

Parliamentary Standing Committee on Public Works

REPORT

relating to the

CSIRO REDEVELOPMENT, PARKVILLE, VIC.

(Tenth Report of 1991)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1991

The Parliament of the Commonwealth of Australia
Parliamentary Standing Committee on Public Works



Report Relating

to the

CSIRO Redevelopment Parkville, Vic.

(Tenth Report of 1991)

TABLE OF CONTENTS

	Page
Members of the 30th Parliamentary Standing Committee on Public Works	v
Extract from the Votes and Proceedings of the House of Representatives on 21 December 1990	vi
	Paragraph
THE REFERENCE	1
THE COMMITTEE'S INVESTIGATION	4
BACKGROUND	9
. A Brief Overview of CSIRO	9
. Institute of Industrial Technologies	19
. Division of Biomolecular Engineering	22
. National Importance of the Division's Research	27
. Relationship with Industry	32
. History of the Site	36
THE NEED	40
. Existing Facilities	40
. Accommodation Requirements	41
. Committee's Conclusion	46
THE PROPOSAL	47
. Options Considered	47
. New Works	48
. Upgrading Works	53
. Staging	54

ENVIRONMENTAL ISSUES	60
· The Site	60
· Notice of Intent	63
· Parkville Association	66
· Melbourne City Council	71
· Strategic Importance of Site	75
· Committee's View	79
· Committee's Conclusion	80
CONSULTATIONS	81
ENERGY MANAGEMENT	85
· Committee's Recommendation	91
CHILD CARE	92
· Committee's Recommendation	98
BUILDING REGULATIONS	99
FIRE PROTECTION	106
· Committee's Recommendation	112
CONSTRUCTION TIMETABLE	113
COST	114
· Committee's Recommendation	115
CONCLUSIONS & RECOMMENDATIONS	116
APPENDIXES	
· Appendix A - List of Witnesses	A1 - A2
· Appendix B - Construction Details	B1 - B8
· Appendix C - Project Drawings	C1 - C14

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE
ON PUBLIC WORKS

(Thirtieth Committee)

Mr Colin Hollis MP (Chairman)
Mr William Leonard Taylor MP (Vice-Chairman)

Senate

Senator Bryant Robert Burns
Senator Paul Henry Calvert*
Senator John Robert Devereux

House of Representatives

Mr Ewen Colin Cameron MP
Mr Lloyd Reginald O'Neil MP
Mr Russell Neville Gorman MP
Mr Bruce Craig Scott MP

* Appointed on 24.8.90 following the retirement of
Senator Dr Glenister Sheil

Committee Secretary: Peter Roberts

Inquiry Secretary: Ambika Prasad

Secretarial Support: Jackie McConnell

**EXTRACT FROM THE VOTES AND PROCEEDINGS OF
THE HOUSE OF REPRESENTATIVES**

No. 86 dated Wednesday, 11 September 1991

13 PUBLIC WORKS - PARLIAMENTARY STANDING

**COMMITTEE - REFERENCE OF WORK - CSIRO
REDEVELOPMENT, PARKVILLE, VIC.**: Mr Baldwin
(Minister for Higher Education and Employment Services), for
Mr Beddall (Minister representing the 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: CSIRO redevelopment, Parkville, Vic.
Mr Baldwin presented plans in connection with the proposed work.
Question - put and passed.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

PARKVILLE, VICTORIA - CSIRO REDEVELOPMENT

By resolution on 11 September 1991, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposal for the redevelopment of CSIRO facilities at Parkville, Victoria.

THE REFERENCE

1. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is proposing to redevelop its Parkville site as a major research complex and to provide the headquarters for the Division of Biomolecular Engineering. The redevelopment will provide facilities for 140 staff and work will be undertaken in three stages so that the site remains operational at all times.
2. The work will include:
 - demolition of an old two-storey wing along the western boundary
 - construction of a new four-storey wing linked to the existing main laboratory
 - upgrading and refurbishing the existing main laboratory in the administration building to house administration amenities, research services and support units, including stores and workshops
 - demolition of a portion of 'Mayfair', an old Victorian residence, and redevelopment of this area of the site as landscaped, open space for increased staff recreation.

3. The project is expected to take approximately four years to complete and the estimated cost of the project when referred to the Committee was \$12.25m at August 1991 prices.

THE COMMITTEE'S INVESTIGATION

4. The Committee received a written submission from CSIRO and evidence was taken from its representatives at a public hearing held at Parkville on 28 October 1991. These included representatives of Australian Construction Services (ACS), who are engaged as consultants by CSIRO for the purpose of the proposed redevelopment.

5. The Committee also received submissions and took evidence from:

- the Parkville Association
- the Ludwig Institute for Cancer Research
- the Commonwealth Fire Board
- the Metropolitan Fire Brigade, Melbourne
- Mr L Reddaway of Irwin Johnston and Partners Pty Ltd
- the Royal Australian Institute of Architects (Victorian Chapter).

6. A number of written submissions relating to the project were also received from other organisations and these are incorporated in the Minutes of Evidence.

7. Prior to the commencement of the public hearing the Committee inspected the proposed site and existing facilities, as well as the immediate neighbourhood of 343 Royal Parade, Parkville.

8. 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.

BACKGROUND

A Brief Overview of CSIRO

9. CSIRO is one of the largest and most diverse national research institutions in the world. It has a staff of 7 000 working in some 150 laboratories and field stations throughout Australia.

10. Since its inception in 1926, CSIRO has played a vital role in shaping Australia and generating the nation's wealth. The organisation and its scientists have established an international reputation for excellence and achievement in basic and applied research. Its work contributes to the ongoing prosperity of Australia's primary and secondary industries, and to the creation of new technology, products and techniques for the continuing development of our manufacturing and service-based industries.

11. About 2 500 scientists are employed by CSIRO. Collectively they provide expertise in almost every major scientific discipline so that CSIRO can draw on a large and diverse pool of individual skills to tackle successfully most scientific and technological challenges.

12. CSIRO's major objectives are to:

- carry out strategic research that can be applied by Australian industry or Government for community benefit
- collaborate with other institutions and industry to strengthen Australia's research effort and ensure its transfer and application
- lead and promote an expanded science and technology effort in Australia.

13. In achieving its objectives CSIRO collaborates with industry and maintains close and mutually profitable relationships with universities and other tertiary education bodies. Many joint research projects are undertaken.

14. In the 1990-91 financial year the Organisation's budget was \$558m. Of this amount \$414m was provided directly to CSIRO by the Parliament. Another \$115m came from industry and other sponsors or research. The remaining \$29m came from revenue earned by CSIRO and from the Department of Primary Industries and Energy for its half-share of the operation of the Australian Animal Health Laboratory at Geelong, Victoria.

15. CSIRO is structured to respond to Australia's needs and to ensure that its research effort is targeted to national priorities. Strong links with industry and the community mean a better understanding of future directions in Australian industry and improved community understanding of new technologies.

16. Research is carried out in six institutes, each relating to vertically integrated sections of industry. Institutes are headed by directors who develop broad plans, set priorities and regularly review research objectives and progress in consultation with division chiefs.

17. Within each institute there are divisions, each focusing on an area of science and technology. Each division is headed by a chief who plans, guides and evaluates the research effort.

18. The institute directors, with the chief executive and director of corporate services, form CSIRO's senior management team, which is responsible for implementing policies determined by CSIRO's board.

Institute of Industrial Technologies

19. The Division of Biomolecular Engineering is a component division of the Institute of Industrial Technologies. The Institute's role is to help increase the international competitiveness, efficiency and scope of Australia's manufacturing industries. It specialises in technologies which assist in the development of new products, value-added exports and better manufacturing processes.

20. The other divisions in the Institute are:

- the Division of Applied Physics
- the Division of Chemicals and Polymers

- the Division of Manufacturing Technology
- the Division of Materials Science and Technology.

21. Research areas within the Institute include:

- scientific, industrial and medical instrumentation
- biotechnology, waste management and recycling
- the design and production of specialty chemicals and of agricultural, veterinary and pharmaceutical products
- integrated manufacturing systems
- the production, fabrication and properties of materials (metals, ceramics, polymers and composites)
- surface modification including wear enhancement, decorative coatings and biocompatibility.

Division of Biomolecular Engineering

22. The Division was formed as the Division of Biotechnology in January 1988 by the amalgamation of the Division of Protein Chemistry, Parkville, the Division of Molecular Biology, North Ryde, New South Wales and the Industrial Biotechnology Program of the Division of Chemical and Wood Technology, Clayton, Victoria.

23. The restructuring brought to one Division expertise in protein structure and function, gene structure and regulation, cell biology and fermentation technology as well as a heterogeneous collection of projects ranging from agriculture through human health care and pharmaceutical development to industrial processing.

24. In December 1989 it was decided that the Division's role should change and become more unified around a central theme. In February 1990 the Division was renamed the Division of Biomolecular Engineering and its mission changed to concentrate on assisting the development of the Australian pharmaceutical and health care industries. The research of the Division now focuses on:

- producing new pharmaceuticals based on an understanding of the structure of proteins
- tailoring new therapeutic and diagnostic strategies based on the structural analysis and engineering of proteins and nucleic acids
- designing and developing valuable products and processes using naturally occurring proteolytic enzymes and/or engineered enzymes
- devising new genetic regulatory mechanisms for applications in human health care
- seeking an understanding of the molecular mechanisms vital to virus replication cycles in order to devise compounds and strategies to control viral diseases in humans.

25. The pharmaceutical industry is traditionally strongly research driven and has recognised that a key to the design of new pharmaceuticals is knowledge of the precise nature of the interactions between target macromolecules. Multinational corporations are focusing their research on fundamental issues in molecular and cellular biology, where the importance of biomolecular research in rational drug design is now established.

26. The Division's Parkville laboratory has been established as an Australian centre of expertise in 3-dimensional (3-D) structure analysis. In recognition of the importance of 3-D structure in pharmaceutical research, the Division and the Victorian Government's Strategic Research Foundation have established the Biomolecular Research Institute, which is collocated with the Division at Parkville. This alliance will enable the existing crystallographic expertise in CSIRO to be enhanced and augmented by the addition of state-of-the-art capabilities in nuclear magnetic resonance and associated technologies for imaging biological molecules. The joint venture is intended:

- to maintain the vitality and international competitiveness of Melbourne's universities and medical research institutes, through collaboration with the Biomolecular Research Institute

- to provide training opportunities for graduates and post-doctoral fellows
- to assist the establishment of a research-based pharmaceutical industry in Australia.

National Importance of the Division's Research

27. Over 100 pharmaceutical companies, including all the world's major drug companies, have operations in Australia. Their operations range from importing and marketing to major production and research and development (R&D). There are many joint ventures covering research, manufacturing, marketing and distribution.
28. Currently there is only a small number of companies producing a limited range of active ingredients locally. Companies are primarily engaged in the formulation and packaging of imported raw materials. The industry in Australia employs approximately 8 500 people.
29. More than 75% of the pharmaceuticals sold in Australia are formulated and packaged here, which adds an average 64% of added value to sales. At ex-manufacturer prices, total sales in Australia were \$1 693m in 1988, of which the total ethical pharmaceuticals (requiring a prescription) were \$1 100m. The sales volume for ethical drugs has been growing at about 13% per annum in real terms in recent years.
30. Since less than 15% of the pharmaceutical market employs locally manufactured active ingredients and exports are presently limited to some \$200m per annum, Australia's trade deficit in pharmaceuticals was \$462m in 1988-89 and rising. There is an urgent need to redress the balance of trade through R&D directed towards an improved manufacturing performance in Australia.
31. In December 1987 the Federal Government, conscious of the need to stimulate Australian domestic activity in pharmaceutical manufacturing, announced a new policy initiative, the 'Factor (f)' Program. Under this arrangement companies which meet certain defined criteria in three key areas of performance may be awarded the benefits of a higher price for their products under the Pharmaceutical Benefits Scheme. The key performance indicators are new investment in production facilities, and R&D within Australia and an improved export performance. Coupled with

other R&D tax incentives and Industry Research and Development Board activities, the Government aims to capture the benefit of Australia's expenditure on, and perceived strength in, medical-related research through import replacement and a stronger export outcome.

Relationship with Industry

32. Australian pharmaceutical industry expenditure on R&D totalled \$42m in 1987 of which \$32m was spent in Australia. This amounted to only 1.4% of sales (excluding clinical trials) compared with an international level of 10% of sales. The research funds were largely spent on R&D within companies (\$15m), R&D contracted overseas including to company headquarters (\$8m), clinical trials in Australia (\$12.5m) and R&D contracted to public research organisations in Australia (\$3m).

33. The Division has identified some 30 companies with whom it will seek interaction, with a principal target group of 15 to 20 companies. These companies have been chosen with a view to their level of R&D performed in Australia, export achievements to date, production facilities in Australia, interest in the Factor (f) Program and degree of Australian ownership.

34. As at November 1990, seven companies had entered into Factor (f) arrangements with the Pharmaceutical Benefit Pricing Authority. The anticipated increase in R&D over the five-year period to 1992-93 is \$96m which represents a major improvement on past performance and a window of opportunity for the Division.

35. The high regard in which the Division's research capability is held nationally can be gauged from the first round of Cooperative Research Centres (CRCs) announced by the Federal Government. The Division was party to two successful applications: the CRC for Cellular Growth Factors in Melbourne and the CRC for Eye Technology in Sydney. The CRCs are seen as an important link between manufacturing industry, government research laboratories and the academic community.

History of the Site

36. CSIRO has conducted scientific research at Parkville since 1952. As the Division of Protein Chemistry the principal investigations were concerned with the technology of wool and leather processing and with other proteins of agricultural importance. The former research involved the

application of organic, polymer and wet chemistry laboratory techniques to improving and enhancing wool textile and leather tanning processes.

37. Over time the nature of the research at Parkville has changed significantly, with an ever-increasing emphasis on investigations into the structure of biologically active molecules. The new emphasis has resulted in medical and pharmaceutical research replacing the earlier industrial chemical activities.

38. As a result of the shift in research direction, in 1988 CSIRO decided that:

- the Division of Protein Chemistry at Parkville would be dissolved
- the wool, protein and leather research activities of the former Division should be relocated to other, more compatible CSIRO research facilities at Geelong and Clayton respectively
- the residual biomolecular research conducted at Parkville should be strengthened through the transfer of related activities from CSIRO's campus at Clayton and by joining the Division of Molecular Biology at North Ryde to form a Division of Biomolecular Engineering
- the Biomolecular Research Institute, a collaborative research group jointly funded by CSIRO and the Victorian State Government, should be collocated with the newly created Division of Biomolecular Engineering.

39. As a result, activities at the Parkville site is moving away from industrial chemical research towards medical research with an emphasis on sophisticated, computer-based instrumentation and micro-analytical techniques.

THE NEED

Existing Facilities

40. The existing buildings on the site are:

- Buildings Nos 2 and 4 - these two-storey masonry structures totalling 1 234m² are connected. Erected in 1952 and 1956 respectively they contain laboratories and storage. (It is proposed to demolish these substandard structures in Stage 1 of the redevelopment.)
- Building No. 3 - this is a single-storey former Victorian period residence (Mayfair) of 822m², with two-storey masonry additions. It currently accommodates computing workshops and a library
- Building No. 5 - this six-storey reinforced concrete structure was erected in 1963 and extended in 1972. The floor area is 3 531m² and contains research laboratories, administration and amenities. (This building will be retained, upgraded and integrated with the new laboratory in Stage 2 of the redevelopment.)

Accommodation Requirements

41. The decision by CSIRO to redirect the activities of the Division of Biomolecular Engineering away from wool technology and agricultural protein research towards the pharmaceutical and health care industries will have a major impact on the nature of laboratory accommodation required in the future.

42. The scheduled transfer of wool research to Geelong later this year will eliminate the potential hazards associated with past organic and polymer chemistry research, and significantly reduce the need for high-grade fume cupboards. Likewise, the transfer of leather research to Clayton will eliminate problems associated with the treatment of waterborne trade waste and potentially noxious airborne discharges.

43. The newly created Division and associated Biomolecular Research Institute will move toward structural studies of biological molecules with emphasis on physical measurements and computer graphics. Other activities to be housed in the planned new laboratories will encompass facets of molecular and cellular biology, very much in keeping with other research institutions in the Parkville 'research precinct'.

44. The existing laboratories require urgent upgrade to provide appropriate accommodation for the new health care research emphasis of the Division with its concentration on sophisticated computer-based instrumentation and micro-analytical techniques.

45. The existing small animal colony of rabbits and mice will be relocated to the top floor of the present main laboratory building. All exhaust vents from this area will be considerably above the height of any opening in adjacent buildings. The use, care and maintenance of all animals will be in accordance with relevant regulations and agreements.

Committee's Conclusion

46. There is a need to upgrade and redevelop existing CSIRO facilities at 343 Royal Parade, Parkville to accommodate the new research priorities of the Division of Biomolecular Engineering.

THE PROPOSAL

Options Considered

47. CSIRO examined in detail the options of relocating the Division of Biomolecular Engineering elsewhere, in particular to the CSIRO campus at Clayton, or to a new site in the Parkville area. The options were not considered appropriate for the following reasons:

- the Division has no significant research links with any of the CSIRO divisions at Clayton, the latter having a chemical and industrial orientation

- the Division of Biomolecular Engineering has viable and cooperative research links with other institutions in the Parkville area, notably the Pharmacy College, University of Melbourne, CSIRO Division of Animal Health and the Walter and Eliza Hall Institute of Medical Research
- the Division is regarded as a major contributor to the 'knowledge precinct' centred on the University of Melbourne. The precinct is one of the five areas in the Melbourne metropolitan region identified by the Victorian State Ministry of Planning to be promoted as a focus for high technology industries and research
- no surplus or vacant land which would be of sufficient size or environmentally suitable for the erection of the new complex required for the Division's work has been identified within or near Parkville. In any event, the purchase of another site would be contrary to CSIRO's policy of reducing and consolidating its property holdings
- relocation away from the Parkville research precinct predicates a loss of key experienced research staff who would be unwilling to move elsewhere. Costly and time-consuming recruitment and training of replacement research staff would impact detrimentally on CSIRO research programs.

New Works

48. CSIRO requires the maximum amount of laboratory space, consistent with the relevant statutory planning controls and designed in accordance with the Building Code of Australia (BCA) and AS2982 - Laboratory Construction Code. It is proposed to construct a four-storey laboratory wing adjoining Building No. 5 close to the western boundary. Staff car parking will be provided along the western boundary. The building envelope will conform with the planning requirements of the Melbourne City Council in regard to building setbacks, height and site development.

49. The new laboratory will be sympathetic in design and treatment to Building No. 5 and will be physically linked to it with matching finished floor levels. Exposed external servicing and overshadowing of neighbouring buildings will be minimised, and operational noise and discharges to air from CSIRO activities will be controlled carefully.

50. The new laboratory will be of reinforced concrete framed construction, clad with off-form reinforced concrete panels and lightweight insulated walls. Sheet-vinyl flooring will be used, with ceramic tiles in wet areas. Ceilings will be suspended acoustic tiles or painted plasterboard. Fixed sun control devices will be provided externally on north and west facades. A prefinished metal insulated roof supported on steel trusses will be provided.

51. The new laboratory will contain adaptable open floor areas, with ancillary utility rooms and offices. An air-conditioning plant room will be located centrally on the western side to service laboratories at each end.

52. The Committee was advised that the design will provide flexibility to allow for possible future changes in functions and activities. The office space will have removable partitions and ceilings. There is also flexibility in the provision of reticulated services and air-conditioning whilst bench units will be relocatable.

Upgrading Works

53. Building No. 5 requires a major upgrade and refurbishment to incorporate the change in, and relocation of, functions including extension of the fifth floor plant room. Except for essential structural walls, most internal walls will be demolished and replaced by lightweight framed partitions to create administration, storage and staff amenity areas to modern office design standards.

Staging

54. CSIRO proposes to maintain operations as far as possible during the redevelopment. This operational requirement can only be met by a carefully planned staging of construction as follows:

- Stage 1. Provision of new site services. Demolition of the two-storey wing (Buildings Nos 2 and 4) along the western boundary and the construction of a new four-storey laboratory wing, with a direct and level link to Building No. 5 on each level.
- Stage 2. Upgrading and refurbishing the existing main laboratory and administration building (Building No. 5) to house administration, amenities, research services and support units including stores and workshops. Installation of additional transformer to meet increased power requirements on site.
- Stage 3. Demolition of portion of Mayfair and redevelopment of this area of the site as landscaped, open space for increased staff recreation.

55. CSIRO has undertaken a careful evaluation of the feasibility of the project particularly in terms of the impact on day-to-day science. This evaluation revealed a number of factors which will lessen the impact on science:

- staff numbers on the site will drop in the short term as a result of the relocation of the wool and leather activities
- the new laboratories when completed at the end of the first stage will be able to accommodate essentially all wet chemistry activities
- the retention of the Mayfair building will accommodate all computer graphics and computing facilities
- in the second stage while the Mayfair building is being renovated, it is anticipated that service functions such as the library may have to be relocated nearby. Canteen facilities will also be affected adversely during this period.

56. CSIRO believes that in the worst case there may be a 10% penalty in terms of effectiveness during the redevelopment period.

57. As a result of the redevelopment, laboratory space will increase from 3 900m² to 4 450m². CSIRO is confident that the amount of space to be provided will be adequate for the foreseeable future. CSIRO has also indicated that the buildings could be increased by approximately 10% within the current ordinances of the Melbourne City Council. However, any future expansion would be at the expense of open space on the site.

58. Thirty-five car parking spaces will be provided as a result of the redevelopment, an increase of 13 spaces.

59. Construction details are at Appendix B. A map of the location of the Parkville site and plans and drawings of the proposed redevelopment are provided in Appendix C.

ENVIRONMENTAL ISSUES

The Site

60. The site in Royal Parade extends through to Mile Lane and occupies an area of 4 857m². Royal Parade is one of Melbourne's most beautiful treelined avenues rivalling St Kilda Road to the south.

61. The Royal Parade frontage of the property is landscaped with a variety of introduced and native trees and shrubs which substantially screen the CSIRO development from the road. The rear of the site contains scattered native trees and gardens. Existing planting will generally be retained and extended across the site.

62. The immediately adjacent properties are two-storey flats with the 10-storey Australian Wool Corporation's headquarters to the north and 11-storey Salvation Army Training College to the south. Nearby are numerous other non-residential properties, including the Pharmacy College complex, the State Bank Computing Centre and the Australian Medical Association's headquarters.

Notice of Intent

63. CSIRO submitted a Notice of Intent for the proposed redevelopment in accordance with the *Environment Protection (Impact of Proposal) Act 1974* to the Department of Arts, Sport, the Environment, Tourism and Territories (DASETT) and its salient features are:

the CSIRO site is located within an Urban Conservation Area and zoned by the planning authority, the Melbourne City Council, as Special Residential 2. The zoning reflects the significance of Royal Parade in terms of urban design and landscape value

CSIRO's scientific research activities, which commenced at the site in 1952 and predate any town planning regulations, are classified as a 'permissive occupancy' under the prevailing ordinances

the proposed redevelopment complies with all relevant town planning requirements, and has been discussed with and endorsed by the planning authority

the proposed redevelopment and the future scientific research at the site will have a lesser environmental and social impact than past activities largely as a result of:

- the removal of outdated and unsuitable structures
- the provision of more open space
- a significant increase in on-site landscaping
- the provision of off-street car parking, including reserved parking for disabled staff and visitors
- a significant reduction in the use and hence storage of potentially noxious and toxic chemicals and the discharge of waste products through fume cupboards. This will result from the move away from large-scale industrial chemical activities to more benign, small-scale molecular biology processes.

64. On 29 July 1991 DASETT determined that neither a public environment report nor an environmental impact statement was required. However, in making this determination DASETT recommended that the following conditions be met by CSIRO:

- the environmental safeguards and standards outlined in the Notice of Intent should be implemented

- liaison with the Melbourne City Council and consultation with community interest groups and local residents should continue
- on completion of the project, and to assist DASETT in monitoring the outcome of projects considered under the Act, it should be notified of:
 - any feedback received from the community or specific interest groups regarding the project
 - actual effects of construction on the environment
 - any variations between predicted and actual impacts including those resulting from any changes to the proposal
 - CSIRO's success in implementing these recommendations with details of any problems or discrepancies.

65. While supporting the comments made by DASETT the Committee also believes that CSIRO should take all possible steps to minimise noise emissions from its facility.

Parkville Association

66. The Parkville Association is a community-based organisation formed in July 1967 and was established to:

- promote Parkville as a residential area
- prevent the intrusion of non-residential users into the area
- preserve the historical and architectural integrity of the area
- pay attention to the needs of elderly and other members of the community.

67. The Parkville Association objects to the CSIRO proposal on the following grounds:

- the development and redevelopment contravenes the original 1870 Crown Grant covering this portion of land

- there are inconsistencies in zoning and land usage
- such a facility is inappropriate in a residential area
- the redevelopment displays a lack of sensitivity to the historic and largely residential usage of the area.

68. Fundamentally the Association believes that the location of such a facility is inappropriate in North Parkville, an area which it regards as being predominantly a residential area with high environmental sensitivity.

69. The Association acknowledges the presence of CSIRO in Parkville since 1952. However, it does not believe that 343 Royal Parade, Parkville is an appropriate location for such an organisation. Further, the Association opposes any expansion of the buildings and redevelopment on the site.

70. In response to the views of the Parkville Association regarding the inappropriateness of its development in Parkville, CSIRO made the following points:

- in the current planning legislation the CSIRO occupancy is defined as a 'Research Centre', a use permitted at the discretion of the planning authority. As such, the use has the same status in the codes as the Pharmacy College, the residential colleges and the Salvation Army Training Centre - which are defined as 'Education Centres' - and the occupancies classified as 'Motels' and 'Offices'. It is these institutional and commercial occupancies which predominate in the precinct. They have all been developed with the consent of the planning authority and give the area its character in terms of built form, use and amenity.
- CSIRO believes that all relevant current planning codes and the zoning proposal in the 1985 Strategy Plan of the Melbourne City Council clearly identify and sanction mixed uses in the precinct. It points out the specific amendment to the Melbourne Metropolitan Planning Scheme, that defines the area as 'Multi Use (Royal Parade)'.

Melbourne City Council

71. The Committee is aware that on 24 June 1991 the Melbourne City Council resolved, *inter alia*, that DASETT be advised of the following:

- the proposal's general compliance with the provisions of the Melbourne Metropolitan Planning Scheme
- the concerns of the Parkville Association in relation to determining whether a public environment report and environmental impact statement are to be prepared.

72. On 24 October 1991 the Melbourne City Council advised the Committee that, although it had not formally considered the redevelopment of CSIRO's facilities at Parkville, it had decided not to make a submission to the Committee on the basis that previous consultation with CSIRO had been satisfactory.

73. However the Council also advised that in its view the Parkville locality is best suited for medium density residential development and to provide for the needs of residential education and training establishments. In general, uses which might generate off-site effects detrimental to residential amenity would not therefore be encouraged.

74. The Council while acknowledging the long-established presence of CSIRO in Parkville believes that alternative locations for the development might have been sought from surplus Commonwealth land in the vicinity. The site at 343 Royal Parade could then have been released for housing or educational purposes.

Strategic Importance of Site

75. Within the Parkville vicinity there are a number of organisations involved in research related to that of the Division of Biomolecular Engineering. These include:

- the Walter and Eliza Hall Institute of Medical Research
- the Ludwig Institute for Cancer Research
- the Victorian College of Pharmacy

- the Commonwealth Serum Laboratories
- the Howard Florey Institute of Experimental Physiology and Medicine
- the CSIRO Division of Animal Health
- the Murdoch Institute for Research into Birth Defects Limited
- various research departments of Melbourne University.

76. It is this concentration of laboratories, all with related research interests, that has established the so-called 'Parkville strip' as a unique scientific environment in Australia. The Parkville strip embraces some of the most advanced skills in biomedical and biomolecular research in the country and is highly regarded by the international scientific community. CSIRO advised the Committee that the Division of Biomolecular Engineering and the new Biomolecular Research Institute are key components in the Parkville strip.

77. Most, if not all, the organisations listed in paragraph 75 are essentially within walking distance of each other. This facilitates human contact on a day-to-day basis which is of great importance in research collaboration. CSIRO believes that to move the Division from Parkville would be a very backward step.

78. In his evidence to the Committee, Dr A W Burgess, Director of the Ludwig Institute for Cancer Research, stressed the importance of the biological research undertaken in the Parkville strip to future developments in Australia. He believes that the intellectual and laboratory resources at the Parkville site have been a driving force in the success of this biological research. He also believes that it will be difficult to integrate important new technologies such as top level super-computing and genetic engineering into the work of the Division unless the site is redeveloped. A number of written submissions were also received stressing the importance of the Parkville site and the need for its redevelopment. They were from:

- the Walter and Eliza Hall Institute of Medical Research
- the Murdoch Institute for Research into Birth Defects Limited
- the Baker Medical Research Institute.

Committee's View

79. While the Committee appreciates the wish of the Parkville Association and the Melbourne City Council to retain the predominantly residential nature of Parkville, the fact is that CSIRO has been established at 343 Royal Parade in accordance with local planning regulations since 1952. The Committee accepts the view of CSIRO supported by other research institutions, that the Parkville location of the Division of Biomolecular Engineering is vital to its research program.

Committee's Conclusion

80. The Parkville location of the Division of Biomolecular Engineering is vital to the success of the Division's research program and the site is the most appropriate for its future needs.

CONSULTATIONS

81. Consultations were initiated with the immediate neighbours, the Parkville Association and the local ward councillors. The Parkville Association noted that CSIRO had only contacted adjoining residents and not building owners. CSIRO concedes that it would have been more appropriate for owners to have been contacted and this was done prior to the public hearing.

82. The relevant staff associations have been consulted at both the federal level and locally through discussion with site representatives. Those unions concerned with the Parkville site are the CSIRO Officers Association, the CSIRO Technical Association and the Metals and Engineering Workers' Union (formerly ADSTE).

83. At the public hearing CSIRO indicated that staff had been closely involved in not only the general concept but also the more detailed planning of the laboratories and the location of facilities within them.

84. CSIRO has sought to involve the wider local community in plans for the redevelopment of the Parkville site through approaches to the Parkville Association. Representatives of the Association have visited the Division and discussed the proposed redevelopment. Issues raised by the Association have been addressed by CSIRO and its consultants, and met as far as possible. Further consultation will occur with the Association during documentation to inform interested parties of progress on the project.

ENERGY MANAGEMENT

85. CSIRO regards itself as a national leader in the development of energy management systems for buildings and incorporates such practices in all new buildings to minimise energy usage and costs.

86. CSIRO will operate an energy management program at the Parkville site to achieve lower energy costs through good design maintenance and operational arrangements. Control systems will allow increased use of outside air when ambient conditions are suitable and low-energy light fittings will be used generally.

87. While the redevelopment will provide only a relatively small increase in building area, a substantial proportion of the existing buildings is not fully serviced. For example, the existing Buildings Nos 2 and 4 have minimal air-conditioning whereas at the completion of the redevelopment the total facility will be fully air-conditioned.

88. The Committee notes that while modern energy management systems will be incorporated in the redevelopment, energy costs are expected to increase from approximately \$180 000 to between \$250 000 to \$300 000 per annum.

89. The Committee was advised that the increase relates to the significant additional air-conditioning systems included in the redevelopment.

90. The Committee was provided with only broad details relating to energy conservation issues although it notes that CSIRO intends to incorporate modern energy management systems in the redevelopment.

Committee's Recommendation

91. CSIRO should provide the Committee with a comprehensive report detailing the energy management systems and energy conservation measures to be incorporated in the Parkville redevelopment.

CHILD CARE

92. In a written submission to the Committee, Childcare At Work Ltd indicated that there is a shortage of child care in the Parkville area for below school age children, particularly for under three year olds. It believes that the

need for child care will be accentuated by further developments associated with Melbourne University and other research institutions in the Parkville area.

93. Childcare At Work Ltd believes that CSIRO personnel are unlikely to be able to find child care in the area and will put pressure on the already overstretched, community provided, child care services. It believes that CSIRO should construct a long-day care centre for children aged 0-5 years in the Parkville redevelopment. Facilities for children aged 6-12 years could also be considered.

94. While CSIRO has not made provision for a child care facility at Parkville it regards itself as being in the vanguard amongst public sector organisations in providing child care facilities for staff. It recognises that the provision of on-site child care facilities is a key strategy to attract and retain staff. A centre was opened at the Black Mountain site (Australian Capital Territory) in August 1991 and centres at Clayton and North Ryde will be opened in June 1992. Funds have been budgeted for either two more centres or other appropriate child care provisions in the 1992-93 and 1993-94 financial years.

95. In order to determine the areas of highest need for child care within CSIRO, staff of CSIRO sites, including Parkville, are currently being surveyed so that CSIRO can make appropriate decisions regarding the priorities for future expenditure on child care services. A variety of child care support services may need to be considered, especially for smaller work sites and for sites where it is not practical to consider an on-site facility.

96. Where a survey indicates that child care service provision would benefit a significant number of staff at a site that is undergoing redevelopment, CSIRO gives consideration to the option of establishing a child care centre as part of the redevelopment program. In the case of the Parkville redevelopment the comparative congestion of the site makes it impractical to establish a child care facility.

97. CSIRO has engaged Childcare At Work Ltd to advise how the Organisation might address, amongst other things, any requirement for child care facilities at Parkville.

Committee's Recommendation

98. The Committee should be provided with the results of the survey of child care needs within CSIRO and be advised of any action regarding the provision of child care services by CSIRO at Parkville.

BUILDING REGULATIONS

99. In a submission Mr L M Reddaway, a Director of Irwin Johnston and Partners Engineers Pty Ltd brought to the attention of the Committee what he regards as an anomalous situation regarding the approval process for building proposals for Commonwealth departments and agencies. In his view there appears to be no formal process by which the community can be assured that Commonwealth building work will conform to current community standards.

100. Mr Reddaway stated that in contrast the requirements for private sector buildings include:

- application for building approval
- detailed checking of the plans for conformity with the BCA
- inspections during construction
- final review for a 'certificate of occupancy'.

101. In Victoria, the designs for building works for state and local governments have to undergo a process of certification of conformity with the BCA.

102. In constitutional terms the Commonwealth is not required to submit its buildings for state and local government approval, although in practice there is consultation on most projects. However the Commonwealth is not bound to abide by state and local government regulations as it has the protection of the 'shield of the Crown'.

103. Mr Reddaway believes that the current processes by which designs for Commonwealth buildings are reviewed appear to lack the visible rigorousness which is applied to other buildings. He suggests four alternative options by which the Commonwealth could remedy the situation:

- require all Commonwealth bodies to submit themselves to the normal standards and approvals processes of the relevant state or territory
- review, under state law, by any qualified building surveyor
- review, outside state law, by a selected building surveyor
- review by a special independent Commonwealth agency.

104. It should be made clear that Mr Reddaway's comments apply to all Commonwealth projects and are not specifically or solely related to the Parkville project. Mr Ted Mack MP raised similar concerns in relation to a proposal for the Special Broadcasting Service at a public hearing in Sydney on 18 November 1991.

105. The Committee believes that the situation regarding the approval process for Commonwealth projects has been exacerbated by the untiring of Commonwealth departments and bodies from Australian Construction Services. The Committee intends to pursue this matter and will report to the Parliament in due course.

FIRE PROTECTION

106. In a submission to the Committee the Commonwealth Fire Board (CFB) indicated that it had become very concerned at the effects of the 'immunity of the Crown' from state building regulations. To overcome these problems it has recently put to the Minister for Administrative Services, a draft Fire Safety Policy which proposes conformance with the BCA and community regulations and standards, including those of local fire brigades. While CSIRO has indicated that the Parkville facility will be designed strictly in accordance with the BCA and the Australian Standard AS2982 and some additional fire protection facilities will be identified, it was not clear to the CFB how and by whom the adequacy of the facilities will be determined.

107. The Melbourne Metropolitan Fire Brigade (MMFB) in its submission shared the CFB's concern regarding the effect of shield of the Crown on fire safety. It also pointed out that it was not consulted in relation to this development.

108. The MMFB would be the combating authority should fire, chemical spill or other emergency take place at the Parkville facility. However, the MMFB does not have the authority to approve any fire protection equipment, passive or active, or other facilities that they will use in the event of such an emergency.

109. In response CSIRO made the general point that as a Commonwealth entity it does not apply for building permits for any major works on its own land. However, it does endeavour to keep all local and state government instrumentalities informed of its actions. CSIRO believes that the MMFB would have relatively little interest in a project such as Parkville as there are no qualitative or quantitative changes in the apparent risks. CSIRO assured the Committee that it will ensure that its consultants, Australian Construction Services, will advise the MMFB of the project. Such advice should include a complete inventory of chemicals stored at the Parkville site. CSIRO pointed out that at present the documentation is at a preliminary stage and will not contain the detail required by the MMFB.

110. While the Committee accepts that it is the intention of CSIRO to consult with the MMFB at a more detailed stage of the documentation process it believes that such consultation should in future be undertaken prior to the referral of such projects to the Committee.

111. In relation to the wider issues raised by the CFB, the Committee will be giving further consideration to them and will report to the Parliament shortly.

Committee's Recommendation

112. It is imperative that consultation with local fire authorities be undertaken prior to the referral of all projects to the Committee.

CONSTRUCTION TIMETABLE

113. The construction program, including documentation and tendering, is estimated to be 48 months. Stage 1 is expected to take 26 months, Stage 2 12 months and Stage 3 six months.

COST

114. The limit-of-cost estimate at August 1991 prices is \$12.5m. The estimated completion cost including escalation provision and fees is \$14.14m.

Committee's Recommendation

115. The Committee recommends the redevelopment of CSIRO facilities at 343 Royal Parade, Parkville at an estimated cost of \$12.25m at August 1991 prices.

CONCLUSIONS AND RECOMMENDATIONS

116. The Committee's conclusions and recommendations, and the paragraph in the report to which each refers, are set out below:

	Paragraph
1. There is a need to upgrade and redevelop existing CSIRO facilities at 343 Royal Parade, Parkville to accommodate the new research priorities of the Division of Biomolecular Engineering.	46
2. The Parkville location of the Division of Biomolecular Engineering is vital to the success of the Division's research program and the site is the most appropriate for its future needs.	80
3. CSIRO should provide the Committee with a comprehensive report detailing the energy management systems and energy conservation measures to be incorporated in the Parkville redevelopment.	91
4. The Committee should be provided with the results of the survey of child care needs within CSIRO and be advised of any action regarding the provision of child care services by CSIRO at Parkville.	98
5. It is imperative that consultation with local fire authorities be undertaken prior to the referral of all projects to the Committee.	112
6. The Committee recommends the redevelopment of the CSIRO facilities at 343 Royal Parade, Parkville at an estimated cost of \$12.25m at August 1991 prices.	115



Colin Hollis
Chairman
28 November 1991

APPENDIX A

LIST OF WITNESSES

ADAM, Dr Colin McLean, Director, CSIRO Institute of Industrial Technology, Commonwealth Scientific and Industrial Research Organisation, Private Bag 28, Clayton, Victoria

BAIRSTOW, Mr Robert Stanley, Project Manager, Australian Construction Services, Tivoli Court, 239-241 Bourke Street, Melbourne, Victoria

BLAGROVE, Dr Robert John, Assistant Chief, Commonwealth Scientific and Industrial Research Organisation, 343 Royal Parade, Parkville, Victoria

BURGESS, Dr Antony Wilks, Director, Ludwig Institute for Cancer Research, Melbourne Branch, Post Office, Royal Melbourne Hospital, Melbourne, Victoria

CLAMPETT, Mr John Christopher, Senior Station Officer, Metropolitan Fire Brigade, 103 Hoddle Street, Collingwood, Victoria

CLARKE, Mr Peter, Executive Director, Royal Australian Institute of Architects (Victorian Chapter), 30 Howe Crescent, South Melbourne

COLMAN, Dr Peter Malcolm, Chief, Division of Biomolecular Engineering, Commonwealth Scientific and Industrial Research Organisation, 343 Royal Parade, Parkville, Victoria

FARRAR, Mr Ian Lloyd, Senior Principal Adviser, Commonwealth Scientific and Industrial Research Organisation, PO Box 225, Dickson, Australian Capital Territory

FRANKLYN, Mr Peter Anthony, Senior Project Manager, Australian Construction Services, 239-241 Bourke Street, Melbourne, Victoria

HARLEY, Mr George Johnston, Corporate Manager, Property, Commonwealth Scientific and Industrial Research Organisation, PO Box 225, Dickson, Australian Capital Territory

HICKS, Mr Alan Russell, Consultant, Commonwealth Scientific and Industrial Research Organisation, PO Box 89, East Melbourne, Victoria

LEWIS, Mrs Linda, Committee Member, Parkville Association, PO Box 54, Parkville, Victoria

PINCUS, Mr David Klaus, Senior Strategic Planner,
Commonwealth Scientific and Industrial Research
Organisation, 3/4 Albert Street, East Melbourne,
Victoria

REDDAWAY, Mr Lawrence Nevill, Director, Irwin Johnston and
Partners Pty Ltd, 78 Eastern Road, South Melbourne,
Victoria

TILLER, Mrs Alicia, Vice-President, Parkville Association,
PO Box 54, Parkville, Victoria

TULLOCH, Dr Peter Archibald, Research Scientist, CSIRO
Parkville Redevelopment, 343 Royal Parade,
Parkville, Melbourne, Victoria

WILSON, Mr Lawrence Graham, Acting Chairman, Commonwealth
Fire Board, PO Box 250B, Melbourne, Victoria

APPENDIX B

CONSTRUCTION DETAILS

Associated Works

1. Site investigations have revealed the limited presence of asbestos materials in the form of cladding, lagging and loose fibre in roof spaces. The asbestos is currently encapsulated and does not warrant treatment in advance of the redevelopment work. Asbestos removal will be undertaken by specialist contractors in accordance with current regulations.
2. There is a current need to increase the power supply to the site irrespective of the proposed redevelopment, and this work is proceeding. It is expected to be completed prior to commencement of the works outlined in this submission. New site services will also be provided to meet the requirements of this redevelopment. Planning has allowed for an additional transformer as part of the redevelopment.

Structural Engineering

3. A geotechnical investigation has determined site bearing capacities and expected differential settlement between the new laboratory building and Building No. 5.
4. A reinforced concrete framed structure with a steel framed roof is proposed for the new laboratory. To achieve maximum flexibility and useable floor area, internal columns will be located on the western wall of the central corridor. Minimal structural modifications are proposed to Building No. 5.

Mechanical Services

5. Mechanical services for this project will include:
 - air conditioning for both comfort conditions in administrative areas and process conditions in laboratories and equipment rooms
 - heating and ventilation of ancillary areas.

- exhaust ventilation systems including toilets, fume cupboards and special exhaust systems
- piped gas services including vacuum, compressed air, natural gas and compressed gases
- piped water services including general and laboratory domestic hot water (DHW) and purified water
- special services including instrument cooling water, and cool and freezer rooms
- fire protection services.

Air-Conditioning

6. Air-conditioning will generally comprise constant volume conventional plant. Special purpose plant will be provided in areas of high heat load, where 24 hour per day operation is required, or in special purpose areas such as culture rooms where containment is needed. Chilled water from chiller sets in the main plant room will be reticulated for cooling, and heating will be provided from gasfired boilers.

Building No. 5

A plant room on each of Levels 1 to 4 of the building will provide air-conditioning via fan coil units for that floor. Plant for Level 5 will be located in the plant room and each plant room will incorporate an upper smoke spill system

New Laboratory

Air-conditioning plant on each floor will serve the laboratory spaces via fan coil units and provision will be made to operate on outside air economy cycle when ambient conditions permit. Design will allow any two floors to operate on full outside air if required.

7. Offices will have separate fan coil units operating on outside air supply and relief air from offices will contribute to make-up air in laboratories for fixed air exhaust systems.

Heating and Ventilation

8. Heating and/or ventilation will be provided in stores and workshop areas on Level 1 of Building No. 5 with hot water fan convectors providing heating.

Toilet Exhaust

Toilet exhaust systems will be designed to AS1668 Part 2 or 15 air changes per hour, whichever is the greater.

Fume Cupboards

All fume cupboards will be designed and installed in accordance with AS2243 Part 8, SAA Fume Cupboard Code. None of the existing fume cupboards will be reused. Individual make-up air systems for fume cupboards will be provided where necessary.

Laboratory Exhaust Systems

A general exhaust system will be provided in the new laboratory for the connection of analytical instruments and equipment. Specific exhaust systems will be provided for darkrooms, ventilated storage cabinets and special purpose processes.

Piped Gas Services

9. Vacuum, compressed air, natural gas and compressed laboratory gases will be reticulated where required.

Piped Water Services

10. Domestic Hot Water

Two separate systems will be provided for toilets and the kitchen amenity areas, and for all laboratory areas to comply with AS2982 SAA Laboratory Construction Code.

DHW will be provided from mains pressure natural gas fired storage cylinders.

The feasibility of using solar assisted DHW production has been examined and found to be uneconomic in comparison to natural gas firing.

Purified Water

Purified water will be produced by plant located in the main plant room comprising clarifier, carbon filter, reverse osmosis unit and deioniser exchange tanks.

Special Services

11. . . Instrument Cooling Water

Individual instrument cooling water systems will be provided to specialist equipment where required to reduce domestic water consumption on the site. The feasibility of using the main chilled water systems will be considered during documentation.

Cool Rooms and Freezer Rooms

Cool rooms and freezer rooms will be provided where required and will be designed for ease of relocation or removal in future if necessary.

Fire Protection - Sprinklers

12. The existing sprinkler system serving Building No. 5 will be altered and extended to accommodate the proposed redevelopment. This work will include the rerouting of water supply pipework to the control valves, and the addition of a diesel driven sprinkler booster pump to bring the installation into line with current codes.

Electrical

Upgrading of Power Supply

13. The existing Melbourne City Council electricity supply authority 1000KVA substation, and main switchboard will be removed as a separate functional requirement on the site, and replaced with a new substation/main switchboard with new distribution boards located on the ground floor of the new laboratory and existing Building No. 5.
14. As part of the redevelopment project an additional 1000KVA transformer will be provided, and the cost of the transformer is included in the estimate.

Building No. 5 - Proposed Electrical Services

15. Wiring and the installation of lighting and power will be as required by Australian Standard AS3000, the supply authority and the specific requirements of the CSIRO services brief. Lighting will be installed in accordance with Australian Standard AS1680.
16. An emergency lighting system complying with Australian Standard AS2293 Part 1 will be installed.

New Laboratory

17. The electrical services will originate from a main distribution board located on the ground floor.
18. Wiring and the installation of lighting and power will be as required by Australian Standard AS3000, the supply authority and the specific requirements of the CSIRO services brief. Lighting will be installed to maintain lighting levels to Australian Standard AS1680.

Emergency Warning and Intercommunication System

19. Emergency warning loud speakers and intercom points to comply with Australian Standard AS2220 Parts 1 and 2 will be installed and connected to the master control panel located in the foyer of Building No. 5.

Exterior Lighting

20. Pole mounted floodlighting will be provided to carparking areas, bollard lighting to pedestrian areas and surface mounted security lighting to the external surface of the building to efficiently illuminate the building environs, taking care not to create problems for neighbouring residential properties.

Lift Service

21. The existing lift, which is approximately 30 years old, has a capacity of 20 passengers and serves ground, first, second, third and fourth floors of Building No. 5. The anticipated remaining useable life of this lift is only ten years.

22. It is not practical or economical to modify the existing electrical and mechanical components of this old style lift. The lift will therefore be totally replaced with the exception of the existing door frames and guide rails.

23. The new lift car will be suitable for material handling.

Security Systems

24. The complex will have an access control system to provide appropriate site and building security.

Fire Detection

25. The total redevelopment will be protected by fire detection systems complying with Australian Standard AS1670. All detectors will be connected to the new fire panel installed in the foyer of Building No. 5.

Civil Works and Hydraulic

Pavements

26. All existing pavements will be reconstructed and on site parking will be provided along Mile Lane and along the southern boundary. Car parking spaces on site will total 35. Three of these spaces will be in a secure enclosure and spaces will be reserved for visitors and disabled drivers.

27. The two existing access points in royal Parade will remain. A third access will be provided at the south-west corner of the property. Vehicular access will be restricted out of normal working hours.

Sewerage

General

28. The complex is currently serviced by two connection points to the existing Melbourne Metropolitan Board of Works (MMBW) sewer in Mile Lane at the rear of the property. The northern connection point will be relocated clear of the new wing. Laboratory wastes will pass through neutralisers prior to discharge to the MMBW sewer.

Building No. 5

29. Existing redundant waste pipes will be removed and new waste pipes will be connected to the existing domestic system where applicable. Trade waste will be connected to the system via neutralising apparatus. New and any modified internal plumbing will be provided to the requirements of MMBW regulations.

New Laboratory

30. Trade waste and domestic waste will be connected to the existing southern connection and to the new connection point on the northern side of the property.

Water Supply

General

31. The existing water service is provided from a MMBW main in Mile Lane supplying fire hydrant, sprinkler and domestic water. New dual connections to the MMBW main will provide a Grade 2 water supply for fire sprinklers and dual supply for fire hydrants and the domestic system. New water supply tappings to the MMBW main and connections to the existing pipework will be undertaken prior to demolition of Buildings Nos. 2 and 4.

Domestic Service

32. The existing domestic service will be replaced with new pipework to all retained and new fixtures.

Fire Service

33. Existing fire hydrant services will be upgraded and fire hose reels installed.

34. Dual connections to the MMBW main will provide a Grade 2 water supply for fire sprinklers and dual supply for fire hydrants and the domestic system.

Safety Equipment

35. Safety showers will be located in each laboratory on each level of the new wing.

36. Eye wash facilities will be incorporated into each laboratory wash up sink.

Stormwater Service

37. The Melbourne City Council requires each property to have a single point of discharge from the lowest point on the property. All downpipes will discharge to new underground drains connected to the Council underground drain in Royal Parade.

APPENDIX C

1. LOCALITY PLAN

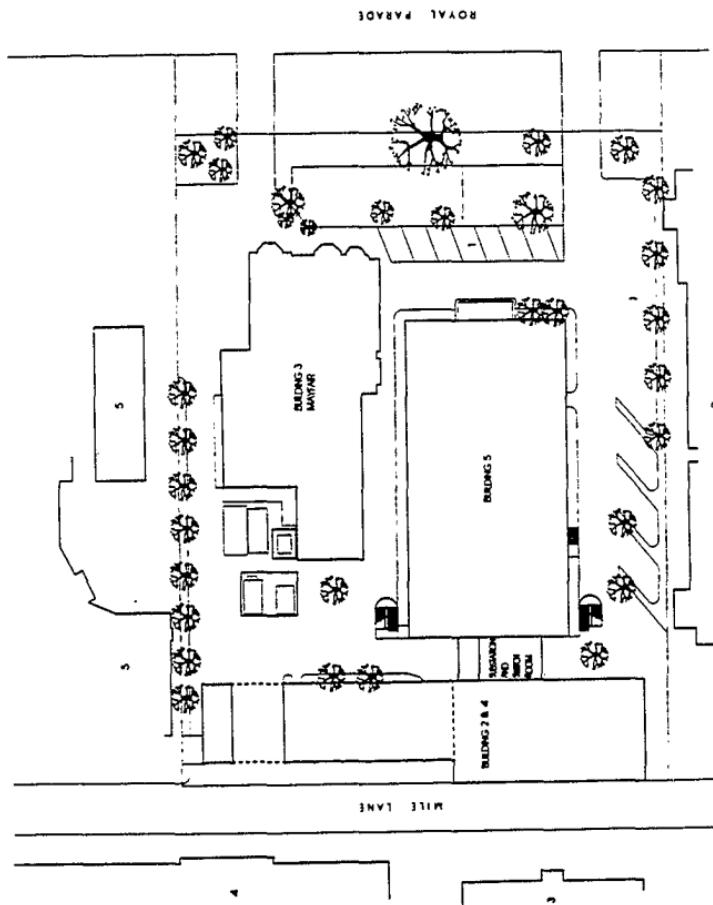
CSIRO PARKVILLE REDEVELOPMENT

LEGEND

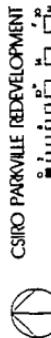
- 1 UNIVERSITY OF MELBOURNE
- 2 ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY
- 3 WATER & SEWERAGE INST OF MELBOURNE & RESEARCH
- 4 CERAMICMANUFACTURERS SEMI INDUSTRIAL
- 5 YARRACOOGEE GREENS
- 6 ROYAL DENTAL SCHOOL OF AUSTRIA
- 7 VICTORIAN COLLEGE OF OPTOMETRY
- 8 DENTAL WORKERS' HOSPITAL
- 9 UNION NURSING HOME & NURSES' HOME
- 10 ROYAL CHILDREN'S HOSPITAL
- 11 STATE LIBRARY
- 12 MANDWAN MUSEUM
- 13 ST VINCENT'S HOSPITAL
- 14 MURDOU UNIVERSITY HOSPITAL
- 15 CROWN BIZARRE CINEMA
- 16 FREDERICK HOSPITAL
- 17 MURDOU UNIVERSITY HOSPITAL
- 18 PRINCE ALBERT HOSPITAL
- 19 CROWN OF ANNA HOSPITAL
- 20 CROWN OF MIGRATION TECHNOLOGY
- 21 AIRPORT HOSPITAL
- 22 ROYAL VICTORIAN INSTITUTE FOR BLINDNESS
- 23 VICTORIAN SCHOOL FOR THE DEAF
- 24 YV AND LAR HOSPITAL
- 25 VICTORIAN COLLEGE OF PHARMACY
- 26 ST ANDREW'S HOSPITAL
- 27 ROYAL MEDICINE HOSPITAL
- 28 ROYAL POLICE HOSPITAL
- 29 NATIONAL HERBARIUM
- 30
- 31
- 32
- 33
- 34
- 35
- 36
- 37
- 38
- 39
- 40
- 41
- 42
- 43
- 44
- 45
- 46
- 47
- 48
- 49
- 50
- 51
- 52
- 53
- 54
- 55
- 56
- 57
- 58
- 59
- 60
- 61
- 62
- 63
- 64
- 65
- 66
- 67
- 68
- 69
- 70
- 71
- 72
- 73
- 74
- 75
- 76
- 77
- 78
- 79
- 80
- 81
- 82
- 83
- 84
- 85
- 86
- 87
- 88
- 89
- 90
- 91
- 92
- 93
- 94
- 95
- 96
- 97
- 98
- 99
- 100
- 101
- 102
- 103
- 104
- 105
- 106
- 107
- 108
- 109
- 110
- 111
- 112
- 113
- 114
- 115
- 116
- 117
- 118
- 119
- 120
- 121
- 122
- 123
- 124
- 125
- 126
- 127
- 128
- 129
- 130
- 131
- 132
- 133
- 134
- 135
- 136
- 137
- 138
- 139
- 140
- 141
- 142
- 143
- 144
- 145
- 146
- 147
- 148
- 149
- 150
- 151
- 152
- 153
- 154
- 155
- 156
- 157
- 158
- 159
- 160
- 161
- 162
- 163
- 164
- 165
- 166
- 167
- 168
- 169
- 170
- 171
- 172
- 173
- 174
- 175
- 176
- 177
- 178
- 179
- 180
- 181
- 182
- 183
- 184
- 185
- 186
- 187
- 188
- 189
- 190
- 191
- 192
- 193
- 194
- 195
- 196
- 197
- 198
- 199
- 200
- 201
- 202
- 203
- 204
- 205
- 206
- 207
- 208
- 209
- 210
- 211
- 212
- 213
- 214
- 215
- 216
- 217
- 218
- 219
- 220
- 221
- 222
- 223
- 224
- 225
- 226
- 227
- 228
- 229
- 230
- 231
- 232
- 233
- 234
- 235
- 236
- 237
- 238
- 239
- 240
- 241
- 242
- 243
- 244
- 245
- 246
- 247
- 248
- 249
- 250
- 251
- 252
- 253
- 254
- 255
- 256
- 257
- 258
- 259
- 260
- 261
- 262
- 263
- 264
- 265
- 266
- 267
- 268
- 269
- 270
- 271
- 272
- 273
- 274
- 275
- 276
- 277
- 278
- 279
- 280
- 281
- 282
- 283
- 284
- 285
- 286
- 287
- 288
- 289
- 290
- 291
- 292
- 293
- 294
- 295
- 296
- 297
- 298
- 299
- 300
- 301
- 302
- 303
- 304
- 305
- 306
- 307
- 308
- 309
- 310
- 311
- 312
- 313
- 314
- 315
- 316
- 317
- 318
- 319
- 320
- 321
- 322
- 323
- 324
- 325
- 326
- 327
- 328
- 329
- 330
- 331
- 332
- 333
- 334
- 335
- 336
- 337
- 338
- 339
- 340
- 341
- 342
- 343
- 344
- 345
- 346
- 347
- 348
- 349
- 350
- 351
- 352
- 353
- 354
- 355
- 356
- 357
- 358
- 359
- 360
- 361
- 362
- 363
- 364
- 365
- 366
- 367
- 368
- 369
- 370
- 371
- 372
- 373
- 374
- 375
- 376
- 377
- 378
- 379
- 380
- 381
- 382
- 383
- 384
- 385
- 386
- 387
- 388
- 389
- 390
- 391
- 392
- 393
- 394
- 395
- 396
- 397
- 398
- 399
- 400
- 401
- 402
- 403
- 404
- 405
- 406
- 407
- 408
- 409
- 410
- 411
- 412
- 413
- 414
- 415
- 416
- 417
- 418
- 419
- 420
- 421
- 422
- 423
- 424
- 425
- 426
- 427
- 428
- 429
- 430
- 431
- 432
- 433
- 434
- 435
- 436
- 437
- 438
- 439
- 440
- 441
- 442
- 443
- 444
- 445
- 446
- 447
- 448
- 449
- 450
- 451
- 452
- 453
- 454
- 455
- 456
- 457
- 458
- 459
- 460
- 461
- 462
- 463
- 464
- 465
- 466
- 467
- 468
- 469
- 470
- 471
- 472
- 473
- 474
- 475
- 476
- 477
- 478
- 479
- 480
- 481
- 482
- 483
- 484
- 485
- 486
- 487
- 488
- 489
- 490
- 491
- 492
- 493
- 494
- 495
- 496
- 497
- 498
- 499
- 500
- 501
- 502
- 503
- 504
- 505
- 506
- 507
- 508
- 509
- 510
- 511
- 512
- 513
- 514
- 515
- 516
- 517
- 518
- 519
- 520
- 521
- 522
- 523
- 524
- 525
- 526
- 527
- 528
- 529
- 530
- 531
- 532
- 533
- 534
- 535
- 536
- 537
- 538
- 539
- 540
- 541
- 542
- 543
- 544
- 545
- 546
- 547
- 548
- 549
- 550
- 551
- 552
- 553
- 554
- 555
- 556
- 557
- 558
- 559
- 560
- 561
- 562
- 563
- 564
- 565
- 566
- 567
- 568
- 569
- 570
- 571
- 572
- 573
- 574
- 575
- 576
- 577
- 578
- 579
- 580
- 581
- 582
- 583
- 584
- 585
- 586
- 587
- 588
- 589
- 590
- 591
- 592
- 593
- 594
- 595
- 596
- 597
- 598
- 599
- 600
- 601
- 602
- 603
- 604
- 605
- 606
- 607
- 608
- 609
- 610
- 611
- 612
- 613
- 614
- 615
- 616
- 617
- 618
- 619
- 620
- 621
- 622
- 623
- 624
- 625
- 626
- 627
- 628
- 629
- 630
- 631
- 632
- 633
- 634
- 635
- 636
- 637
- 638
- 639
- 640
- 641
- 642
- 643
- 644
- 645
- 646
- 647
- 648
- 649
- 650
- 651
- 652
- 653
- 654
- 655
- 656
- 657
- 658
- 659
- 660
- 661
- 662
- 663
- 664
- 665
- 666
- 667
- 668
- 669
- 670
- 671
- 672
- 673
- 674
- 675
- 676
- 677
- 678
- 679
- 680
- 681
- 682
- 683
- 684
- 685
- 686
- 687
- 688
- 689
- 690
- 691
- 692
- 693
- 694
- 695
- 696
- 697
- 698
- 699
- 700
- 701
- 702
- 703
- 704
- 705
- 706
- 707
- 708
- 709
- 710
- 711
- 712
- 713
- 714
- 715
- 716
- 717
- 718
- 719
- 720
- 721
- 722
- 723
- 724
- 725
- 726
- 727
- 728
- 729
- 730
- 731
- 732
- 733
- 734
- 735
- 736
- 737
- 738
- 739
- 740
- 741
- 742
- 743
- 744
- 745
- 746
- 747
- 748
- 749
- 750
- 751
- 752
- 753
- 754
- 755
- 756
- 757
- 758
- 759
- 760
- 761
- 762
- 763
- 764
- 765
- 766
- 767
- 768
- 769
- 770
- 771
- 772
- 773
- 774
- 775
- 776
- 777
- 778
- 779
- 780
- 781
- 782
- 783
- 784
- 785
- 786
- 787
- 788
- 789
- 790
- 791
- 792
- 793
- 794
- 795
- 796
- 797
- 798
- 799
- 800
- 801
- 802
- 803
- 804
- 805
- 806
- 807
- 808
- 809
- 810
- 811
- 812
- 813
- 814
- 815
- 816
- 817
- 818
- 819
- 820
- 821
- 822
- 823
- 824
- 825
- 826
- 827
- 828
- 829
- 830
- 831
- 832
- 833
- 834
- 835
- 836
- 837
- 838
- 839
- 840
- 841
- 842
- 843
- 844
- 845
- 846
- 847
- 848
- 849
- 850
- 851
- 852
- 853
- 854
- 855
- 856
- 857
- 858
- 859
- 860
- 861
- 862
- 863
- 864
- 865
- 866
- 867
- 868
- 869
- 870
- 871
- 872
- 873
- 874
- 875
- 876
- 877
- 878
- 879
- 880
- 881
- 882
- 883
- 884
- 885
- 886
- 887
- 888
- 889
- 890
- 891
- 892
- 893
- 894
- 895
- 896
- 897
- 898
- 899
- 900
- 901
- 902
- 903
- 904
- 905
- 906
- 907
- 908
- 909
- 910
- 911
- 912
- 913
- 914
- 915
- 916
- 917
- 918
- 919
- 920
- 921
- 922
- 923
- 924
- 925
- 926
- 927
- 928
- 929
- 930
- 931
- 932
- 933
- 934
- 935
- 936
- 937
- 938
- 939
- 940
- 941
- 942
- 943
- 944
- 945
- 946
- 947
- 948
- 949
- 950
- 951
- 952
- 953
- 954
- 955
- 956
- 957
- 958
- 959
- 960
- 961
- 962
- 963
- 964
- 965
- 966
- 967
- 968
- 969
- 970
- 971
- 972
- 973
- 974
- 975
- 976
- 977
- 978
- 979
- 980
- 981
- 982
- 983
- 984
- 985
- 986
- 987
- 988
- 989
- 990
- 991
- 992
- 993
- 994
- 995
- 996
- 997
- 998
- 999
- 1000

ECE450

1 CAR PARK
2 38 ROYAL PARADE
3 1024 NE AVENUE
4 1024 ROYAL PARADE
5



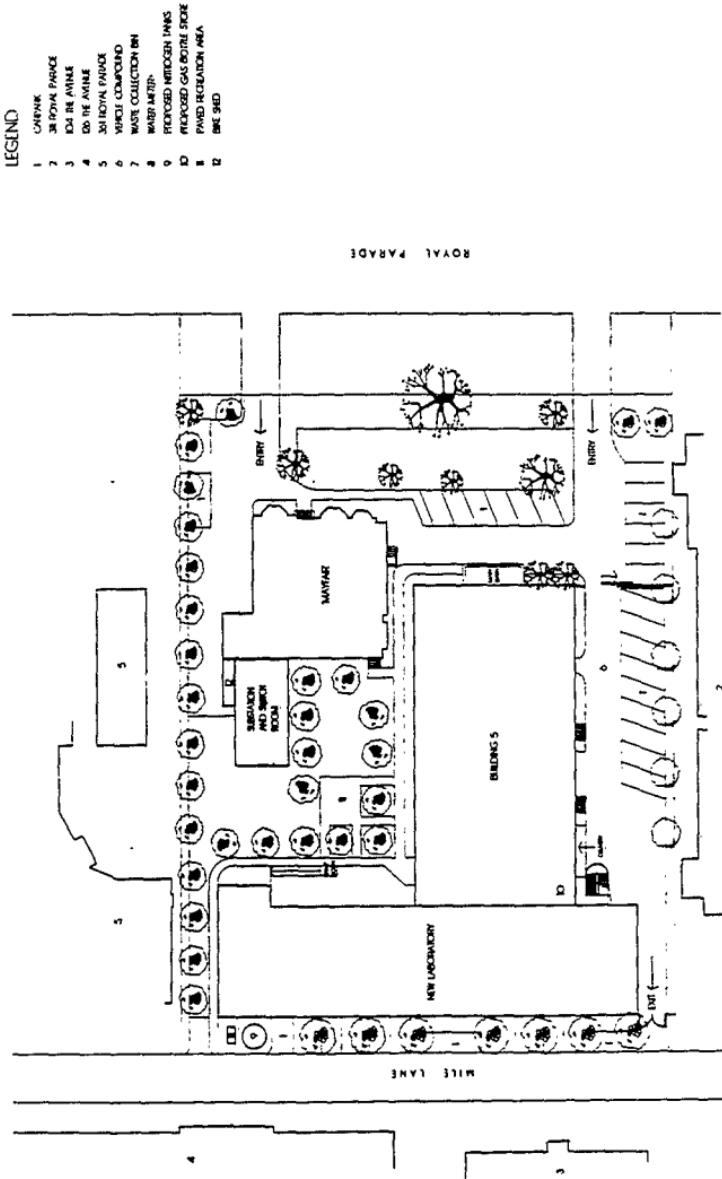
2. EXISTING SITE PLAN



C2



3. PROPOSED SITE PLAN

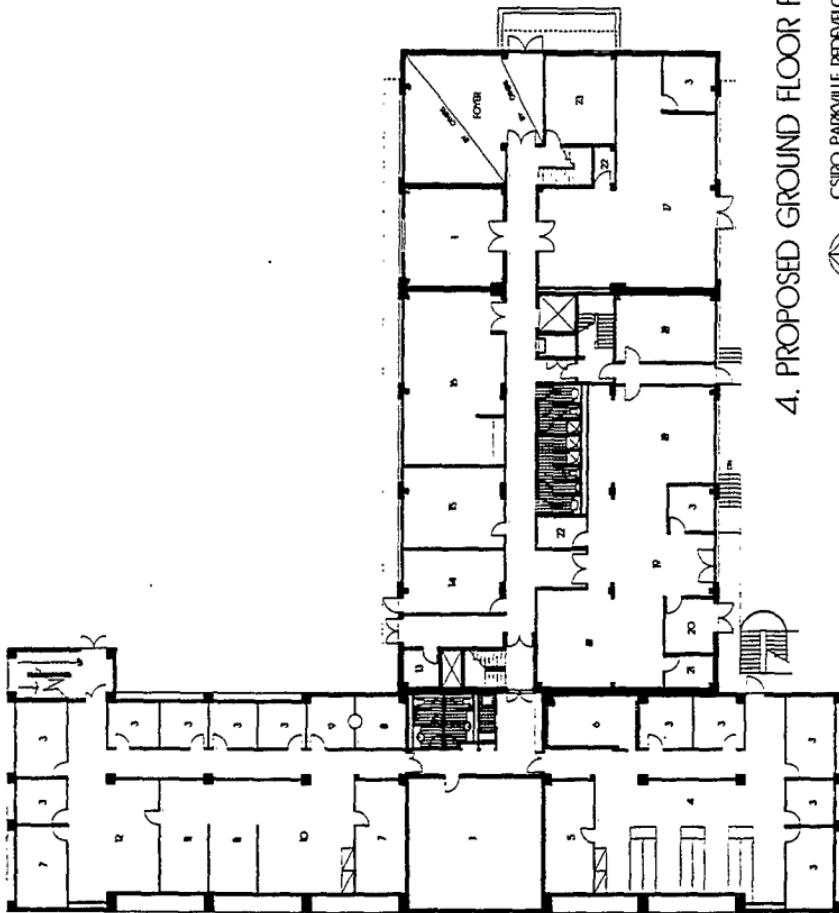


LEGEND

- 1 PRINT ROOM
- 2 TOILET
- 3 OFFICE
- 4 PRINT/CHROMISTRY LABORATORY
- 5 CHROMISTRY ROOM
- 6 COOL ROOM
- 7 STENCH PREPARATION
- 8 DARK ROOM
- 9 PRINT ROOM
- 10 JONI REPARATION AREA
- 11 LAB REPARATION ROOM
- 12 HAIR INSTRUMENT ROOM
- 13 CLAVER
- 14 ECUATION WORKSHOP
- 15 CARPENTRY WORKSHOP
- 16 PLUMMING WORKSHOP
- 17 INSTRUMENT WORKSHOP
- 18 GENERAL STORE
- 19 CRAFT RECEPTION
- 20 BLD CHEMICAL STORE
- 21 STORE CHEMICAL STORE
- 22 STOCK
- 23 MEETING ROOM

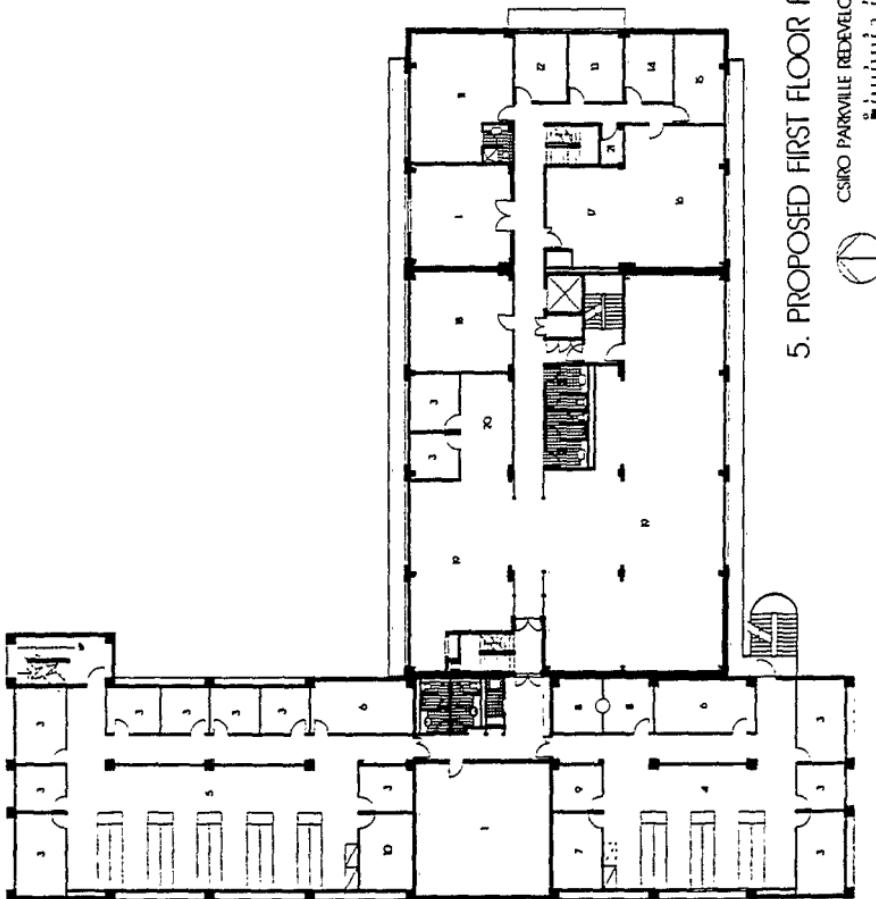
4. PROPOSED GROUND FLOOR PLAN

CSIRO PARKVILLE REDEVELOPMENT



LEGEND

- 1 PLANT ROOM
- 2 TOILET
- 3 OFFICE
- 4 PROTEIN CHEMISTRY LABORATORY
- 5 MOLECULAR BIOLOGY LABORATORY
- 6 INSTRUMENT ROOM
- 7 VACUUM DRYING ROOM
- 8 MULTI-FUNCTION DARK ROOM
- 9 MICROSCOPE ROOM
- 10 KERNION ROOM
- 11 OFFICE
- 12 SECURITY
- 13 CLERICAL SECRETARY
- 14 LABORATORY SECRETARY
- 15 ASSISTANT TO ONE
- 16 FINANCIAL OFFICE
- 17 RECORDS
- 18 LIBRARY
- 19 LIBRARY WORKROOM
- 20 STOCK
- 21 STORE

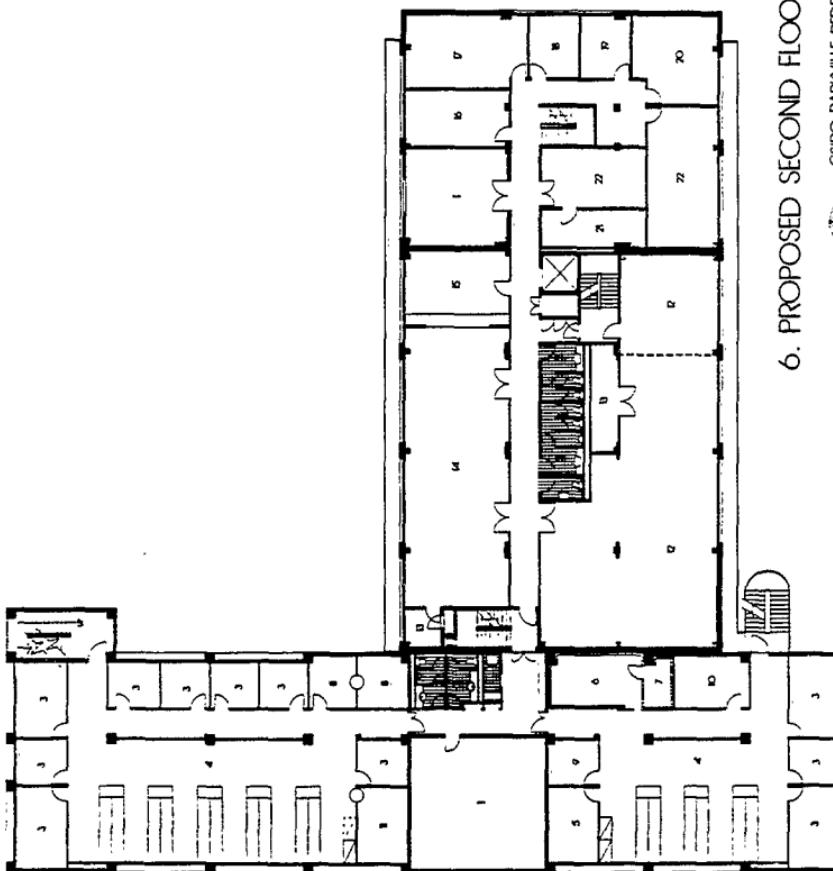


5. PROPOSED FIRST FLOOR PLAN

CSIRO PARKVILLE REDEVELOPMENT

LEGEND

1	PLANT ROOM			
2	TOILET			
3	CH.1			
4	CH.2			
5	MOLECULAR BIOLOGY LABORATORY			
6	CHURCH ROOM			
7	CONF. ROOM			
8	MEETING ROOM			
9	MEETING ROOM			
10	MEETING ROOM			
11	CONF. ROOM			
12	CONFERENCE ROOM			
13	SIDE			
14	CARTEL			
15	KITCHEN			
16	ASSISTANT CHIEF			
17	SECURITY SECTION			
18	ADMINISTRATION OFFICER			
19	DR BUSINESS MANAGER			
20	DR INVESTIGATOR			
21	CORPORATE SUPPORT			
22	ADMIN. ROOM			

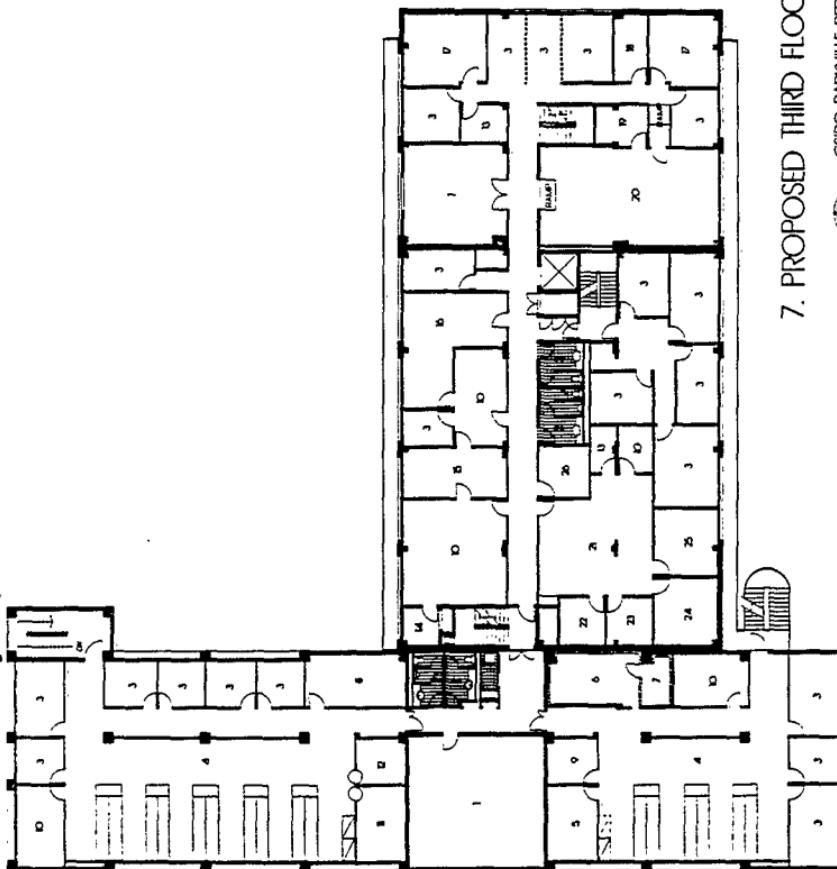


6. PROPOSED SECOND FLOOR PLAN

CSIRO PARKVILLE REDEVELOPMENT

LEGEND

- 1 PLAIN ROOM
- 2 TOILET
- 3 CHTS
- 4 CELLULAR BIOLOGY LABORATORY
- 5 HISTOLOGY ROOM
- 6 COOK ROOM
- 7 FREEZER
- 8 VACCUM DRYER ROOM
- 9 AUTOCLAVE ROOM
- 10 INSTRUMENT ROOM
- 11 LIVER CULTURE ROOM
- 12 SMALL CULTURE ROOM
- 13 STORE
- 14 DRY ROOM
- 15 STERILISATION ROOM
- 16 EVALUATION ROOM
- 17 GRAPHICS USER AREA
- 18 WORK ROOM
- 19 PENTER ROOM
- 20 COMPUTER ROOM
- 21 PVC ROOM
- 22 IF FLAME ROOM
- 23 PREP FLAME ROOM FOR HCL/CA
- 24 SQUID ROOM
- 25 PETRI DISH INCUBATOR
- 26 APPARATE



7. PROPOSED THIRD FLOOR PLAN

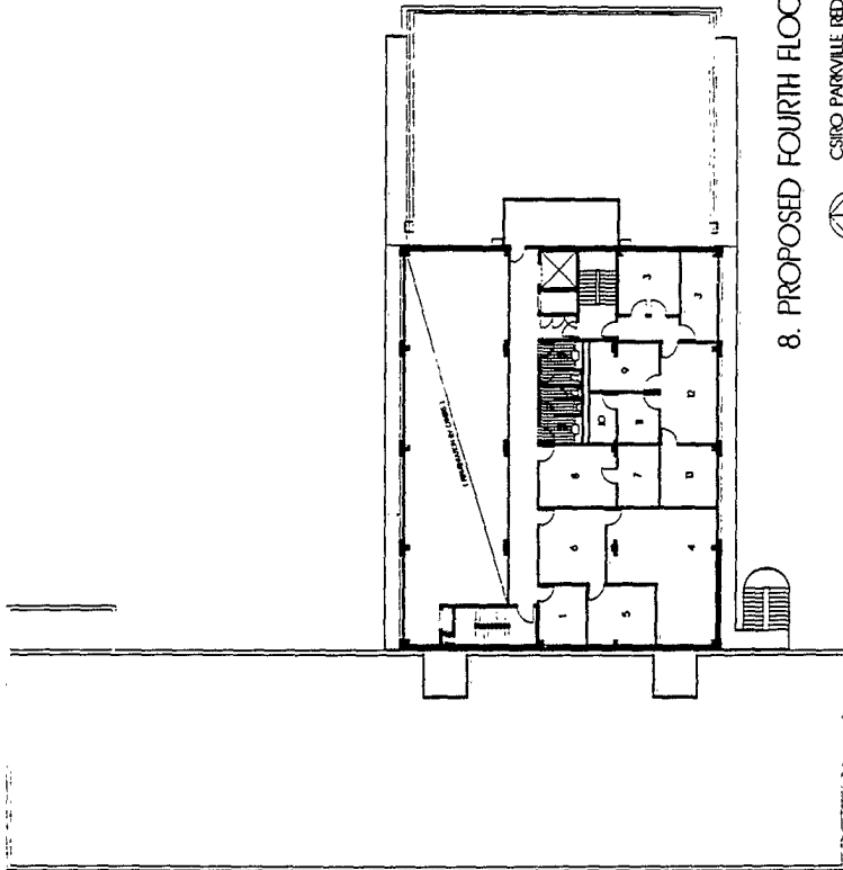
CSIRO PARKVILLE REDEVELOPMENT
 $\frac{1}{2}, \frac{1}{11}, \frac{1}{11}, \frac{1}{11}, \frac{1}{11}, \frac{1}{11}, \frac{1}{11}, \frac{1}{11}$

LEGEND

- 1 CLASS MEETING ROOM
- 2 TOILET
- 3 CIRCLE
- 4 ANNAH HOUSE
- 5 SECURITY
- 6 CCH MAINTENANCE
- 7 CATCH DIRECTION BOARD ROOM
- 8 FIRE EXTINGUISHER ROOM
- 9 NEGATIVE DARK ROOM
- 10 STORE
- 11 MEETING ROOM
- 12 PRINT ROOM
- 13 PRINT FINISH ROOM

8. PROPOSED FOURTH FLOOR PLAN

CSIRO PARKVILLE REDEVELOPMENT

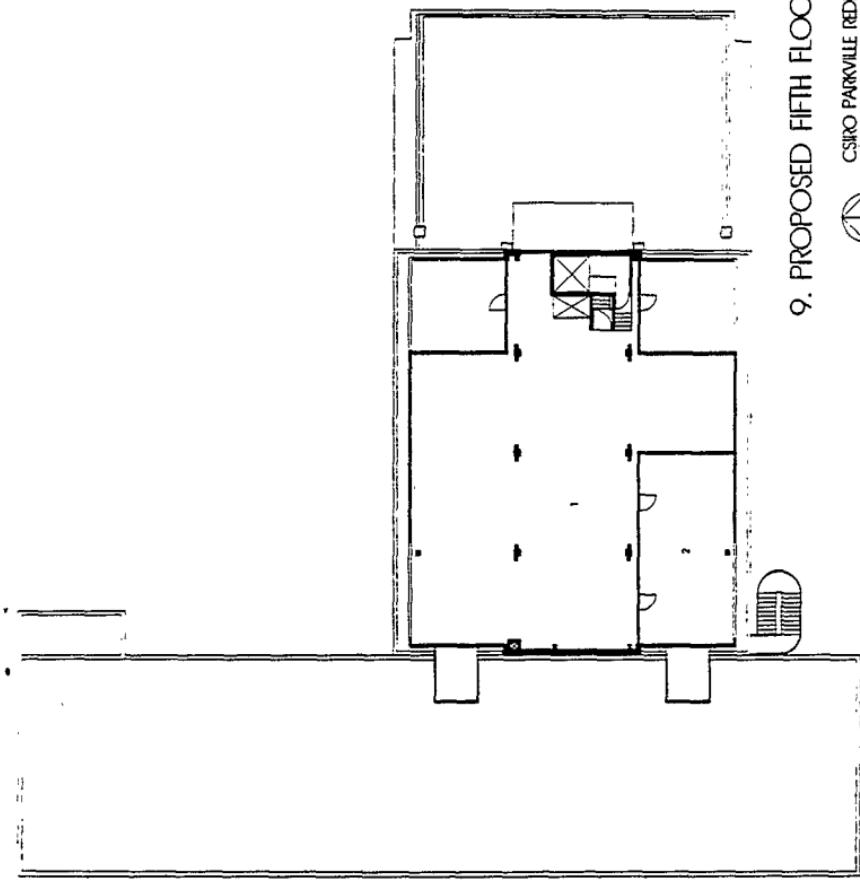


LEGEND

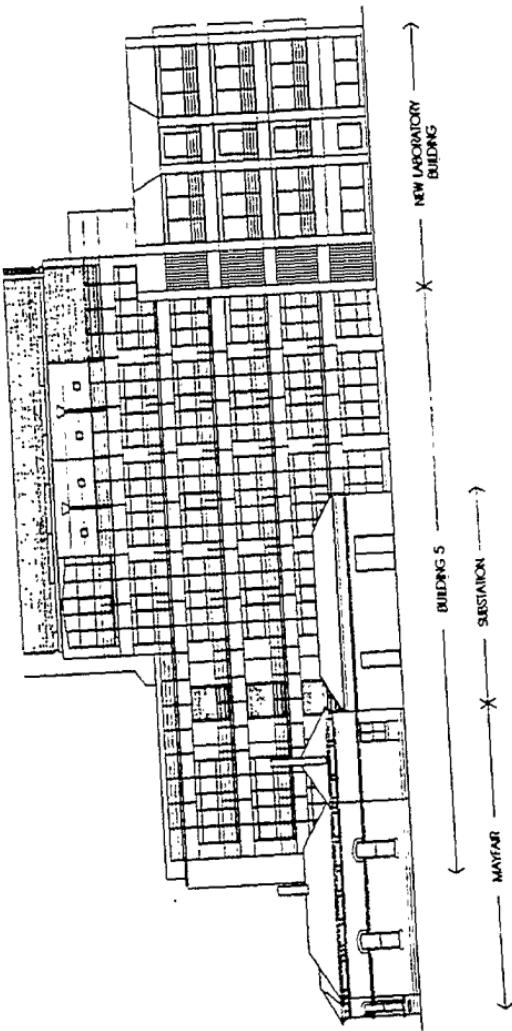
- 1 PLANT ROOM
- 2 COOLING TOWERS

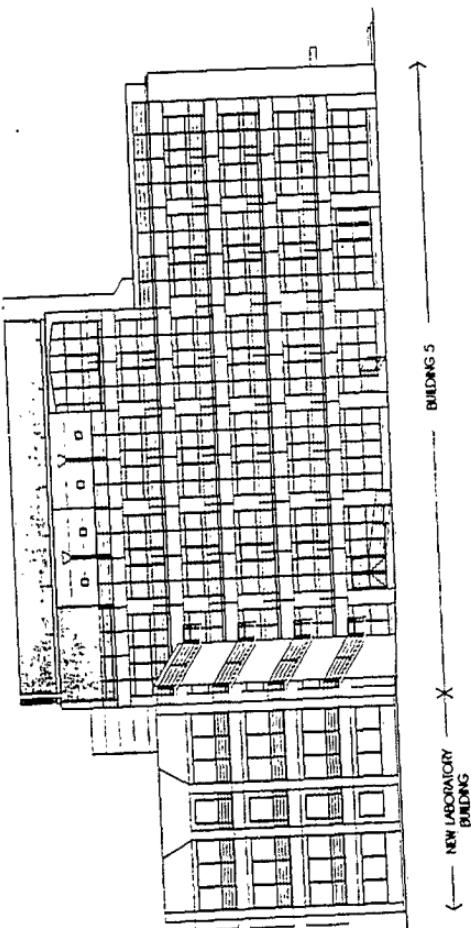
9. PROPOSED FIFTH FLOOR PLAN

CSIRO PARKVILLE REDEVELOPMENT



10. PROPOSED NORTH ELEVATION

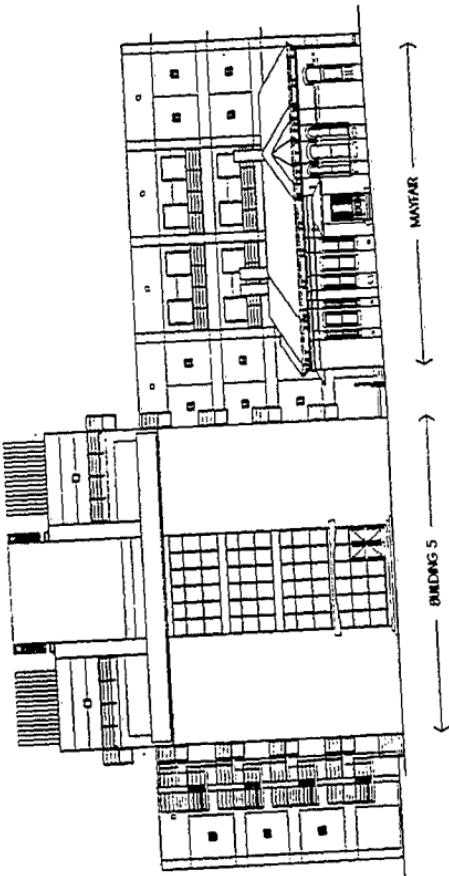


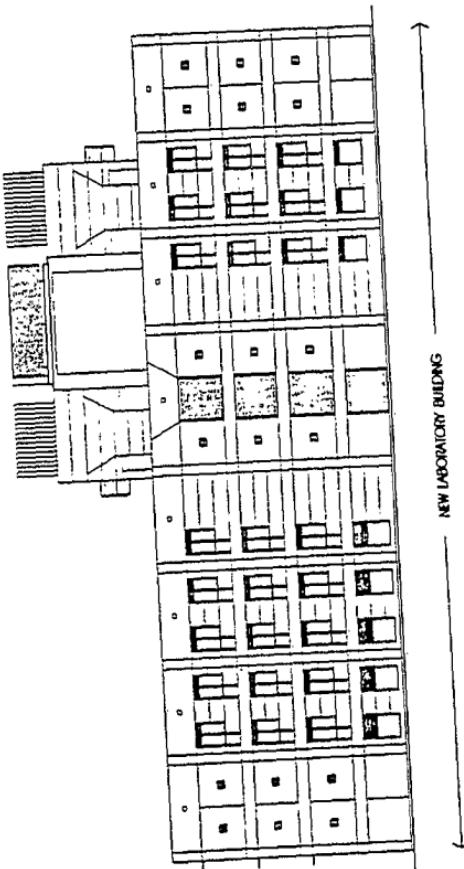


II. PROPOSED SOUTH ELEVATION

CSIRO PARKVILLE REDEVELOPMENT
GARDEN CITY, MELBOURNE

12. PROPOSED EAST ELEVATION
CSIRO PARKVILLE REDEVELOPMENT





13. PROPOSED WEST ELEVATION

CSIRO PARKVILLE REDEVELOPMENT
S. M. 1998

CSIRO PARKVILLE REDEVELOPMENT
THE UNIVERSITY OF MELBOURNE

14. SECTION BUILDING B

