1.10). The eastern extent of Hospital Road will be transformed into a covered pedestrian walkway between the new IESS building and the existing Clinical Services Building, it will also provide an important linkage and address for Elouera House. Hospital Road will be activated with seating and soft landscaping (refer to Landscape Concept Plans in **Appendix Vol 2**).

Retaining Hospital Road allows appropriate building separation of the IESS and the Clinical Services Building and ensures both buildings retain a high level of light and outlook at all levels. This is particularly important for the wards on Levels 4 and 5 of each building where a greater building separation has been provided. Upper level glass walkways between the IESS and the Clinical Services Building will retain the required level of connectivity.

The eastern aspect of the IESS has been designed to complement the remaining elements of Elouera House. As noted above the 1943 extension to Elouera House will be removed to accommodate the IESS. The IESS building will be setback at least 5.5m from Elouera House providing a new pedestrian linkage from Loftus Street. Along Loftus street frontage Level 3 will be recessed 2.5m from the boundary allowing Levels 1 and 2 to replicate the height and scale of Elouera House. The new Hospital Road has also been designed and aligned to create a new address to Elouera House.

The ED expansion will extend to the east in an area currently occupied by the existing Hospital driveway. The ED expansion will primarily occur on Level 1 and Level 2 plus additional plant and storage areas on Levels 3 and 4. Again, the siting of these has been informed by the heritage curtilage requirements of Elouera House.

The proposed works for all three components (IESS, ED and ACU) by level are summarised below.

Table 2.1: Proposed works

Level	Proposed Works	GFA
Level 0	_ Closure of the existing vehicular egress point on Loftus Street and expansion of the egress point on New Dapto Road for two-way vehicle movements. _ Expansion of loading docks to include a new dirty dock to handle dirty linen, contaminated waste movement in and out. _ Refurbishment of selected internal areas to improve materials handling and the introduction of the new lift core directly to level 0 to services the new IESS Building. _ Modification to the existing Level 0 kitchen will also be modified to include a new kitchen related office space, staff areas, stores and freezers. Accessibility for this level will also be improved with a double lift linking Level 0 to the above levels.	259sqm
Level 1	_ New main entry to Hospital from Loftus Street with a vehicular drop off point. _ Reception area, Day Surgery Admissions Centre and linkages to existing Clinical Services Building _ ACU occupying majority of floor space in Level 1 and fronting Loftus Street _ ED expanded with upgraded waiting area, additional training rooms and new acute treatment bays. _ Hospital Road converted into an external pedestrian road and the main access link to the ACU and Elouera House	2,190sqm
Level 2	_ Building plate extending across the Level 1 vehicular drop off point to Loftus Street _ 15 bed Extended Day Only area in the existing Intensive Care Unit (ICU) and High Dependency Unit (HDU) area. _ Linkage directly into Level 2 of Clinical Services Building _ Expansion to Stage 1 Recovery area of 14 beds in the ED _ Demolition works to Elouera House	3,293sqm
Level 3	_ Same building plate as Level 2 _ Provision of a new 24 bed ICU and support areas _ Rooftop terrace located on the western side for ICU patients _ Walkway link into Clinical Services Building _ Roof over the pedestrianised Hospital Road _ Additional plant and change rooms within the ED	2,441sqm
Level 4	_ Reduced building plate, setback from western and southern extent of Level 3 _ New 25 bed inpatient ward and support areas and new combined CSSD and storage with CSSD access to theatre level. _ Additional CSSD storage above new plant space of Level 3 Clinical Services Building _ External pod for vertical transport, stores and links back to the Clinical Services Building	1,929sqm
Level 5	_ Same building plate as Level 4 _ A new 25 bed ward with and support areas and 10 Close Observation Beds (COB) and support. _ External pod for vertical transport, stores and links back to the Clinical Services Building	1,548sqm
Level 6	_ Plant room	1,297sqm
	Total GFA	**13,261sqm**

2.3 Elouera House Works

The western extent of Elouera House will be demolished as part of the proposed works. As discussed above, the requirement to connect the new IESS building into the existing Clinical Services Building necessitated the location of the building along the northern boundary of the site. Alternate sites for the expansion considered through the master planning process did not offer this high level of connectivity, would have resulted in greater demolition works of existing buildings and therefore require duplication of facilities, resources and staffing levels on site.

Early in the design phase the project team worked with the Heritage Consultant to determine an appropriate curtilage for Elouera House and to inform the master planning and design process. This process identified that the far western extent of Elouera House was a later addition to the building (constructed in 1941, three years after the original building) and does not represent the same heritage and design significance as the remainder of the building. It was therefore considered that given the site constraints, removal of this portion could be considered if it delivered a positive outcome for Elouera House, achieved by following the key heritage objectives established in the master planning phase:

_ Components and attributes of High (ie the highest possible) significance should be retained and appropriately conserved as much as possible – these including particularly:
  - o the original 1937 structure of Elouera House – both externally and internally;
  - o the open setting at the northeast corner of the site and associated setbacks from Darling and Loftus Streets to maintain the significant views of the main facades of the Elouera House; and
  - o the significant original architectural features and fabric of the north and east external facades of Elouera House and its major internal spaces.

_ Elements of Moderate significance should be conserved if possible but alteration – and even demolition in some instances – may be permissible if:
    - this does not adversely affect fabric of greater significance; and/or
    - the changes – including demolition - are required for meaningful retention/use of more significant areas/components.
_ Elements of Little significance may be altered or demolished if required.
_ Intrusive elements should be removed where possible.
_ Minor changes as part of upgrading and/or adaptation works where these do not adversely impact on the significance of the element/item.

Accordingly, improving the connectivity between the proposed and existing Hospital buildings and Elouera House has been a key design driver for the new development. Hospital Road has been aligned to provide an address to Elouera House and the proposed landscaping of this area supports this alignment and celebrates the revitalized entrance on the inner side of the western extension of Elouera House. As shown in the plans in **Appendix Vol 2** the entry will be updated with a new roof feature and additional internal stairs to provide a connection to Level 2 of Elouera House.

There will also be substantial site and landscape works around Elouera House. Elouera House currently sits at a significantly lower level to the existing hospital building and as a result is buried and screened behind a steep embankment. The existing landscape surrounding the western edge of Elouera House will need to be removed to accommodate the bulk earthworks and to create a consistent level from the new IESS building and Hospital Road.

2.4 Architectural Statement

The architectural statement and design response is below.

2.4.1 Overall Design Response

Overall principles guiding the design of the building take into consideration:
_ Provide a new public face to the hospital and to address Loftus Street
_ Align the building to Loftus Street and to locate the building base on the site boundary line
_ Create a strong presence along this frontage but which respects the adjacent Elouera House both in height and in scale
_ Provide an active frontage from the building to Loftus Street
_ Minimise service entry along this frontage
_ Provide a significant and easy pedestrian and vehicular entry to the place of public arrival and drop off to the hospital
_ Provide easy wayfinding and orientation within the building and the links to the existing building
_ Provide an easy orientation space at the arrival level of the building
_ Provide an active public linkage through the building at arrival level to both the Emergency Department located within the existing building and to Elouera house as well as any future development to the east of the site
_ Provide maximum external frontage for both daylight and maximised views for patient rooms in the ward floors
_ Maximise the availability of external public spaces
_ Minimise depth of floor plates and maximise solar access to patient care areas wherever possible
_ Provide maximum external frontage for both daylight and maximised views for patient rooms in the ward floors
_ Create a sustainable and low energy design with a small environmental footprint through choice of materials and guiding ESD principles
_ Provide easy and safe access to all parts of the building

2.4.2 Design

The building massing responds directly to the functional programme and takes the form of a base and a superstructure. Levels 0 to 2 occupy the building base which has a footprint occupying the whole of the available site. Levels 3 to 6 occupy the superstructure which is has a rectangular volume aligned with its longest dimension parallel to the northern boundary. The new building is cut into the site establishing Level 1 at approximate at the same level as the crown of Loftus Street.

The form of the new building is relatively complex. This complexity is directed by the needs of the program as well as the topography and the geometry of the site. The design treatment of facades will differ from place to place depending on need, use and orientation. It is intended to make use of a limited simple palette of materials suitable to location and to make full use of sunshading to enhance solar access. The building as a healing and care facility should be expressed as a ‘happy’ place and to this end the selected palette of colour will be used in areas of the facades to enhance an atmosphere of friendliness, liveliness and healing.

2.4.3 Loftus Street frontage

Ambulatory Care and Operating Suites are housed within the building base. This element is considered as a visually solid articulated 2 level structure expressed as a masonry frame articulated with a colonnade at street level and a surmounted smaller scale subdivision intended to reduce the scale of the facade and to relate more closely to the form of the adjacent Elouera House. This face is enlivened with the judicious use of colour in the form of areas of reflective tiles. The street level facade is activated by the provision of extensive fenestration into the Ambulatory Care facility. The three ward floors and plant room positioned above the base are setback from the building boundary as a response to the Council planning guidelines and are visually separated from the base by a further setback of the face of Level 3. The facade to this superstructure is expressed as singular plane overlaid with a filigree of horizontal sunshading louvers. There use of colour applied to the sunshade panels will provide further articulation of detail and to enliven the facade.

2.4.4 East, West and South facades

The expression of these facades will directly follow the functions they enclose. Vertical sunshading is provided to the clinical and ward areas and mechanical louvers collected in groups around the Level 6 plant room enclosure. The facade material will be as for the north facade and the detailing to these areas will be simple and direct. There will be no need for sunshading to the south.

2.4.5 Entry and Level 3

The existing entry lobby to Level 2 is enlarged and refurbished to provide access to the new building and the existing drop off area is extended and covered with a steel and glass canopy. A new lift core provides access to all new levels and a new stair has been introduced to provide easy access between Levels 2 and 3. A glazed stair enclosure with stairs linking Levels 4 and 5 is visible from without the building and has been introduced to provide both access and egress from the building. It also has a visual link to the Level 2 to 3 stairs and serves as well as a visual link and wayfinding element.

The west face of the stair enclosure will be detailed with the use of coloured panels further enhancing the intent of a sense of liveliness and healing.

A new external plaza has been formed at Level 3 overlooking the Level 2 arrival area as well as affording views back into the circulation zones into the new building. It is an extension to the main waiting/public area to Level 3 admissions and affords covered, shaded and open sitting areas. Its location affords superb views to the Illawarra Escarpment.

2.4.6 The Vertical Access Core

A new vertical link containing three lifts has been established to service the new building. This core is enclosed at Llevels 2 and 3 but it is exposed as it rises above these levels. Here it forms part of the previously described stair enclosure and provides overview of the public areas as well as views out of the site. The service and meeting spaces associated with the core and the link bridges back to the new ward levels are fully glazed with sunshading elements provided where required.

2.4.7 Public Street- Hospital Road

The circulation space through the building to the Emergency department and to Elouera House will follow the separation between the existing and the new building to the south. This area is termed the Hospital Street and will be a 2 storey naturally ventilated space roofed with a partially glazed canopy. Public access to the Ambulatory Care Unit will be from this Street thus providing a sense of activity which will be further enhanced by the provision of public facility units in the form of coffee, flower and news stand carts. The street terminates in a vista of Elouera House and its new entry to its lower floors.

2.4.8 Materials

Choice of materials will be relatively limited, simple and economical and will respond to ESD principles and suitability for purpose. The palette of materials will include:

_ Off form concrete to the base
_ Coloured ceramic tiles
_ Precoloured aluminium framed windows
_ Precoloured composite panel cladding to the ward block
_ Precoloured aluminium sunshading components
_ Tinted high performance glass
_ Gravel covered built up roofing where visible and

_ Metal deck roofing in non visible locations
_ Glass roofing over Hospital Street

2.5 Ecologically Sustainable Design

The Wollongong Hospital Redevelopment has been designed with particular attention to energy reduction and indoor environment quality and will achieve the energy requirements of Section J of the BCA. In addition the proposal will target a 4 star green star design equivalent and will appoint a Green Star accredited professional to assist in the design phase. Potential sustainability measures that could be incorporated are listed below and will be reviewed through the design development process.

ESD Management
_ A Green Star accredited professional is appointed to inform the design of ESD features in the design phase
_ There will be a Building Management System to ensure that the building is maintained in accordance with the design intent.

Indoor Environment Quality
_ Where possible the new building is designed with a shallow footprint. This is to ensure a maximum amount of natural light penetration.
_ Special attention is made to ward areas, which have abundant natural light and views to the outdoors
_ Low VOC materials will be used.
_ Air quality will be monitored, zoned and individually adjustable ensuring thermal comfort and air quality is maintained
_ There are a number of courtyard areas on Level 1, Level 3 and Hospital Road and surrounds providing break out and communal areas for patients, staff and visitors

Energy
_ Optimised HVAC design and equipment selection through modelling to maximise energy performance reducing building related greenhouse gas emissions
_ Provision of energy sub metering.
_ Provision of lighting zoning and flicker free energy efficient lighting throughout
_ Facilitating the reduction in energy consumption by external lighting.

Transport
_ Transport Management Strategy developed to outline long term measures to promote a broad range of sustainable transport options to access the site including bus, train, walking, cycles and car pooling schemes.

Water
_ Provision of water sub-meters to monitor usage
_ Encouraging building design which reduces consumption of potable water for the building's fire protection and essential water storage systems.

Materials
_ Provision of dedicated storage area for the recyclable waste.
_ Encouraging designs that prolong the useful life of existing products and materials and encourage uptake of products with recycled content.
_ Encouraging the reduction of embodied energy and resource depletion occurring through use of concrete.
_ Provision of flooring, joinery and loose furniture that has a reduced environmental impact.

Land use and ecology
_ Encouraging the construction practices that conserve the ecological integrity of topsoil.
_ Re-use of land that has previously been developed.
_ Maintaining the ecological value of the sites.

Emissions
_ Selection of air conditioning refrigerants that have a zero ozone depletion potential
_ Provision of building systems design that minimises environmental damage from refrigerant leaks.
_ Thermal insulation to external walls which avoids the use of ozone-depleting substances in both its manufacture and composition
_ Provision of filtered or treated stormwater discharged from the site.

_ The external luminaires minimising light pollution into the night sky.
_ Encouraging building systems design that eliminates the risk of Legionnaires' disease (legionellosis).

2.6 Accessibility

The design of new buildings is informed by accessibility advice and strategies that seek to maximise reasonable provisions of access for people with disabilities. The Access Report (**Appendix B**) has reviewed the proposal to ensure that ingress and egress, paths of travel; circulation areas, toilets, lifts and car parking compliant with relevant statutory guidelines.

In general, the development has accessible paths of travel that are continuous throughout. In line with the report's recommendations, the proposed development has demonstrated a reasonable degree of accessibility. The drawings indicate that compliance with statutory requirements, pertaining to site access, common area access, accessible parking and accessible sanitary facilities, can be readily achieved. The proponent commits to incorporating the recommendations of the Access Report in the detailed design phase.

2.7 Landscape Design

The proposed landscape design for the Wollongong Hospital Redevelopment is shown in **Appendix Vol 2** and is based on the following principles:
_Establish pedestrian priority circulation throughout the site
_Create a legible public domain that provides clear orientation and wayfinding
_Create external spaces around building entry points which provide amenity and opportunity for congregation, relaxation, enjoyment and therapy

There are four key areas within the site where landscape works are proposed, each is discussed below.

Pedestrian Entry Loftus Street / Elouera House frontage
A pedestrian link is proposed from Loftus Street between Elouera House and the Level 1 entry. The location of the walkway creates a pedestrian connection to the new Teacher Training Association across the road and therefore enhances pedestrian circulation between facilities related to the hospital.

A landscape planted zone will create an opportunity to provide tree planting adjacent to the path. Tree species will be chosen which have a sufficient clear trunk height to allow visual surveillance along the length of the path. Trees will also provide natural shade and a screening element between the new and old buildings. The tree species nominated is *Syzygium Jambos* which is one of the heritage significant trees being removed from elsewhere on the site. The area will also be wide enough to allow for bicycle parking (12 spaces) along the pathway.

Within the same area, a new building entry is proposed to Elouera House which will also provide purpose to the pedestrian link. The existing floor level of Elouera House is higher than the proposed building RL and a retaining wall and step access is proposed to connect the two levels.

A landscaped embankment is proposed between this path and the existing Elouera House building. The embankment will be a slope of approximately 1:5 and will be planted with shade tolerant species. A tree is proposed to be planted at the end of the visual axis of the 'open street'. It is proposed that a *Ginkgo biloba* is to be planted in this location. This is to replace an existing *Ginkgo biloba* which is being removed in this location. Ginkgo's have spectacular clear yellow autumn foliage and would provide colour variation in the landscape.

Level 1 Main Entry
The Level 1 main entry from Loftus Street is to be retained for both vehicular and pedestrian access. The vehicular access will be widened to accommodate the structure of the new Level 2 building above and create separate entry and exit lanes for patient drop off. A walkway will be provided along the building frontage for pedestrians wanting to access the main entry from Loftus Street.

The central median is proposed as a planted element with a feature tree to highlight the entry and soften the bulk of the building behind.

Level 1 Hospital Road

Hospital Road will be reinterpreted as a pedestrian access link and extend from the Level 1 Main Entry to Elouera House. It will also provide direct access into the ACU on Level 1. Hospital Road will be covered by a glass roof and activated by coffee carts, seating and soft landscaping as shown conceptual drawings in **Appendix Vol 2**.

The new eastern extent of Hospital Road will link to the western extent of Hospital Road approved under the ICCC works, which sits on Level 2. The IESS provides stairs and a lift to connect these pedestrian spaces.

Level 2 Entry and Building Forecourt
The Level 2 building entry forecourt is an important public domain space for the hospital. It is one of the only open spaces where patients, employees and visitors can sit and enjoy the distant views towards Mt Keira. The northerly aspect and views create the opportunity for this space to be a well used public domain space to service hospital amenity.

Pedestrian circulation through this space will predominantly be between the Cancer Centre entry and the Level 2 entry doors. The site will include raised planters and seating areas for visitors and patients to use as a break out space from the hospital waiting area. Particular attention will be paid towards maintaining the views towards the mountains by placing trees to the side of the planters to frame the view. A variety of groundcover plantings are proposed in this area to provide colour and sensory interest in this area.

Level 3 Courtyard
The roof space adjacent to Level 3 will provide a courtyard space for patients and visitors to the ICU. This will be treated with non-fixed furniture and low scale plantings.

2.7.1 Landscape materials

The range of materials used in external spaces will be simplified throughout the development to provide a legible and cohesive public domain. The use of a restrained a palette of surfaces finishes, handrails, furniture, external lighting will provide continuity and legibility to unify spaces across the site.

New tree planting will be introduced where space and light allow and will build upon existing successful planting evident throughout the hospital.

2.8 Tree Removal

There are 21 trees proposed for removal to accommodate the development. These are listed in Table 2.1 and shown on the Tree Removal Plan in **Appendix Vol 2**.

All but two of the trees (T19 and T27) proposed for removal have a low to moderate retention value based on an assessment of their condition and of their Safe Useful Life Expectancy (SULE). Tree 19 (Rose Apple- *Syzygium jambos*) has a high retention value and may have been planted in associated with the early development of the hospital. Tree 27 is in good condition and is likely to be planted around 1950-1960. The proposed landscape design includes a selection of these tree species to reflect the historical plantings.

Two large fig trees (T1 and T2) located on the eastern extent of Hospital Road are of local heritage significance and are visually prominent from outside the site. Detailed testing of the trees confirmed that that T1 has decay predominantly in the trunk tissue and a low to medium failure potential. As such the Tree Assessment Report (**Appendix G**) confirms that SULE of each tree is low to transient. Further Arboricultural Hazard Assessment & Resistograph Testing confirmed that Tree 1 supported some decay and T2 had minimal decay. This assessment concluded that the trees could only be retained for the short to medium term (refer **Appendix H**).

In addition, the trees are also located in an area which will be redeveloped to accommodate to the hospital. Whilst design development considered options to retain the trees this was not possible due to the site constraints and limited health of these trees. As a positive outcome, this area of the site will be replaced with a series of landscape spaces which allow a high level of staff, visitor and patient amenity.

Table 2.1: Trees proposed for removal

No.	Species	Condition	SULE	Retention Value
T1	***Ficus macrophylla*** (Moreton Bay Fig)	Stability suspect with sound branching structure.	Transient (less than 5 years)	Moderate
T2	***Ficus macrophylla*** (Moreton Bay Fig)	Appears stable with fair branching structure.	Transient (less than 5 years)	Moderate
T3	***Eucalyptus robusta*** (Swamp Mahogany)	Appears stable with sound branching structure.	Long -more than 40 years	Moderate

T4	***Ginko biloba*** (Maidenhair Tree)	Appears stable with fair branching structure.	Long -more than 40 years	Moderate
T5	***Metasequoia glyptostroboides*** (Dawn Redwood)	Appears stable with fair branching structure.	Medium 15-40 Years	Moderate
T6	***Metasequoia glyptostroboides*** (Dawn Redwood)	Appears stable with fair branching structure.	Medium 15-40 Years	Low
T7	***Magnolia grandiflora*** (Bullbay Magnolia)	Appears stable with fair branching structure.	Long -more than 40 years	Moderate
T8	***Eucalyptus nicholii*** (New England Peppermint)	Appears stable with fair branching structure.	Medium 15-40 Years	Moderate
T16	***Syzygium leuhmannii*** (Small-leaf Lillypilly)	Appears stable with fair branching structure.	Medium 15-40 Years	Moderate
T17	***Callistemon viminalis*** (Weeping Bottlebrush)	Appears stable with fair branching structure.	Short 5-15 Years	Low
T18	***Syzygium leuhmannii*** (Small-leaf Lillypilly)	Appears stable with fair branching structure.	Medium 15-40 Years	Moderate
T19	***Syzygium jambos*** (Rose Apple)	Appears stable with fair branching structure.	Long - more than 40 years	High
T20	***Callistemon citrinus*** (Bottlebrush)	Appears stable with fair branching structure.	Short 5-15 Years	Low
T21	***Callistemon salignus*** (Willow Bottlebrush)	Appears stable with fair branching structure.	Short 5-15 Years	Low
T22	***Callistemon salignus*** (Willow Bottlebrush)	Appears stable with fair branching structure.	Short 5-15 Years	Low
T23	***Platanus orientalis*** (Oriental Plane Tree)	Appears stable with fair branching structure.	Long - more than 40 years	Moderate
T24	***Platanus orientalis*** (Oriental Plane Tree)	Appears stable with fair branching structure.	Long - more than 40 years	Moderate
T25	***Platanus orientalis*** (Oriental Plane Tree)	Appears stable with fair branching structure.	Long - more than 40 years	Moderate
T26	***Platanus orientalis*** (Oriental Plane Tree)	Appears stable with fair branching structure.	Long - more than 40 years	Moderate
T27	***Phoenix canariensis*** (Canary Island Palm)	Appears stable with fair branching structure.	Long - more than 40 years	High
T28	***Leptospermum petersonii*** (Lemonscented Tea Tree)	Appears stable with fair branching structure.	Short 5-15 Years	Low

2.9 Civil and Utility Works

2.9.1 Demolition works

As noted in Section 2.2, the proposal will result in demolition works across the sites which are detailed on the architectural plans in **Appendix Vol 2**.

Level 0 demolition works involve the removal of the northern extent of the existing Hotel Services to allow the reconfiguration of the new loading dock and new waste storage areas. Some minor internal demolition works will also occur.

Level 1 demolition works will remove the public domain and hardstand elements north of the Clinical Services Building. This includes the existing drop-off area to Loftus Street and the existing Pre-Admission Clinic. Tree removal is also proposed at Level 1 and detailed in Section 2.8.

Level 2 demolition works includes Day Surgery area and the glass roof above the drop-off area on Level 1. There will also be internal demolition works to allow the future internal modifications to the Emergency Department. This includes the equipment store area on the eastern side of the Clinical Services Building.

To allow expansion of the Hospital it has also been necessary to propose the demolition of a portion of Elouera House, a item listed on the State Heritage Register. It is proposed that the 1941 western extension to Elouera House be removed as part of the development. The western end wall will be reconstructed using materials from the demolition works and a new entry, internal stairs and kitchen will be constructed to serve the modified building. The Heritage Consultant will advise on these works.

As recommended by the Phase 2 Contamination Assessment (**Appendix M**) a hazardous building materials assessment should occur during demolition. This is included as a Statement of Commitment.

2.9.2 Excavation works

Proposed excavation works are shown in the Civil Report in **Appendix I**. It will involve excavation for the Level 0 basement will be to a maximum depth of 6m.

The results of the preliminary waste classification assessment indicates that the fill would most likely be classified as general solid waste and the natural soils and rock would most likely be classifiable as virgin excavated natural material, pending further assessment during earthworks. Refer to the Phase 2 Contamination Assessment for further information.

2.9.3 Stormwater management

The proposal will increase the impervious area on the site and calculations indicate a volume of 70 cubic metres will be required to meet the requirements of the Council Development Control Plan (DCP). The Stormwater Concept Plan in **Appendix I** will utilise the existing the three existing stormwater drains which surround the site. It will also provide on-site stormwater detention which will be split into three tanks and each located near the existing stormwater drains. The final design and documentation will be in accordance with the Council DCP and the relevant Australian Standards and Codes. Detailed design will also consider the opportunity to utilise stormwater for water supply to toilet flushing, laundry and landscape irrigation.

2.9.4 Erosion and sediment control measures

Plans in Appendix I (also located in Appendix Vol 2) have been prepared to outline the proposed erosion and sediment controls measures during demolition and construction works. During operation all stormwater works will comply with the Protection of the Environment Operations (POEO) Act 1997. Those involved in construction activities are obliged to take all reasonable and practicable measures to prevent or minimise causing water contamination/ environmental harm.

2.9.5 New water main connections

The proposal necessitates two new connections to Sydney Water infrastructure. A connection will be required to the existing 100mm water main in Loftus St to the West of the main entry drop off at Level 1 for Fire Hydrant supply. Another connection will be required to the existing 100mm water main in Loftus St adjacent to the Blood Bank supplying Elouera, Lawson House and as a secondary supply to the hospital site. A feasibility letter has been received from Sydney Water outlining the likely requirements for the development. Further detail is provided in **Appendix L**.

2.9.6 Relocation of gas meter

The proposed excavation will impact the existing gas meter location and secondary water meter location and subsequent connections to Authority mains to the west of the existing Elouera House. The applicant has been liaising with the gas authority AGL on the opportunity to relocate the gas meter and connections further east within the site towards the corner of Loftus Street and Darling Street. AGL has indicated that the new meter is feasible subject to more detailed costing and reviews. Further detail is provided in **Appendix L**.

2.9.7 New substations

A new 2 x 1500kVA chamber substation is required for the proposed development. An application has been submitted to Integral Energy for this new load which will be on Level 1 towards the Loftus Street frontage.

An additional padmount substation is proposed on Loftus Street to feed Elouera House and Lawson House. These buildings are currently fed from an existing substation and re-feeding these buildings from a new substation will reduce the load on the substation.

Further regarding proposed substations is provided in **Appendix K**.

2.10 Staging

The Wollongong Hospital Redevelopment works will be constructed in multiple stages. The reasoning for the multiple stages is due a number of factors, including but not limited to the following:

_Procurement strategy
_Relocation of multiple essential services
_Early works
_Site constraints

_Dust, noise and vibration minimisation strategies
_Patient, staff and visitors safety
_Business continuity factors

Stage 1
Stage 1 will see the commencement of the relocation of the essential services that run within the proposed footprint of the new build. The essential services that are affected by the foot print are as follows:

_Mains Gas
_Mains Water
_Major Electrical feeders
_ICT
_Medical Oxygen
_General Power and Water

It is critical that these services are relocated prior to the major works commencing to ensure minimal impact to business continuity of the hospital.

Stage 2
Upon completion of stage 1, Stage 2, which consists of site clearance and bulk excavation is to commence. This stage will see the partial demolition of Elouera House, and completion of all bulk earth work activities to the designed reduced levels.

Stage 3
Stage 3 sees the build of the Illawarra Elective Surgical Service building, which will provide a new block on the existing hospital campus. This stage has the longest duration of all the stages and will consist of the following:
_New Illawarra Elective Surgical Service: new operating theatres, preoperative services, surgical support services and inpatient units.
_Relocation and expansion of the Wollongong Hospital Intensive Care and High Dependency Unit
_Relocation and expansion of Central Sterilising Department
_Relocation and expansion of the Wollongong Hospital Ambulatory Care Services
_Expansion to the loading dock, and minor refurbishment to Level 0 hotel services areas
_Construction of a new Hospital Street
_Break throughs into the existing hospital Block A
_Internal refurbishments of existing areas within Block A

Stage 4
Stage 4 sees the expansion of the existing Emergency department. The commencement of this build is dictated by the Elective Surgical progress, as site access is limited upon commencement of Stage 4.

2.11 Access and Transport

2.11.1 Vehicular and service access
The proposed vehicular and service access strategy is shown in **Appendix Vol 2** (Section 5 – Civil Drawings). The proposal will modify existing access points to the site along Loftus Street and New Dapto Road. All other access points to the Hospital will not be modified by this proposal.

The vehicular access to the Main Entry on Loftus Street will be widened to accommodate the structure of the new Level 2 building above and create separate entry and exit lanes for patient drop off. Nineteen car spaces will be located in this area for short term parking needs.

The proposal will retain service access from the corner of New Dapto Road and Loftus Street directly into Level 1. This service area will be expanded and the access points consolidated to a single two-directional access point on New Dapto Road. The Civil Report in **Appendix X** confirms that the dock area will be accessible by rigid vehicles up to 12.5 metres in length (i.e. not articulated trucks).

Hospital Road which has provided a pedestrian and service vehicle link centrally through site. The closure of this road was envisaged during the recent master planning of the site and a revised access strategy concentrated on access points external to the site. Hospital Road will be formally closed following the extension of the Illawarra Cancer Centre,

with the exception of mortuary vehicle access (refer Section 1.10). Ambulances which currently utilise Hospital Road will be relocated to the Crown Street drop off area in a separate package of works.

2.11.2 Pedestrian circulation and access

The proposed vehicular and service access strategy also shows pedestrian circulation around the site (refer **Appendix Vol 2**). A clearly legible pedestrian circulation pattern is planned for the site with pedestrian access separated from vehicular movement to each of the main building entry points.

Hospital Road will be reinterpreted as a shared zone street that traverses the site from east to west at Level 2 and becomes the main pedestrian spine providing access to the ICCC building and Level 2 building forecourt and then via steps/lift to the eastern extent of Hospital Road through to Elouera House at Level 1. The Level 2 forecourt will be one of the major public domain spaces within the development. The forecourt will provide seating and general meeting areas with optimum use of this communal space and the east-west link along Hospital Road provides a range of new pedestrian areas as discussed in Section 2.7.

The drop-off area is located on Level 1 with access from Loftus Street. It is designed to draw patients and visitors from the arrival area into the heart of the hospital. Drop off parking is provided in this space with a dedicated pedestrian path to the entry doors. Both public domain spaces at Levels 1 and 2 provide a major vantage point for local panoramic district views to Mount Keira.

2.11.3 Transport Management Strategy

Consistent with State planning objectives, this proposal will utilise a range of transport modes including private car, public transport, cycling and pedestrian infrastructure. As shown in **Appendix Vol 2**, the site located 350m from the Wollongong Train Station and various bus routes run along Crown Street and New Dapto Road. The site is therefore well located to adopt a sustainable approach to transport and access.

A Transport Management Strategy has been prepared as part of redevelopment exercise to understand the existing public transport infrastructure and to maximise opportunities for increased use of sustainable transport options long term. The initiative to utilise sustainable transport options is consistent with both State and local planning policy as discussed in Section 3.2.

The Transport Management Strategy for the site is detailed in the Traffic and Transport Accessibility Report (**Appendix C**) and outlines a number of strategies are suggested for implementation or further investigations to improve access and utilisation of sustainable transport options. Each of these will be considered further during detailed design.

The potential measures to reduce reliance on private car use include:

_ Provision of incentive schemes among staff e.g. subsidised bus tickets.
_ Establishment of a waiting list for parking space for new Hospital staff. This means that any new staff will not have a parking space until one becomes available.
_ Higher parking fees for new Hospital staff, possibly combined with provision of subsided public transport tickets.
_ Provision of better, safer (in terms of route alignment as well as security) bicycle and pedestrian routes. This measure should be devised in consultation with Council and other authorities.
_ Promotion of the merits of walking and bicycle riding in order to encourage staff living near the Hospital to leave their cars at home.
_ Provision of safer and higher quality bus shelters or waiting areas.
_ Communications to the hospital's workforce about the existing Transport Access routes, and any impact that has occurred to these access pathways as a result of the project. This should be prepared to assist staff and hospital users understand public transport options for the site prior to occupation.

2.11.4 Parking

It is recognised that private car will remain a dominant mode of transport to the Hospital. The existing on-site car parking is limited to the multi-deck car park on the western side of New Dapto Road with 591 spaces. There are also a number of smaller car parking areas across the Hospital site providing a total of 746 on-site spaces.

The availability of on-street car parking within the designated ‘Wollongong Hospital Precinct’ is high and will continue to provide an important supply of car parking. There are approximately 1,474 car spaces which are available within a 15 minute walking catchment of the Hospital site. The Traffic and Transport Accessibility Report confirms that utilisation of these spaces meets the demand for car parking generated by the proposal.

2.12 Operations, Compliance and Waste Management

2.12.1 Operational Management

The proposal will accommodate 444 new staff and the following increase in beds:

_ 60 new surgical beds
_ 14 new recovery Beds
_ 12 new Extended Day Only Beds (23 Hours)
_ 10 new Close observation Beds
_ 6 new ICU/HDU beds

A detailed Functional Brief has been prepared by the Health Planners and Project Team, and is available upon request. The Functional Brief is the most significant initial clinical service planning document, the brief builds on the service planning document and provides sufficient information to enable the articulation of the operational and functional requirements for the facility. The Functional Brief will have an ongoing role in the project as the basis for the infrastructure solution developed by the project team, and will be utilised throughout the project life cycle to guide and test the design consultation process. It is also the document that will provide the test for the 'fitness for purpose' at handover and to inform the Post Occupancy Evaluation. The Functional Briefing will enable the Change Management strategy to be developed and implemented and will see the commencement of the formal project consultation process for the propose Project.

The Functional Brief will be approved, endorsed and will be subject to a change management process during the life of the project through the project governance to ensure that it remains relevant during the project life cycle.

2.12.2 Operational Compliance

Wollongong Hospital currently operates in accordance with relevant policies and Acts listed below.

_ NSW Health Infection Control Policy PD 2007_036
_ Protection of the Environment and Operations Act 1997
_ Protection of the Environment and Operations (Waste) Regulation 1996
_ Environmentally Hazardous Chemicals Act 1985
_ Occupational Health and Safety Act 2000 and Regulation 2001
_ Radiation Control Act 1990 and Regulation 2003
_ Public Health (Disposal of Bodies) Regulation 2002
_ Public Health Act 1991, Part 4 Microbial Control Policy Directive Water- Requirements for the Provisions of Cold and Heated Water
_ National Health and Medical Research Council Guidelines
_ National Guidelines for Waste Management in the Health Care Industry
_ National Clinical Waste Management Industry Group code
_ Relevant Australian Standards

Existing Wollongong Hospital operation and management plans will be updated and revised to include the new hospital departments. The specific operation and management plans which will be amended will be:

_ Disability Access Polices/Plans which will incorporated the access requirements as detailed in Section 2.6.
_ Operational waste management plans as detailed in Section 2.12.3
_ Policies relating to the storage, use, safety and management of hazardous materials as discussed in Section 2.12.6
_ Hospital warm water system as per discussion in Section 2.12.7.

2.12.3 Operational Waste Management

Wollongong Hospital currently operates in accordance with *SESIAH Policy Clinical Waste – Management of – PD181,* the *NSW Health – Policy Directive 2005_132: Waste Management Guidelines for Health Care Facilities 1998* and the *ISLHN Waste Management Policy (ISLHNPD/72) Revised March 2011* (Refer **Appendix N**). Waste management relating to the proposed redevelopment will be incorporated in to Wollongong Hospital's existing waste management program.

Specifically, in accordance with the *ISLHN Waste Management Policy (ISLHNPD/72) Revised March 2011* the proposal will comply with the following:

_ Waste Management policies, procedures and requirements for Waste Management Plans

_ Typical waste streams in Health Care Facilities
_ Appropriate waste minimisation strategies
_ Waste segregation practices
_ Procedures for handling, labelling, contaminant, transport and storage of waste
_ Waste treatment, disposal and utilisation
_ Auditing requirements
_ Occupational health and safety issues relating to waste
_ Training requirements

The existing waste collection and storage areas on Level 0 have been expanded to facilitate the needs of the proposed expansion. An approximated 30% expansion to the existing waste produced in the hospital will be experience by the project.

2.12.4 Operational Waste Streams

The proposal will generate the following three main operational waste streams. Each of these waste streams will be managed in accordance with the *ISLHN Waste Management Policy (ISLHNPD/72) Revised March 2011* and existing Waste Management Plans for Wollongong Hospital will be updated to include the anticipated quantity and procedures for this additional waste.

General Operational Waste Stream

_ Liquid waste include grease trap waste, used lubricating oil and waste normally discharged to the sewer.
_ Organic products includes wood, garden, food, vegetable and natural fibrous material waste and biosolids, which are capable of composting or could be used to enhance lawns and or gardens.
_ Recyclable products include items which are composed of materials or components, capable of being remanufactured or reused.
_ General waste is waste which is not capable of being composted, recycled, reprocessed or re-used.

Contaminated Waste Stream

_ Clinical waste is waste which has the potential to cause sharps injury, infection or offence (i.e. sharps, human tissue, body fluids etc).
_ Pharmaceutical waste consists of pharmaceuticals or other chemical substances specified as regulated goods in the Poisons and Therapeutic Goods Act 1966.
_ Chemical waste includes Chemical wastes included in the Dangerous Goods Regulations and Poisons and Therapeutic Goods Act

Potential Nuclear, Radioactive and Cytoxic Waste

The Proponent confirms measures in the management of any nuclear, radioactive and cytoxic waste to be in line with this policy and all relevant NSW legislation including the *ISLHN Waste Management Policy (ISLHNPD/72) Revised March 2011*. Additionally, cytotoxic waste is specifically handled in accordance with Policy Directive Cytotoxic Drugs & Related Waste - Safe Handling in the NSW Public Health System, 2008.

2.12.5 Construction Waste Management

The proponent commits to preparing a Construction Waste Management Plan which will form part of the Construction Management Plan. The Construction Waste Management Plan will quantify and classify the likely waste streams generated during construction and described the measures to be implemented to manage, reuse, recycle and safely dispose of this waste, having regard to the relevant policies, Acts and Regulations.

2.12.6 Storage, management and use of hazardous material

Existing measures to manage hazards and risks associated with storage of nuclear, radioactive and cytoxic waste materials will be continued as per existing measures. Existing safety precautions for the storage of equipment and associated radiation hazards related to medical imaging, including x-rays will be managed in accordance with existing management policies. The handling of hazardous chemicals and dangerous goods are subject to control under the OH&S (Hazardous Substances) Regulation 1996 and the *Dangerous Goods Act* 1975. The *Environmentally Hazardous Chemicals Act* 1985 (EHC Act) and the Waste Regulation, control the management and / or disposal of wastes containing hazardous substances such as chemical waste and declared chemical waste. Scheduled chemical wastes are subject to control by means of the Scheduled Chemical Wastes Chemical Control Order under the Act.

2.12.7 Hospital Warm Water System

Warm water will be provided via thermostatic mixing valves (TMVs) rather than traditional centralised warm water systems. TMVs supply hot and cold water to produce warm water at a pre-determined temperature. The benefits of this system is that TMVs mix hot and cold water at or near the point of delivery, a secondary circulation system is not required and the hot water feeding into the TMV will be at 60°C (or greater) at which legionella does not pose a potential risk.

Warm water services for the project will be designed in accordance with AS3500, NSW Code of Practice (Plumbing and Drainage) and the relevant NSW Department of Health requirements, regulations and acts. Specifically the proposed system caters to *Policy Directive Microbial Sampling - Warm water systems including thermostatic mixing valves, 2006* which encompasses the requirements of *Public Health Act 1991, Part 4, Microbial Control and the Policy Directive Water – Requirements for the Provisions of Cold and Heated Water*.

3 Environmental Assessment

3.1 Application of Part 3A

In May 2011 the Minister for Planning announced that Part 3A of the Act would be removed and established transitional procedures for certain declared Major Projects which include this project. These procedures state that such projects will continue to be assessed by the Minister until Part 3A of the Act is formally repealed.

The provisions of Part 3A of the Environmental Planning and Assessment (EP&A) Act apply to this development. Clause 75B of the EP&A Act specifies criteria for projects to which this part applies, and invokes the provisions of the State Environmental Planning Policy (SEPP) (Major Development) 2005.

Under the Major Development SEPP, the Minister formed the opinion that the proposed development is of a kind described in Schedule 1, namely Group 7, Clause 18 “Health and Public Service Facilities” as it is both:
_ for professional health care services to people admitted as in-patients at hospital, and
_ has a capital investment value of more than $15 million.

Subsequently the Director General’s Requirements (DGRs) were issued on 22 December 2010, listing aspects to be addressed in this environmental assessment (EA). The following is an assessment of the project in accordance with those requirements. **Appendix A** provides a summary of the individual matters listed in the EA requirements and cross references them with the relevant sections in this report and the technical reports appended to this report.

3.2 Relevant Planning Policies and Guidelines

3.2.1 Environmental Planning and Assessment Act 1979

The proposal is consistent with the objects of the EP&A Act set out in Clause 5:

(a) to encourage:

(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

(ii) the promotion and co-ordination of the orderly and economic use and development of land,

(iii) the protection, provision and co-ordination of communication and utility services,

(iv) the provision of land for public purposes,

(v) the provision and co-ordination of community services and facilities, and

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

(vii) ecologically sustainable development, and

(viii) the provision and maintenance of affordable housing, and

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The proposal seeks to expand an existing hospital facility located within an established urban environment. The development is therefore considered to represent an orderly and economic use of land and also utilisation of land for public purposes and community health benefit. The development will not impact threatened species, populations and ecological communities and the design of the buildings incorporate the principles of ecologically sustainable development (ESD).

Assessment of this proposal under the requirements of Part 3A of the EP&A Act will ensure public involvement through the notification process.

3.2.2 State Environmental Planning Policies

The table below provides an assessment of the proposal against the relevant State Environmental Planning Policies (SEPPs) and Regional Environmental Plans (REPs), which are now deemed SEPPs.

SEPP (Major Development) 2005	As noted in Section 3.1, the Minister formed the opinion that the proposed development is of a kind described in the Schedule 1 of the Major Development SEPP, the Minister formed the opinion that the proposed development is of a kind described in Schedule 1, namely Group 7, Clause 18 "Health and Public Service Facilities" as it is for professional health care services to people admitted as in-patients at hospital and has a capital investment value of more than $15 million. Subsequently the Director General's Requirements were issued on 22 December 2010.
SEPP (Infrastructure) 2007	SEPP (Infrastructure) provides controls in relation to proposals considered to be traffic generating developments. Under Schedule 3 of the policy, hospital proposals involving 100 or more new beds and access to a classified road are required to be referred to the RTA. As such, this application will be referred to the RTA. Whilst this proposal is only for 98 beds, it is assumed the application will be referred in accordance with this SEPP.
SEPP No. 33 – Hazardous and Offensive Development	As discussed in Section 2.12.4 any nuclear, radioactive and cytoxic waste will be managed in accordance with relevant policies and NSW legislation
SEPP No. 55 Remediation of Land	The Phase 2 Environmental Assessment (**Appendix N**) confirms that the proposed development site appears to be compatible for the proposed hospital use.

3.2.3 NSW State Plan

The State Plan: A New Direction for NSW articulates a set of goals and priorities for Government action. Of particular relevance to the planning and establishment of hospital and medical services are the priorities to:

_ improve access to quality healthcare,
_ improve survival rates and quality of life for people with potentially fatal or chronic illness through improvements in health care, and
_ maintain and invest in infrastructure.

The NSW State Plan also seeks to improve access to sustainable modes of transport such as public transport, cycling and pedestrian infrastructure. The relevant target of the State Plan is to increase the share of commute trips made by public transport to and from Wollongong CBD during peak hours to 15% by 2016. This proposal supports these objectives by implementing a Sustainable Transport Strategy which will promote public transport, cycling and walking along side car share programs.

3.2.4 Illawarra Regional Strategy

The *Illawarra Regional Strategy* identifies Wollongong as Regional City providing higher order health services to the Illawarra Region and the focus of administration, employment and housing development. An overall outcome proposed in the Strategy is the benefits that will accrue from focusing development in existing centres resulting in more efficient use of infrastructure and services.

The Regional Strategy sets out the agreed position of the government over the future of the Illawarra Region. The Strategy is recognised by the State Infrastructure Strategy as a long term planning strategy to be used by State agencies to understand the future infrastructure needs of the Region. The proposed expansion of Wollongong Hospital supports and achieves these intended outcomes of the Illawarra Regional Strategy.

3.2.5 Wollongong Local Environmental Plan 2009

Wollongong Local Environmental Plan 2009 (WLEP) identifies the local planning controls applicable to the Wollongong LGA. WLEP identifies the subject site as being included in the Wollongong Hospital Precinct, the medical cluster extending from Dennison Street to Staff Street.

Land use zoning

The subject land is zoned SP1 Special Activities – Wollongong Hospital Precinct under the WLEP 2009. As stated at Clause 2.3, the objectives of Special Use zones are to:

_ *To provide for special land uses that are not provided for in other zones.*
_ *To provide for sites with special natural characteristics that are not provided for in other zones.*
_ *To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.*

At Clause 2.3(3) the WLEP 2009 describes the land uses permitted with consent in this zone as:

'The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Advertisements; Advertising structures; Child care centres; Community facilities; Information and education facilities; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor)'.

The site operates as a hospital which is fully consistent with the WLEP definition of 'hospital'. It is there for a permitted use with consent under the WLEP.

Development standards

WLEP mapping establishes a maximum height of 60m on the subject site. The proposed development has a maximum height of 25m and therefore complies with this standard.

WLEP mapping establishes a maximum FSR of 1.5:1 on the subject site. However, clause 4.4 (5) of the WLEP states that land within Zone SP1 Special Activities that is to be used for the purposes of hospitals, medical centres or other like uses or a combination of such uses, the maximum floor space ratio is 3:1. The existing FSR of the site is approximately 2:1 including the approved extension to the ICCC. The FSR for the site incorporating the proposed Wollongong Hospital Redevelopment works is approximately 2.5:1 and therefore complies.

Heritage

Schedule 5 Environmental Heritage of the WLEP includes the following listings relevant to the site:

_ Lawson House as (referred to as Nurses Home) as an item of State Significance (Item 5939).
_ Elouera House as local heritage item as per WLEP Heritage Map (Sheet HER_025B)
_ Two groups of fig trees (T1 and T2 south-west of Elouera House and the large fig on the south-west of the site) identified as a local heritage landscape significance as per WLEP Heritage Map (Sheet HER_025B).

As discussed in the HSA (**Appendix D**) there is a mapping and listing error in the WLEP which does not recognise the State Heritage Register listing of Elouera House.

The Heritage Impact Statement (HIS) in **Appendix E** and discussed in detail in Section 3.7, confirms that *'the proposed development of the Wollongong Hospital site will not impact to an unreasonable extent on the major components, attributes and fabric of significance of the Wollongong Nurses' Home.'* (which includes both Elouera House and Lawson House). Further, the HIS confirms that the removal of the Moreton Bay Figs (T1 and T2) will not impact on the heritage significance of the Wollongong Nurses' Home.

Tree preservation

Clause 5.9 of WLEP states that consent is required to remove a tree. Chapter E17 of the Wollongong DCP Chapter E17 defines the trees which require consent for removal or pruning:

a) Are three (3) metres or more in height,
b) Has a diameter of 200mm or more at a height of one (1) metre from the ground, and/or
c) Has a branch spread of three (3) metres or more,

As discussed in Section 3.10, a number of trees require removal in the area to be redeveloped. This is discussed in Tree Assessment Report at **Appendix G**. Consent is sought to remove those trees nominated in that report.

3.2.6 Wollongong Development Controls Plan (WDCP) 2009

The relevant sections of WDCP are discussed below.

Chapter D13: Wollongong City Centre
Chapter D13: Wollongong City Centre outlines the provisions for all development that falls within the boundary of the city centre. The Hospital Precinct is located on the city edge.

The site area is also identified as being part of Special Activities Precinct – Hospitals and Medical Research and Development (Section 1.1 City Centre Character areas). The area is stated to have *"excellent potential to become a hub of innovation, education and research in the city centre. The area can be supported by student and nursing staff accommodation, medical centres, doctors' surgeries, specialise rooms and associated uses. The upgrading of the railway station will offer a safe and attractive street environment and railway/bus interchange facility. The scale of new development is to be of a transition scale between the high buildings at the station to medium rise buildings to the north and south of Crown Street."*

The proposal to expand Wollongong Hospital is wholly consistent with the objective of this Special Activities Precinct.

Chapter E: General (City Wide) Controls

The following table provides an assessment of the proposal against the relevant sections of Chapter E: General (City Wide) Controls.

E01: Access for people with a disability	The Accessibility Report (**Appendix B**) confirms the proposal meets the required accessibility standards.
E02: CPTED	The design process has considered the principles of CPTED in the location of buildings and treatment of the public domain. A CPTED assessment is provided in Section 3.4.5.
E03: Car Parking, Access, Servicing, Loading	An assessment of the car parking, access, servicing and loading strategy is outlined in **Appendix C** and takes into consideration DCP E03.
E06: Landscape	A comprehensive landscape plan is provided in **Appendix Vol 2**.
E07: Waste Management	As detailed in Section 2.12 the existing waste management strategy for Wollongong Hospital will be updated to incorporate the proposed expansion and to ensure compliance with the relevant Acts and Regulations.
E09: Hoardings	Hoardings will be addressed as part of Construction Management Plan as outlined in the Statement of Commitments in Section 4.
E10: Aboriginal Heritage	An Archaeological Assessment is provided in **Appendix F**.
E11: Heritage	A Heritage Significance Assessment and Heritage Impact Statement is provided in **Appendix D** and **E**.
E12: Geotechnical Assessment	A Geotechnical Assessment is contained at **Appendix I**.
E14: Stormwater	A Stormwater Strategy is contained at **Appendix I** and takes into consideration Councils standards for stormwater.
E17: Preservation of Trees and Vegetation	Refer to the discussion about Tree preservation under Section 3.10.
E21: Demolition and Asbestos Management	The proposed demolition works are shown in **Appendix Vol 2**.
E22: Erosion and sediment control	An Erosion and Sediment Control plan has been prepared by TTW and is contained in **Appendix I**.

3.3 Contributions

The Wollongong Section 94A Development Contributions Plan (2010) applies to all land in the Wollongong LGA, excluding the West Dapto release area.

Clause 12(i) states that Council may allow for full or partial of exemption for 'an application for or on behalf of the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities and public transport infrastructure'. It is considered that the nature of the proposal for extension to major hospital infrastructure warrants an exemption from S94A contributions on the basis of the community benefit resulting from the development.

3.4 Built Form and Urban Design

3.4.1 Height, bulk and scale

The built form and urban design of the project has been carefully conceived to address the particular features of the site and its attributes that will all contribute to a new address to Wollongong Hospital and establish a precedent for the surrounding 'Hospital Precinct' as identified by the Wollongong LEP.

As noted in the Architectural Statement (Section 2.4) the building massing responds directly to the functional programme of the hospital expansion. The bulk and scale of the building is also in keeping with the established massing across the Hospital and also provides a functional clinical layout for the hospital use. As discussed in Section 2.2, the separation of building elements allows the retention of key public spaces such as hospital road and ensures a suitable level of solar access and views from new and existing wards.

The proposed height of the building is in keeping with the form and height of existing buildings on the Hospital site. At 6 storeys the proposed building is lower than some of the central hospital buildings, providing an appropriate height transition from the centre to the boundary of the site.

The 6 storey building form on Loftus Street is considered appropriate given Council's planning controls surrounding for the area surrounding the Hospital permits buildings up to 32m, which is higher than the proposal at 25m. Further, the recently approved Private Medical Facility located opposite the new IESS entry at 42 Loftus Street stands at a height of 30m and appears to confirm Council's desired built form character for this Hospital precinct. This is clearly shown in the 3D modelling images in **Appendix Vol 2**.

The proposed new IESS building will sit to the west of Elouera House and will be substantially greater both in height and massing. Its location on the highest part of the Hospital site will also add to its visual prominence. The relationship between the IESS building and the 1937 component of Elouera House in considered in the Heritage Impact Statement which finds:

Given the role of the site, it is also not unreasonable that the main buildings with crucial hospital functions do physically and visually dominate it, while the less important (and much smaller) function of residential accommodation for medical staff is symbolically as well as physically rendered less important.

The visual dominance of the new structures will be mitigated in a number of ways including:

- *clear visual and physical separation to the Loftus Street frontage with an active pedestrian entry and landscaping between;*
- *maintaining the prominence of the main elevations of Elouera House in views from the east end of Loftus Street;*
- *breaking up the façade through varied arrangements of massing and articulation, particularly along Loftus Street frontage –with upper floors set back;*
- *using landscaping where possible to help break up boundary between new and old buildings and give an independent identify to Elouera House and its immediate setting.*

It is therefore considered that the proposed height, bulk and scale of the proposal are suitable for the context and function of the site as a major hospital, within an identified 'Health Precinct. The proposal will neither detrimentally impact the heritage values and setting of the retained portion of Elouera House nor the residential amenity of dwellings on Loftus Street.

3.4.2 Setbacks

The primary setback consideration for the proposed development is to the boundary along Loftus Street. Consistent with the prevailing setback of the Hospital along Crown Street, Levels 1 and 2 of the proposal will be sit 1.5m from the boundary with fin building elements protruding to the boundary line (refer to montage images in **Appendix Vol 2**). Windows along in each recess will ensure ground level activation. Level 3 is setback further from the building line to allow the form of Levels 1 and 2 to reference and respect the form of Elouera House. Levels 4 to 6 sit forward to the same alignment of Levels 1 and 2, being 1.5m from the boundary.

Separation from Elouera House is also an important consideration and a separation of 9m (at street frontage) reducing to reducing to approximately 5 metres (at the southwest corner of Elouera House). This space will provide graded pedestrian access into the site with landscaping on either side and bike parking. The Heritage Impact Statement considers this setback arrangement appropriate as landscaping will *'help break up boundary between new and old buildings and give an independent identify to Elouera House and its immediate setting'* (p34).

The setbacks are considered appropriate given the nature of the building and the identification of the surrounding lands for hospital use.

3.4.3 Colours, finishes and façade treatment

As shown in the montage images in **Appendix Vol 2,** the façade along Loftus Street will be highly modulated and defined with both horizontal and vertical elements. The façade elements relate to the three primary building elements on the façade being the base (Levels 1 and 2), recessed middle (Level 3) and top (Levels 4-6) and therefore complement the massing of the building. Signage will further reinforce the institutional character of the façade, the details of signage will be provided to the Department of Planning prior to occupation (refer to Statement of Commitments).

The selected colour and finishes were selected due to their simplicity; ESD features and suitability to purpose (refer Section 2.4.8). The proposed colours and finishes shown in **Appendix Vol 2** reflect a vibrant palette toned against concrete and stone. The choice of colours is considered appropriate to the institutional use of the building and complements the existing colour and finishes across the Hospital.

3.4.4 Landscape and Public Domain

The proposed landscape works are described in Section 2.7 and illustrated on the landscape concept plans in **Appendix Volume 2**. The landscape design creates a number of new public domain spaces on the site which are important external spaces which function as part of the hospital 'campus' and assist in the healing process. Where possible these public spaces benefit from the spectacular views north to Mt Keira.

The landscape design also plays an important role in visually linking the new IESS building with Elouera House and providing a meaningful and usable space between the two buildings. This is a significant improvement on the existing arrangement where Elouera House is isolated both visually and functionally from the remainder of the Hospital.

The development creates the opportunity to provide one design treatment to all external spaces through use of materials and signage to tie the external spaces together. This public domain palette is also consistent with the other recent development works on the site such as the treatment of western extent of Hospital Road and the new Ambulance Bay area as described in Section 1.10.

The landscape palette reflects some of the historic plantings on the site and this will compensate the removal of the more significant plantings. It will also incorporate a higher proportion of plant species that are indigenous to the local area, which is considered a positive outcome.

3.4.5 CPTED

The planning and layout of the building and site will contribute to a creating a physically secure structure and safe area. The location and orientation of entrances and exits, combined with on-site car and pedestrian movements will all contribute towards the provision of a safe and secure facility. The proposal complies with the four (4) key principles of CPTED (Crime Prevention Through Environmental Design) as follows:

Natural Surveillance- Good sightlines will be maintained to pedestrian entries and walkways on the site. The new open space south of Elouera House benefits from a high level of passive surveillance from the surrounding buildings, including Elouera House and the new IESS Building. The Level 2 Entry and Building Forecourt will also enjoy a high level of passive surveillance.

Access Control- Key public entries will be clearly defined through the building form, landscape design and supporting signage. Whilst people are able to move freely through the site, all areas are visible from surrounding buildings. Signage will be used to restrict movement and access around the service entry.

Territorial Reinforcement- Built form on the site clearly define the role and function of public areas within the site. Separation of uses, signage and landscape will ensure clear boundary definition and distinction between the service areas and public domain.

Space Management- Proposed landscaping and building design will not result in the creation of spaces that would compromise the safety of users or surrounding residents.

3.5 Environmental Amenity

3.5.1 Solar access

Solar access to existing and new wards is a key priority for the development. Accordingly, setback of the upper levels of the IESS Building from the existing Clinical Services Building is designed to retain a high level of solar access into wards.

3.5.2 View loss

The Hospital is situated on a high-point in the local topography and as such there are no significant view corridors through the site enjoyed by surrounding properties. Key view lines towards the site is the view towards the site from the northern section of New Dapto Road (looking south-east) and from along Loftus Street. The montages in Appendix Vol 2 depict these main views and include the proposed hospital expansion. The montages confirm that the proposed expansion does not detrimentally impact on these key view lines.

3.5.3 Wind impacts

The largest component of the proposal stands at 5 storeys (approximately 25m). The Wollongong DCP (Chapter D13 Section 5.5) only considers developments above 32m to have potential to impact prevailing wind conditions. On this basis it is considered that the proposed height of the development will have minimal impact on wind conditions.

3.6 Residential Amenity

3.6.1 Overshadowing

As confirmed by the shadow diagrams in **Appendix Vol 2**, the proposal will not cast shadow on surrounding residences including those located on the northern side of Loftus Street. All shadows will fall within the site, mainly to the southern and western parts of the site.

3.6.2 Acoustic privacy

Acoustic modelling has informed the detail design of the Wollongong Hospital Redevelopment. The Acoustic Assessment by Norman Disney and Young (**Appendix J**) evaluated the impact of additional mechanical, traffic and operational noise on surrounding sensitive land uses including residences on the northern side of Loftus Street and dwellings located to the south west on New Dapto Road. The study also considered buildings on the Hospital site including Elouera House.

The assessment confirms that the acoustic amenity of surrounding sensitive land uses can be maintained through the use of appropriate architectural and engineering treatments to mechanical services and generators.

The assessment also found that the increase in traffic levels resulting from the proposed development will only increase the noise level by less than 2dB which within acceptable levels determined by the NSW Road Noise Policy.

3.6.3 Visual privacy

The proposal does not abut any adjoining residential properties and the proposed 5 storey element along Loftus Street will look towards the front on existing dwellings located on the adjacent side of the street, not directly to any areas of private open space.

3.7 Transport and Accessibility Impacts

3.7.1 Opportunities for sustainable transport

As discussed in Section 2.11, a Transport Management Strategy has been prepared as part of redevelopment exercise to understand the existing public transport infrastructure and to maximise opportunities for increased use of sustainable transport options long term. The initiative to utilise sustainable transport options is consistent with both State and local planning policy as discussed in Section 3.2.

The following measures to maximise utilisation of sustainable transport will be explored in more detail:

_ Promote staff and users to utilise existing train and bus public transport links around the hospital. This includes Wollongong Train Station (350m from site) and the 14 bus services travelling on Crown Street and New Dapto Road, past key entries to the Hospital.
_ Continue the use of car share programs for existing hospital staff.
_ Maximise and promote walking and riding to hospital for staff. The redevelopment scheme incorporates bicycle facilities in the public domain and staff areas.

3.7.2 Minimise on site car parking

The Director General's Requirement requires the proponent to demonstrate *'minimal levels of on site car parking for the proposed development having regard to the level of accessibility of the site to public transport, opportunities for car sharing, local planning controls and RTA guidelines'.* This approach is consistent with the sustainable transport strategy for the site discussed in Section 2.11. However, it is important that a reduced on-site parking provision is justified in terms of the existing public transport options and planning controls. Each of these issues are discussed below.

Accessibility of public transport

As shown in **Appendix Vol 2**, the site has well located to key transport nodes. It is situated 350m from the Wollongong Train Station and pedestrian pathway and crossing facilities are readily available between the Hospital and Train Station.

Premier Illawarra Buses provide 11 bus routes along Crown Street. These include bus routes 23, 24, 30, 31, 32, 33, 34, 35, 36 37 and 57. Buses operate every 30 minutes or 1 hour (depending on bus routes) from Monday to Friday and every 1 and 2 hour on Saturdays and Sundays respectively. Bus stops are provided along Crown Street near the Hospital. The Gong Shuttle bus also provide bus services along Crown Street and New Dapto Road. These take place every 10 minutes during peak period and every 20 minutes during non-peak period.

Opportunities for car sharing

Wollongong Hospital currently operates fleet cars to allow staff to move between hospitals within the district. This reduces the need for staff to bring their own vehicle to work and promotes car pooling when visiting other hospitals. The existing fleet car program will be reviewed to assess additional demand arising out the Hospital expansion and addressed through the Transport Management Strategy.

Local planning controls

The Wollongong DCP (Chapter E3 Section 7.4) states that a reduction in on-site car parking spaces may be permitted when it can be justified against set requirements. Each of the stated requirements are considered below.

A The amount of public car spaces in the locality;

The Traffic and Transport Accessibility Report undertook a survey of public (on-street) car parking spaces within a 15 minute walking catchment of the Hospital. The survey found that streets within the immediate vicinity of the Hospital experience an average occupancy rate of 80-90% and 60% in the wider walking catchment. As such there is availability of approximately 300 parking spaces within the walking catchment of the site with a maximum occupancy rate of 70%.

B Proximity to public transport nodes;

As discussed above the Hospital is located within proximity to regular bus and rail transport.

C Opportunity for cross utilisation with another use

Whilst the operational elements of the Hospital mean it is not able to cross-utilise parking facilities with another use, the structure of its work force means that car parking demand is spread across the day.

D An empirical assessment of car parking

This application is supported by an empirical assessment of car parking, refer **Appendix C** which confirms that the availability of on-street car parking within the designated 'Health Precinct' is high and will continue to provide an important supply of car parking. There are approximately 1,474 car spaces which are available within a 15 minute walking catchment of the Hospital site. The Traffic and Transport Accessibility Report confirms that utilisation of these spaces meets the demand for car parking generated by the proposal.

3.7.3 External traffic impacts

As detailed in the Traffic and Transport Accessibility Report additional traffic generation for the site will be in the order of 375 vehicle trips during a one hour peak period.

SIDRA modelling demonstrates that surrounding intersections currently operate at an 'A/B good operation' level of service. This existing level of service could be maintained with the additional traffic generation with some adjustments in the phasing of traffic signals. There will be some decline in the level of service at the Crown Street and New Dapto Road intersection however it would still be classified as 'satisfactory'. It is therefore considered that the future level of vehicular traffic is well within the capacity of the road system and therefore would have minimal impact on the operation of the road network and its capacity.

3.7.4 Internal traffic impacts

The removal of Hospital Road will alter existing internal traffic movements on the site. Hospital Road is currently used only by the mortuary vehicle, ambulances, pedestrians and some cars. As discussed in Section 1.10 other works packages will ensure the mortuary vehicles retain limited access on Hospital Road and will relocate Ambulances to the south-east corner of the site near the existing ED entry. Existing car spaces will be removed from Hospital Road therefore removing the need for car circulation along Hospital Road.

The proposal enhances the existing drop-off zone on Loftus Street and this will remain the key access point for taxis and short term parking. Further, the proposal will not impact existing parking arrangements for hospital cars and vehicles, located near the Ambulance Bay.

3.8 Heritage

The proposal impacts the Wollongong Nurses Home (which includes Elouera House, Lawson House and surrounding setting) is an item of listed on the NSW State Heritage Register (SHR) and included as heritage items in the Wollongong LEP 2009. As discussed in Section 2, the proposal will result in:

_ demolition of the 1941 extension to Elouera House,
_ modifications to the remaining 1941 original section of Elouera House,
_ excavation and landscape work to the south-west of Elouera House.

The proponent met with the NSW Heritage Branch twice the design phase. The initial consultation (14 March 2011) was during the preliminary design phase and the team discussed the initial design direction including the part-demolition of Elouera House and the amendment to the SHR curtilage boundary. The preliminary design proposal was received positively by staff of the Heritage Branch.

As agreed in the initial consultation, the proponent and Project Team met with the Heritage Branch on 4 August 2011 to present and discuss the more refined schematic design. Again the part demolition of Elouera House was discussed along with the mitigating works proposed to ameliorate the potential heritage impact.

As discussed in Section 1.7.2, the Heritage Significance Assessment was undertaken to clarify the heritage listings of the site and to refine the SHR curtilage from the boundary of Lot 95 DP 1258. The HSA found that it was appropriate to amend the SHR curtilage to exclude built-up areas of the site which had no relevance or bearing on the SHR listing. Therefore, the Heritage Impact Statement in **Appendix E** focuses on the impacts of the proposal on items and areas within the revised curtilige area (refer **Appendix Vol 2**).

The findings of the HIS are below:

The overall conclusion of this Heritage Impact Statement is that the proposed development of the Wollongong Hospital site will not impact to an unreasonable extent on the major components, attributes and fabric of significance of the Wollongong Nurses' Home.

As this report has demonstrated, the pressure for upgrading and expanding essential medical facilities at Wollongong Hospital site is both considerable and urgent. The size of the new areas required and their need to be functionally linked to existing facilities has dictated from the start a significant planning and logistics exercise. This has further been complicated by the limited development area within the site - due to more than just the listed heritage item in the northeast corner.

Given the SHR listing of the Nurses' Home, specialist heritage input was sought by the client and planning/design consultants from the outset, starting with a detailed Heritage Significance Assessment (HSA) and collaboratively working through the Master-planning and design development processes, including briefing/review meetings with officers of the NSW Heritage Branch, Department of Planning.

With this approach, the major features of the site which warranted protection/conservation were identified together with the options for 'trade-offs' where required by the proposed new development (as discussed in Section 4.2.3). In essence the final outcome provided for meaningful conservation and interpretation of the major component of significance of the Nurses' Home – Elouera House – together with its most significant views and a reduced, but independent, setting/curtilage. The proposed development also retained and enhanced the functional and visual links between Elouera House and the main hospital through new pedestrian connections and integrated landscaping, supporting the building's retention of its original and existing residential functions.

At the same time, demolition of the 1941 addition to the Nurses' Home was required to accommodate the new facilities, and though it had been established that this was the least historically and aesthetically significant component of the Nurses' Home group, its removal did represent some loss of historic evidence and architectural layering. Its removal would also require a reappraisal of the 'Reduced Heritage Curtliage' proposed in the preceding HSA. Balanced against this, however, demolition of the 1941 addition allowed reconstruction of Elouera House as originally constructed.

Minor demolition works proposed at the west end of Elouera House (externally and internally) and construction of a new entry door and porch will not, it is believed, impact adversely on the site as a whole or affected components.

Overall, the retained Elouera House will remain visually prominent in its major views – to Darling and Loftus Streets, as an independent building in original pre-1941 configuration. Appropriate mitigation measures – such as physically and visually separating new and existing buildings, breaking up the massing/visual height of the new structures and using pedestrian pathways and landscaping to 'bridge' between old and new – have all contributed to lessening identified and/or potential adverse heritage impacts.

The HIS proposes a series of recommendations that relate to the design detail of the western extent of Elouera Housing following demolition works. These will be implemented through the detailed design process and are included as Statement of Commitments in Section 4.

3.9 Aboriginal Heritage

The Stage 1 Aboriginal Archaeology Assessment investigated whether Aboriginal objects or sites are present in the study area and if present, whether the proposed development would harm the Aboriginal objects. A copy of the report is in **Appendix F**. The Assessment reviewed the OEH Aboriginal Heritage Information System (AHIMS), local literature and site inspection. From this it concluded that the site does not contain previously recorded Aboriginal sites, no material was identified on the surface of the site and that there is very low to no potential of Aboriginal archaeological material being present on the site. As such, the proposed works are considered unlikely to have any potential to impact Aboriginal archaeological material.

3.10 Drainage and Flooding Impacts

Drainage and stormwater management on the site will be managed in accordance with the Stormwater Concept Plans in **Appendix Vol 2**. The final design and documentation of the stormwater system will be in accordance with the Council DCP and the relevant Australian Standards and Codes.

The Civil Report in **Appendix I** confirms that the site is not located within a flood zone. Flooding from other sources such as overflowing stormwater drains, overland flow, high water tables and other artificial water sources has been reviewed and is unlikely to occur.

3.11 Flora and Fauna/ Tree Removal

As an existing urban site the majority of flora and fauna issues relates to introduced trees on the site, which have been introduced during different stages of the site's development as a hospital. The Tree Assessment Report in **Appendix G** confirms there is no remnant vegetation on site.

As discussed in Section 2.8, the proposal seeks to remove 21 trees to facilitate the proposed expansion to the Hospital. The Preliminary Tree Assessment Report confirms that the majority of the trees proposed for removal have a

low to moderate retention value based on an assessment of their condition and of their safe useful life expectancy (SULE). Two trees are of high significance, T19 and T27 based on their condition and association with earlier development of the hospital. Whilst this significance does not warrant retention itself, compensatory planting in similar species will minimise the loss of these trees on the landscape and heritage values of the site. This compensatory planting is shown in the Landscape Plan in **Appendix Vol 2**.

The two large fig trees (T1 and T2) have local heritage significance as part of the original Hospital and a high landscape value, however they are not part of the State Heritage Register listed Wollongong Nurses' Home. As discussed in Section 2.8**,** detailed testing of the trees confirmed that Tree 1 supported some decay and T2 had minimal decay. This assessment included that the trees could only be retained for the short to medium term. T1 and T2 are also located in an area which will be redeveloped to accommodate to the hospital. Whilst design development considered options to retain the trees this was not possible due to the site constraints and limited health of these trees. Further, the Heritage Impact Statement confirms that the removal of T1 and T2 will not impact on the heritage significance of the Wollongong Nurses' Home. It is therefore considered that removal of T1 and T2 is supportable.

3.12 Noise and Vibration

Operational Noise and Vibration measures are detailed in Section 3.6.2 and confirm that noise and vibration from mechanical services and generators can be suitable mitigated through acoustic measures. Further, the additional traffic generated by this proposal will within acceptable levels.

In addition, the proponent commits to preparing a Construction Noise and Vibration Management Plan (CNVMP) which accords with the requirements of the Interim Construction Noise Guideline prepared by the NSW Office of Environment and Heritage and using the construction noise management levels as detailed in the Acoustic Report in **Appendix J**.

3.13 Waste

As detailed in Section 2.12, operational waste will be managed in accordance with existing NSW Health policies for hospitals and will be integrated into the existing waste management practices and procedures currently operating at Wollongong Hospital.

A Construction Waste Management Plan will be prepared to detail how waste is managed during the construction works of the site. This is included in the Statement of Commitments in Section 4.

3.14 Hazards

As discussed in Section 2.12.6 the proponent will manage and store nuclear, radioactive and cytoxic materials and waste in accordance with existing hospital procedures the relevant Acts and guidelines. It is therefore considered that these materials will not impact the surrounding environment.

3.15 Consultation

The proponent has consulted the Heritage Branch twice during the design phase (refer Section 3.8). In addition a range of referral authorities were consulted for the preparation of the Director General's Requirements, this included the RTA, Department of Environment, Climate Change and Water, Transport NSW and SEISIAHS, the Local area health network. Each of the issues raised by these authorities has been addressed in this EA.

3.16 Site Suitability and Project Justification

The suitability of the site has been considered from a medical operational perspective as well as from a site, development and environmental capacity perspective. The site is considered suitable for the project for the following reasons:

- The site is located within the existing Wollongong Hospital and therefore enhance existing services and facilities provided by the Hospital in line with regional population demand.
- The site is located within a precinct identified as a 'Hospital Precinct' in the Wollongong LEP and is consistent with the site specific height and FSR controls for the site.
- The proposal will not adversely impact the amenity of existing dwellings along Loftus Street.
- Whilst the proposal will result in the part demolition of Elouera House, this will not have an unreasonable impact on the State Heritage Register listed Wollongong Nurses' Home.
- The proposal will enhance the quality of the public domain and landscape areas across the site.

4 Statement of Commitments

The following is the Statement of Commitments by Health Infrastructure on how the Wollongong Hospital Redevelopment project will be managed to minimise its impacts both during construction and operation.

General

1. The development will be undertaken in accordance with this Environmental Assessment dated September 2011 prepared by HASSELL (including accompanying appendices) and the drawings including the architectural drawings prepared by HASSELL.

Signage

2. Detailed signage plans indicating the size, content, location and design of building identification signage will be submitted to the Department of Planning for approval prior to occupation.

Ecologically Sustainable Design

3. The development will comply with Section J of the BCA.

4. The development will target a 4 star green star design equivalent and will appoint a Green Star accredited professional is appointed to assist in the design phase.

5. An Integrated Water Management Plan will be prepared prior to construction.

Transport and Access

6. Where possible access, servicing and layout arrangements will be provided in accordance with AS 2890.1:2004 and AS 2890.2:2002.

7. Appropriate pedestrian advisory signs will be provided at the egress to the loading dock and the vehicular entry on Loftus Street.

8. As part of the project's Communications Strategy the hospital's workforce will be encouraged to use sustainable transport options to and from the Hospital. Operational policies through the Functional Briefing process will also where applicable encourage sustainable transport options.

Accessibility

9. Detailed design will implement the accessibility requirements outlined by the engaged accessibility consultant.

Landscape and Public Domain

10. All outdoor lighting shall be designed to comply with, where relevant, AS/NZ1158.3: 1999 Pedestrian Area (Category P) Lighting and AS4282: 1997 Control of the Obtrusive Effects of Outdoor Lighting.

Heritage

11. The proponent will implement the following measures at detailed design to help further reduced the impact of proposed changes to the Nurses' Home:

- Details of the new rear entry doors, porch and internal and external stairs at the west end of Elouera House should be developed in consultation with specialist heritage architects;
- Suitable door, window and other original joinery salvaged from demolition of the 1941 wing should be retained for future restoration works in the original 1937 section of Elouera House.
- Bricks and roof tiles from the demolished 1941 addition should be salvaged in order to patch repair/reconstruct the new west elevation of Elouera House.
- Following demolition of the 1941 addition, the roof of Elouera House should be made good to match the original configuration.
- Specialist heritage advice should be used to help resolve the proposed methods, materials and detailing for all repair and reconstruction works affecting the Nurses' Home as part of the design development phase of the project. These works should include repairs to significant damaged components/fabrics and removal of intrusive elements wherever possible and appropriate.

Aboriginal Archaeology

12. If Aboriginal objects were to be identified during development of the subject land, works must stop and a suitably qualified archaeologist notified immediately to assess the finds. The finds must be reported to DECCW and further approvals may be necessary prior to the recommencement of works.

13. If human remains were to be discovered during any development works on the property, the finding would need to be reported immediately to the New South Wales Coroner's Office and/or the New South Wales Police. If the remains are suspected to be Aboriginal, DECCW would also need to be contacted and a specialist consulted to determine the nature of the remains.

Civil Works

14. Stormwater works are to occur in accordance with the stormwater solution and OSD system plan prepared by TTW.

Noise and Vibration

15. A qualified acoustic consultant will ensure that the acoustic requirements are design in accordance with the relevant acoustic standards and gradings.

Contamination Works

16. Where required, additional groundwater monitoring event with the addition of VOC to the analytical suite will be undertaken to confirm TPH and xylene concentrations in the groundwater.

Reflectivity

17. The light reflectivity from any building materials used on the facades of buildings shall not exceed 20% and shall be designed as not to result in glare that causes any nuisance or interference to any person or place.

Waste Management

18. Operational waste, including any nuclear, radioactive and cytotoxic waste, will be managed in accordance with *ISLHN Waste Management Policy (ISLHNPD/72) Revised March 2011* and other relevant Acts.

19. Prior to commencement of work on site a construction waste management plan that maximises reuse and recycling of waste generated in the demolition and construction phase will be prepared.

Construction Management

20. A Construction Management Plan is to be prepared by the head contractor prior to construction. The plan is to include:
    - statutory compliance
    - hazardous substances/dangerous goods management plan
    - waste management plan
    - hoarding
    - stormwater and erosion management plan
    - noise and vibration management plan
    - air quality management plan
    - tree protection plan
    - sustainability, and
    - traffic aspects.

21. General constructions hours will be Monday to Friday 7:00 am to 6:00 pm, Saturday 7:00 am to 4:00 pm and Sundays 9:00am to 1:00pm. No work will be undertaken Public Holidays.

5 Conclusion

This Environmental Assessment (EA) has been prepared to consider the environmental impacts of the Wollongong Hospital Redevelopment at Crown Street, Wollongong. In making this assessment, the EA addresses the issues outlined in the Director Generals Requirements (**Appendix A**) such as relevant environmental planning instruments, built form, social and environmental impact.

The conclusions of the EA are as follows:

- The Project Application demonstrates a high level of consistency with the relevant planning instruments and fully addresses the issues identified in the Director General's Assessment Requirements.
- The proposal will result in minimal environmental impacts, all which can be mitigated through the recommendations outlined in the Statement of Commitments (Section 4).
- The proposal will have a substantial positive social impact for Wollongong and the Illawarra Region by increasing the capacity of the Wollongong Hospital in line with the *South Eastern Sydney Illawarra Area Health Service, Area Strategic Plan 2010-2015*
- The proposal is consistent with the provisions of the Wollongong LEP particularly in regard to land use, height and FSR for the subject site.
- The proposal will not unreasonably impact the heritage significance of Wollongong Nurses Home, which is an item listed on the State Heritage Register.

Given the environmental planning merits described above, and significant public benefits proposed, it is requested that the Minister approve the Project Application under Section 75J of the EP&A Act.

Appendix A
Director General's Requirements

The following table demonstrates how the Environmental Assessment addressed the Director General's Requirements.

Requirement	Notes
1. Relevant EPI's policies and Guidelines to be Addressed	
Objects of the EP&A Act • State Environmental Planning Policy (Major Development) 2005 • State Environmental Planning Policy No.55 – Remediation of Land • State Environmental Planning Policy No.33 – Hazardous and Offensive Development • State Environmental Planning Policy (Infrastructure) 2007 • NSW State Plan • Illawarra Regional Strategy • Wollongong Local Environmental Plan 2009 • Relevant Development Control Plans • Nature and extent of any non-compliance with relevant environmental planning instruments, plans and guidelines and justification for any non-compliance	Refer to assessment in Section 03.
2. Built Form and Urban Design	
Height, bulk and scale of the proposed development within the context of Wollongong Hospital and adjoining residential and commercial land uses;	Refer Section 3.4.1.
Details of proposed open space and landscaped areas; and	Refer to Section 2.7.
Design quality with specific consideration of the façade, massing, setbacks, building articulation, appropriate colours/materials/finishes, landscaping, safety by design, public domain and existing "Wollongong Health Precinct"	Refer Section 3.4.
3. Environmental and Residential Amenity	
Impacts of the proposal on solar access, acoustic privacy, visual privacy, view loss and wind impacts on surrounding development	Refer to Section 3.5 and Section 3.6.
Details of the measures to be implemented to achieve a high level of environmental and residential amenity	Refer to Section 3.5 and Section 3.6.
4. Transport and Accessibility Impacts (Construction and Operational)	
Provide a Transport & Accessibility Study prepared with reference to the Metropolitan Transport Plan – Connecting the City of Cities, Draft Illawarra Regional Transport Strategy, the NSW State Plan, the NSW Planning Guidelines for Walking and Cycling, the Integrated Land Use and Transport policy package and the RTA's Guide to Traffic Generating Development, considering the following:	Refer to Transport and Accessibility Study in Appendix C.
Demonstrate how users of the development will be able to make travel choices that support the achievement of relevant State Plan targets;	Refer to Transport and Accessibility Study in Appendix C.
Detail the existing pedestrian and cycle movements within the vicinity of the site and determine the adequacy of the proposal to meet the likely future demand for increased public transport and pedestrian and cycle access, including the preparation of a disability access plan	Refer to Transport and Accessibility Study in Appendix C and Appendix Vol 2. A disability access plan will be addressed through the Accessibility measures detailed in Appendix B.
Identify potential traffic impacts during the construction and operational stages of the project, and measures to mitigate these impacts, including the preparation of a Traffic Impact Study	Refer to Transport and Accessibility Study in Appendix C.
Describe the measures to be implemented to promote sustainable means of transport including public transport usage and opportunities to improve access to Wollongong Station and pedestrian and bicycle linkages in addition to addressing the potential for implementing a location specific sustainable travel plan	Refer to Transport and Accessibility Study in Appendix C and Section 2.11.3.
Daily and peak traffic movements likely to be generated by the proposed development, including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required). The traffic impact assessment should consider base models with future traffic generated by the proposed redevelopment	Refer to Transport and Accessibility Study in Appendix C.
Details of the proposed access, parking provisions and service vehicle movements associated with the proposed development	Refer to Transport and Accessibility Study in Appendix C.
Identify and consider any environment impacts associated with any proposed roadworks in the EA, including the proposed closure of the Hospital internal driveway on Crown Street on existing vehicle access arrangements (e.g. taxis, community transport vehicles and other vehicles), and measures to mitigate these impacts	No significant road works proposed.

Minimal levels of on site car parking for the proposed development having regard to the level of accessibility of the site to public transport, opportunities for car sharing, local planning controls and RTA guidelines (note: The Department supports reduced parking provisions, if adequate public transport is available to access the site)	Refer to Transport and Accessibility Study in Appendix C and Section 3.6 of SEE.
The Roads and Traffic Authority shall be provided with details of the expected traffic generation of the site to enable the RTA to determine if network modelling, using PARAMICS, is considered necessary. This is to be undertaken prior to the Proponent undertaking any SIDRA modelling	This information will be provided to the RTA as part of the referral process during exhibition of the EA.
Intersection modelling using SIDRA shall be undertaken for the junctions of Crown Street/New Dapto Road, Crown Street/Darling Street and any other local road junctions identified by Council considering the following: • AM and PM peaks volumes and holiday peak volumes; and • Existing traffic volumes with and without development and 10 year projected volumes with and without development, taking into consideration other known developments in the "Wollongong Health Precinct"	Refer to Transport and Accessibility Study in Appendix C.
Electronic copies of modelling shall be forwarded to the RTA for review and comment	Refer to Transport and Accessibility Study in Appendix C.
5. Ecologically Sustainable Development (ESD)	
Detail how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development;	Refer to Section 2.5.
Include a description of the measures that would be implemented to minimise consumption of resources, water and energy, including an Integrated Water Management Plan which details any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design;	Refer to Section 2.5.
Demonstrate that the development can achieve a minimum 4 Green Star rating, or any other suitably accredited rating scheme	Refer to Section 2.5.
Details of the management of hospital warm water system as per the Public Health Act 1991, Part 4, Microbial Control and the Policy Directive Water – Requirements for the Provisions of Cold and Heated Water	Refer to Section 2.12.7.
6. Contributions	
Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement	Refer to Section 3.3.
7. Contamination	
Demonstrate compliance that the site is suitable for the proposed use in accordance with SEPP 55	Refer Section 1.9.2 and Section 3.2.2.
8. Heritage	
A statement of significance and an assessment of the impact on the heritage significance of any heritage items and/or conservation areas should be undertaken in accordance with the guidelines in the NSW Heritage Manual	Refer to Appendix D and E.
9. Aboriginal Heritage	
The EA shall address Aboriginal Heritage in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005	Refer Section 3.8.
10. Drainage	
Drainage issues associated with the proposal including stormwater and drainage infrastructure	Refer Section 3.9.
Detailed plans of the proposed erosion and sediment control measures during demolition, construction and operation	Refer Section 2.9.4
11. Flooding	
An assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effects of climate change, sea level rise and an increase in rainfall intensity	Refer Section 3.9.
12. Utilities	
In consultation with relevant agencies, the EA shall address the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure works	Refer to Section 1.8 and 2.9.
13. Staging	
Details regarding the staging of the proposed development (if proposed)	Refer Section 2.10.
14. Flora and Fauna	
Address impacts on flora and fauna, including threatened species, populations and endangered ecological communities and their habitats and steps taken to mitigate any identified impacts to protect the environment	Refer to Section 3.11.
15. Noise and Vibration	
Provide a quantitative assessment of the potential demolition, construction, operation and traffic noise impacts of the project	Refer to Section 3.12.
16. Waste	

Identify, quantify and classify the likely waste streams to be generated during construction and operation	Refer to Section 2.12.4.
Describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste, having regard to the relevant policies, Acts and Regulations	Refer to Section 2.12.3.
Describe the measures to be implemented to manage the disposal of nuclear waste, having regard to the relevant policies, Acts and Regulations if required	Refer to Section to 2.12.4.
Describe the measures to be implemented to manage the disposal of contaminated and potentially contaminated biological and sewage waste, having regard to the relevant policies, Acts and Regulations if required	Refer to Section 2.12.6.
17. Hazards	
An assessment against State Environmental Planning Policy No 33 – Hazardous and offensive Development	Refer to Section 3.2.2.
A description of the proposed storage, use and management of any hazardous material and measures to be implemented to manage hazards and risks associated with the storage	Refer to Section 2.12.6.
Implementation of safety precautions for the storage of equipment and associated radiation hazards related to medical imaging, including x-rays, nuclear scans and radiation oncology	Refer to Section 2.12.6.
18. Consultation	
Undertake an appropriate and justified level of consultation in accordance with the Department's Major Project Community Consultation Guidelines October 2007	Refer to Section 3.15.
PLANS	
8. A Quantity Surveyor's **Certificate of Cost** to verify the capital investment value of the project (in accordance with the definition contained in the Major Development SEPP;	Refer to Section 3.2.2.
An **existing site survey plan** drawn at an appropriate scale illustrating; · the location of the land, boundary measurements, area (sq.m) and north point; · the existing levels of the land in relation to buildings and roads; · location and height of existing structures on the site; and · Location and height of adjacent buildings and private open space. · All levels to be to Australian Height Datum.	Refer to Section 2.12.6.
· **Landscape plan** - illustrating treatment of open space areas on the site, screen planting along common boundaries and tree protection measures both on and off the site;	Refer to Section 2.12.6.
· **Stormwater Concept Plan** - illustrating the concept for stormwater management;	Refer to Appendix I and Appendix Vol 2.
· **Erosion and Sediment Control Plan** – plan or drawing that shows the nature and location of all erosion and sedimentation control measures to be utilised on the site;	Refer to Appendix I and Appendix Vol 2.
· **Geotechnical Report** – prepared by a recognised professional which assesses the risk of Geotechnical failure on the site and identifies design solutions and works to be carried out to ensure the stability of the land and structures and safety of persons;	Refer to Appendix I.

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