



*Parliamentary Standing Committee on Public Works* 21 JUN 1995

## REPORT

relating to the proposed

# REDEVELOPMENT WORKS FOR CSIRO DIVISION OF WILDLIFE AND ECOLOGY, GUNGAHLIN, ACT

(Eleventh Report of 1995)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA  
1995

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

Report Relating  
to the proposed

**Redevelopment Works for CSIRO**  
**Division of Wildlife and Ecology,**  
**Gungahlin, ACT**

(Eleventh Report of 1995)

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**MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS**

(Thirty-First Committee)

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

<b>Senate</b>	<b>House of Representatives</b>
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

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

EXTRACT FROM THE VOTES AND PROCEEDINGS OF  
THE HOUSE OF REPRESENTATIVES

No. 116 dated Wednesday, 1 February 1995

15 PUBLIC WORKS – PARLIAMENTARY STANDING  
COMMITTEE – REFERENCE OF WORK - REDEVELOPMENT  
WORKS FOR CSIRO DIVISION OF WILDLIFE AND  
ECOLOGY, GUNGAHLIN, ACT

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: Redevelopment works for CSIRO Division of Wildlife and Ecology, Gungahlin, ACT.

Paper: Mr Walker presented plans in connection with the proposed work.

Question - put and passed.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REDEVELOPMENT WORKS FOR CSIRO DIVISION OF WILDLIFE  
AND ECOLOGY, GUNGAHLIN, ACT

By resolution on 1 February 1995, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report to Parliament the proposal for redevelopment works for the CSIRO Division of Wildlife and Ecology, Gungahlin, ACT.

THE REFERENCE

1. The proposed works will include the replacement of existing temporary and substandard accommodation and the provision of additional facilities to meet expanded functions of the Division on the site. Some existing unsatisfactory facilities will be demolished and new facilities will be built in accordance with the site masterplan.
2. The redevelopment will be designed to accommodate 110 staff and a number of visitors and students. The staff will include 80 research personnel and 30 in management, administration and research support.
3. The proposed new building complex will incorporate research laboratories and data collection areas, offices, stores, seminar rooms and staff amenities, and a central resource facility for graphics, information technology and library.
4. The redevelopment will also comprise an extension to the Australian National Wildlife Collection museum, refurbishment of a building to accommodate research activities and extension of another existing building for a chemical analysis laboratory.
5. Existing site services, including water, sewer and electricity, will be upgraded and rationalised. Natural gas will be reticulated to the site.
6. The estimated cost of the proposal is \$7.00m at January 1995 prices.

THE COMMITTEE'S INVESTIGATION

7. The Committee received a written submission from CSIRO and took

evidence from its representatives at a public hearing in Canberra on 20 April 1995. Prior to the public hearing the Committee inspected the existing facilities of the Division of Wildlife and Ecology and the sites for the proposed works at Gungahlin.

8. Evidence was also taken at the public hearing from representatives of the following organisations:

- . Australian Heritage Commission
- . ACT Department of the Environment, Land and Planning
- . National Trust of Australia, ACT

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

- . National Capital Planning Authority
- . Australian Nature Conservation Agency
- . Ginninderra Wetlands Core Group
- . Childcare at Work
- . Department of Primary Industries and Energy
- . Environment Protection Agency
- . Commonwealth Fire Board
- . ACT Chamber of Commerce and Industry Limited
- . Intelligent Lighting Controls
- . Institute of Marine Ecology
- . Dr P L Rothwell
- . Charles Krebs, Professor of Zoology, University of British Columbia

- . Dr Walter G Whitford, United States Department of Agriculture, Agriculture Research Service, Las Cruces, New Mexico

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

## BACKGROUND

11. CSIRO is one of the largest and most diverse national research institutions in the world. It has a staff of 7400 working in some 150 laboratories and field stations throughout Australia.

12. Since its inception in 1926, CSIRO has played a vital role in shaping Australia and generating the nation's wealth. CSIRO 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, to the creation of new technology and products and techniques for the continuing development of Australia's manufacturing and service-based industries.

13. Some 3200 professional staff engaged in scientific research 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 meet just about any scientific or technological challenge.

14. 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 the research effort and ensure its transfer and application
- . lead and promote an expanded science and technology effort in Australia.

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

16. In 1993/94 the CSIRO budget in 1994/95 dollars was \$723.2m. Of this amount \$471.6m was provided directly to CSIRO by the Parliament. Another \$213.3m came from industry and other sponsors of research. The remaining \$38.2m 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.

17. 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.

18. Currently research is carried out in 6 institutes, each relating to sections of industry. Each institute is headed by a director who develops broad plans, sets priorities and regularly reviews research objectives and progress in consultation with division chiefs.

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

20. The Committee is aware that a possible reorganisation of CSIRO's administrative structure is currently under consideration. However the Committee was assured by CSIRO at the public hearing that any reorganisation of administrative structures will not impact at the divisional level and will not affect the proposal being considered by the Committee.

#### **Institute of Natural Resources and Environment**

21. *The objective of the Institute of Natural Resources and Environment* is to provide the scientific knowledge required for the effective management and conservation of Australia's natural resources and environment, particularly in relation to the conservation and protection of natural heritage and sustainable use of natural resources.

22. The Institute comprises 5 divisions and two independent units. These are: Atmospheric Research, Fisheries, Oceanography, Water Resources, Wildlife and Ecology, Environmental Mechanics and CSIRO's Office of Space Science and Applications.

23. The Institute's total expenditure in 1993/94 was \$111.8m of which

\$33.3m (30%) was from external funds. The Institute expects to maintain this ratio of external funding in the longer term.

#### **Division of Wildlife and Ecology**

24. The CSIRO Division of Wildlife and Ecology was originally formed in 1946 as the Wildlife Survey Section to carry out research on the control of rabbits. The small number of staff were initially based on the CSIRO site at Black Mountain, Canberra and in 1953 transferred to the current site at Gungahlin. At that time all of the staff were accommodated in the 'Gungahlin' homestead which is a registered heritage building constructed in the 1860s. The building now accommodates the Chief of the Division, senior managers, records, reception and a visitors centre.

25. The Division has expanded significantly both in numbers and geographic spread over the past 40 years. Laboratories are now located at Alice Springs and Darwin in the Northern Territory, Atherton in Queensland and Helena Valley in Western Australia.

26. At the public hearing CSIRO was asked by the Committee to indicate why the Division continued to have its headquarters in Canberra. CSIRO advised the Committee that the research of the Division is strongly centred on Canberra particularly in relation to access to the south-east forests and also the western rangelands. While most of the facilities for work on vertebrate pests could be sited almost anywhere, CSIRO believes these are best sited in Canberra because of close collaboration with the Australian National University and other CSIRO divisions. CSIRO believes that the Canberra region is almost unique in the world because it has available a very high density of biological and other scientific expertise.

27. The Division conducts the following research programs:

- . national rangelands
- . ecology and conservation management of tropical rainforests and savannas
- . assessment and management of natural resource systems
- . physiological adaptation of Australia's vertebrate fauna and biological control of vertebrate populations

- . conservation biology and ecology
- . resource ecology assessment

28. Expertise in the Division ranges from studies undertaken in conservation and ecology, fauna impact studies, biological control of pest animals and marsupial physiology to complex ecosystem modelling for restoration and integrated management, development of computer based decision support systems, global change and natural resource accounting. Developing future scenarios in particular of the impact of human population in Australia is one of the high priority projects in the Division.

29. The Division is also custodian of the Australian National Wildlife Collection. The Collection, which serves as a valuable research resource, comprises material collected by its staff, and donations from other institutions and private collections.

30. In 1994, the Division established a commercial consulting and technology transfer program to provide expert, independent, objective ecological advice to the private sector and government in Australia, Southeast Asia and the Southwest Pacific.

31. Current activities are based on a major research priority setting exercise involving a range of scientific staff and industry stakeholders, and on an annual internal review process which evaluates research progress and directions against changing national needs, such as Australia's obligations under international conventions.

32. Outcomes from the research of the Division have both national and international importance and contribute to the development of Australia's understanding of the environment and the effective and sustainable management of our natural resources.

33. Research staff from the Division contribute significantly to the development of national policies and strategies in a wide range of areas at government level. In addition they assist in the identification, management and resolution of serious problems affecting the fauna and flora of Australia and other land management issues.

34. Examples of the Division's involvement include:

- . expert advice in the development of both Commonwealth and State Government state of environment reporting and strategies

- . major input into various feral pest programs including mice, goat, pig, rabbit and fox
- . national rangeland management strategies working groups
- . future population impact studies
- . national programs on climate change, biological diversity and management of natural ecosystems.

#### **Relationship with Industry/Government**

35. The level of external funding to the Division has increased markedly from \$1.5m or 11% of the total budget in 1988/89 to approximately \$7.5m or 32% in 1994/95. This reflects strong demand for the Division's range of expertise and its involvement in many large scale environmental projects.

36. The majority of the Division's external support is sourced from both Commonwealth and state government departments and agencies and from a number of competitive funding schemes including the Land and Water Research Development Corporation and the Australian Wool Research and Promotion Organisation. Also of particular significance in the past two years has been substantial AIDAB funding for projects undertaken in Papua New Guinea and Vanuatu. The Division receives a relatively low proportion of its funds from private industry, reflective of the nature of much of the Division's work as being in the 'public good' and of broad environmental significance.

37. The Division also has very good links with other stakeholder groups via the Divisional Advisory Committee which includes representatives from the media, the World-Wide Fund for Nature, academia and politics.

#### **THE NEED**

38. The CSIRO Division of Wildlife and Ecology has occupied the Gungahlin site, a semi-rural site located on the Barton Highway approximately 7 kilometres north of the Canberra central business area, for over 40 years.

39. The 36 buildings, which mainly occupy the eastern part of the site, are of diverse age, merit and condition. Three of the buildings and their



surrounds have a heritage listing. During the early 1960s a number of temporary buildings were established on the Gungahlin site to accommodate research groups. These buildings continue to be used despite offering sub standard accommodation. In the early 1970s and 1980s four major permanent buildings, including a major animal house complex, were constructed on the site. In 1990/91 two permanent research buildings were established to accommodate scientists attached to the National Rangelands Program following the closure of the Division's laboratory at Deniliquin, NSW.

40. The need for redevelopment at the Gungahlin site results from a requirement to replace temporary and substandard accommodation and to provide increased facilities to meet expanded functional needs on the site. Overcrowding exists in some laboratories leading to potentially unsafe working conditions and limitations for research usage. Many of the temporary buildings need to be replaced with permanent facilities more appropriate to the needs of the Division, providing long term flexibility, adaptability and ease of maintenance and consistent with masterplan principles.

41. Some of the buildings on the site do not meet current building and laboratory accommodation standards, are unsuitable for their purpose and cannot be economically upgraded to meet contemporary requirements. These buildings are proposed for replacement. The remaining buildings generally provide accommodation appropriate to current Division activities and to meet future research commitments.

42. The Australian National Wildlife Collection has increased its holdings to the point where large collections are currently packed in unsatisfactory storage which is inaccessible for day to day reference, and which puts the integrity of the collection at risk.

43. Library holdings have increased to the stage where the rate of obtaining new material has outstripped the culling process.

44. The Gungahlin laboratories provide a vital centre for scientific research on how to manage Australia's wildlife, plant and land resources for ecological sustainability. As a Canberra-based centre it has developed strong collaborative links with scientists and research groups in other CSIRO laboratories, with universities throughout Australia and in particular with the Australian National University and the University of Canberra, and with Federal, state and local governments, private industry and agencies responsible for the management and conservation of wildlife and land

resources. The Gungahlin laboratories have developed an international reputation as a centre for scientific excellence. The proposed redevelopment will greatly promote this centre as a place for national and international scientists to carry out research of benefit to Australia.

45. Gungahlin is also the headquarters for the Cooperative Research Centre on Vertebrate Biological Control and is the home for scientists involved in a number of CSIRO Multi-Divisional Programs, for example the Minesite Rehabilitation Research Program and the Conservation of Biodiversity Program. The central project office for the International Geosphere-Biosphere Program, which is investigating the impacts of Global Change on Terrestrial Ecosystems, is also located at the Gungahlin site. The proposed redevelopment will enhance this site as a place for conducting this significant national and international research.

46. The Division is also supporting Australia's obligations under the International Conventions on Biodiversity and Desertification. It has established expertise in both areas and is making significant contributions to Australia fulfilling its responsibility in these two important areas.

47. The Division is also developing a special program to provide, on a consultancy basis, experts to undertake both national and international environmental projects. This development will involve extensive collaboration on the Gungahlin and other sites with international staff and sub-contractors. The proposed redevelopment would provide the facilities needed to conduct these consultancies, and thus derive the benefits from such activities.

48. The Division has a vision to be a world leader in ecology by combining the skills of its scientists at Gungahlin, with those at its regional centres in Atherton, Alice Springs, Darwin and Perth, and with those visiting the site from other national and international centres. This vision is being realised by the development of multi-disciplinary, integrated programs and by developing new and innovative ecological and biological techniques and theories. CSIRO believes that the proposed redevelopment would provide the kind of work place that stimulates and promotes these developments.

#### Committee's Conclusions

49. **There is a need to replace temporary and substandard accommodation at Gungahlin which is overcrowded and does not meet current building and laboratory accommodation standards.**

50. There is also a need to provide purpose built facilities which will enable the expanded functions of the CSIRO Division of Wildlife and Ecology to be accommodated.

## THE PROPOSAL

51. Prior to developing the design for the proposed redevelopment, a site development masterplan was prepared. Through a detailed site analysis, including climatic conditions, services and other external and internal planning constraints, opportunities were identified and principles were established for long term development of the site.

52. Various options were considered for the proposed site redevelopment, ranging from refurbishment and extension of existing buildings through to total replacement of existing buildings.

53. Some of the existing buildings on the site do not meet current building and laboratory accommodation standards and because of their age, configuration, inadequacy of services, high operational and maintenance costs and general unsuitability for their intended purpose, cannot be economically upgraded to meet contemporary requirements. These buildings, unless heritage-listed, are to be progressively replaced. Those buildings which can be adapted to current standards and to meet Divisional requirements will be refurbished and/or extended.

54. Intensive studies in form, location layout and interrelationships which considered multi-storey, split level and single storey construction resulted in the decision to employ single storey construction for new buildings on the site as part of this redevelopment.

55. Multi-storey and split level developments, although compatible with the site topography were considered less appropriate to meet user needs. The strong interrelationships between programs across the site, requiring staff to readily move between activities, within and between buildings, animal yards and facilities and the need for materials handling and processing between field vehicles, storage and research facilities, together with disabled access requirements, were governing factors in maximising at-grade movement and single level construction. The impact of new buildings on existing heritage-listed facilities, including the Gungahlin Homestead, dictated the need to develop only low profile facilities in adjacent areas. A value management analysis confirmed that the most cost-effective solution for new building development on the site was by one level, single storey

construction. The project will be designed in accordance with wind loading codes which exceed the category A earthquake code for the Canberra region.

56. Masterplanning for the site has been based on the need to replace existing unsatisfactory facilities, to provide additional space and to establish a structure for long term development of the site. The new buildings have been sited to form a framework for a pedestrian network which will structure and clarify circulation around the site particularly for visitors and servicing.

57. The site planning retains and enhances the landscaped driveway leading to a central site reception in Gungahlin Homestead. The main carparking is located adjacent to this entry with limited carparking for staff at positions adjacent to the buildings off the perimeter service road. This perimeter service road provides service, emergency and delivery access to the overall complex.

58. The design approach is based on creating a comfortable working environment of appropriate quality conducive to interaction amongst staff and between staff and visitors. The design will maximise the use of natural light, natural ventilation and some passive cooling and heating to achieve high levels of comfort.

59. The proposal comprises:

- a new single storey building (Building A), enclosing the northern boundary of the heritage courtyard, to house research laboratories and scientist offices, data collation rooms and associated offices, seminar/meeting rooms and the Divisional administration
- a new single storey resource centre (Building B), enclosing the eastern boundary of the heritage courtyard, to house technical support groups including communications, computing and the library
- extension of the existing Australian National Wildlife Collection building (Building No. 17) to house preparation laboratories and vaults, replacing existing unsatisfactory accommodation
- extension of the rangelands program laboratory building to house a specialist chemical analysis laboratory (Building No. 37)

refurbishment of Building No. 6 to accommodate data collation rooms and offices.

60. The siting of the new buildings ensures that a simple link can be made to future eastern development of the site and maintains the central position of the resource centre in the long term. A covered walkway to be provided south of Building A links into a servicing network to facilitate ease of extension of services in the future. The new buildings also begin to establish the long term landscaping structure of protected internal courtyards of various sizes distributed throughout the site as informal meeting and recreation spaces.

61. Orientation of new buildings which relates to the orientation of Gungahlin Homestead, is east/west. Offices have been clustered along the northern facades in both new buildings to utilise passive solar benefits. Laboratories from which direct sunlight must be excluded are located to the south. The stepped roof forms enable natural light and ventilation to be brought into the buildings whilst using a wider floor plan to maximise flexibility of arrangements of the laboratories and the library.

62. The design of the complex will comply with the Building Code of Australia and the relevant Australian Standards which include AS2982 - 1987 Laboratory Construction and AS2243 - 1992 Safety in Laboratories.

63. Construction details are at Appendix B

#### Access for people with disabilities

64. An access policy has been established for the site to ensure access for disabled people meets the requirements of the Building Code of Australia and AS1428-1. Facilities to be incorporated into the development will include car parking, continuous pathway access to new buildings, provision of disabled toilets and showers and clear signage around the site.

#### Design issues raised by Australian Heritage Commission and National Trust of Australia, ACT

65. In submissions to the Committee the Australian Heritage Commission (AHC) and the National Trust of Australia, ACT (NTA) expressed considerable concern regarding the mass and scale of Building A and its form and architectural detail which were not seen as being sympathetic to the adjoining heritage listed Gungahlin Homestead. The placement of Building A within the heritage precinct was also of concern. Given the ad

hoc developments that have taken place on the site in the past the AHC believes that this proposal provides an excellent opportunity to establish a precedent for a more sympathetic design on the site.

66. At the public hearing CSIRO indicated that it was aware of the concerns of the AHC and NTA and advised that discussions had been held with both organisations and the National Capital Planning Authority (NCPA) in an attempt to alleviate their concerns.

67. CSIRO advised the Committee at the public hearing that modifications were proposed to the southern facade and to the roofline at the western end of Building A. It is also intended to site Building A outside of the heritage precinct area described in the Register of the National Estate. CSIRO believes that there is little flexibility to move Building A any further away from the Homestead as this would require a major reorganisation of the internal road system and the removal of a number of mature trees.

68. CSIRO has always recognised the need to maintain the Gungahlin Homestead as the prominent building on the site and believes it has demonstrated its commitment to the preservation of the Homestead and to the heritage precinct by significant financial and physical investment in restoration work over many years. Approximately \$600 000 has been expended on preservation and conservation of the heritage buildings and precinct.

69. The Committee was assured by CSIRO that it will continue to work, during detailed design development, with the AHC, NCPA, and the NTA to ensure that the design is sympathetic to and respects the prominence that should be afforded to the Homestead and the historic nature of the site. Detailed consideration will be given to window treatment and selection of materials and finishes to ensure that the new facilities relate appropriately to the existing buildings and the surrounding landscape.

70. At the public hearing both the AHC and NTA while acknowledging that the design modifications proposed by CSIRO were an improvement on the original designs welcomed the opportunity to continue to work with CSIRO during detailed design development.

#### Committee's Recommendation

71. CSIRO should continue discussions with the Australian Heritage Commission, the National Trust of Australia, ACT and the National

Capital Planning Authority during detailed design development to ensure that the design of Building A is sympathetic to the historic importance of Gungahlin Homestead.

#### GUNGAHLIN SITE

72. The CSIRO site is an 35.7 hectare parcel of land located in southern Gungahlin and bounded by the Barton Highway to the west and Bellenden Road to the north. CSIRO tenure is a 99 year Commonwealth lease.

73. The site is part of the National Capital Open Space System and is classified as National Land not included within a designated area of the National Capital Plan.

74. NCPA is the responsible planning authority. Any development works must conform to a Development Control Plan (DCP) agreed by the NCPA, which in turn must reflect the relevant provisions of the Territory Plan. The Territory Plan land use policy which applies to the site is the *"Hills, Ridges and Buffer Areas Land Use Policy"*. CSIRO activities on the Gungahlin site conform with this policy.

75. The Gungahlin site is predominantly rural in character with a limited built up area which forms the campus for the research building and support facilities. The campus is located on a ridge line on the eastern side of the site.

76. The site contains a heritage precinct including Gungahlin Homestead, its outbuildings, the main driveway and associated landscape. Gungahlin Homestead is located on the highest point of the site and forms the natural focus for development.

77. Geotechnical investigations have indicated that foundation material on the site is weathered rock. The Committee was advised that there is adequate bearing capacity for the simple footing construction proposed.

78. In a submission to the Committee the ACT Department of the Environment Land and Planning (DELP) raised a number of issues relating to the Gungahlin site. DELP has engaged a consultant to undertake a study to investigate the Gungahlin Creek Catchment area including the future Gungahlin Drive alignment and proposed options for a connections between Gungahlin Drive and the Federal Highway (see site location plan at Appendix C).

79. Of major concern to DELP is the impact of the CSIRO proposal on road proposals in the area. DELP believes that as the Gungahlin Drive alignment is not finalised it could not agree, at this stage, to an extension of the current CSIRO boundary.

80. An option currently being investigated by DELP is a connection from Bellenden Street to the Federal Highway (see site location plan at Appendix C). An extension of the CSIRO boundary north of Bellenden Street and east of the current CSIRO boundary is not favoured by DELP.

81. DELP also believes that the future main entrance to the site may be more suitable from Bellenden Street to avoid possible problems in relation to a major intersection required at the future connection point of Gungahlin Drive, John Dedman Drive and the Barton Highway.

82. In response to the issues raised by DELP the following points were made by CSIRO:

- . it is CSIRO's intention for any development in the near future to remain within the existing boundary. The inclusion on drawings of the land between existing boundaries and the notional future external road alignment and corridors is indicative only of the use which CSIRO could put the land should it become available to CSIRO
- . if this land did not become available then CSIRO could contain any future development within its existing boundaries
- . CSIRO has concerns with the effects of the possible close proximity of a graded intersection of Gungahlin Drive, John Dedman Drive and the Barton Highway at the south western corner of the Gungahlin site to adjacent animal pens. There could also be an adverse impact on the heritage listed entry driveway from the Barton Highway and plantings along the Barton Highway boundary on both sides of the driveway entry
- . relocation or closure of the Barton Highway entry driveway would jeopardise the heritage significance of the driveway and severely restrict and confuse site address, egress and site traffic circulation.

#### Committee's Conclusion

83. The Barton Highway entrance should continue to be the main entry

point to the Gungahlin site of the CSIRO Division of Wildlife and Ecology.

#### Committee's Recommendation

84. The CSIRO should continue discussions with the ACT Department of the Environment Land and Planning to resolve issues relating to site entry and the impact on CSIRO activities of proposed road works in the vicinity of the Gungahlin site.

#### ENVIRONMENTAL CONSIDERATIONS

85. The proposal has been discussed by CSIRO with the Commonwealth Environment Protection Agency (EPA), which has noted that the proposal is on a site previously cleared and that it will largely replace or refurbish existing structures and thus no native fauna or flora is expected to be effected. EPA referred the proposal to the Australian Nature Conservation Agency (ANCA) in the event that threatened species could be present and to the AHC, as heritage and archaeological values are present on the site. ANCA advised the Committee that the development is not likely to have any impact on threatened species and as such the Endangered Species Protection Act 1992 would not apply. CSIRO has also been advised by DELP's Wildlife Research Unit that there are no legless lizards on the Gungahlin site.

86. The landscape environment comprises rolling terrain with moderate slopes with occasional outcrops of rocks. An ephemeral drainage line cuts the area in a roughly north south direction and this has a series of dams constructed across it.

87. Dense planting of exotic trees in the south western part of the site along the driveway, around the dam to the east and on some fencelines contrast with the generally cleared land with scattered eucalypts in most of the northern part of the area.

88. The prominent nature of the site in location, topography and heritage value has necessitated detailed consideration by CSIRO of environmental issues.

89. An extensive heritage study was carried out in the 1980s on the site and facilities. Subsequently staged restoration work has been carried out on existing heritage-listed facilities such as the Homestead and outbuildings. The study identified a need to preserve particular landscape areas such as

the driveway, trees and the general environs. Any development on the site has adhered to, and will continue to address these needs. CSIRO advised the Committee at the public hearing that in relation to the driveway invasive young saplings will be thinned out.

90. An archaeological study was recently completed. Twenty seven historical sites were found and an additional 17 sites were identified from historical sources but could not be found or found in substantial form. Further investigations arising from this study indicated a need to monitor activities in some designated areas during the construction phase of the project to avoid loss of any undetected relics. Such monitoring, together with recording and salvage, will be implemented. The study reported that no Aboriginal archaeological sites have been recorded in the study area.

91. As noted by EPA all construction will be in accordance with building, health and safety regulations under relevant Australian Standards. A policy of safe removal and environmentally acceptable disposal of waste would continue to be applied on the site.

#### Energy Conservation and Management

92. Passive energy conservation measures have been incorporated into the building design and landscape, and active measures incorporated in mechanical, electrical and hydraulic services.

93. Energy conservation measures include:

- orientation of the building towards the north to maximise passive solar energy
- use of adequate and efficient insulation to the building and ensuring building is sealed
- maximising natural light and lighting controlled to only essential usage
- maximising natural ventilation and restriction of mechanical air conditioning for essential areas only
- use of landscaped courtyards as part of passive cooling system
- establishment of energy targets beyond the 1994 BOMA energy guidelines

- . mechanical services controlled by time clock with manual override for after hours usage. Controls will prevent system being left on accidentally.
- . time clock controlled heating systems, provided with a disable feature to prevent heating in summer
- . use of natural gas for heating in lieu of electricity
- . use of long life, low energy lights
- . use of water saving shower heads
- . selection of cost effective and energy efficient mechanical plant
- . use of light colours to aid reflected light
- . selection of high energy efficient rated equipment and appliances.

94. CSIRO advised the Committee that a number of hot water systems were considered from conventional heavy duty electric or gas fired storage hot water units to solar systems boosted with electric or gas fired units.

95. A conventional gas fired hot water unit was found to be the only economically viable option based upon an assessment of daily water usage and required recovery rate over peak hours and recurring maintenance costs for each of the buildings except for the building 17 extension for which underbench electric hot water units are proposed to meet the particular demands in that building.

## CONSULTATIONS

96. The following authorities and departments were consulted by CSIRO during the development of this proposal:

### Commonwealth Government

- . Department of Industry, Science and Technology
- . Department of Finance
- . Department of Primary Industries and Energy

- . Department of Environment, Sport and Territories
- . Department of the Prime Minister and Cabinet
- . Department of the Treasury
- . Attorney-General's Department
- . Department of Housing and Regional Development
- . Department of Human Services and Health
- . Department of Industrial Relations
- . Department of Employment, Education and Training
- . Department of Communication and the Arts
- . Commonwealth Fire Board
- . National Capital Planning Authority
- . Australian Nature Conservation Agency
- . Australian Heritage Commission

### ACT Government

- . Department of the Environment, Land and Planning
- . ACT Environment Protection Agency
- . ACT Fire Brigade
- . ACT Planning Authority
- . ACT Electricity and Water (ACTEW)
- . ACT Dangerous Goods Directorate
- . Heritage Council of the ACT

## Union

- . CSIRO Chapter of Public Service Union (CPSU)

## Other Authorities and Organisations

- . Telecom
- . Australian Gas Light Company
- . ACROD Ltd
- . Mulanggari Aboriginal Corporation Incorporated
- . National Trust of Australia (ACT)

## CONSTRUCTION PROGRAM

97. It is expected that construction will be staged over a 15 - 18 month period. CSIRO plans to commence construction in January 1996 with completion by mid 1997.

98. Quality management principles will be applied to all stages of the project delivery process. CSIRO indicated that quality assurance will be an important aspect in selecting consultants and contractors. Value management analysis has been applied in developing the initial design concepts and quality reviews and audits will be maintained throughout the ongoing design and construction phases.

## COST ESTIMATE

99. The cost estimate for this proposal is \$7.0m at January 1995 prices, inclusive of all professional fees. In relation to meeting heritage requirements CSIRO indicated that an additional cost of some \$86 000 would be incurred. To enable the cost to be contained within the \$7m budget CSIRO indicated that cost savings would need to be found in other areas of the project although CSIRO was confident that this could be achieved.

100. CSIRO advised the Committee that it uses a contract based on Australian Standard AS2124 which does provide some level of protection to

subcontractors in that a contractor must certify that payments have been made to subcontractors. CSIRO will draw up special conditions that provide protection as best it can for the subcontractor to ensure that tighter controls are put on the main contractor and his financial position in relation to subcontractors.

## Committee's Recommendations

101. CSIRO include in its contract documents a clause stating that subcontractors must be paid before progress payments are made to contractors.

102. The Committee recommends the redevelopment works for the CSIRO Division of Wildlife and Ecology, Gungahlin, ACT at an estimated cost of \$7.0m at January 1995 prices.

## CONCLUSIONS AND RECOMMENDATIONS

103. 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 replace temporary and substandard accommodation at Gungahlin which is overcrowded and does not meet current building and laboratory accommodation standards. 49
2. There is also a need to provide purpose built facilities which will enable the expanded functions of the CSIRO Division of Wildlife and Ecology to be accommodated. 50
3. CSIRO should continue discussions with the Australian Heritage Commission, the National Trust of Australia, ACT and the National Capital Planning Authority during detailed design development to ensure that the design of Building A is sympathetic to the historic importance of Gungahlin Homestead. 71

4. The Barton Highway entrance should continue to be the main entry point to the Gungahlin site of the CSIRO Division of Wildlife and Ecology. 83
5. The CSIRO should continue discussions with the ACT Department of the Environment Land and Planning to resolve issues relating to entry site and the impact on CSIRO activities of proposed road works in the vicinity of the Gungahlin site. 84
6. CSIRO include in its contract documents a clause stating that subcontractors must be paid before progress payments are made to contractors. 101
7. The Committee recommends the redevelopment works for the CSIRO Division of Wildlife and Ecology, Gungahlin, ACT at an estimated cost of \$7.0m at January 1995 prices. 102



Colin Hollis MP  
Chair

8 June 1995

#### LIST OF WITNESSES

- AYLIFFE, Mrs Lynden Anne**  
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**WALKER, Dr Brian Harrison**  
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**WRIGLEY, Mr Lloyd James**  
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## CONSTRUCTION DETAILS

### Building A - Laboratories, Support and Administration

1. This building provides accommodation for the Division's administrative staff and seminar rooms at the western end. The seminar facilities face directly onto the heritage courtyard, and are adjacent to the site reception and other meeting rooms located in Gungahlin House, forming a central facility for intra Divisional and inter organisational meetings. The administrative staff are accommodated in an open plan office with extensive views to the north. A limited number of individual offices are provided.
2. In the eastern section the building provides laboratory and office accommodation for research staff.
3. The building has a gross floor area of 1791m<sup>2</sup>, excluding the external covered walkway. The facilities accommodated are open plan office areas, offices, stores, laboratories, data collation rooms, seminar rooms, a loading bay/consumables store and associated amenities.
4. Emphasis has been placed on gaining maximum natural lighting and ventilation to work areas with long term flexibility to incorporate air conditioning if required. The building allows maximum flexibility of the laboratories by providing an accessible underfloor service trench and non-structural walls within the laboratory building to permit future rearrangement associated with program changes with minimum disruption.
5. The building is a steel frame structure with concrete slab floors. The lower section of the walls will be face brickwork with the upper areas being metal panelling. The roof will be prefinished steel decking. All external walls and roofs will be insulated. Prefinished openable aluminium framed windows will be installed with remote controls for high level windows.

### Building B - Technical Support Resource Centre

6. This building provides accommodation for the Division's Library, the communications technical support group and the computing technical support group. The facilities provided are open plan office area, offices, library stack, open plan reading area, special collections room, electronics workshop and store, graphic and photographic studios, graphic resource room, and dark room. The gross floor area of this building is 735m<sup>2</sup>.

7. The building is a steel frame structure with concrete slab floors. The lower section of the walls will be face brickwork with the upper areas being metal panelling. The roof will be prefinished steel decking. All external walls and roofs will be insulated. Prefinished openable aluminium framed windows will be installed with remote controls for high level windows. The library has been designed to achieve maximum efficiency of layout and natural lighting and all studio spaces have high level windows.

#### **Building 17 Extension - Australian National Wildlife Collection**

8. Existing Building 17 will be extended to accommodate relocated collections and curatorial specimen preparation areas from Building 10 which is to be demolished. The gross floor area of the extension is 396m<sup>2</sup>. The facilities to be provided are a skins and spirit specimen preparation laboratory and associated store, a skeleton preparation laboratory, an office, spirit collection storage vault, a skeleton collection storage vault, a fumigation chamber and an extension to the bird skin collection vault.

9. The construction will be in blockwork with a prefinished steel deck roof on timber trusses to match existing. Roof and perimeter walls of the new extension will be fully insulated. The vaults will be constructed to achieve the conditions required for individual specimen types. Access to the preparation areas is from the service perimeter road to a covered unloading area. The configuration of the vaults and preparation areas is designed to ensure no cross contamination between "clean" and "dirty" areas which could jeopardise the collections.

#### **Building 37 Extension - Chemical Analysis Laboratory**

10. The extension to Building 37 has a gross floor area of 171m<sup>2</sup>. It provides accommodation for two visiting scientists and a specialist chemical analysis laboratory. The facilities provided are offices, a dirty preparation laboratory, a preparation laboratory, a balance room, a fume cupboard room and an analysis instrument laboratory.

11. The extension will be a steel framed brick structure with prefinished steel deck roof on timber trusses to match existing. The architectural form and detailing will relate directly to the existing building.

#### **Building 6 - Refurbishment**

12. This existing building with a gross floor area of 546m<sup>2</sup> was originally built as a combined library and bird banding facility. The library, which has

expanded to take over most of the existing building, does not make efficient use of space and has a number of problems related to security of the collection. The library will be relocated to Building B as outlined above. The ground floor of Building 6 will be gutted and refurbished for research activities currently housed in a portable building to the north of the site and a shared seminar room. The facilities to be provided are a computer suite, data collation rooms, offices, a store and a small seminar room.

#### **Mechanical Services**

13. The mechanical services will be designed and installed to minimise initial capital cost and ongoing operating costs. Adequate maintenance provisions will be incorporated to ensure that plant and equipment is regularly and adequately maintained, and operates at peak efficiency. Heavy duty, tried and tested plant and equipment will be used to ensure long economic life.

14. By maximising natural ventilation, restricting air conditioning to essential areas, providing user override of air conditioning systems, selecting suitable control systems and utilising natural gas for heating, the mechanical services installation shall be energy efficient in operation. Control system elements such as economy cycles operation and purging shall be used where possible to minimise operating costs.

15. Plant and equipment items will be selected with due regard for the appropriate noise levels in the areas served.

16. The complete installation will comply with the requirements of the Building Code of Australia, the relevant Australian Standards and the Codes of Practice and Guidelines applicable to the various laboratory areas the specialist ventilation systems. User safety will be addressed by designing to the above Codes and Standards with particular attention to air change rates, outdoor air quantities and elimination of cross contamination between adjacent areas. Systems are generally time clock controlled with manual override to minimise energy use.

#### **Electrical Services**

17. Due to the inadequate electrical supply to the site, the power supply will be rationalised and upgraded by centralising a two transformer kiosk substation on the site. This will cater for all current needs and have capacity for future expansion. A kiosk substation will minimise electric magnetic interference.

18. Electrical services, including power, optical fibre for data and telephone systems will be distributed via walkways to provide accessibility and flexibility. Data and telephone systems will extend existing networks into the new facilities. Security provisions, as recommended by a site risk assessment, will be implemented and include passive infra red detectors in critical areas and perimeter switches for new buildings.

19. Fire alarm detection will be provided to areas not sprinklered. Thermal fire alarms will be an extension to existing systems. The existing emergency warning information system will be extended to the new facilities.

20. Lighting will comply with relevant Australian Standards and include long life fluorescent or discharge type lights. Lights will be controlled electronically to ensure lighting not required is turned off and, therefore, minimise energy use.

21. A review of areas of existing buildings proposed to be refurbished and with electric heating indicated that it was economical to convert these to gas. This conversion is included in this redevelopment. A lightning risk analysis has indicated that no protection is needed for the new buildings.

#### **Hydraulic Services**

22. The existing hydraulic services will be rationalised to ensure they meet immediate requirements and be capable of expansion to meet future demand. All work will comply with Building Code of Australia, Australian Standards and ACTEW and ACT Fire Brigade requirements.

23. The existing sanitary drainage system will be modified to provide a new central main sewer through the site with connections to services in new and existing buildings. All wastes from laboratories will be discharged through inground neutralising facilities. Laboratory plumbing will be located in accessible ducts to provide flexibility.

24. The existing cold water supply will be modified by installing a new dedicated fire service and retaining the existing system for domestic cold water. All water meters will be removed and replaced with a single meter at the site boundary. Water supply to laboratories will be provided with backflow prevention devices to prevent contamination.

25. Stormwater drainage will connect to existing systems. Some overland flow will continue to discharge to existing dams and drainage channels. An economic analysis was carried out to investigate the use of stormwater

retained in dams for site irrigation and other uses. However, due to restricted use of irrigation on the site and a policy of careful water conservation, special reuse of the stormwater was not found viable. The infrastructure in this proposed development can however be adapted to accommodate a future stormwater harvesting system.

#### **Fire Protection**

26. A new fire hydrant system will be provided to the site. This, together with hose reels and extinguishers within buildings will be in accordance with the Building Code of Australia and ACT Fire Brigade requirements. Exits, compartmentation and separation will comply with the Building Code of Australia, Australian Standards and authority requirements.

27. Sprinklers will be provided to the new laboratories and associated offices in Building A and thermal fire protection will be provided to all other areas. Protection devices will be connected to the Fire Indicator Panel and the ACT Fire Brigade.

28. The fire protection systems will be designed in accordance with the Building Code of Australia, ACT Fire Brigade requirements, the ACT Dangerous Goods Directorate, Commonwealth Fire Board Circular No. 92 and Australian Standards AS2118 and AS2982. Authorities have been and will continue to be consulted in design development. CSIRO will ensure that the completed construction meets all requirements of the ACT Fire Brigade prior to occupation.

#### **Security**

29. An ASIO risk analysis has been undertaken on the physical and intellectual security of the site and its recommendations, including control of access to the site, perimeter security of buildings and detection within critical areas, will be implemented.

#### **Civil Engineering, Siteworks and Landscaping**

30. The existing road system will be modified to suit the proposed development. This will include upgrading the Bellenden Street entry and entry to the northern car park. A transport study was undertaken to determine site carparking requirements. This study indicated that additional 52 carparking spaces be provided. Two disabled persons car parking spaces will be located near the main entry.

31. External lighting and signage will also be upgraded.
32. The site landscape includes the cultural landscape associated with the original homestead and its driveway which are in the Register of the National Estate. The proposed development will preserve the heritage landscape.
33. The remainder of the site has scattered eucalyptus. The buildings have been located to minimise loss of trees. The landscape will be strengthened along the Bellenden Street entry to enhance the heritage landscape. The landscape around the buildings will remain native in character except where energy conservation measures require deciduous trees. The courtyards will include detailed landscape treatment, mulched shrub beds and some irrigated grass.

**Acoustic Considerations**

34. Background noise levels from mechanical plant will be in accordance with the Australian Standards. Partition design will be suitable for appropriate level of speech privacy and plant/equipment noise isolation. Noise levels in the various occupied spaces, especially in noise sensitive areas, such as the seminar rooms, the laboratories, executive office and the library will meet or exceed Australian Standards, Guidelines or good acoustic practice.

**Electromagnetic Radiation**

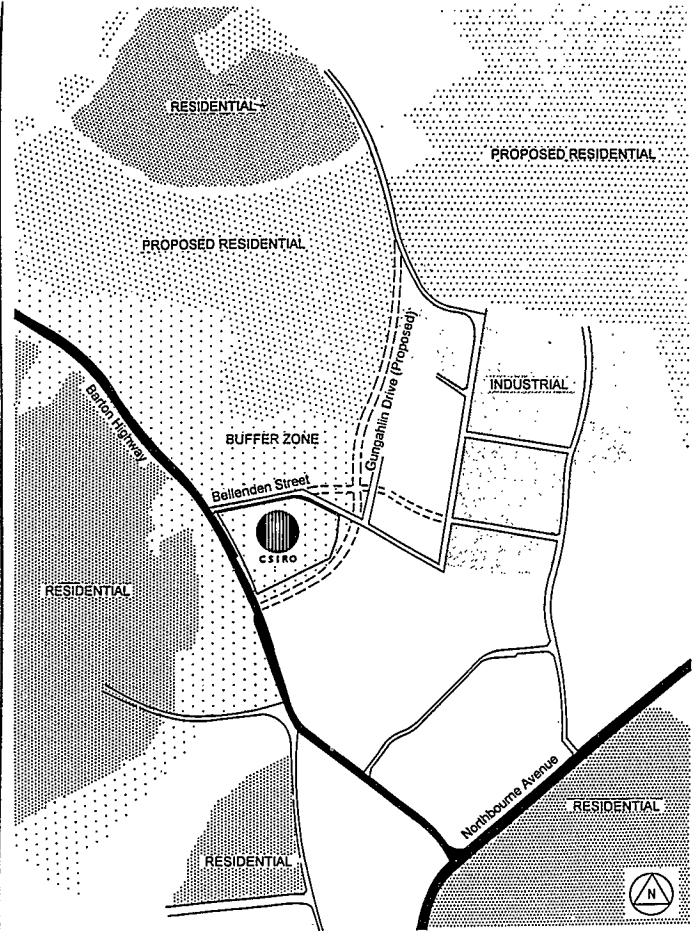
35. The design will employ the principle of prudent avoidance to minimise exposure of equipment and staff to very low frequency electromagnetic radiation. The kiosk substation will be located away from the main buildings. Major power cable runs will either be routed or screened to minimise possible effects.

**Local Impact**

36. The proposed development will have a positive effect on the local economy including employment in construction and support industries over the construction period.

**PLANS AND ILLUSTRATIONS**

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<b>Plans</b>	
Site location plan	C-1
Site development plan	C-2
<b>Elevations - Building "A"</b>	
Northern Elevation Relationship between Gungahlin Homestead & Building "A"	C-3
Western Elevation Relationship between Gungahlin Homestead & Building "A"	C-4
<b>Perspective</b>	
View from entrance driveway	C-5

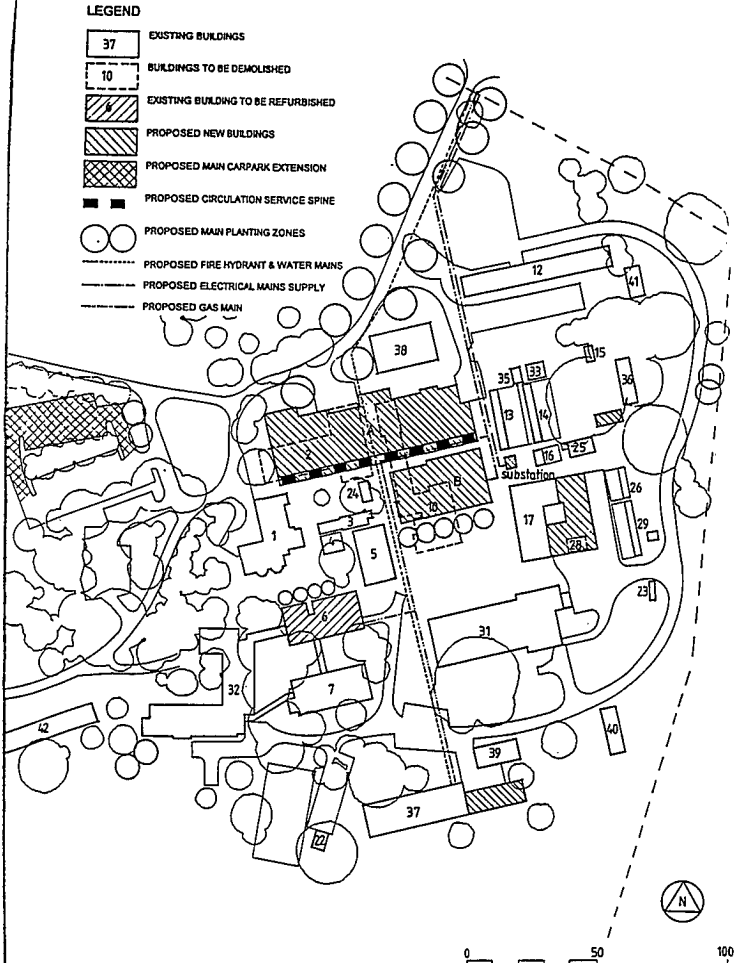


SITE LOCATION PLAN



DIVISION OF WILDLIFE AND ECOLOGY  
GUNGAHLIN

PHILIP COX RICHARDSON TAYLOR AND PARTNERS

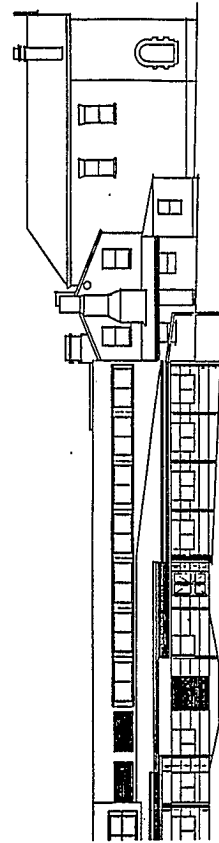


SITE DEVELOPMENT PLAN

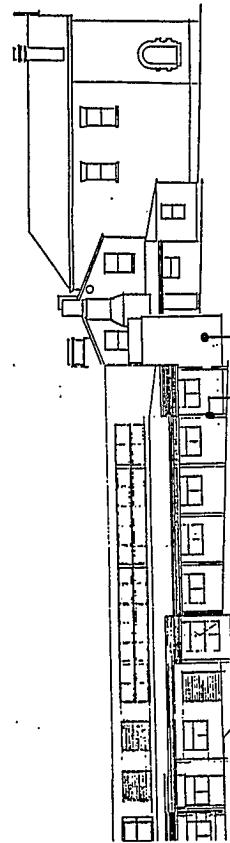


DIVISION OF WILDLIFE AND ECOLOGY  
GUNGALHIN

PHILIP COX RICHARDSON TAYLOR AND PARTNER



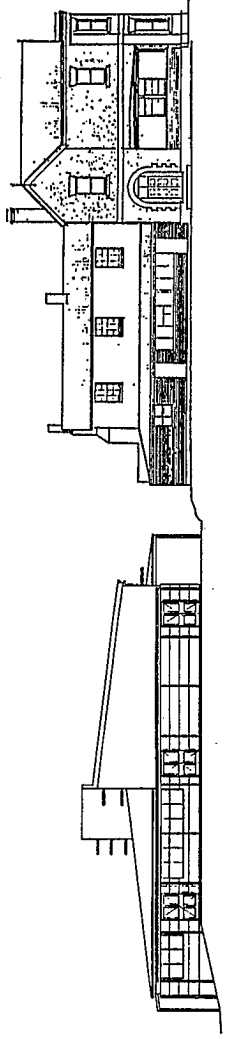
BUILDING "A" NORTH ELEVATION  
PWC EVIDENCE FEBRUARY 1995



lower marking the  
new entrance to the  
administration offices

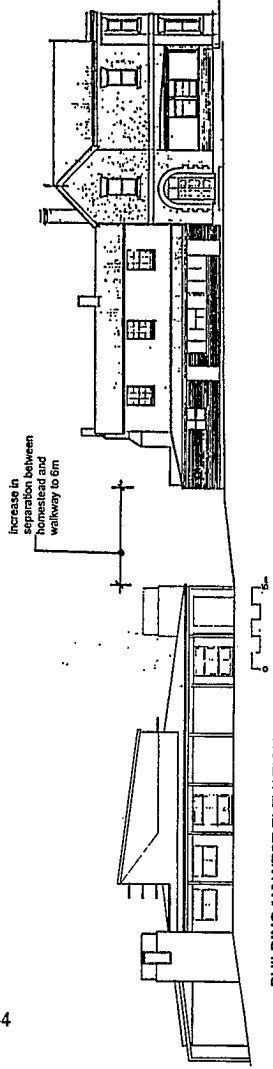
office area set back

BUILDING "A" NORTH ELEVATION  
ALTERNATIVE #3 30.3.1995



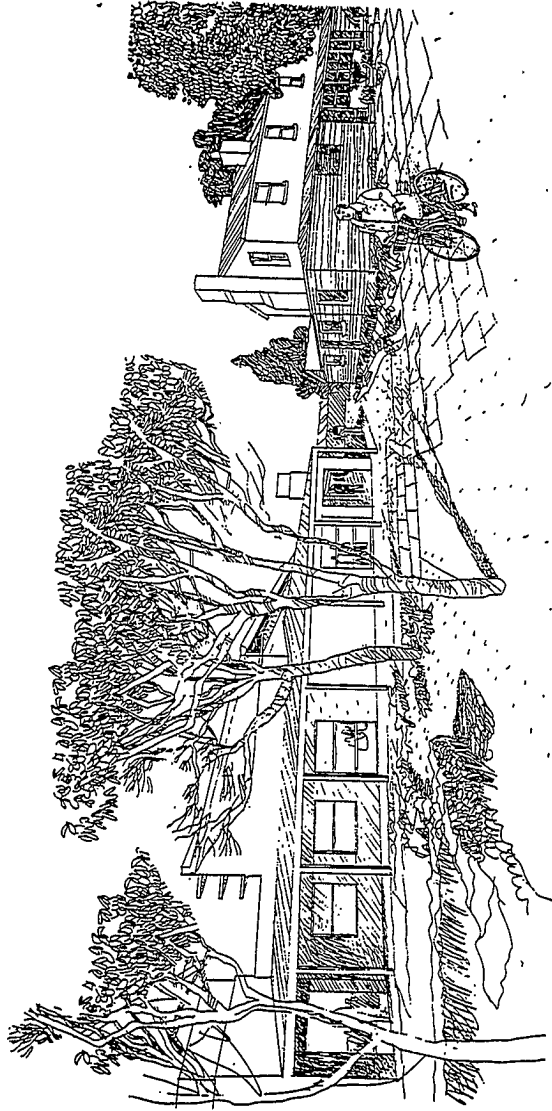
BUILDING "A" WEST ELEVATION  
PWC EVIDENCE FEBRUARY 1995

C-4



BUILDING "A" WEST ELEVATION  
ALTERNATIVE #3 30.3.1995

WESTERN ELEVATION RELATIONSHIP BETWEEN GUNGAHLIN HOMESTEAD AND BUILDING "A"



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PERSPECTIVE  
BUILDING "A" IN RELATIONSHIP TO GUNGAHLIN  
HOMESTEAD AS VIEWED FROM THE ENTRANCE DRIVEWAY  
ALTERNATIVE #3 30.3.1995