

Parliamentary Standing Committee on Public Works

REPORT

relating to the

PURPOSE BUILT COMPUTER CENTRE FOR AUSTRALIAN CUSTOMS SERVICE, BRUCE, ACT

(Fifth Report of 1991)

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

Report Relating

to the

Purpose Built Computer Centre
for Australian Customs Service,
Bruce, ACT

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MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE

PUBLIC WORKS

(Thirtieth Committee)

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

Senate

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

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

Inquiry Staff: Mr Peter Roberts (Secretary)
Mr Patrick Regan
Mrs Di Singleton

EXTRACT FROM THE VOTES AND PROCEEDINGS OF
THE HOUSE OF REPRESENTATIVES

No. 37 dated Thursday, 20 December 1990

- 32 PUBLIC¹WORKS - PARLIAMENTARY STANDING COMMITTEE -
REFERENCE OF WORK - PURPOSE BUILT COMPUTER CENTRE
FOR AUSTRALIAN CUSTOMS SERVICE, BRUCE, ACT: 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: Purpose built computer centre for
Australian Customs Service, Bruce, ACT.

Mr Beddall presented plans in connection with the
proposed work.

Question - put and passed.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

PURPOSE BUILT COMPUTER CENTRE FOR THE AUSTRALIAN CUSTOMS SERVICE, BRUCE, ACT

By resolution on 20 December 1990, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposal for a purpose built computer centre for the Australian Customs Service at Bruce, ACT.

THE REFERENCE

1. The work referred to the Committee is for the construction of a new two storey building with approximately 3780 m² of gross floor area which will provide 1425 m² of computer floor area and associated office space, staff amenities, loading dock, storage space and plant rooms. The proposal also includes parking for 30 cars within a secure perimeter, landscaping and associated site works and services.
2. The limit-of-cost estimate for the proposed works when referred to the Committee was \$16.9m at November 1990 prices.

THE COMMITTEE'S INVESTIGATION

3. The Committee received written submissions and plans from the Australian Customs Service (Customs), Australian Construction Services (ACS) and the Australian Property Group (APG). Evidence was taken from these organisations at a public hearing in Canberra on 4 March 1991.
4. Submissions were also received, and the Committee took evidence, from:

the Joint Parliamentary Committee on the ACT (JPC)

- . the National Capital Planning Authority (NCPA)
- . the ACT Administration
- . the Australian Taxation Office (ATO)
- . the North Canberra Protection Group (NCPG)
- . the Windass Hammer Partnership (WHP).

Submissions were also received from the Australian Sports Commission (ASC) which incorporates the Australian Institute of Sport (AIS).

5. Before the public hearing, the Committee inspected Customs' existing computer facilities and the site for the proposed works. It was also briefed by representatives of the NCPA and ACT Administration on a possible road alignment near the site for the proposed works.

6. Two briefings were later given by Customs, ACS and ATO officers on the power supply and costings for the building, and on the shared use of facilities by Customs and the ATO.

7. 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

8. Customs currently has a main frame computer site located in the basement of the Edmund Barton Building (EBB) in Barton, ACT. All production and application development work is run from this site. A risk assessment of the EBB site, conducted in 1988, highlighted potentially serious security and operational risks associated with its continued use by Customs. The consultants reported that these deficiencies could only be cost effectively addressed by the construction of a purpose built computer centre.

9. A major part of the acquisition of new technology is the design and development of a Disaster Recovery Plan (DRP) which

is consistent with government regulations concerning the provision of appropriate disaster recovery facilities. The DRP is initially being developed using a 'cold site' strategy. (A 'cold' site has air conditioning and power but no computer equipment). The proposed centre will, in the longer term, allow the DRP to be updated to incorporate a dual site strategy.

10. The EBB site has been expanded several times over the past 16 years and, in addition to the security concerns outlined, has no scope for any further expansion. Customs has indicated that in excess of \$8m in 1991 dollars has been spent on the current site in that period. With the commissioning of the centre at Bruce, the EBB site will become a backup site to provide redundant facilities for critical Customs systems. The future use of the current facility will be discussed later in this report.

Electronic Data Interchange and Electronic Initiatives

11. Since 1972, computers have played an increasingly important role in Customs' operations. They are now used daily to handle the ever-increasing workload and to help protect the Australian community from activities such as smuggling and illegal entry. Customs' computer systems must evolve to meet the changing needs of the service. Electronic Data Interchange (EDI) is being introduced in the form of Electronic Initiatives, each of which will simplify and speed up part of the cargo handling process. A number of Electronic Initiatives are being developed; many will be in operation by the end of 1991.

12. The concept behind EDI is the transmission of information by electronic messages between computers. The process is paperless, cheap and fast. EDI messages are transmitted according to a set of world wide trading standards so that any type of computer, anywhere in the world, can understand them.

EDI provides organisations with the opportunity to minimise their involvement in routine manual tasks by using computers. This, in turn, allows the organisation to redirect its activities towards more cost effective tasks, such as information analysis and investigation.

13. Customs will use EDI to do three things:

- . gather information about import (or export) transactions at the earliest possible stage
- . transmit information between the various organisations and within Customs
- . integrate entry processing and cargo control.

This will enable Customs to continue to maintain a smooth flow of cargo and make life easier for its clients, without compromising its control over restricted and prohibited goods.

14. Full implementation of EDI is not due to conclude until 1994-95; its systems are expected to be in place for at least the rest of the 1990s and probably beyond the year 2000.

THE NEED

15. The proposed centre will provide long term accommodation for the new generation of computer equipment to be acquired under the Government-approved acquisition project. This project is the result of a fundamental reappraisal of the use of technology within Customs and will see the introduction of the Electronic Initiatives.

16. Customs and ACS believe main frame computer accommodation cannot be provided economically in traditional office buildings due to the massive power and services requirement. In addition, the need exists for a high level of security and emergency backup facilities, given the nature of the systems supported by Customs.

17. Customs stated there was no suitable Commonwealth-owned or leased computer accommodation available in the Australian Capital Territory and a specialised purpose built facility is the only viable alternative. Customs' computer centre has been in Canberra since 1972 and relocating facilities would be disruptive. Its central office is in Canberra and is the base for its national operations.

18. Customs also stated that the trend among large scale users of information systems in Australia and overseas has also been toward specialised purpose built facilities. Customs inspected several such facilities and is satisfied that the proposed development will compare favourably with those facilities, either planned or already built, for other government agencies and private organisations. The move to EDI based systems and the subsequent removal of the dependence on paper, will further increase Customs' and the trading community's dependence on technology. As a consequence, manual fallback procedures will not be feasible. It is therefore essential that a purpose built centre be established to offer appropriate security to the systems and computer hardware.

19. Customs believes such a centre is required within the next two years as the new equipment arrives and new main frame systems are developed to meet the growing needs of government and the trading community. Modifications to existing buildings have generally proved to be inadequate and have necessitated compromises in such areas as security and services. This undermines the basic objective of providing highly reliable computer support services which, with the introduction of new Electronic Initiatives systems, will be critical to the operations of Customs and the trading community.

The Committee's View

20. The Committee agrees there is a need to provide appropriate accommodation for Customs' computer facilities. It

accepts that new technology required for EDI and the introduction of Electronic Initiatives cannot be located in the current site. There are, however, other aspects of the proposal which will be considered separately in this report.

Committee's Conclusion

21. There is a need to provide appropriate accommodation for the new computer technology being acquired by the Australian Customs Service.

THE PROPOSAL

The Site

22. APG assessed a number of locations in Canberra against Customs' requirements and a site at Bruce, between Braybrooke Street and the future Thynne Street, adjacent to the Fern Hill Technology Park was selected as the most suitable for the project. A site location map is at Appendix B. Development of the site has been planned to meet Customs' requirements and to provide a landscape setting complementing the Technology Park. A topographical survey and geotechnical investigation revealed there were no impediments to the design of an efficient facility.

Project Scope

23. The proposed works comprise:

- . construction of a two storey building with approximately 3780 m² of gross floor area, which will provide 1425 m² of computer floor area and associated office space, storage and plant rooms
- . parking for 30 cars within a secure perimeter
- . associated site works and services
- . landscaping.

24. The proposed centre has been designed to provide the service infrastructure required by modern computer equipment for power supplies, air-conditioning, water supply, telecommunications and fire protection. It has been planned with adequate floor loadings, ceiling heights, loading dock access and staff amenities. It will provide appropriate security against unauthorised access and electronic/radio frequency interference, and will have the capability for expansion within the building and on the site to meet computer accommodation needs for a projected 15 to 20 years.

ENGINEERING

25. The power supply, electrical services and backup arrangements for the building are dealt with at paragraphs 36 to 41.

Mechanical Services

26. While air-conditioning will be provided to all occupied areas of the building, a special purpose system will supply the main computer room, uninterruptable power supply (UPS) room and other areas where precise control of the environment is required. This system will be supplied separately from the mains power supply and backed up by diesel generators.

27. Cooling for the computer room air-conditioners will be provided by chilled water pumped from chillers in the central energy plant room. Cooling towers will be used to eject process and chiller heat from the building. For reliability, all major plant (chillers, cooling towers, pumps and computer air-conditioners) will be installed with a high level of redundancy to achieve an availability of plant of 99.8%. Heating will be provided by electric heaters mounted in the conditioners.

28. Air-conditioning for non-computer areas of the building will be supplied from the mains and backed up by other diesel generators. It will utilise water-cooled, heat-pump conditioners to provide both cooling and heating. Energy savings can be achieved by utilising part of the heat ejected from the chillers to heat other parts of the building.

29. A chilled water storage tank will be provided as a source of cooling water so that, in the event of a power failure, chilled water will be available for the correct operation of the air-conditioners in the main computer area for up to 10 minutes. Air supply and exhaust ventilation systems will be provided for toilets, kitchens and all plant areas.

Energy Management

30. The computer facility requires a building with special purpose air-conditioning for dealing with the heat generated by computer operations. Because the computer's environmental requirements dictate the use of the air-conditioning, energy use for the mechanical services will be high. In such a highly serviced building, energy management and efficiency will be a prime consideration in both the building (construction materials) and its fitout (lighting and air-conditioning).

31. A high energy target has been set for the building because of the heat which will be generated, the need for air-conditioning systems and 24 hour operation. The target is lower than it might be because of the energy efficient building management system chosen for installation.

Communications

32. Provision will be made for the possible future addition of a small microwave dish on the roof of the building in line of sight to the Telecom Tower on Black Mountain.

Fire Protection

33. Building fire protection measures will include:

- . smoke detectors
- . automatic sprinkler wet pipe system including under floor and ceiling spaces
- . a very early smoke detection apparatus (VESDA) in most areas
- . a water detection system in under floor areas.

Security

34. The complex will have a high level of physical security on a 24 hour basis, including a security fence. Although some of the measures to be provided will be less than those included in the adjacent ATO building, the Committee is satisfied that the level of security proposed is appropriate.

Special Features

35. The following special features will be incorporated:

- . provision for radio frequency interference (RFI) screening to minimise the levels of electromagnetic emissions from the complex and to minimise the effect of RFI to the computer main frame area
- . a goods lift of 2500 kg capacity to service the two levels
- . provision has been made for the inclusion of computerised building management systems to assist with the efficient operation and maintenance of the plant and services.

POWER SUPPLY/UNINTERRUPTABLE POWER SUPPLY

36. Customs and ACS proposed that power will be supplied to the centre by a ringmain from two independent underground high voltage supplies, over separate routes, from the ACT Electricity and Water Authority's (ACTEW) Belconnen Zone substation. One supply will be directed from the Zone substation; the other will tap into a feeder through the Fern Hill Technology Park from the Zone substation. On the site, there will be connections to two substations and diesel generators to provide a backup supply if required. Connections from the Zone substation to the two substations on the site will be supplied as a matter of course by ACTEW and not as a requirement of Customs.

37. The normal supply to the centre will be via these two substations, with automatic changeover to the standby diesel generators in the event of power failure or excessive voltage variation. The main switchboard and all sub-mains reticulation will be designed to ensure 99.8% reliability of supply.

38. At EBB, Customs experienced about 1400 incidents in a 12 month period where it was necessary to rely on the backup battery system because of power fluctuations. It does not have backup diesel generators for its computers. Customs is on the ACT's priority grid which is brought in first if there is a power failure; over the past few years there have only been a few instances which have caused partial failures of the computer system.

39. An uninterruptable power supply (UPS) will be provided in the centre for the computer loads to prevent computing errors and memory loss during short term power fluctuations and longer term loss of external supply. During the tender process it will be decided whether a static or rotary UPS system will be installed. Costings have been based on use of the more expensive rotary system. Standby power generation will be

provided for the whole complex. Lighting will generally be fluorescent, with emergency lighting being provided. Security and general grounds lighting will be provided to the perimeter and car park areas of the facility. Lightning protection will be provided.

40. Evidence was given that, while the existing UPS cost about \$1m, the electrical services component for the proposed building, including emergency power generation, was about one third of the limit-of-cost estimate for the project.

41. The electrical services component for the centre is made up of:

- . ACTEW's charges
- . the cost of transformers
- . the cost of major reticulation around the site
- . the cost of lighting
- . major switchboards around the site.

POWER ARRANGEMENTS, AUSTRALIAN TAXATION OFFICE BUILDING

42. In its Sixth Report of 1990, relating to the proposal to build the ATO building now under construction adjacent to the site proposed for the Customs facility, the Committee did not believe an adequate case had been made for the second feeder system from Technology Park. The Committee recommended the ATO and ACS review the requirement for dual independent electricity supplies in view of the provision of other substantial backup facilities. The same issue has arisen in the supply of power to the proposed Customs building and it is clear ACTEW's policies have not changed since that report was presented to Parliament. Furthermore, no evidence has been provided to support the need for ACTEW's policy.

Committee's Recommendation

43. The Australian Customs Service and Australian Construction Services should seek reasons from the ACT Electricity and Water Authority for its insistence that two independent electricity supplies be provided to the Customs computer centre, particularly in view of the inclusion of other, substantial backup facilities in the building.

SHARED POWER SUPPLY WITH THE AUSTRALIAN TAXATION OFFICE

44. Following concerns raised by the Committee at the public hearing on 4 March 1991, Customs, the ATO and ACS examined four options to assess the cost effectiveness or otherwise of Customs and the ATO sharing UPS and backup power generation facilities. These options were:

- . Option 1 - both projects proceed unchanged with their own computer centres, ACTEW substations, UPS and diesel generators
- . Option 2 - all ACTEW substations, UPS and diesel generators be located in either the ATO or Customs building
- . Option 3 - locate the two sets of UPS and diesel generators as presently designed, with the substations centrally located in a separate building
- . Option 4 - construct a separate, shared building to house all UPS, diesel generators and the ACTEW substation equipment.

45. The results of the examination of these options showed that while some savings could be made by combining the power generation facilities for both centres, these would be marginal because of the increase in the overall capacity of the power supply units. Any savings would be offset by fees for additional design work and escalation costs of stopping both projects for the time needed to redesign both facilities.

46. The ATO and Customs believed there was a vastly increased risk to both centres by having a single shared power facility; an incident at such a facility would affect both major revenue raising organisations. Both the ATO and Customs also believed there were no cost or operational benefits to be gained by substantially altering the proposed designs to enable power supply arrangements to be shared.

SHARED FACILITY WITH THE AUSTRALIAN TAXATION OFFICE

47. Evidence was given that in the past the Department of Administrative Services made a number of attempts to put forward propositions to build a shared computer facility for three or four departments. In 1985, and on a number of other occasions, there was a proposal put to government to build one computer centre for the then Department of Territories, the ATO and Customs. It was felt it was inappropriate to put two major revenue earning departments together because of the high cost of such a facility, and because of the target it could provide for sabotage or industrial disputation.'

48. At the Committee's request, a considerable amount of information was provided on a number of issues relating to the sharing of computer centre accommodation by Customs and the ATO. Two options were studied:

- Option 1 - one building with building services shared and all other facilities were included separately to maintain proposed levels of security. This would save about \$1.4m from the total cost of both projects

- Option 2 - one building with shared staff and administrative facilities and reduced levels of security which might not satisfy current ATO requirements. This would save about \$2.1m from the total cost of both projects.

49. In fact, in a shared facility, the ATO's physical security requirements, heavier and more costly building and fence construction, would have to be provided.

50. While there might be savings, additional costs would be incurred resulting from aborted design and development work and the cost of delays. New sketch plans would be required to identify and specify a viable architectural solution. Aborted design and development work was estimated at \$2.4m.

51. It was also estimated that, based on the need to submit the combined facility to the Government and the Committee as a new project, the ATO project would be delayed for 14 months at a cost of \$1.6m and the Customs project by 11 months, at a cost of \$0.9m. Both proposals are part of major computer acquisition projects and delays in completing them will increase costs of, or delay benefits from, their completion. It was not possible to quantify these penalties.

52. The size of a combined facility would be smaller than the sum of the two separate buildings: Option 1 by about 2% or 202 m², Option 2 by about 4% or 404 m². Because of the need to increase Customs' specifications in line with the ATO's requirements, no savings were anticipated in building costs for Option 1. The estimated reduction in building works costs for Option 2 was \$0.3m. No additional computer equipment beyond that already ordered by the sponsors would be required in a combined facility.

53. Savings of \$0.045m per year in maintenance costs could be achieved by arranging combined maintenance contracts for shared building services. As the ATO and Customs had already planned to share a building services officer, there would not be any savings in maintenance supervision.

54. No major savings could be made in providing electrical plant and equipment unless the briefed requirements for capacity and/or redundancy were reduced. Some savings were identified in reduced building size, electrical works and site services. Savings could be found in the following areas:

- . total loading dock space (reduced by 30%)
- . car parking spaces, by 11 places if shift changeover times were staggered
- . switchrooms, substations, generators and UPS
- . a shared entry foyer and primary security control
- . mechanical works
- . electrical works
- . civil works and landscaping
- . site services.

55. The cost of security fencing would remain as estimated, as the reduced length would be offset by the need to construct it all to the ATO's standard.

56. None of the savings found from these items would be significant against the total cost of either option studied.

57. The earlier proposal for a shared facility was not subject to a specialist assessment of its security risk because it did not proceed beyond the concept stage. Neither Customs nor the ATO, at this stage, had major concerns about sharing a facility. A detailed risk assessment would have been conducted as part of the design process to ensure the level of security to be provided with the assessed risk.

58. ATO used a consultant to conduct a risk assessment for its centre, and the same firm is assisting Customs. The results of this study will be included in detailed design documentation. ACS has followed appropriate guidelines in developing the security brief for the Customs building. No formal security assessment was made of the risk of Customs and ATO computer centres being located on adjoining sites, but the ATO was consulted prior to a decision being made about Customs being located on the adjacent site. There were no security concerns about both facilities being located on adjacent blocks.

59. Some savings could be expected from reduced security equipment and staffing requirements if one building were provided, but these would not be significant against total costs.

The Committee's Views

60. On the basis of this material, and the present stage of the ATO project, the Committee has no alternative but to accept that neither project should be delayed. It is aware of the amount of work devoted to these issues by Customs, ACS and the ATO. It notes their views on the lack of benefits to be obtained by providing one building or by any sharing of the power supply. The Committee rejects these views. It is, however, aware that when approval was given for the ATO proposal to proceed, the Customs proposal was not far enough advanced to take advantage of any economies of scale which might have been achieved by locating both facilities in one building.

61. The Committee is concerned that two such similar facilities are sited so close to each other. It notes information from Customs and the ATO that, in the past, they were not concerned about sharing a facility and felt location on adjoining blocks was not a security concern.

62. The argument put by Customs during this inquiry seems to have varied this position. At the public hearing, it was stated that some of the coordinating departments believed it was inappropriate to put the two major revenue earning departments together. To the Committee, it seems that the risk of disruption because of sabotage or industrial disputation would be as great in one building as in two similar buildings side by side.

63. While recent studies by Customs, ACS and the ATO identified some savings through sharing facilities, they believed these were inadequate to change present plans. This was especially so when resulting delays and additional costs were included. The Committee believes that, if there had only been one facility from the earliest planning stage, there would have been substantial savings to the Commonwealth. It is concerned that such duplications of facilities could easily occur again, involving other government departments and authorities. There should, therefore, be a review of all Commonwealth departments and authorities to ensure that, as far as practicable, facilities such as computer installations are collocated, to take advantage of economies of scale and operational benefits.

Committee's Conclusion

64. Substantial savings of Commonwealth funds would have been made if computer facilities for the Australian Customs Service and the Australian Taxation Office had been included in the same building from the earliest planning stage.

Committee's Recommendation

65. The Minister for Administrative Services should carry out a review of all Commonwealth departments and authorities to ensure that, as far as practicable, facilities such as computer installations are collocated, to take advantage of economies of scale and operational benefits.

ROUTE PROPOSED FOR JOHN DEDMAN PARKWAY

66. After it had received this reference, the Committee was made aware that the Joint Parliamentary Committee on the ACT (JPC) was undertaking an inquiry into transport proposals for Gungahlin, a new centre to the northwest of the suburbs of Giralang and Kaleen in the ACT. One of the issues in this inquiry was the route of a major road, John Dedman Parkway, which could have impinged on the site proposed for the Customs building.

67. It was only during the Committee's inquiry into the Customs computer centre that a route for this road was documented by the NCPA and the ACT Administration. This route is shown at Appendix C. At the time this report was cleared by this Committee, the JPC had not reported to the Parliament on the results of its inquiry.

68. However, the Chairman and Deputy Chairman of the JPC gave evidence to this Committee that planners had demonstrated the Parkway could be located between the site proposed for the Customs building and the AIS complex to the east.

69. During its evidence to this Committee, the NCPA confirmed there were six or seven possibilities for the route of the Parkway. Of these, two - the one closest to the site proposed for the Customs building and one to the east of Black Mountain - were probably those being considered by the JPC. The ACT Administration drew attention to the constraints of the suburb

of Kaleen to the northwest, the major watermain adjacent to the corridor for the Parkway, and the Bruce TAFE College to the southwest of the proposed site and the road alignment. It also confirmed there would not be an impact on the site proposed for the Customs facility because, given these three constraints, the Parkway could not be moved further west than shown at Appendix C.

70. The NCPG asserted that, if the curves in the road were sharper, it could be located further west. The ACT Administration stated that, if the road were to be designed for vehicle traffic moving at 80 kilometres per hour, it would not be possible to move it further west.

71. The NCPG sought to preserve valuable heritage bushland flanking the eastern and western sides of the north Canberra residential area, and to be constructive in its suggestions. It suggested the westerly alignment of the Parkway to move it away from the AIS residences and to reduce its impact on bushland to the east of the AIS complex.

72. In its first submission, the Australian Sports Commission (ASC) had no particular concerns about the location of the proposed Customs building but alerted the Committee to parking and access problems in the vicinity of the site. Asked to comment on the proposed westerly alignment for the Parkway shown in Appendix C, in a further submission, the ASC drew attention to:

- . its belief this alignment did not adequately show the earthworks which would be needed for overpasses, nor did it show any landscaping for visual or acoustic purposes
- . the resulting disastrous effect on car parking spaces available for major events at its stadiums
- . traffic problems in nearby streets

- . noise and air pollution problems in its residential area.

The ASC opposed this alignment of the Parkway and any proposal which did not adequately address the needs of all its users. It believed a thorough review of traffic and parking arrangements is needed for the Bruce area. The ASC should take this question up with the JPC, as it is clearly more relevant to its role.

73. The ATO told the Committee it had received advice that long term traffic on the Parkway will not cause any adverse effects on the operation of its building. Controls could be placed on the contractor building any road in the area to minimise danger to the building as a result of blasting or dust.

74. ACS undertook an environmental impact study of the western Parkway proposal which revealed that this proposed alignment would not have any adverse effect on either computer facility. It agreed with ATO's advice that, provided appropriate steps were taken to minimise the risk, no problems would be encountered as a result of vibrations from blasting. Customs was satisfied that sufficient measures would be in place within the proposed building and its grounds to minimise any security risks which could arise as a result of construction of the Parkway on this possible alignment, which will be close to the building.

The Committee's Views

75. The Committee notes the positive approach of and work done by the NCPG, and other groups, to ensure as much of Australia's bushland as possible can be preserved. It recognises that proceeding with the Customs computer centre will have an impact on traffic, parking, noise and pollution around the AIS. It also notes advice, given to the JPC, that John Dedman Parkway was on a 1979 map of Bruce, running

between the AIS athletics field and the TAFE College. Some land in Bruce used by the AIS for car parking is leased for 99, 50 and 20 years from the ACT Administration. The AIS had used the site for the ATO building and that proposed for the Customs facility for overflow parking, but that arrangement was terminated in October 1990 following Parliamentary approval for the ATO project.

76. The Committee accepts evidence which says that building John Dedman Parkway, if construction proceeds on the westerly alignment close to the site, will not affect the proposed Customs building. It is aware that this road will have an impact on the ASC, but notes the views of the JPC, NCPA and ACT Administration witnesses that the Parkway could be built between the AIS and the Customs building. It notes that appropriate precautions will have to be taken during construction of the road to protect both the ATO and Customs buildings.

Committee's Conclusion

77. Provided appropriate precautions are taken during the construction of John Dedman Parkway, if it is built on the westerly alignment proposed, the site selected for the Customs computer centre is suitable.

WINDASS HAMMER PARTNERSHIP SUBMISSION

78. In its submission, WHP stated that an adequate budget for the proposed facility would be:

	\$m
Site works and site services	1
Building shell of 2000 m ² gross at \$1000 per m ²	2
Fitout and special services for 1400 m ² nett at \$2800 per m ²	<u>4</u>
Total	<u>7</u>

79. WHP drew attention to a large number of what it saw as faults in the design and features of the building. The more important of these are considered to be:

- . the reasons for the trend to provision of purpose built computer facilities
- . the inappropriate appearance of the proposed building compared with other more public Commonwealth buildings
- . the over-specification of the building
- . the number of storeys proposed for the building.

80. WHP also suggested that, if a purpose built centre is required, Customs should share accommodation in the ATO's facility being built on the next block. This issue has already been discussed in this report. Finally, it drew attention to ACS' increased commercialisation and suggested the Department of Finance commission independent audits of capital works proposals, and that the Committee be given the independent resources necessary to carry out technical examinations of projects referred to it.

CUSTOMS/ACS RESPONSES TO WINDASS HANMER PARTNERSHIP

Cost and Size

81. ACS stated the estimate of \$7m developed by WHP was based on an inaccurate interpretation of its submission. Its assessment of the specialist services required amounted to \$9m. Although not specifically stated, the usable floor area required by Customs is 1870 m²; this includes additional areas for specialised plant and appropriate circulation space. The resulting gross floor area of 3780 m² far exceeds the area considered necessary by WHP, leading to correspondingly higher

costs for the building and services. Costs and usable floor areas for other large computer facilities are comparable with figures for the proposed building, considering the level of plant and services required by Customs.

82. ACS compared WHP's figures, extrapolating the areas required to provide the planned facility for Customs:

	WHP's Figures	ACS's Figures
	\$m	\$m
Siteworks and site services	1.0	1.4
Building shell 2000 m ² gross x \$1000/m ²	2.0	3780 m ² gross x \$1000/m ² 3.8
Fitout and 1400 m ² nett special services x \$2800/m ²	4.0	3210 m ² nett* x \$2800/m ² nett 9.0
Security	excluded	0.5
RFI screening	excluded	0.4
Provision of services to site	<u>excluded</u>	<u>0.7</u>
TOTAL	7.0	15.8

* Area to be fitted out includes special services.

83. These figures corrected increased WHP's 1400 m² nett area to a gross area of 2000 m² by an efficiency ratio of 70%. By using 1400 m², ACS believed WHP understated the usable floor area needed; ACS proposed 3780 m² with an efficiency of 50%. It believed 2000 m² was insufficient to provide the area needed for computers and services support, and that a gross area of 3780 m² was required.

Purpose Built Facility

84. The WHP submission referred to 'a large number of main frame users who continue to operate equipment in adapted office space' and mentioned a particular organisation. Customs stated that, according to a senior manager in that organisation, despite having spent a considerable amount to refurbish office space for their computer systems in 1989, use of converted accommodation was regarded as a bad decision.

85. With the increasing reliance on computers for most government functions, it is becoming more critical for computer centres to be located in secure and stable environments. Customs operates major commercial and non-commercial computer applications, many of which must be available continuously. Availability targets for the more critical systems are set at 99.8% for 24 hour operation.

86. Large scale main frame computer systems generate significant environmental demands in terms of electrical power and cooling loads. Customs asserts that computer centres to house such systems must be purpose designed, irrespective of whether or not the computer centre is a separate building or part of another. In the case of a computer centre which is part of a building, it is essential that the computer centre component be designed into the building from the outset. Customs stated it is rarely effective to adapt an existing structure because of the high security and environmental demands.

87. Some large organisations have chosen to construct purpose built computer centres. Others have chosen to build major office accommodation with the computer centre as an integral part. In each case, the computer centre has been designed and constructed to exacting standards because of the total dependence which these organisations have on the continued operation of their systems.

88. In 1984, Customs sought to include a purpose built computer centre in the design of the Canberra Customs House. This proposal was rejected on the grounds of cost and inappropriate use of central business district space. Customs believes a purpose built computer centre is the optimal means of guaranteeing the services required to maintain the high level of availability demanded by its clients. ACS added that there are other points against the use of generic office buildings for use as large computer installations, particularly if the space is to be leased. Computer areas require additional structural height to accommodate the computer access flooring and need floors to bear additional loads because of the equipment. Neither feature is likely to be found in leased office space and would add significantly to the cost of any new capital work. It is also desirable to have column-free spaces which is technically difficult and expensive in an office block, or simply not achievable unless designed into such a facility from the outset.

89. Inclusion of expensive computer installations in leased premises is not a preferred strategy, given the difficulty and cost of moving from such accommodation.

90. Customs stated that other points in favour of a purpose built centre included:

- . . the general requirement for windowless external walls with RFI screening
- . . the need for security measures
- . . ease of equipment access
- . . flexibility to expand the facility
- . . housing of major items of equipment (stand by generators, etc.)
- . . ease of change over for shift work
- . . lower construction costs.

91. According to ACS, WHP appeared to overlook the very extensive power and service requirements needed for such a large computer facility with the high levels of demand and availability required. Comparisons have been made with the costs of other large computer facilities; those for the Customs building are comparable considering the amount of plant and services required.

Appearance

92. The proposed building will house facilities of significant value to the Australian economy and as such should be considered a major facility in the spectrum of Commonwealth buildings. However, rather than presenting an 'imposing' appearance, ACS considered the proposed building to be a rather modest facility, quite consistent with the character of the buildings in the nearby Fern Hill Technology Park.

93. Colours, materials and design elements are selected to be compatible with existing buildings in the Technology Park, the AIS complex nearby and, in particular, the computer centre currently under construction for the ATO on the adjacent site.

Over-specification

94. Designed areas respond to the brief from Customs, and are consistent with normal area provisions for the numbers of personnel operating the centre. The conference and training room facilities include provision for visiting personnel.

95. Three shifts with a maximum of 15 personnel each (including day staff located in the building, maintenance staff, programmers, and computer engineers) are to be

accommodated over the 24 hour operation of the facility. Conference and training room facilities for up to 14 personnel in each cater for both on-site and off-site personnel who may be brought to the facility for relevant training and development.

96. Forecourt, foyer and circulation spaces are consistent with the surveillance needs of peak pedestrian traffic. The internal courtyard provides orientation and visual relief considered important in such a large highly technical and essentially internalised facility.

97. Circulation spaces cater for the movement of equipment and paper loads by hand-operated fork-lifts from the loading dock to the main computer room and other operational spaces. The loading dock caters for a large 'fixed' truck transporting computer equipment, removal of rubbish, and storage of courier and other vehicles associated with the centre. The loading dock also provides maintenance access to the generator room, isolating noise and dust from 'cleaner' operational areas. Customs' requirements were very specific in these areas. It is not feasible to accommodate three trucks in the loading dock, as stated by WHP.

98. WHP queried the provision of sprinklers, smoke detectors and a very early smoke detection system (VESDA).

99. The risk of fire is a very serious concern in the design of computer facilities, and has been carefully addressed in this case. The computer room is served by sprinklers and VESDA. The remainder of the building is served by sprinklers and smoke detectors. No area is served by all three systems. Smoke detectors are a conventional quality approach to the detection of fire. VESDA will provide very early detection of fire in the computer room permitting most emergency situations to be handled by staff and/or fire brigade intervention. It is particularly suited for use in such critical installations.

Sprinklers will provide active automatic fire suppression; they provide for contingencies such as rapidly developing fires or unavailability of brigade service. Furthermore, the Australian Standard on computer accommodation calls for mandatory installation of both detection and suppression systems for such an installation as is proposed for Customs.

100. While noting the resulting flexibility in locating equipment, WHP questioned the expense of not having columns in the computer room. Provision of column-free space in the computer area was a requirement of the brief. Only a very marginal additional cost is involved as a result of placing this on the top floor of the facility. The majority of the doors to the outside are for fire egress purposes. They will not be able to be opened from the outside and will be monitored by security systems.

Number of Storeys

101. A single storey building was an option, but was discounted because of requirements for security setbacks from the boundary fences, as well as larger perimeter surveillance requirements, larger earthwork requirements on a sloping site and reduced expansion capability. A two storey design provides passive security advantages by placing more critical operational areas above the ground. It is also consistent with security setback requirements, and allows for reasonable expansion capabilities within the setback requirements.

Revised Procedures

102. From 1 July 1991, ACS will no longer be a regulatory body in works programming or control of capital expenditure. In its new commercial role, it will continue to provide a professional service to its clients. New civil works budgeting procedures propose the establishment of a Works Advisory Board for major new capital works. As representation would include

the sponsor and the Department of Finance, there seems to be no need for that department to audit proposals, as recommended by WHP. Such a body would seem to serve the purpose suggested by the Partnership

103. Section 26 of the *Public Works Committee Act 1969* allows the Committee to appoint an assessor to assist it in any inquiry under the Act. Assessors have been appointed in the past when it was considered appropriate.

The Committee's View

104. The Committee devoted a considerable amount of time to examining the WHP submission, and the material provided by Customs and ACS in response to it. It has noted both the points raised by WHP and the comments made in response, and believes that the Partnership was not able to sustain its views.

FUTURE USE OF PRESENT FACILITY

105. Customs proposes to retain about 50% of its facility at EBB as a backup site for the centre at Bruce. A smaller computer would be run at EBB to support Customs' development and maintenance programming workload to be used in the event of a catastrophe at Bruce, so that at least critical parts of the system could be reactivated within 24 hours.

106. Customs has said that, after completion of the centre at Bruce, the EBB site will not run in parallel but will be available as a backup centre for its system. Approximately half the current site could be available to other government users as a backup centre. Backup arrangements for other departments are under discussion, and some have already made arrangements for a joint backup facility in Canberra. If such a facility were set up, Customs would review its use of EBB.

The Committee's Views

107. Customs needs a backup facility for its computer system and using the current facilities at EBB for this purpose is a wise arrangement. Given the existence of the EBB site and the lack of a suitable backup facility in Canberra for other departments and authorities, consideration should be given to its use as such a facility when Customs has occupied the centre at Bruce.

Committee's Recommendation

108. Consideration should be given to the fitting out of the Australian Customs Service computer facility in the Edmund Barton Building as a backup facility for other Commonwealth departments and authorities.

ACCESS BY THE DISABLED

109. ACROD, ACT Division, drew the Committee's attention to a range of features which are required to be included in the building. ACS' submission included a statement that the design would satisfy Commonwealth guidelines and Australian Standards for access by disabled persons.

CHILD CARE FACILITY

110. The centre will not include child care facilities, but it has been agreed that they will be available at the nearby University of Canberra, TAFE College and Belconnen Town Centre. This arrangement has been accepted by the Public Sector Union (PSU).

CONSULTATION

111. Computer staff and other Customs staff have been closely involved in the design of the Centre. The PSU is represented on the Steering Committee which is over seeing the project.

112. The following organisations have been consulted during the development of this proposal, including the Committee's consideration:

- . ACT Fire Brigade
- . Public Sector Union
- . Australian Council of National Trusts
- . ACROD - ACT Division
- . Australian Sports Commission
- . JPC on the ACT
- . National Capital Planning Authority
- . Australian Taxation Office
- . ACT Administration
- . ACT Electricity and Water
- . Australian Heritage Commission
- . Telecom Australia
- . Department of the Arts, Sports, the Environment,
 Tourism and Territories.

CONSTRUCTION DETAILS

113. Construction details are at Appendix D; project drawings are at Appendix E.

PROGRAMMING

114. ACS advised that, subject to Parliamentary approval for the project, it intended to arrange the contract for the building in two parts. The first part would be the site works/bulk earthworks and it was hoped this would begin in June 1991. Completion of the building is scheduled for December 1992.

115. After the hearing, Customs sought the Committee's approval to call for selected tenders for the preliminary earthworks contract in early May 1991. Provided that the advertisement made it clear that letting of tenders was subject to Parliamentary approval for the project, the Committee indicated it had no objection to this proposal.

COST

116. The project was referred to the Committee at a limit-of-cost estimate of \$16.9m at November 1990 prices. The out-turn cost, including provisions for escalation, construction contingency, fees and professional charges, is estimated at \$22.7m at November 1990 prices.

Committee's Recommendation

117. With some reservations, the Committee recommends construction of a purpose built computer centre for the Australian Customs Service at Bruce, ACT, at a limit-of-cost estimate of \$16.9m at November 1990 prices.

CONCLUSIONS AND RECOMMENDATIONS

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

Paragraph

1. THERE IS A NEED TO PROVIDE APPROPRIATE ACCOMMODATION FOR THE NEW COMPUTER TECHNOLOGY BEING ACQUIRED BY THE AUSTRALIAN CUSTOMS SERVICE. 21
2. THE AUSTRALIAN CUSTOMS SERVICE AND AUSTRALIAN CONSTRUCTION SERVICES SHOULD SEEK REASONS FROM THE ACT ELECTRICITY AND WATER AUTHORITY FOR ITS INSISTENCE THAT TWO INDEPENDENT ELECTRICITY SUPPLIES BE PROVIDED TO THE CUSTOMS COMPUTER CENTRE, PARTICULARLY IN VIEW OF THE INCLUSION OF OTHER, SUBSTANTIAL BACKUP FACILITIES IN THE BUILDING. 43
3. SUBSTANTIAL SAVINGS OF COMMONWEALTH FUNDS WOULD HAVE BEEN MADE IF COMPUTER FACILITIES FOR THE AUSTRALIAN CUSTOMS SERVICE AND THE AUSTRALIAN TAXATION OFFICE HAD BEEN INCLUDED IN THE SAME BUILDING FROM THE EARLIEST PLANNING STAGE. 64
4. THE MINISTER FOR ADMINISTRATIVE SERVICES SHOULD CARRY OUT A REVIEW OF ALL COMMONWEALTH DEPARTMENTS AND AUTHORITIES TO ENSURE THAT, AS FAR AS PRACTICABLE, FACILITIES SUCH AS COMPUTER INSTALLATIONS ARE COLLOCATED, TO TAKE ADVANTAGE OF ECONOMIES OF SCALE AND OPERATIONAL BENEFITS. 65

5. PROVIDED APPROPRIATE PRECAUTIONS ARE TAKEN
DURING THE CONSTRUCTION OF JOHN DEDMAN PARKWAY,
IF IT IS BUILT ON THE WESTERLY ALIGNMENT PROPOSED,
THE SITE SELECTED FOR THE CUSTOMS COMPUTER CENTRE
IS SUITABLE. 77
6. CONSIDERATION SHOULD BE GIVEN TO THE FITTING OUT
OF THE AUSTRALIAN CUSTOMS SERVICE COMPUTER
FACILITY IN THE EDMUND BARTON BUILDING AS A
BACKUP FACILITY FOR OTHER COMMONWEALTH DEPARTMENTS
AND AUTHORITIES. 108
7. WITH SOME RESERVATIONS, THE COMMITTEE RECOMMENDS
CONSTRUCTION OF A PURPOSE BUILT COMPUTER CENTRE
FOR THE AUSTRALIAN CUSTOMS SERVICE AT BRUCE, ACT,
AT A LIMIT-OF-COST ESTIMATE OF \$16.9M AT NOVEMBER
1990 PRICES. 117



Colin Hollis

Chairman

9 May 1991

LIST OF WITNESSES

BANNISTER, Mr Graham Robert, Manager, Acquisition Project, and Chairperson, Purpose Built Computer Centre Steering Committee, Australian Customs Service, Canberra Customs House, 5 Constitution Avenue, Canberra City, ACT, 2601

BOLTON, Mr John Edward, Director, Statutory Planning, National Capital Planning Authority, PO Box 373, Canberra City, ACT, 2601

EVANS, Mr Lindsay Stewart, Director, Forward Planning, National Capital Planning Authority, PO Box 373, Canberra City, ACT, 2601

CALDERSMITH, Mr Graham William, President, North Canberra Protection Group, 20 Dryandra Street, O'Connor, ACT, 2601

COLE, Mr Mervyn Francis, Deputy State Manager, Projects and Interiors, Australian Construction Services, Sirius Buildings, Furzer Street, Phillip, ACT, 2606

FERRARI, Mr Paul Louis, Australian Capital Territory Manager, Australian Property Group, Department of Administrative Services, GPO Box 1920, Canberra, ACT, 2601

GROSE, Mr Rodney Edward, Principal Planner, Transport Planning, Interim Territory Planning Authority, Department of the Environment, Land and Planning, 220 Northbourne Avenue, Braddon, ACT, 2601

GROWDER, Mr John Robert, Assistant Commissioner, Development and Production Support Branch, Australian Taxation Office, 2 Constitution Avenue, Canberra, ACT 2600

HANMER, Mr Geoffrey Nicholas, Partner, Windass Hanmer Partnership, PO Box 1102, Crows Nest, NSW, 2065

HEFFERNAN, Mr Ian Phillip, Director, Computer Operations and Project Director, Purpose Built Computer Centre, Australian Customs Service, Canberra Customs House, 5 Constitution Avenue, Canberra City, ACT, 2601

HORNE, Mr Graham, Committee Member, North Canberra Protection Group, 6 Boobialla Street, O'Connor, ACT, 2601

LANGMORE, Mr John Vance, Chairman, Joint Parliamentary Committee on the ACT and Member for Fraser, Parliament House, Canberra, ACT 2600

NEWMAN, Mr Robert John, Project Manager, Australian Construction Services, Sirius Buildings, Furzer Street, Phillip, ACT, 2606

PLATT, Mr Paul Richard, Principal Architect, Australian Construction Services, Sirius Buildings, Furzer Street, Phillip, ACT, 2606

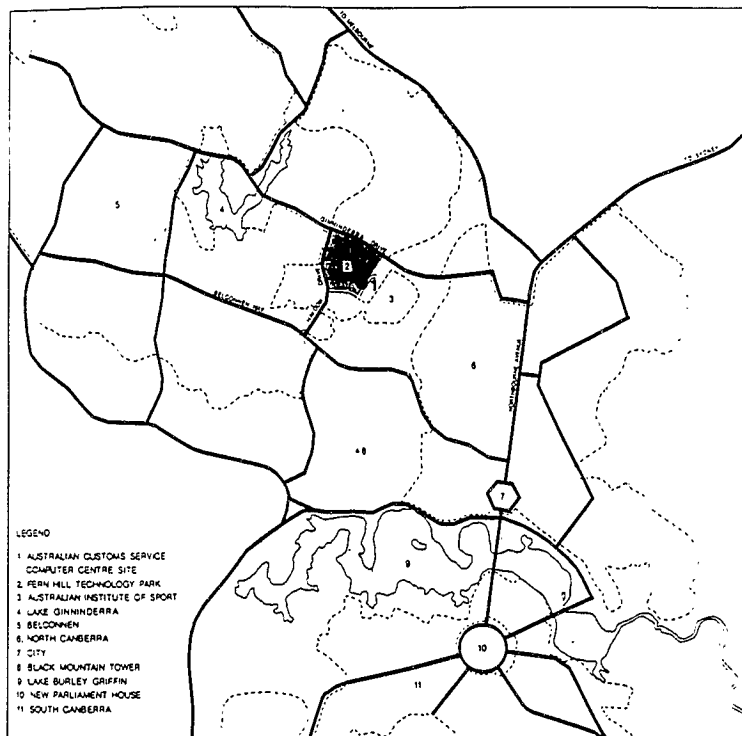
REID, Senator Margaret Elizabeth, Deputy Chairman, Joint Parliamentary Committee on the ACT and Senator for the ACT, Parliament House, Canberra, ACT, 2600

SOMMER, Mr Hans Ernst, Assistant Secretary, Land Development Branch, Department of the Environment, Land and Planning, 220 Northbourne Avenue, Braddon, ACT 2600

SPRY, Mr Paul Edwin, Principal Mechanical Engineer, Australian Construction Services, Sirius Buildings, Furzer Street, Phillip, ACT, 2606

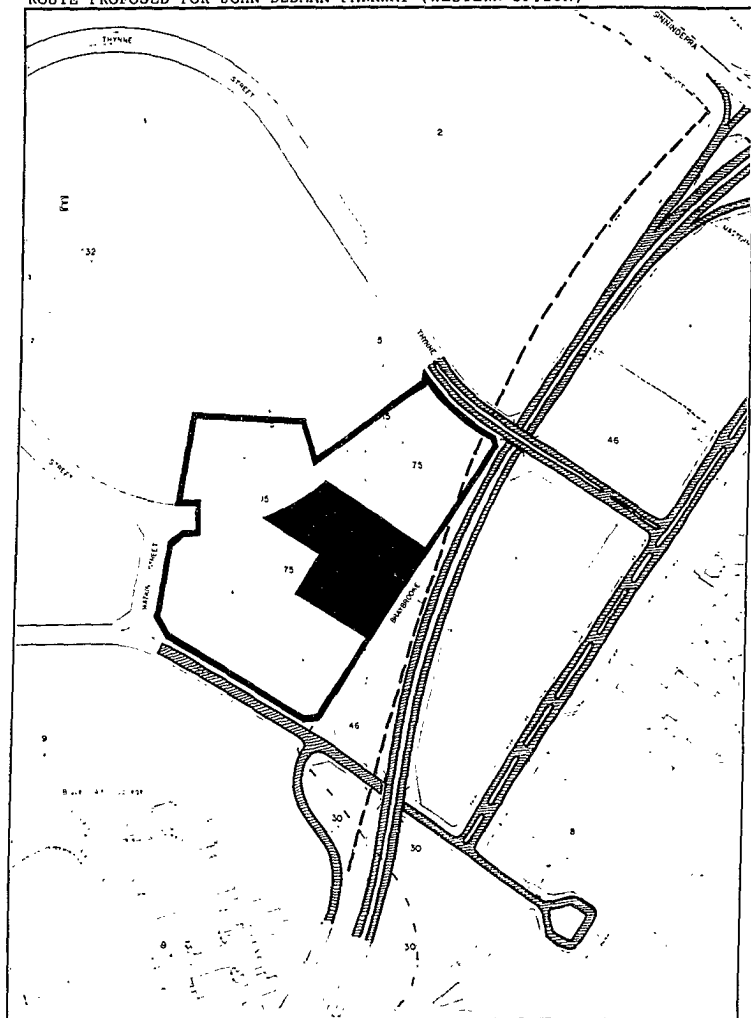
WINDASS, Mr Mark Adrian, Partner, Windass Hanmer Partnership, PO Box 1102, Crows Nest, NSW, 2065

SITE LOCATION MAP



AUSTRALIAN CUSTOMS SERVICE
PURPOSE BUILT COMPUTER CENTRE
DECEMBER 1996

ROUTE PROPOSED FOR JOHN DEDMAN PARKWAY (WESTERN OPTION)



CONSTRUCTION DETAILS

STRUCTURE AND FINISHES

Foundation and Structure

The building will have reinforced concrete flat slab and frame construction, designed to meet Zone 1 earthquake criteria.

Roof frames will be steel beams and purlins with clear span roof trusses over the computer areas.

Floors will be designed for equipment loading consistent with the proposed usage.

External Materials and Finishes

External walls will consist of reinforced concrete frames with reinforced concrete masonry and insulated lightweight panel construction of selected colours and finishes. Windows will generally have aluminium frames with laminated glass.

The roof will be pre-coloured insulated metal deck.

Internal Materials and Finishes

Walls will typically be plasterboard with a painted finish and tiling to wet areas. Ceilings generally will be metal pan tiles in a suspension system or suspended painted plasterboard.

Raised access computer floors with anti-static vinyl tiles will be used in computer areas and carpet tiles to offices. Non-slip ceramic tiles will be provided in foyers and wet areas.

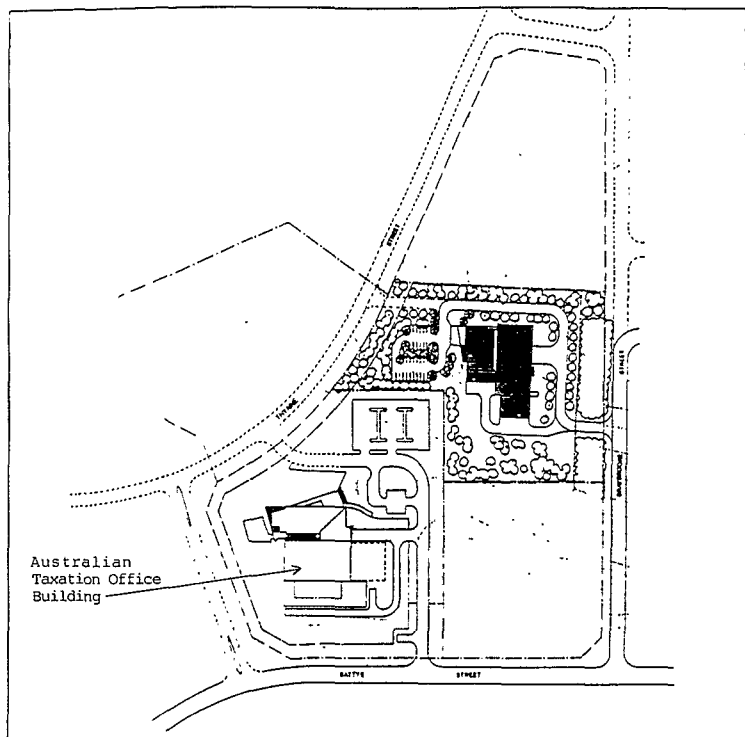
External works and Landscaping

Hydraulic services will meet the requirements and regulations of the ACT Electricity and Water Authority. Water will be provided from two different community reservoirs eliminating the need for water storage tanks for backup supply.

A security fence at the perimeter incorporating electronically operated gates will be installed.

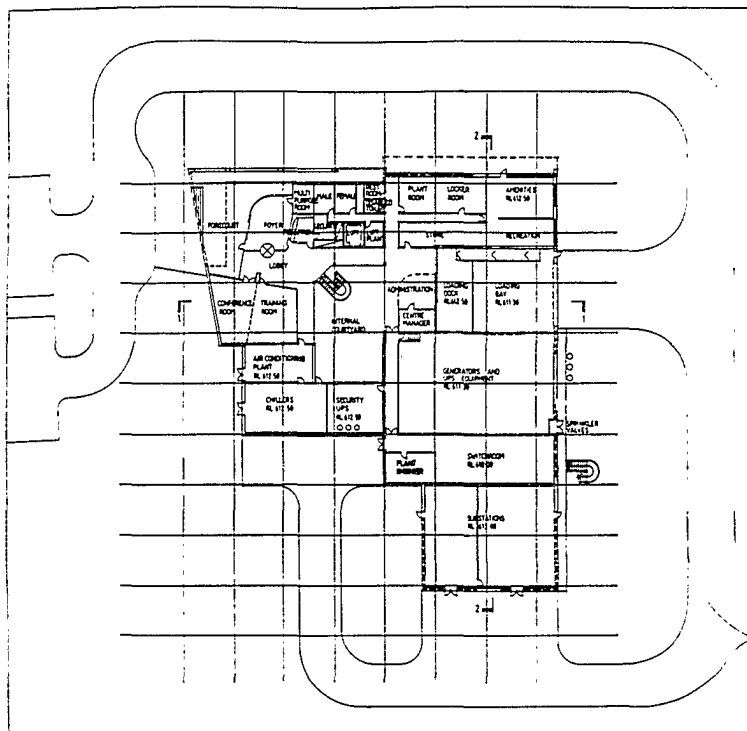
The landscaping will be a visual extension of the adjacent Technology Park development. Perimeter landscaping will include endemic species. Groups of trees in a parkland setting will be planted in the grass perimeter around the building.

PROJECT DRAWINGS



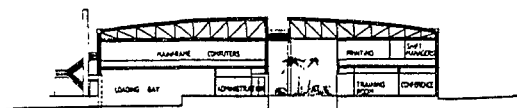
SITE PLAN

AUSTRALIAN CUSTOMS SERVICE
PURPOSE BUILT COMPUTER CENTRE
DECEMBER 1990

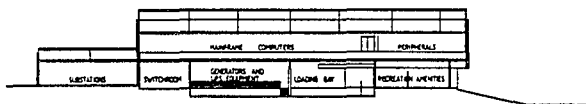


GROUND FLOOR PLAN

AUSTRALIAN CUSTOMS SERVICE
PURPOSE BUILT COMPUTER CENTRE



SECTION 1-1



SECTION 2-2



SECTIONS

AUSTRALIAN CUSTOMS SERVICE
PURPOSE BUILT COMPUTER CENTRE
DECEMBER 1969



PERSPECTIVE

AUSTRALIAN CUSTOMS SERVICE
PURPOSE BUILT COMPUTER CENTRE
DECEMBER 1990