Parliamentary Standing Committee on Public Works

REPORT

relating to the

DEVELOPMENT OF 1 FIELD HOSPITAL AT HOLSWORTHY, NSW

(Twenty-Second Report of 1995)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1995

The Parliament of the Commonwealth of Australia

Parliamentary Standing Committee on Public Works

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CONTENTS

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

(Thirty-First Committee)

Mr Colin Hollis MP (Chair)
Senator Paul Henry Calvert (Vice-Chair)

Senate	**House of Representatives**
Senator Bryant Robert Burns	Mr John Neil Andrew MP
Senator Shayne Michael Murphy*	Mr Raymond Allen Braithwaite MP
	Mr Russell Neville Gorman MP
	Mr Robert George Halverson OBE MP
	Hon Benjamin Charles Humphreys MP

* replaced Senator John Devereux on 10 February 1995

SECTIONAL COMMITTEE

DEVELOPMENT OF 1 FIELD HOSPITAL AT HOLSWORTHY, NSW

Mr Colin Hollis MP (Chair)
Mr Robert George Halverson OBE MP (Vice-Chair)
Mr Raymond Allen Braithwaite MP
Hon Benjamin Charles Humphreys MP

Committee Secretary:	Peter Roberts
Inquiry Secretary:	Denise Denahy
Secretarial Support:	Belynda Zolotto

EXTRACT FROM THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES

No. 141 dated Monday 5 June 1995

15 **PUBLIC WORKS , PARLIAMENTARY STANDING COMMITTEE , REFERENCE OF WORK - DEVELOPMENT OF 1 FIELD HOSPITAL AT HOLSWORTHY, NSW**

Mr Bevis (Parliamentary Secretary to the Minister for Defence), for Mr Walker (Minister for Administrative Services), pursuant to notice, moved,That, in accordance with the provisions of the *Public Works Committee Act 1969*, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Development of 1 Field Hospital at Holsworthy, NSW.

Question - put and passed.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DEVELOPMENT OF 1 FIELD HOSPITAL AT HOLSWORTHY, NSW

By resolution on 5 June 1995 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the development of 1 Field Hospital at Holsworthy, NSW.

THE REFERENCE

1. The proposal is to provide a modern purpose-built field hospital facility at Holsworthy to replace the existing inadequate medical facilities of 1 Field Hospital at Ingleburn in Sydney's west. The proposed hospital is required to support Australian Defence Force (ADF) operations during a contingency, in accordance with the defence policy of self-reliance, as enunciated in the 1994 Defence White Paper.

2. The proposed facility will provide health care for regular Defence personnel located in the area known as the Liverpool Military Area, as well as Army Reserve personnel and visiting overseas military forces. The hospital will consist of a field component, and an Australian Support Area (ASA) component which will continue to service those personnel who do not deploy when the field hospital deploys on operations. The facility is based on a 25 bed ward and a 16 bed self-care rehabilitation unit.

3. Project elements include:

- hospital headquarters
- hospital complex with surgical, pathology, radiology, physiotherapy, rehabilitation and all inpatient services
- a field component
- logistic complex
- instructional facilities.

4. The unit is to provide full medical outpatient care to all Holsworthy-based units and specialist outpatient care to all Defence personnel in the Liverpool Military Area.

5. The estimated cost when referred to the Committee was $19.7m at December 1994 prices.

THE COMMITTEE'S INVESTIGATION

6. On 31 August 1995 the Committee appointed a Sectional Committee comprising Mr C Hollis MP (Chair), Mr R Halverson OBE MP (Vice-Chair), Mr R Braithwaite MP and the Hon B Humphreys MP to undertake this inquiry. The Committee received a written submission from the Department of Defence (Defence) and the Sectional Committee took evidence from its representatives at a public hearing held at the School of Military Engineering at Casula on 5 September 1995. Prior to the public hearing the Sectional Committee inspected the existing facilities of 1 Field Hospital at Ingleburn and the site for the proposed facility at Holsworthy.

7. Evidence was also taken from the following organisations at the public hearing:

- South Western Sydney Area Health Service
- PJP Consultants - Aerospace and Defence Industries.

8. Written submissions regarding the project were also received from the following and are incorporated in the Committee's proceedings:

- Australian Heritage Commission
- Commonwealth Fire Board
- Commonwealth Department of Primary Industries and Energy
- Ambulance Service of New South Wales
- New South Wales Fire Brigades.

9. A list of the witnesses who gave evidence at the public hearing is at Appendix A. The Committee's proceedings will be printed as Minutes of Evidence.

ARMY MEDICAL SUPPORT ELEMENTS

Field Medical Elements

10. In common with the defence forces of other developed nations, the ADF provides medical and dental treatment to serving members; this is to maintain the

highest standards of medical, dental and physical fitness. Such treatment is provided both in the field and in the barracks environment and ensures that members remain fit and available for operations. Field treatment for the Australian Army is provided by field hospitals such as 1 Field Hospital in Sydney and 2 Field Hospital in Brisbane.

11. When in the barracks, the ASA component of the field hospital provides medical care to ADF personnel in the geographic area of the hospital. This ensures that personnel return to full duty as soon as possible. More importantly, this also allows Defence medical staff to practise and maintain the skills that are necessary for supporting field units during operations.

12. Field Medical Elements (FME) deploy with land forces to an area of operations to provide operational medical support to those forces. They are staffed by both Australian Regular Army (ARA) and General Reserve (GRes) personnel. When not deployed, ARA medical support elements also meet the day-to-day medical needs of the units or formations to which they belong and/or with which they are based.

13. Field medical elements are grouped within Land Command and include:

- **Regimental Aid Posts (RAPs).** RAPs support infantry battalions and similar sized land force manoeuvre units of 500 to 800 personnel. They provide first aid for battle and non battle casualties, primary medical care and preventive medicine support to that unit. This is known as Level One care

- **Brigade Administrative Support Battalion (BASB) Medical Companies.** A Medical Company supports a land force manoeuvre brigade of some 3 000 to 5 000 personnel and provides a higher level of medical care than RAPs. They collect and sort casualties requiring evacuation from RAPs. They provide emergency resuscitation, medical and nursing care, short term holding of casualties not requiring surgery, basic x-ray and pathology. This is known as Level Two care

- **Field Hospitals.** These are discrete medical units that provide initial wound surgery and hospitalisation for casualties from one or more land force manoeuvre brigades. Actual allocation of field hospitals will depend on the disposition of supported land forces, casualty projections and the means of casualty evacuation available. Capability includes resuscitation, operating theatres, 55 to 110 hospital beds, post-operative care, mid and high intensity nursing,

radiography, pathology and pharmacy. The unit can close, redeploy by road, rail, sea or air and re-establish itself in five to seven days. Army has two field hospitals - these are located at Enoggera and Ingleburn. These may be deployed independently on widely dispersed operations, for example in remote areas of Northern Australia which lack civilian health infrastructure. 1 Field Hospital was deployed to Katherine south of Darwin during the recent Kangaroo 95 exercise. The Sectional Committee was advised that 1 Field Hospital was fully operational within 24 hours of its arrival in Katherine. Personnel from 1 Field Hospital also made a significant contribution to the recent deployment in Rwanda. When not deployed, field hospitals provide hospital services to ADF personnel in the areas in which they are based. They provide Level Three care

- **Forward General Hospital.** This is a discrete medical unit that provides comprehensive specialist medical and surgical services to all ADF personnel in an area of operations. Unlike the life-saving initial wound surgery performed at a field hospital, the specialised surgery performed in a forward general hospital is designed to restore function. Once treated, casualties are either returned to duty or prepared for evacuations. Wherever practicable, the general hospital utilises existing fixed facilities in major population centres - Army has only one such unit based in Adelaide.

Australian Support Area (ASA) Medical Elements

14. These provide day-to-day medical services from fixed facilities in support of Army logistics, training and headquarters elements not deployed to an area of operations. In some cases, they also provide health services to RAN and RAAF elements. They are manned by a mixture of ARA personnel, civilian employees and civilian contractors. The more significant ASA elements include:

- 2 Field Hospital, Enoggera-Brisbane (currently under construction)
- 1 Field Hospital, Holsworthy - Sydney
- Puckapunyal Health Centre
- Kapooka Medical Centre
- Albury/Wodonga Medical Centre
- Base Area Support Centre North Queensland Medical Centre, Townsville

- Canberra Area Medical Unit
- Randwick Barracks Medical Centre
- Robertson Barracks Medical Centre - presently under construction in Darwin
- School of Army Health, Portsea.

THE NEED

15. 1 Field Hospital is currently located on Old Campbelltown Road at Ingleburn, NSW. The existing accommodation comprises a large number of generally sub-standard post Second World War barrack style buildings, constructed from timber, metal and asbestos, some of which are connected with covered links. The site slopes down from Old Campbelltown Road to the south-east. The field component enclosure is at the lowest point in one corner of the complex. Access from the clinical hospital departments to the field component is difficult and construction of a new facility will eliminate Occupational Health and Safety problems currently evident at the existing hospital site and provide a standard of patient care equivalent to that available to the community at large.

16. A new facility will also:

- allow for the future disposal of the Ingleburn property
- eliminate transport costs to individuals and units currently travelling between Holsworthy and Ingleburn, without any significant increase to other hospital users
- provide a 25 bed hospital based on current usage with allowances for expected changes in the dependency
- provide better security and storage for the expensive and fragile medical equipment, including the hospital shelters, currently on issue to 1 Field Hospital
- enhance the operational readiness of the field hospital unit as a result of having suitable facilities that enable the proper storage and setting up of the field shelters and the provision of effective and realistic training
- provide a base for the 1st Parachute Surgical Team (1 PST).

17. At the public hearing the Sectional Committee sought from Defence an explanation as to what the Sectional Committee saw as the low priority given to this project, in view of the extremely poor condition of the existing facilities. Defence advised that the issue was one of an assessment of capability and priority for resources as Defence does not have enough resources to meet all needs. Priority for resources is inevitably given to developing and maintaining combat capabilities with a lower priority being given to support capabilities. Having inspected a number of ADF hospitals the Committee believes that a great deal of credit must go to the dedication of ADF medical, nursing and administrative staff for working in what can only be described as less than adequate conditions.

Location Options

18. Defence considered two location options for the proposed facility. These were to rebuild at Ingleburn or to provide new facilities at Holsworthy. Defence advised the Committee that Holsworthy is the preferred option because:

- Holsworthy allows the hospital to be in close proximity to the units that the hospital will support in the field. This will allow more efficient and effective liaison than would be the case if the hospital were located elsewhere. This is considered highly desirable, because it better meets the operational and primary role of the hospital
- Holsworthy is in close proximity to the major dependency, and will eliminate the need for transport between Holsworthy and Ingleburn.
- Holsworthy has sufficient space to provide a clear site
- any future development of Ingleburn would hinder the disposal of that property. Disposal has been planned for some years.

Existing facilities within Holsworthy

19. Old Holsworthy has no existing facilities that could be utilised as the basis of the new hospital. The Old Holsworthy precinct contains a number of small heritage listed buildings, adjacent to the proposed site, that would better suit their previous use as accommodation and messing facilities. The master plan proposes their refurbishment and integration into the School of Army Health should it relocate from Portsea, Victoria.

ADF Hospital in Sydney Region

20. At the public hearing the Sectional Committee sought advice from Defence regarding the possibility of the construction of a single ADF hospital in the Sydney region. Defence advised that a review had been conducted in 1994 of the feasibility of constructing a single ADF hospital in the Sydney region with outpatient facilities at Balmoral, Richmond and Holsworthy/Ingleburn. Defence rejected the concept as it would require more staff at four facilities than at the existing facilities at Balmoral, Richmond and Holsworthy/Ingleburn. The Holsworthy proposal is effectively a scaled-down version of the single ADF hospital concept.

Comparison of Civilian/Military Hospitals

21. A field hospital is a unique Army unit with only partial resemblance to conventional civilian hospitals. The main differences are the hospital's field equipment and its ability to deploy and operate anywhere in Australia, or overseas. As an example elements of 1 Field Hospital have recently deployed to Rwanda to support the United Nations. The unit's organisation and equipment is designed to meet the specific medical needs of Defence members and operational requirements and the hospital is staffed accordingly. The staff receive medical training as well as the normal range of military training to allow them to survive in the field under operational conditions. Consequently, a civilian hospital cannot undertake the role of a field hospital in an operational environment.

22. It is therefore difficult to compare a field hospital to a civilian hospital. Nevertheless, Defence completed a cost benefit analysis (for 2 Field Hospital) to compare the cost of providing medical services using military and civilian hospitals. This analysis shows that field hospitals are cost-effective with a 10% operating costs saving compared with a public hospital and a 20% saving compared with a private hospital. Thus, while providing an operationally deployable unit, there is also the added benefit of providing cost-effective medical care to Defence members in a barracks situation.

South Western Sydney Area Health Service

23. In a submission to the Committee the South Western Sydney Area Health Service (SWSAHS) proposed that spare capacity at the Liverpool Hospital be used to provide some of the functions for 1 Field Hospital, thereby potentially reducing the scope of the project.

24. The SWSAHS incorporates all NSW State public health services in the local government areas of Bankstown, Fairfield, Liverpool, Campbelltown,

Camden, Wollondilly and Wingecarribee. This covers a population of close to 700 000 people.

25. The SWSAHS is managed through six sectors, each of which includes a public hospital providing acute services, together with public community health services in the relevant local government area(s). One of these sectors is the Liverpool Health Service, which incorporates the Liverpool Hospital and public community health services for residents of the City of Liverpool. The Liverpool Health Service has a recurrent budget of approximately $100m.

26. The Liverpool Hospital is located about six kilometres from the entrance to the Holsworthy Barracks off Heathcote Road. This is approximately 10 minutes drive during peak traffic periods and significantly less at other times.

27. The Liverpool Hospital, was until 1989, a fairly typical district general hospital of approximately 400 beds. During that year, a formal agreement was signed between the Area Health Service and the University of New South Wales, establishing the Liverpool Hospital as a major teaching hospital of that University. Also in that year, the NSW Government committed capital funding of approximately $200m to redevelop Liverpool Hospital as the tertiary referral centre for Southwestern Sydney.

28. This redevelopment program will be completed during 1996. Commissioning of the final major building, bringing bed numbers at the hospital to approximately 700, will occur during late 1996 or early 1997. The redevelopment will consequently be completed before the proposed new facilities for 1 Field Hospital at Holsworthy.

29. Following the current redevelopment, the Liverpool Health Service believes that the Liverpool Hospital will have some spare capacity and is interested in exploring with Defence opportunities for Defence to make use of this spare capacity. The Liverpool Health Service believes this would improve the efficiency of the Liverpool Hospital and also reduces the cost and scope of 1 Field Hospital.

30. The range of services that could be offered to Defence include:

- advice on briefing and design, taking into account the major involvement of the Health Service in this activity over the past five years or so
- training for Army medical, nursing and paramedical staff. Liverpool Hospital believes it can provide a range of training that would not be possible in 1 Field Hospital. Its major trauma, emergency and

intensive care services provide excellent environments for training staff in aspects of care that could be required in the operational environment

- care of acutely ill Army personnel on referral from 1 Field Hospital. This could remove the need for high dependency care and isolation facilities within 1 Field Hospital. Excellent helicopter access would be available for transfer of casualties, if required
- efficient management of day-only and longer stay surgery on Army personnel, on referral from 1 Field Hospital, which could obviate the need for provision of fixed operating theatres at 1 Field Hospital
- a comprehensive pathology service to 1 Field Hospital, including training of designated staff, who would be able to provide pathology support to the mobile field hospital, as required during operational deployment
- the Liverpool Hospital has a contracted radiology service, which also serves Campbelltown and Camden Hospitals and which may also be able to provide radiology services to 1 Field Hospital at a lower cost than an independent radiology service.

31. Planning for 1 Field Hospital includes a hydrotherapy pool. SWSAHS advised the Committee that it does not currently have such a facility. However, it is interested in exploring the feasibility of access to the proposed pool for patients under the care of its hospitals - particularly Liverpool and Fairfield Hospitals. SWSAHS believes this could provide more efficient use of the pool and provide a more effective return on the investment in it by Defence.

Defence Response

32. Defence agreed that the relationship between the Liverpool Hospital and 1 Field Hospital over the years has been excellent. Defence regards it as a business relationship which accords with Defence operational and financial procedures. Defence provided the following comments on specific issues raised by the SWSAHS:

- in order to maintain military capabilities and provide appropriate services to its dependency, 1 Field Hospital needs to maintain theatres and practise associated medical, nursing and military skills
- Military training of medical and nursing personnel currently includes early management of severe trauma. Broader military training

includes deployment at short readiness and establishment and operation of a field hospital which provides health services to a military dependency. Every opportunity will be taken to gain work experience in the departments of Liverpool Hospital. However, such opportunities do not affect the design of 1 Field Hospital. The design serves the staff organisation, procedures and equipment of a field hospital. The fixed facility integrates with the field facility

- 1 Field Hospital manages and cares for its surgical and acutely ill patients to the limits of its capabilities. Those cases beyond its capabilities are referred out to private and government hospitals, including Liverpool Hospital

- 1 Field Hospital requires pathology and radiology services at 1 Field Hospital. The opportunity for work experience at Liverpool Hospital is welcomed

- the proposed spare capacity of the Liverpool Hospital needs to be quantified in terms of nature and duration. Any utilisation of spare capacity by Defence would need further consultation in light of NSW hospital waiting lists.

33. Defence stressed that the development of 1 Field Hospital at Holsworthy is an important element in the long-term arrangements for the health care of ADF personnel. Defence believes these arrangements should not be adversely affected by the shorter term needs of Liverpool Hospital or shorter term commercial opportunities.

34. However, Defence has agreed in principle (subject to negotiation) to the use of any spare capacity of the hydrotherapy pool by civilian health services.

35. Defence has also invited representatives of the Liverpool Hospital to participate extensively in agreed consultation arrangements during design development.

Committee's Conclusions

36. There is a need to provide new facilities for 1 Field Hospital to replace unsatisfactory and inefficient existing facilities at Ingleburn.

37. The Committee agrees that Holsworthy is the most appropriate location for the construction of new facilities for 1 Field Hospital.

38. The Committee agrees with the Department of Defence that operational requirements necessitate 1 Field Hospital possessing a wide range of medical capabilities including operating theatres, intensive care, pathology and radiology services. However, the Committee recognises the need for certain medical procedures to be performed at civilian hospitals.

THE PROPOSAL

Objectives

39. The objective of the proposal is to provide efficient, modern accommodation for 1 Field Hospital at Holsworthy to:

- provide the force-in-being with a deployable field hospital unit able to support a brigade sized formation of up to 5 000 personnel during operations
- allow better utilisation of Defence resources
- address the existing inadequate and operationally dysfunctional Army medical facilities at Ingleburn
- provide Defence personnel with medical treatment facilities comparable with those in the civilian community.

Location

40. Considering the hospital's space requirement and the suitability of the available areas, Defence identified 11 possible hospital sites within the Liverpool Military Area and in particular Holsworthy Barracks. Detailed location assessments were undertaken as part of the master planning exercise that was conducted in 1994 and recommended the site known as Old Holsworthy. See Appendix C.

41. The site places the facility in close proximity to a significant part of the hospitals dependency which is predominantly derived from the Liverpool Military Area with little impact on outlying units. Old Holsworthy has sufficient space for a new facility and the clear site avoids the disruption and costs of constructing new facilities on sites that are currently in use.

Site

42. The zone allocated for the hospital is the Old Holsworthy site in the south-east quadrant of Holsworthy base. This was the original location of

Holsworthy Barracks and dates back to a period before the First World War. The site is accessed by a road from Illawarra Road and has a number of access roads radiating from the main ring road at Holsworthy.

43. The site is relatively flat, undulating and well elevated. The land slopes to the north-east through to Williams Creek in the east and to another tributary of Williams Creek to the south. The zone is a natural bushland site with cleared areas between mature trees.

Committee's Conclusion

44. The site selected at Old Holsworthy for the development of new facilities for 1 Field Hospital is suitable.

Master Planning

45. The master plan for the Liverpool Military Area makes provision for a hospital facility in the Old Holsworthy area. The master plan will be updated in conjunction with this project to reflect the final hospital design. Possible future expansion of the hospital has been allowed for in the master plan. Construction of any future accommodation, however, is not programmed as part of this, or any other project. Master planning includes provision for the possible relocation of the School of Army Health from Portsea, Victoria on a site adjacent to 1 Field Hospital.

Environment

46. Construction will have minimal effect on site vegetation, with most existing trees remaining as a buffer surrounding the hospital. This project will not result in any known adverse environmental effects and no endangered flora or fauna occur on the site. Landscaping will receive detailed attention to enhance the hospital precinct. A detailed environmental study has been conducted and a certificate of environmental compliance has been issued by Defence under delegation from the Commonwealth Environment Protection Agency.

47. Defence advised the Sectional Committee at the public hearing that further consultation regarding environmental issues will take place with Commonwealth, State and local agencies during the detailed development of the proposal.

Heritage

48. Adjacent to the site there are three buildings of heritage significance as well as isolated footings and market garden sites that relate to the First World

War and Second World War internment camps. In a written submission the Australian Heritage Commission (AHC) sought an assurance that there would be no adverse impact during construction on the heritage significant buildings nor on any archaeological evidence of the internment camps. The Sectional Committee was advised by Defence that a detailed assessment of the site, with respect to heritage issues has been carried out as part of the environmental study. The assessment has been undertaken by a consultant and a draft report provided to Defence. The draft report has concluded that there is minimal likelihood of there being any surviving archaeological deposits. Defence will provide a copy of the final report to the AHC for comment prior to the commencement of construction.

Scope of Works

49. The scope of works for the proposed development encompasses the construction of new buildings to accommodate 1 Field Hospital and the associated civil engineering and services infrastructure including roads, hardstanding, landscaping, security fencing, drainage and power distribution. The elements involved include:

- **Hospital Building** - Including facilities for :
  - HQ Administration and Medical Company
  - Inpatient Accommodation (25 beds)
  - Self Care Accommodation (16 beds)
  - Day Surgery Unit
  - Outpatients and Casualty
  - Rehabilitation Physiotherapy
  - Operating Theatre Suite
  - Medical Imaging
  - Pathology
  - Pharmacy
  - Catering
  - Q-Stores and Plant

- 1st Parachute Surgical Team (1 PST)
- Military Training

- **Field Hospital Components**
  - Field Hardstand Area adjacent to Hospital
  - Field Component Stores
  - Field Transport Depot

- **Site Works**
  - Access roads
  - Car parking
  - Landscaping
  - Engineering Services
  - Minor works to accommodate the use of the existing 104th Signals Squadron Store and Transport compound

50. Construction details are at Appendix B.

Site Planning

51. The proposed design provides for a one storey building of modular design placed in an elevated position on the southern portion of the site, taking advantage of the fall in the land to minimise earthworks and provide an outlook to the north, west and east.

52. The main access to the building for patients, visitors, staff and emergency vehicles is via the existing access road, off the Holsworthy Ring Road - Illawarra Road - with a dedicated road to the hardstand and service areas to avoid any congestion in close proximity to the hospital entrance. This will ensure no conflict between ambulatory and heavy traffic in an emergency. An existing road to the south can be upgraded to provide a dedicated heavy vehicle and service road should the need arise in future development.

53. 1 Field Hospital field shelters are located beside the hospital and planning allows for the field component to be maintained in a state of readiness in close

proximity to the hospital so that ongoing training can be integrated with the day to day running of the hospital. This integration ensures the maintenance of a high standard of readiness. The design allows for the field component to be set up in an operational layout. This is not possible at the existing facility at Ingleburn.

Energy Conservation Measures

54. Minimisation of energy consumption will be achieved through optimised design of the building envelope and the engineering plant. It will also require the support of building users in proper energy management and housekeeping procedures. Measures taken to minimise energy consumption include:

- building orientation to minimise heat gain during summer months
- incorporation of external shading by provision of verandahs and other shading devices
- consideration of thermally efficient glazing and internal shading devices
- application of insulation and heat reflective surfaces
- consideration of solar radiation for water heating where cost effectiveness can be demonstrated
- the use of simple plant and short distribution networks as a consequence of the single storey configuration
- central plant selection to operate efficiently at low loads
- natural gas supplementary heating
- variable air volume systems to reduce fan power at part load
- building Management System (BMS) to optimise plant control
- zoning of air conditioning systems to permit unoccupied areas to be shut down
- all outside air economy cycles on air conditioning systems to permit non powered cooling when outdoor conditions permit
- recycled air and high efficiency filters for operating theatres to reduce outdoor air load

- maximum use of natural lighting together with selective switching to permit lighting to be switched off by occupants
- use of BMS controls to switch off lighting in unoccupied areas of the building after hours
- energy efficient artificial lighting including efficient fluorescent, compact fluorescent and discharge lamps with low loss control gear.

Provision for Disabled

55. The nature of the facility as a hospital particularly specialising in rehabilitation requires barrier free planning and all necessary provisions for the disabled.

Future Development

56. Hospital planning allows for future extensions to the east, west and south. The modular nature of the design facilitates future expansion and plans have been prepared with open-ended circulation systems to allow for future extensions should they be required. The hardstand areas and road systems have also been planned for future expansion.

Structure

57. In the development of the structural design, options will be examined in order to select the most cost-effective structural system. The principles on which these structural systems will be based are:

- confining the structural supports to a minimum to allow maximum flexibility in future alterations to internal spaces
- where possible adopting a rationalised and repetitive structural system (suited to the modular design and likely to be most cost effective)
- adopting a structural system that provides for integration of services both in installation and maintenance.

58. The likely structural options will include slab on ground flooring system for durability, low maintenance and low noise function. The wall cladding system will be architecturally designed for aesthetic, acoustic and weatherproofing performance. This wall system will be supported by a structural framing system as part of the overall structural framing.

59. The roof structure will be light weight framing of steel rafters and purlins or truss and purlin systems depending on spans and frame spacings. In design, consideration will be given to any special purpose loadings such as special equipment areas, as well as incorporation of all loadings as required in AS1770.4, Parts 1 and 2 (Australian Loading Codes). The buildings are not designated as Post Disaster Function Buildings. However, the normal regional requirements for earthquake loading will be taken into account in the design of the structural system.

CONSULTATIONS

60. The following authorities/individuals have been consulted during the master planning stage:

- Hon R Tickner MP
- Mr P Lynch MP
- Liverpool City Council
- Local Residents Association
- Australian Heritage Commission
- Australian Surveying and Land Information Group
- Australian Property Group
- NSW Department of Health
- NSW Department of Housing, Local Government & Planning
- Prospect Electricity
- Gas Corporation of NSW
- Department of Development & Planning
- Department of Public Works
- Sydney Water Board
- Austel
- Telecom
- Liverpool Hospital

- ACROD - Access and Mobility Committee
- Emergency Services
- NSW Ambulance Service
- NSW Police Service
- NSW Fire Brigades

SPORTING INJURIES

61. During its inquiry into a replacement medical centre at RAAF Richmond (twelfth report of 1995 refers) the Committee expressed concern at the high incidence of sporting injuries requiring treatment. While the Committee recognised the need for Service personnel to become and remain physically fit, it questioned whether this fitness was being achieved in the most efficient manner. At the Holsworthy hearing the Sectional Committee was informed by Defence that injuries resulting from either training or sporting activities were of concern to Defence and were currently being investigated.

Committee's Recommendation

62. The Committee recommends that the Department of Defence advise it of the results of the study being undertaken of training and sporting injuries in the Australian Defence Force which require medical treatment.

CONSTRUCTION PROGRAM

63. The low-rise modular construction proposed for the hospital is suited to a rapid construction program. The following time scale is proposed with the hospital being operational by mid-1997:

- construction 18 months
- commissioning 3 months

64. Defence proposes that the project be delivered using the managing contractor form of contract with a considerable number of trade packages being anticipated. Quality assurance requirements will be incorporated into all of the documentation. The architectural work done to date has been the subject of a quality assurance program and the contractor and subcontractors will be required to submit their quality proposals for review. In relation to the protection of subcontractors, Defence believes that the managing contractor form of delivery

for this project will provide adequate protection. While the managing contractor engages the subcontractors, payments to subcontractors are made out of a trust account which is controlled by Defence.

65. The Sectional Committee sought advice from Defence regarding the possible impact of construction activities for the 2000 Olympics on the 1 Field Hospital project. Defence advised that provided the project is completed by the second quarter of 1997, it is not anticipated there would be any impact from Sydney 2000. However, Sydney 2000 is expected to affect building prices from 1998-99. Any delays in the project beyond 1997 could result in price escalation outside the scope of the project budget which would then require re-evaluation.

COST ESTIMATE

66. The estimated cost of the project when referred to the Committee was $19.7m at December 1994 prices. The estimate includes construction costs, professional fees and charges, furniture, equipment and fittings and contingencies. The estimate does not include specialist medical equipment which is already on issue to the hospital and which will be relocated to the new facility. The outturn cost of $21.754m reflects the impact of expected increases in the non-residential building index during the construction period.

Committee's Recommendation

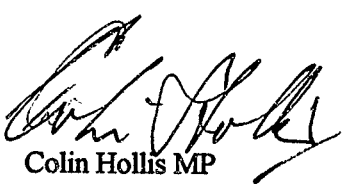
67. The Committee recommends the development of 1 Field Hospital at Holsworthy, NSW at an estimated cost of $19.7 million at December 1994 prices.

CONCLUSIONS AND RECOMMENDATIONS

68. The conclusions and recommendations of the Committee and the paragraph in the report to which each refers are set out below:

		Paragraph
1.	**There is a need to provide new facilities for 1 Field Hospital to replace unsatisfactory and inefficient existing facilities at Ingleburn.**	**36**
2.	**The Committee agrees that Holsworthy is the most appropriate location for the construction of new facilities for 1 Field Hospital.**	**37**

3.	**The Committee agrees with the Department of Defence that operational requirements necessitate 1 Field Hospital possessing a wide range of medical capabilities including operating theatres, intensive care, pathology and radiology services. However, the Committee recognises the need for certain medical procedures to be performed at civilian hospitals.**	38
4.	**The site selected at Old Holsworthy for the development of new facilities for 1 Field Hospital is suitable.**	44
5.	**The Committee recommends that the Department of Defence advise it of the results of the study being undertaken of training and sporting injuries in the Australian Defence Force which require medical treatment.**	62
6.	**The Committee recommends the development of 1 Field Hospital at Holsworthy, NSW at an estimated cost of $19.7 million at December 1994 prices.**	67



Colin Hollis MP
Chair

19 October 1995

APPENDIX A

LIST OF WITNESSES

BILMON, Mr John Anthony
Director, Peddle Thorp & Walker Pty Ltd, Architects, Level 12, AMP Centre, 50 Bridge Street, Sydney, New South Wales 2000

HUTTON, Lieutenant Colonel David Charles
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APPENDIX B

CONSTRUCTIONS DETAILS

Materials and Finishes

1. As the design is developed, alternative options in the selection of materials and finishes will be considered with functional and environmental performance balanced against cost effectiveness. Design details and required construction techniques will be kept simple, straightforward and readily buildable. At this stage the following materials and finishes are being considered:

- **External Walls**: Brick veneer
- **Roof**: Metal deck system with appropriate thermal insulation
- **Floors**: Concrete slab generally with vinyl sheet or carpet finish as appropriate
- **Windows**: Colour anodised aluminium frames generally single glazed but double glazed where appropriate cost benefits are obtained
- **Internal Walls**: Plasterboard on steel stud with appropriate acoustic performance and impact protection
- **Doors**: Steel frames with solid core doors protected where appropriate to protect against trolley damage
- **Ceilings**: Generally acoustic or plaster tiles set into an exposed ceiling grid - sheet plasterboard to be used in areas requiring especially smooth finishes
- **Joinery**: Good quality joinery and hardware to withstand heavy use - joinery units to be modular with good quality laminate finishes
- **Sanitary Fittings**: Selected to ensure value for money in terms of function, cleanliness, maintenance and cost.

Fire Protection

2. Automatic Fire Alarm Detection Systems to AS1670 and Emergency Warning and Intercommunication Systems to AS2201.1 will be provided throughout the facility in accordance with the requirements of the Building Code of Australia (BCA) AS 1670 and Facilities Manual 2 (FACMAN 2).

3. The field hospital will be provided with an Automatic Fire Alarm Detection System and Emergency Warning and Intercommunication System (EWIS), with fire alarm detection only in the Field Store and Transport facilities. The fire detection system will consist of a main fire indicator panel, sub-indicator panels as appropriate, thermal and smoke detectors, manual call points, alarm bells and smoke detectors associated with the air handling plant. The EWIS main panel will be located directly adjacent the Fire Indicator Panel (FIP), and will be linked to provide automatic initiation of alert and evacuation tones in the event of a fire alarm.

Electrical Services

General

4. Electrical services proposals incorporate the recommendations of the NSW Department of Health TS-11 Engineering Services Guidelines 1994.

Power Supply

5. The existing overhead reticulation and substation on the hospital site will be replaced with an upgraded overhead (approximately 600m long) 11 kV reticulation, with a new transformer substation at the hospital.

6. The main switch board will be fitted with a bus tie linking the two transformers, to enable the whole of the load to be fed from one transformer should a failure occur or to allow for maintenance. An automatic transfer switch will provide switching to a diesel alternator emergency supply, as a second means of backup. The plant will be located in an acoustically treated plant room with fuel storage tanks.

7. Sub-mains will run on cable trays in accessible ceiling spaces and in conduit underground to distribution switchboards located in each section of the building, as well as to each plant area.

Patient Treatment Areas Medical Panels

8. Power outlets to non patient treatment areas will be protected by circuit breakers controlling sub-circuits on the local distribution board. Depending on the specific requirements in each room, protected outlets will be provided in accordance with AS 3003.

Lighting

9. Lighting will be installed to provide illumination in accordance with the recommendations of AS1680.1 and 2 and to meet the needs of the various functional areas. Maintenance factors will be based on annual cleaning and bulk re-lamping every 24 months, if cost effective.

10. To reduce energy consumption, lighting will be controlled on a departmental basis by time schedules controlled by the BMS with local timed manual override for after hours use. Lamps will be high efficiency fluorescent, compact fluorescent or discharge type. Control gear will be low-loss high-power-factor type with electronic starters to enhance lamp life.

11. Specialist medical areas, including operating theatres, will require shadowless examination and/or surgical lighting. These will be ceiling mounted on articulated arms in accordance with AS 2501 Surgical Luminaries, appropriate to the use of the space.

12. The hospital will be served by a central DC battery system, incorporating the two hour supply to the surgical luminaries. Field and transport area buildings will be fitted with a system of single point battery backed emergency and exit luminaries.

Lightning Protection

13. A system for lightning protection, in accordance with AS 1768 will be provided to each structure, utilising the framed steel and reinforcing steel in the concrete structure as down conductors and the steel in the footings and piers as earthing points. Surge protection will be provided to protect sensitive electronic equipment.

Mechanical Services

General

14. As with electrical services, mechanical services proposals will incorporate the recommendations of the NSW Department of Health TS-11 Engineering Services Guidelines 1994.

Airconditioning

15. The hospital will be air conditioned throughout all normal occupied areas. The kitchen (because of its high internal heat load) and areas which are

intermittently occupied or frequently have doors open will be provided with mechanical ventilation. Airconditioning will be by central chilled water plant using two reciprocating chillers. Refrigerant will be non CFC type.

16. Air handling plant will generally be of the variable volume type with constant volume for the operating theatres. Separate air handling plant will be provided for the operating rooms and for departments selected on the basis of type of use and hours of occupancy. Air will be returned to corridors, with transfer ducts and door grilles utilised where noise criteria make it appropriate.

17. Heating will be by hot water heating coils located in the ductwork. Exhaust ventilation will be provided to all toilets and staff change rooms, dirty linen, waste and bin rooms, plant and service areas. The kitchen cooking areas will be fitted with stainless steel exhaust canopies.

Building Management and Control System (BMS)

18. A BMS will be installed to control and monitor air handling and other plant. It will be fully distributed with stand alone Distributed Processing Units located at strategic locations throughout the buildings linked on a high speed Local Area Network with user interface. The system will time schedule plant, optimise chiller selection, operate economy cycle and, where applicable, control energy consumption as well as monitoring alarms and faults including alarms from blood refrigerators. The BMS will also provide timer control of lighting and plant operation.

Medical Gases

19. Medical gases will include reticulated medical compressed air for both medical air supply and venturi suction together with reticulated, oxygen, surgical tool gas and nitrous oxide from bottled storage. Existing medical air plant will be relocated from Ingleburn, refurbished and supplemented to suit the new demand. Alarm system will be monitored by the BMS. Bulk oxygen supply tank and a medical gas bottle store will be incorporated in a protected external compound, to enable tanker and gas bottle deliveries.

Hydraulic Services

20. Hydraulic services provided to the field hospital will include:

- water supply
- fire services

- sewer drainage
- natural gas.

21. Each of the above services is dealt with below under separate headings.

Water Supply

22. The water supply to the field hospital will be reticulated to the development from the existing mains network supplying the area. It is not anticipated that any mains upgrading will be required. Local discrete storage will be provided within the hospital development for any items of equipment requiring uninterrupted supply.

23. Hot water will be provided by local mains pressure quick recovery storage units of either gas or electric type. The investigation of solar water boosting by methods including closed loop collectors or refrigerant test pumps will be carried out in the design development phase of the project.

Fire Services

24. Wet fire service, hydrants and hose reels will be provided to the building in accordance with the requirements of the BCA. These services will be fed direct off existing infrastructure and fitted with local boosting if required.

Sewer Drainage

25. The existing sewer network and treatment plant is presently undergoing an upgrade. All internal sewer and sanitary plumbing systems will be carried out in accordance with AS3500. All trade waste systems and treatments will be in accordance with Sydney Water wastewater source control guidelines. All sewerage systems will be gravitational.

26. The possible reuse of grey water in the development will be reviewed in the design development phase of the project taking into account, cost effectiveness and health issues relevant to the facility.

Natural Gas

27. The site is served with natural gas and all pipework and fittings installed within the complex will comply with AG601, the national gas code.

Medical Gases

28. Medical gases will be reticulated to points nominated on room data sheets. General features of the medical gas system include:

- **Oxygen:** to be reticulated from leased bulk facility.
- **Nitrous Oxide and tool gas:** to be reticulated from manifolded bottles.
- **Medical Air:** to be provided from central compressor/purification plant.
- **Suction:** to be provided from a central vacuum system.
- **Operating Theatre Pendants:** each theatre would be provided with one service pendant.

Vertical Transportation

29. As this is a single storey building, no lifts or escalators are necessary.

Communications

Telephone Services

30. The voice services will be connected through multipair copper cabling to the Holsworthy PABX adjacent to the Malaya Lines. Telecommunication cupboards will be located throughout the hospital complex and in each of the buildings. Telephone handsets will be provided.

Data

31. It is proposed that external data communications will be provided over a fibre optic cable, to the communications room of the hospital. Communication closets in each of the buildings will be connected via a fibre optic network. The horizontal sub-systems will be integrated with all communications utilising 4-pair category 5 cabling and will be designed to meet the requirements of the Army Facilities cabling manual. Army will provide active equipment such as LAN repeaters, hubs, bridges and active switches.

Nurse Call

32. A nurse call system will be provided throughout patient areas of the hospital. Services provided will include nurse presence, nurse call, nurse assist, toilet and bathroom alarms with monitoring by VDUs, LED enunciator panels, over-door lamps and audible buzzers. Call points will be simple wall mounted call buttons with call indication lamp, reassurance light and cancel.

Public Address (PA)

33. Provision for a PA system is included as part of the EWIS. This can be adapted to provide for general purpose public address and the muster siren.

TV and Radio

34. TV and AM/FM radio reticulation is proposed for the hospital. This will include in-house educational, training and public broadcast channels and will be in keeping with current practice in civilian hospitals.

Security

35. Electronic Intruder Detection Security (EIDS) will be provided to parts of the facility not in 24 hour use. The system will include door alarm reed switches and detectors together with controlled entry and egress points. The system will be monitored at a central control desk within the hospital and remotely annunciated to the EIDS master alarm. Where required by specific room requirements, additional staff duress security buttons and drug cupboard alarms will be installed with 24 hour activation of the alarms.

Civil Engineering

General

36. The civil engineering aspects of the proposed facility will comprise:

- bulk and detail earthworks for buildings, roads and detention basin(s)
- trenching for all utilities and services
- pavement and hardstand construction for roads, carparks, truck parking and container storage
- grassed open earth drains for stormwater runoff.

37. Options for these systems will be evaluated during design, however the general approach to each area is summarised in the following paragraphs. A strategy for environmental protection during construction will be incorporated into tender documentation. Such systems will include truck wash bays, retention pits, oil/water separators and the use of temporary hay barriers.

Earthworks

38. Earthworks in balanced cut to fill are required to establish the main building platform as well as providing gentle slopes away from the buildings to prevent localised flooding or ponding of surface runoff.

39. The established area for field training will be slightly crowned in the centre with gentle slopes away in all directions to prevent stormwater ingress.

Roads

40. All roads will be designed to accommodate large military vehicles for emergency or other purposes, however the heavier vehicles used for transport support of the hospital will generally be kept separated from lighter vehicles and road pavements will be designed accordingly.

Stormwater drainage

41. Formal piped drainage systems will be minimised and will generally be used only in the immediate environs of the main buildings. Elsewhere extensive use of open grassed swales will be made to assist in silt and erosion control and to reduce costs. Surface flow velocities and erosion will be minimised by fanning of swale outlets before entry to natural streams. This is the most environmentally sensitive approach and is the most appropriate system for the semi-rural nature of the site.

Pavements

42. Road pavements generally will be flexible except for areas where there will be a high degree of manoeuvring from large vehicles. These latter areas will include ambulance bays and field hospital set-up areas. For these areas segmental or rigid pavement will be considered.

Landscaping

43. Landscaping is recognised as an important element in the design. The low rise building allows good physical and visual access to outside spaces by patients

and staff. Courtyards and the areas surrounding the buildings will be landscaped and planted with appropriate native species. The buffer areas of trees and natural undergrowth will be retained and strengthened by additional planting.

Landscape Setting

44. The site is an undulating natural bushland area with cleared areas associated with the Old Camp between mature trees. Some of these emergent trees are cultural plantings of introduced species such as *Pinus, Platanus, Melia* and possibly date back to the areas use between the First and Second World Wars.

Landscape/Building Interface

45. An important element in the design of the 1 Field Hospital will be its integration with the existing landscape together with the planting treatment of internalised spaces. A buffer area of trees, shrubs and grasses of predominantly local native species will be planted to visually integrate the hospital complex with the existing landscape setting of open Eucalypt woodland. Courtyards and the areas immediately surrounding the main building complex will be planted with more ornamental species suited to the different micro-climatic conditions.

Bushfire Management

46. Fire management objectives will be considered in the landscape design of the 1 Field Hospital noting that the site is surrounded by bushland.

47. It is proposed that a buffer of mown grass be maintained around the building complex to minimise this potential hazard. This would be regarded as a Fuel Free Zone. Selective removal of dead or dying trees and some shrubs on the edge of bushland areas will also be undertaken in the landscape maintenance program to reduce the fuel load in this zone. This would be managed as a Fuel Reduced Zone.

Engineering Investigations

Geotechnical Investigation

48. A geotechnical investigation has been commissioned and will be conducted when access for field work can be made available. The study will evaluate the following items:

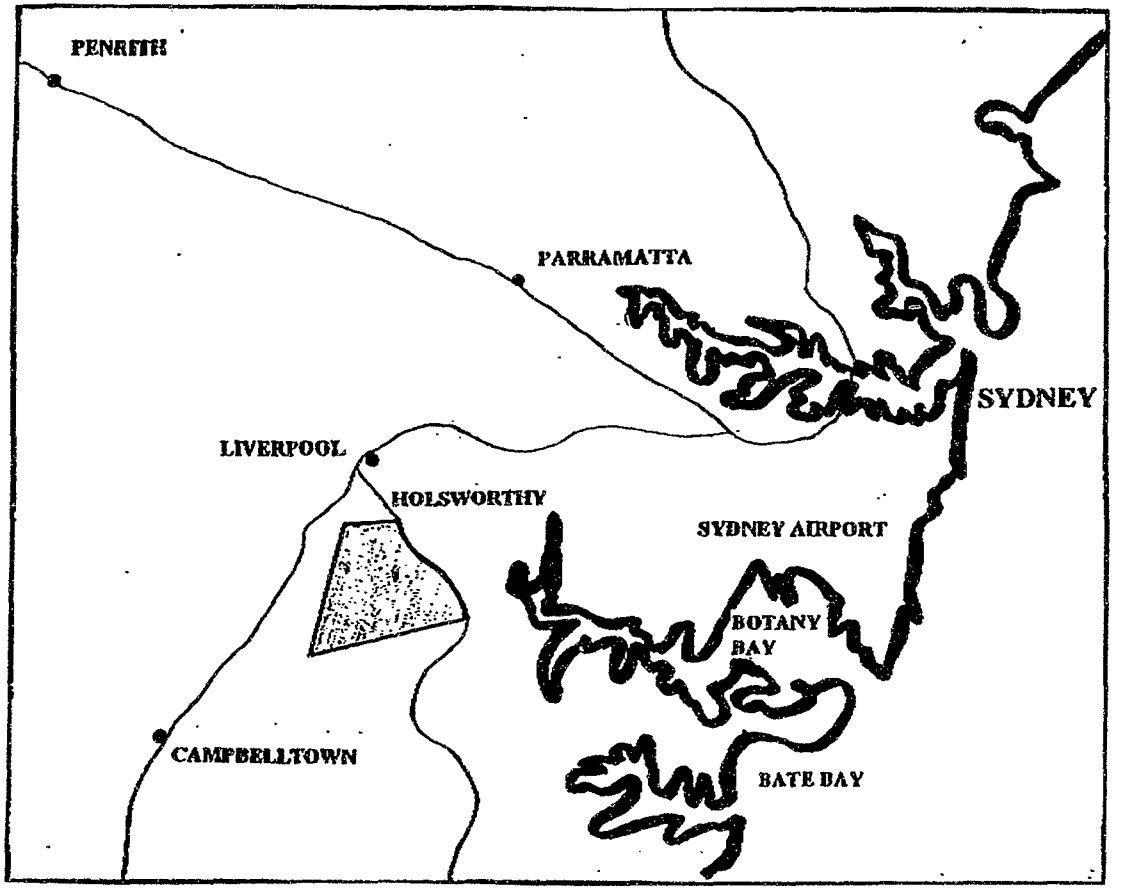
- earthworks

- foundations
- construction recommendations
- pavement recommendation
- site management recommendations.

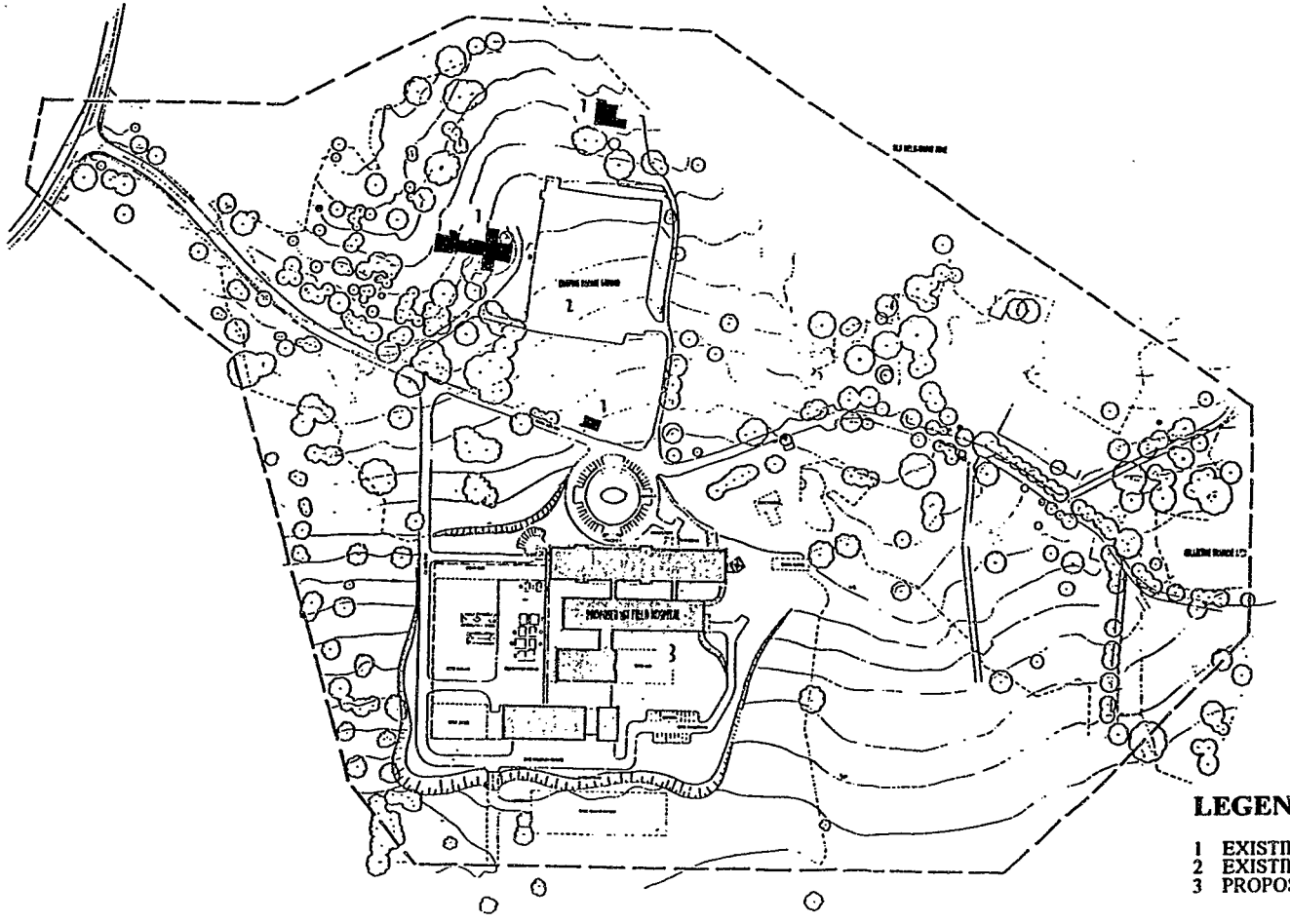
49. A contamination survey has been undertaken as part of this study. The study did not identify any site contamination issues which impact on the proposal.

APPENDIX C

PLANS AND ILLUSTRATIONS



LOCATION PLAN



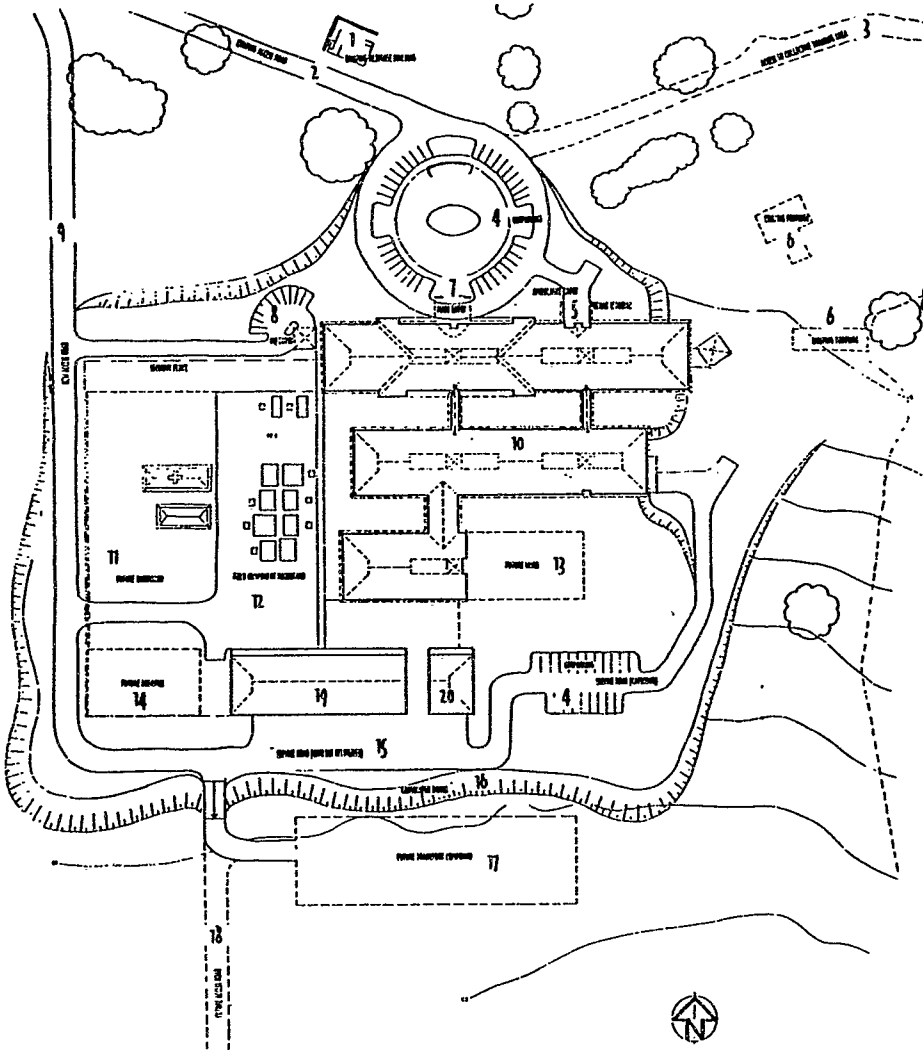
LEGEND

1 EXISTING HERITAGE BUILDING
2 EXISTING PARADE GROUND
3 PROPOSED NEW FIELD HOSPITAL

N

ZONE MASTER PLAN

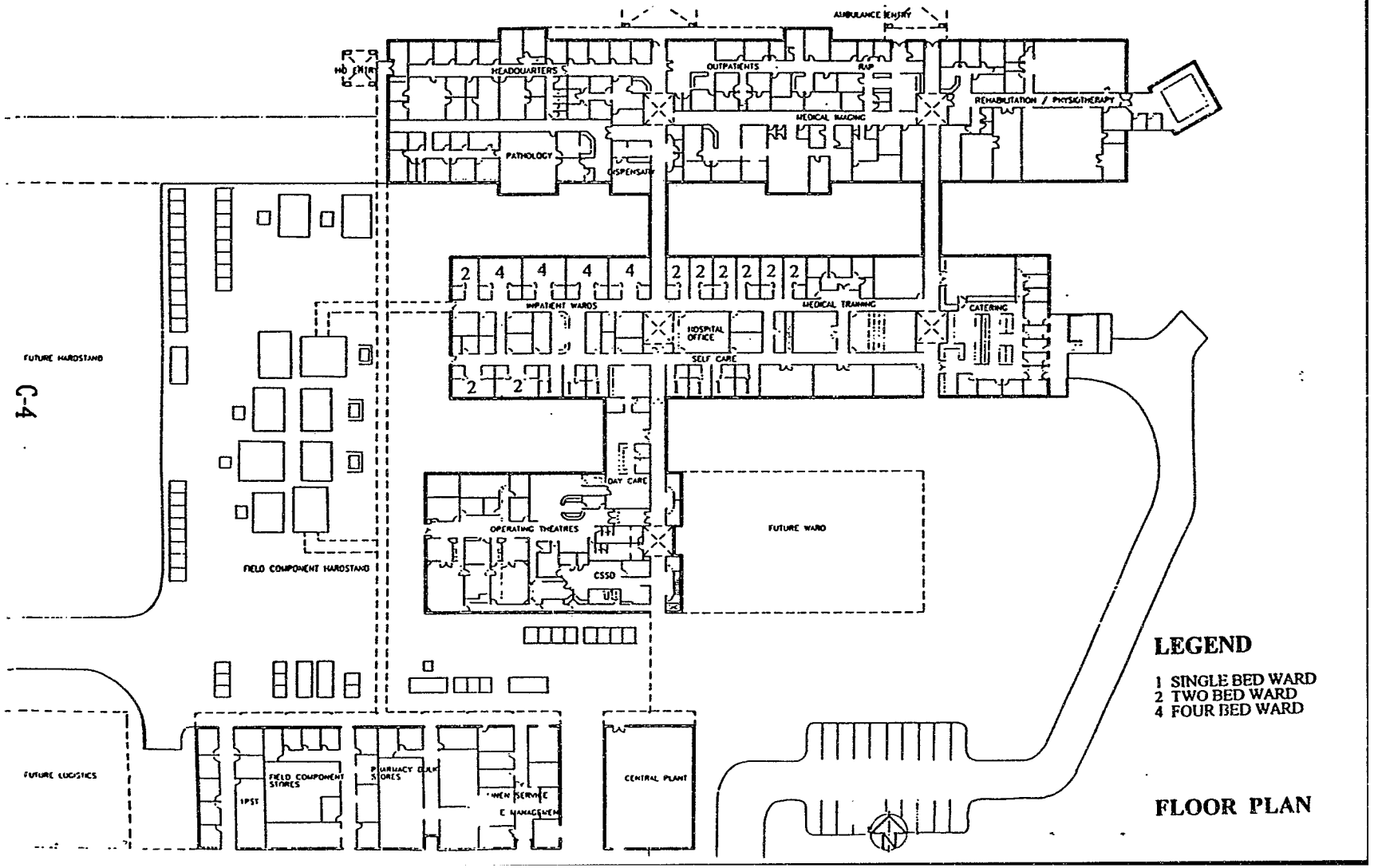
C-2

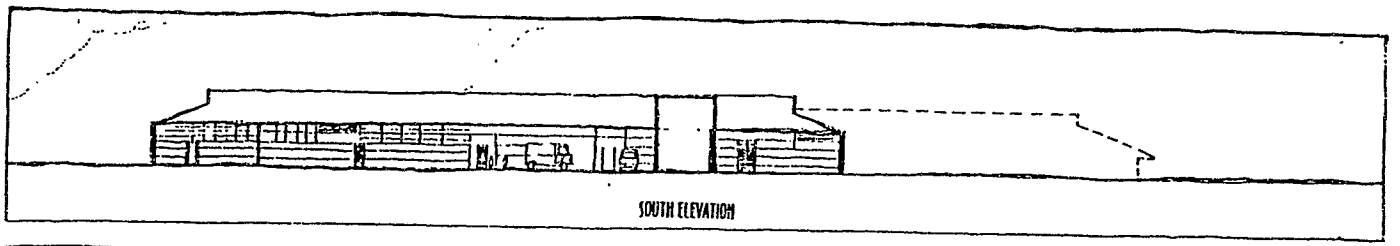


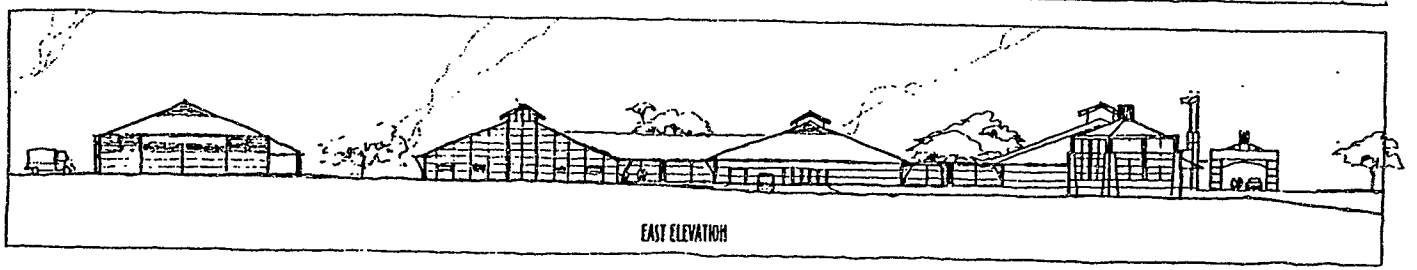
LEGEND

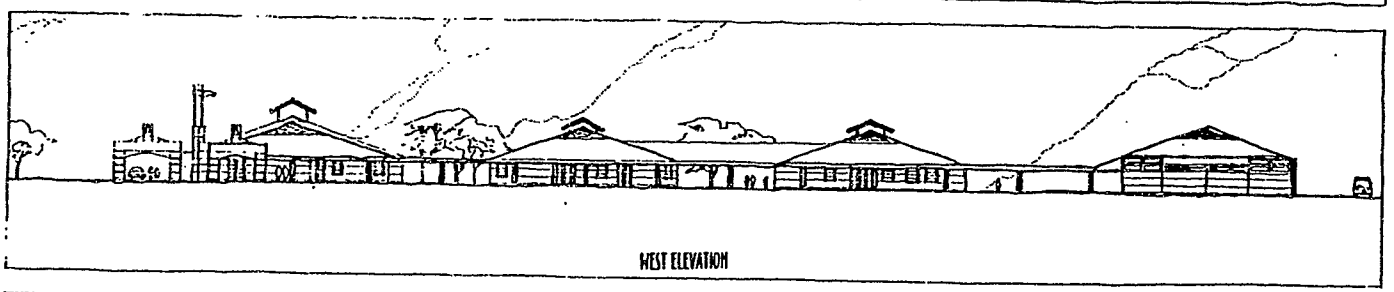
1 EXISTING HERITAGE BUILDING
2 EXISTING ACCESS ROAD
3 ACCESS TO COLLECTIVE TRAINING
4 PARKING
5 AMBULANCE ENTRY
6 EXISTING FOOTINGS
7 MAIN ENTRY
8 HQ ENTRY
9 NEW ACCESS ROAD
10 1ST FIELD HOSPITAL
11 FUTURE HARDSTAND
12 FIELD COMPONENT HARDSTAND
13 FUTURE WARD
14 FUTURE LOGISTICS
15 SERVICE ROAD (CIVILIAN DELIVERIES)
16 LANDSCAPED BANKS
17 FUTURE TRANSPORT COMPOUND
18 FUTURE ACCESS ROAD
19 LOGISTICS
20 CENTRAL PLANT

SITE PLAN


AMBULANCE ENTRY
HQ ENTR
HEADQUARTERS
OUTPATIENTS
RAP
REHABILITATION / PHYSIOTHERAPY
MEDICAL IMAGING
PATHOLOGY
DISPENSARY
2 4 4 4 4
2 2 2 2 2 2
INPATIENT WARDS
MEDICAL TRAINING
CATERING
HOSPITAL OFFICE
SELF CARE
2 2
DAY CARE
OPERATING THEATRES
CSSD
FUTURE WARD
FUTURE HARDSTAND
FIELD COMPONENT HARDSTAND
FUTURE LOGISTICS
FIELD COMPONENT STORES
IPST
PHARMACY CSAH STORES
CENTRAL PLANT
C-4
LEGEND
1 SINGLE BED WARD
2 TWO BED WARD
4 FOUR BED WARD
FLOOR PLAN


SOUTH ELEVATION


EAST ELEVATION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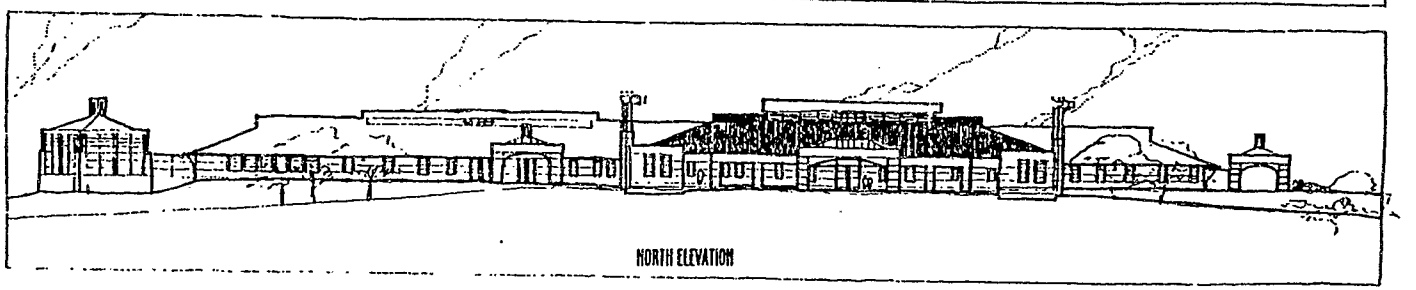
NORTH ELEVATION

ELEVATIONS