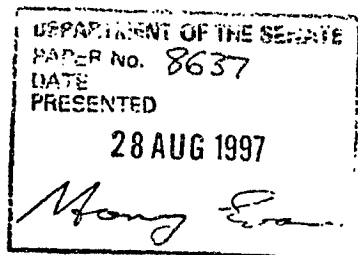


Parliamentary Standing Committee on Public Works

REPORT



relating to the proposed

DEVELOPMENT OF INFRASTRUCTURE ON THE BRADSHAW FIELD TRAINING AREA, NEAR TIMBER CREEK, NT

(Eighth Report of 1997)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1997

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

Report relating

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**Development of infrastructure on
the Bradshaw Field Training Area,
near Timber Creek, NT**

(Eighth Report of 1997)

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ISBN 0 644 508108

Produced by the Australian Government Publishing Service

CONTENTS

	Page
Members of the 32nd Parliamentary Standing Committee on Public Works	vi
Extract from the Votes and Proceedings of the House of Representatives, No 78 dated 19 March 1997	vii
	Paragraph
THE REFERENCE	1
THE COMMITTEE'S INVESTIGATION	3
BACKGROUND	6
APIN Project	6
Defence acquires Bradshaw Station	10
Location and description	13
THE NEED	19
Existing infrastructure	19
Mount Bunday Training Area	20
User requirements	21
Proposed use of BFTA	23
Distance from Darwin	28
Seasonal influences.	29
Infrastructure requirements	33
Defence Efficiency Review and restructuring of the Army	34
Committee's Conclusions	36
ALTERNATIVES CONSIDERED	41
Alternative 1—No infrastructure development	42
Alternative 2—Full infrastructure development	47
Alternative 3—Intermediate level infrastructure development	49
Alternative 4—Minimum infrastructure development	52
Preferred development alternative	58
Committee's Conclusion	59

THE PROPOSAL	60
PLANNING AND DESIGN	63
Range control complex	63
500 person camps	65
Roads	67
Airfields	69
Energy conservation measures	70
Master planning and further works	71
Fire protection	74
Codes and Standards	81
Occupational health and safety	82
Impact areas and Unexploded Ordnance (UXO)	83
Public access	85
Committee's Conclusions	87
PROPERTY CONSIDERATIONS	89
Exploration permits	89
Lease back option to previous owner	91
Access road and bridge	92
Title	93
Land acquisition	94
ENVIRONMENT AND HERITAGE	95
A pastoral property	95
Defence environmental management record	96
Environmental and heritage constraints	100
Environmental impact assessment	101
Management plan	104
Heritage	107
Acoustics	110
Consultation so far	113
Convoys and traffic	117
Feral animals and noxious weeds	118
STAFF IMPLICATIONS	119
CONSULTATIONS	120

NT Government	121
Timber Creek community	125
Committee's Conclusions	126
CONSTRUCTION AND LOCAL IMPACT	128
Project management	128
Internal infrastructure development	129
Bridge and access road construction	131
Local economic impact	134
Other Defence works in the NT	136
COST AND PROGRAM	137
Committee's Recommendation	138
CONCLUSIONS AND RECOMMENDATIONS	139
APPENDICES	
	Page
Appendix A - Witnesses	A - 1
Appendix B - Project Plans	B - 1 to B - 11

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

(Thirty-Second Committee)

Mr Neil Andrew MP (Chairman)
Mr Colin Hollis MP (Vice-Chairman)

Senate

Senator Paul Calvert
Senator Alan Ferguson
Senator Shayne Murphy

House of Representatives

Mr Richard Evans MP
Mr John Forrest MP
Mr Ted Grace MP
Mr Michael Hatton MP*

* Replaced The Hon Michael Lee MP on 26 June 1996

Committee Secretary: Bjarne Nordin

Inquiry Secretary: Michael Fetter

Administrative Officer: Lynette Sebo

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

No. 78 dated 19 March 1997

**PUBLIC WORKS—PARLIAMENTARY STANDING COMMITTEE—
REFERENCE OF WORKS—DEVELOPMENT OF INFRASTRUCTURE
ON BRADSHAW FIELD TRAINING AREA, NEAR TIMBER CREEK, NT.**

Mr Jull (Minister for Administrative Services), pursuant to notice, moved—That, in accordance with the provisions of the *Public Works Committee Act 1969*, the following proposed works be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Development of infrastructure on the Bradshaw Field Training Area, near Timber Creek, NT.

Question—put and passed.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

Development of Infrastructure on the Bradshaw Field Training Area, near Timber Creek, Northern Territory

On 19 March 1997, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposed development of infrastructure on the Bradshaw Field Training Area, near Timber Creek, Northern Territory.

THE REFERENCE

1. The terms of the reference were as follows:

Bradshaw Station is an 871,000 hectare pastoral station which was purchased in February 1996 as a training area for the Army's 1st Brigade. The 1st Brigade is currently being relocated to increase the Defence presence in northern Australia. The relocation will be completed by the year 2000. New facilities for the Brigade are being provided under the \$530 million Army Presence in the North Project (APIN) at Robertson Barracks, about 20 kilometres east of Darwin city. To date, some 1,200 of the 2,300 members of the Brigade have moved to Darwin. Expenditure on the Robertson Barracks project is some \$275.64 million.

In developing this proposal, Defence has worked closely with Environment Australia and the Northern Territory's Department of Lands, Planning and Environment. Both of these organisations support the Defence project, particularly the way in which environmental issues and consultation is being managed.

Bradshaw Field Training Area (BFTA) is located about 600 kilometres by road from the Brigade's barracks in Darwin. The property is currently developed to support beef cattle production. In order to develop it as a field training area, the following infrastructure is required:

- a bridge over the Victoria River in the vicinity of Timber Creek;
- working accommodation for the Range Control organisation;

- living and working accommodation for the Range managers;
- communications facilities;
- an internal road network;
- two 500 person camps;
- vehicle crossing points over creeks and rivers;
- two C-130 capable airfields; and
- vehicle wash points.

2. When referred to the Committee, the estimated out turn cost of the proposed work was \$53.66 million.

THE COMMITTEE'S INVESTIGATION

3. The Committee received a written submission from the Department of Defence (Defence) and took evidence from Defence officials at a public hearing held at Robertson Barracks, Darwin on 1 May 1997. The Committee also received a written submission from the Northern Territory Government and took evidence from the Deputy Secretary of the Department of Lands, Planning and Environment at the public hearing. A written submission was also received from Environment Australia—Environment Protection Group.

4. On 30 April, the Committee undertook an extensive aerial reconnaissance of the BFTA. On the same day, the Committee convened a public meeting at the closest settlement to the BFTA, Timber Creek. This meeting, which was attended by the local community, was intended to provide an informal setting in which members of the community could raise issues of concern. Representatives of Defence were present to provide answers to matters raised.

5. A list of witnesses who appeared at the public hearing is at APPENDIX A. The Committee's proceedings will be printed as Minutes of Evidence.

BACKGROUND

APIN Project

6. The White Paper *Defending Australia* (1994) recognised the need for an increased Defence presence in northern Australia to be achieved by increased training activities and the permanent basing of units in the north. This need was also identified in the earlier White Paper, *Defence of Australia* (1987), and was a major consideration in the 1991 Force Structure Review.

7. In *Defending Australia*, Government foreshadowed the acquisition of a new field training area in northern Australia as a result of the increased Defence presence in the North, particularly the relocation of the 1st Brigade to Darwin. *Defending Australia* further proposed that the training area should become operational in 1999.

8. As part of a strategy to increase the Defence presence in the north of Australia, the Army's 1st Brigade is being relocated to Darwin from Sydney and Puckapunyal. A new base for the Brigade is being constructed at Robertson Barracks, 20 kilometres south east of Darwin. To achieve its mission, the 1st Brigade requires field firing and manoeuvre training areas for the consolidation and testing of collective training skills. The established military training areas in the north of Australia are either too small to allow effective formation level training, too vulnerable to environmental degradation, or too far from the Brigade's cantonment to allow cost effective deployment for training exercises.

9. The requirement for a new field training area was foreshadowed during the Committee's inquiries into the APIN project.

Defence acquires Bradshaw Station

10. A field training area would need to be large enough to sustain manoeuvre and live fire training by units of the 1st Brigade, offer diverse landforms and be within a two day drive from Darwin. Bradshaw Station meets these requirements.

11. The purchase by Defence of the Bradshaw Station pastoral lease was negotiated in December 1995 and settlement was reached on 1 February 1996. This followed confirmation by the CSIRO of the potential of the property as a field training area. Settlement included a three year lease back option to the former lessee, during which time limited military training and infrastructure development may occur following negotiated agreement with the lessee. The property will be de-stocked and existing fences and other infrastructure not

conducive to its future use will be removed. The property is now known as the Bradshaw Field Training Area—BFTA.

12. The Committee was not involved in the decision to acquire the station as property acquisition by the Commonwealth is not within the scope of the Public Works Committee Act. The property was acquired to form the basis of a field training area. Any development required to enable the property to satisfactorily fulfil its assigned roles and estimated to cost more than the statutory limit of \$6 million, is a referable "work" under the Act.

Location and description

13. In geographical terms, Bradshaw Station, located in the north-west of the NT, is a substantial area comprising 8,710 square kilometres. The station was named after Captain Joe Bradshaw who took up the area as a pastoral holding in 1894.

14. In terms of distances, the property is 150 kilometres east to west and 70 kilometres north to south. It is bounded by the Victoria River to the south, Joseph Bonaparte Gulf to the west, the Fitzmaurice River and Wombungi Station to the north, and Innesvale and Coolibah Stations to the east. Most of the boundary is well defined by natural features.

15. The nearest township to the BFTA, Timber Creek, is centrally located on the southern boundary. Timber Creek is about 600 kilometres by road from Darwin, along the Stuart and Victoria Highways and about 285 kilometres from Katherine in the east and 230 kilometres from Kununurra to the west.

16. The terrain comprises a large open plain to the east—the Angalarri and Ikymbon Valleys, a central plateau—Yambarran Range, the Koolendong Valley and a dissected plateau to the west, which borders the ocean. It currently supports 13,000 head of cattle. Of the 871,000 hectares, only 300,000 hectares is used for grazing.

17. The Daly River/Port Keats Aboriginal Lands Trust owns most of the land immediately north of Bradshaw. The land south of the Victoria River across from Bradshaw includes the Timber Creek township, grazing properties and the Gregory National Park.

18. The limited access to the Bradshaw property means that it has been little visited or used for anything other than cattle grazing and some eco-tourism around the Fitzmaurice River and western sectors. Only the Angalarri and Ikymbon River plains in the eastern section of the property and to a lesser

degree the southern portion of the Koolendong Valley, have been developed for grazing.

THE NEED

Existing infrastructure

19. The infrastructure on the property is limited and intended only to support the operation of a remote cattle property. Tracks connect dams and tanks along the western edge of the Angalarri Valley creating routes from the homestead to the north-east and to the east of the property. Another track links the homestead to the Fitzmaurice River via the Koolendong Valley. These tracks tend to be unused for long periods and are unsuitable for any sustained military traffic.

Mount Bunday Training Area

20. Mount Bunday Training Area, located 120 kilometres south-east of Darwin comprising 114,000 hectares, is the closest training area to 1st Brigade. Whilst twice the size of the Puckapunyal Range, its size is inadequate for 1st Brigade to manoeuvre and undertake live firing, which requires 350,000 hectares. The environment at Mount Bunday is different from the BFTA. It was described to the Committee as "very fragile", with much of the area not suitable for training. Consequently, it cannot be categorised as a major field firing and manoeuvre area for use by Brigade level forces. Defence advised that Mount Bunday is suitable only for the static field firing of some weapons systems and that some manoeuvre training is possible for small groups of sub-unit size.

User requirements

21. User requirements for the training area were initially defined by Army, Navy and Air Force. The user requirements were validated in October 1996, by a Range Siting Board.

22. The user requirements comprise:

- combined arms detection, response, protection and support training up to formation level;
- manoeuvre and live fire (direct and indirect) training up to unit level within a formation setting;
- construction and demolition training, including the firing of demolitions;
- communications exercises;

- special forces training;
- aviation tactical flying;
- watercraft training;
- in addition to supporting the above activities—independent logistic training in deployment and sustainment operations;
- joint amphibious operations training; and
- the delivery of aerial ordnance in support of ground forces training.

Proposed use of BFTA

23. It is proposed that 1st Brigade training beyond troop/platoon level will largely be undertaken at the BFTA and will comprise 64 training weeks per year. This means that concurrent activity by more than one user (sub-unit, unit or formation) will occur on the range. For safety and manoeuvre reasons, a training area of at least 350,000 hectares is required for each unit or formation training activity. Additional allowance needs to be made for:

- seasonal influences;
- unsuitable training terrain;
- ‘resting’ for regeneration purposes; and
- restrictions imposed by environmental and heritage requirements.

24. The BFTA will be used principally for the training of Army units and formations, in particular the 1st Brigade. Such training would be supported by the other Services.

25. BFTA is not suitable for naval gunfire support training, which is adequately accommodated in the five permanently restricted gazetted areas in northern Australia. The BFTA may, however, be suitable for operations by Navy heavy landing craft.

26. BFTA is not likely to be used by the Air Force as an air-to-ground live fire weapons range, although it will be used unilaterally by the Air Force in support of ground forces. Air-to-ground weapons training will continue to be

focused largely at the RAAF Delamere Range Facility, located 100 kilometres to the east-south-east of Bradshaw.

27. Requests for the use of the BFTA by foreign forces for bilateral and unilateral training are expected. Defence advised the Committee that whilst it is not appropriate to develop the training area on the basis of potential future use by foreign forces, it is reasonable to assume foreign force use subject to spare capacity being available.

Distance from Darwin

28. The Committee questioned the requirement for the training area to be within two days travelling time from Darwin. Defence advised that the requirement was based on training effectiveness and cost. When on the road, the Brigade's vehicles consume relatively large quantities of fuel. By way of example, if 1st Brigade were to travel to the Yampi Training Area in Western Australia, involving four days travelling time, a direct cost of \$5 million would be incurred annually. Furthermore, travel time cuts into available training time.

Seasonal influences.

29. Training during periods of heavy rain and inundation will not only reduce the effectiveness of training but also has the potential to create unacceptable environmental damage. The restrictions placed on training by the northern wet season materially impact on the number of weeks the area is available for training. Defence advised the Committee that the wet season limits the time available for mechanised and motorised training to about 29 weeks per year. Other forms of training which have less impact on the environment may be able to be conducted during the “shoulder” periods between the wet and dry seasons. In addition, two weeks per year will be required for non-concurrent range maintenance. The available time for mechanised/motorised training will therefore average about 27 weeks per year. Defence advised that an analysis of the detailed user requirement indicates a training load of 64 training weeks per year for the BFTA.

30. Due to the training area load of 64 training weeks per year and the restrictions due to the wet of 27 weeks, there will be times during the year when it will be necessary to conduct three concurrent activities on the BFTA. Therefore, the Brigade should ideally have access to three training areas, each of about 350,000 hectares.

31. The Committee questioned Defence about the need for such large areas. Defence advised the Committee that the requirements were based on 1st

Brigade's organisation ie. the type of equipment it operates, the guns and their ranges, the mobility of the brigade, the capability to fire projectiles up to 30 kilometres and the redeployment of artillery during manoeuvres.

32. Defence assured the Committee that by careful siting of impact areas, manoeuvre corridors and the overlapping of safety templates and buffer zones, the BFTA is of sufficient size and diversity to accommodate the requirements.

Infrastructure requirements

33. The infrastructure requirements for field training areas are:

- adequate access—including wherever possible, access by road trains, C130 aircraft and water craft;
- facilities to accommodate non-exercise safety, coordination, security and environmental management personnel;
- facilities for full time range caretaker and security personnel;
- an internal administrative road network to facilitate safety, environmental management and non-tactical movement throughout the range;
- austere camps to allow troops to configure equipment before an exercise and to recondition equipment and rest after an exercise; and
- adequate definition of training area boundaries—usually by fencing and signposting, to ensure public safety by preventing inadvertent entry onto the property.

Defence Efficiency Review and restructuring of the Army

34. The BFTA was acquired before the recent Defence Efficiency Review was completed and, as a consequence, the Committee questioned Defence on the relevance of the Review to Army field training requirements. Defence advised that the aim of the Review was to make administration more efficient and reduce overheads to enable more resources to be applied to what have been described as 'sharp end' functions, as undertaken by 1st Brigade. Given the relatively dated White Papers (1987 and 1994) which serve as the basis for Defence planning and a new strategic assessment in the offing, the Committee also questioned the proposed future direction of Defence policy. Defence advised that there has been consistency in the approaches of past Governments

to the Defence of Australia and that it is essential that the Army live, operate and train in the north. There is therefore a long-term future for Defence in the north and a similarly long-term future for the BFTA.

35. On 15 October 1996, the Minister for Defence announced plans relating to Restructuring of the Army. The 1st Brigade will play an important role in trialing and testing new operational concepts. Development of the BFTA is an essential element of the implementation process.

Committee's Conclusions

36. **A phased relocation of sub-units from Sydney and Puckapunyal to 1st Brigade at Robertson Barracks, near Darwin, is underway and is expected to be completed by the year 2000.**

37. **At present, elements of 1st Brigade undertake field firing and manoeuvre training at the Mount Bunday Field Firing Range. The limited size of Mount Bunday will restrict use of the range to sub-units.**

38. **The requirement to train 1st Brigade as a single entity requires sufficient land. This has been overcome by the acquisition for development of the pastoral lease of Bradshaw Station, a 8,710 square kilometre property.**

39. **The Bradshaw property lacks the necessary infrastructure to enable training at Brigade strength to be undertaken.**

40. **There is a need to develop the necessary infrastructure on the Bradshaw Field Training Area to allow sub-units, units and formations to conduct collective and joint training in live fire and manoeuvre activities.**

ALTERNATIVES CONSIDERED

41. Defence considered a number of development alternatives for the BFTA. These are summarised in the following paragraphs.

Alternative 1—No infrastructure development

42. If no development were undertaken, the BFTA would be unsuitable for all but the most limited military exercises. Defence advised that in this event the Mount Bunday Training Area would continue to be over utilised to the extent that permanent environmental degradation would be expected there.

43. This alternative would severely restrict military activities in the BFTA due to poor access, reliance on insertion by rotary wing aircraft, dry weather

track access through Wombungi and Coolibah Stations and limited vehicle access across the natural ford near Timber Creek.

44. Internal access would also be severely restricted as the existing network of four wheel drive tracks would be unable to sustain tracked or heavy wheeled vehicle use and environmental degradation would be unacceptably high.

45. In addition, administrative traffic and the response to training imperatives, such as safety, casualty evacuation and fire management would be severely limited.

46. In summary, the 'do nothing' alternative would not satisfy the 1st Brigade training requirements and would not capitalise on the investment already made in purchasing the Bradshaw property. For these reasons this alternative is not prudent.

Alternative 2—Full infrastructure development

47. Under this alternative, development would be undertaken to meet the 1st Brigade's training requirement. Facilities to enable effective management of the BFTA at the proposed level of utilisation would be provided. These are:

- a bridge over the Victoria River;
- access roads to the bridge from Timber Creek and to the range control complex and caretaker's residence;
- a range control complex;
- a caretaker's facility near the southern entrance to the property;
- an all weather, day/night C130 capable airfield near the southern boundary of the property;
- internal access roads to the Koolendong Valley and northern sectors of the Angalarri and Ikymbon River valleys;
- a training force maintenance area providing rudimentary working and living accommodation for 500 personnel and rudimentary storage and maintenance facilities for 200 vehicles;
- a second C130 capable airfield to be located in the Koolendong Valley;

- secondary roads to allow troop deployment off the roads to the Koolendong, Angalarri and Ikymbon valleys;
- rudimentary camp facilities for 500 personnel and their equipment in the Koolendong Valley;
- a ramp to allow Landing Craft Heavy to beach with a minimum of environmental damage; and
- a caretaker's facility sited at the northern boundary to the property.

48. Defence advised that the estimated cost of this alternative is \$51.2 million.

Alternative 3—Intermediate level infrastructure development

49. This alternative would provide for management of, and access to, the property and allow some formation level live fire and manoeuvre training. Access within the BFTA would, however, be severely restricted and would reduce efficiencies and increase environmental impacts on those areas which are accessible.

50. The following facilities would be provided:

- a bridge over the Victoria River;
- access roads to the bridge from Timber Creek and to the range control complex and caretaker's facility;
- a range control complex;
- a caretaker's facility;
- an all weather, day/night C130 capable airfield near the southern boundary of the property;
- internal access roads to the Koolendong Valley and northern sectors of the Angalarri and Ikymbon River valleys; and
- a training force maintenance area providing rudimentary working and living accommodation for 500 personnel and rudimentary storage and maintenance facilities for 200 vehicles.

51. The estimated cost of this alternative is \$27.4 million. It would not meet the full user requirement.

Alternative 4—Minimum infrastructure development

52. This alternative would provide access to the BFTA. Defence advised that formation and unit level manoeuvre would not be possible without serious safety and environmental risks.

53. Under this alternative, the provision of facilities would be limited to:

- bridge over the Victoria River;
- access roads to the bridge from Timber Creek and to the range control complex and caretaker's residence;
- a range control complex; and
- a caretaker's facility near the southern entrance to the property.

54. This alternative would provide a minimum level of infrastructure to allow access to the property and minimal live fire and manoeuvre activities at sub-unit and unit level.

55. Movement by units to sectors remote from the range control facility would be restricted. Cross country administrative movement would be difficult to the Koolendong Valley and to the northern sectors of the Angalarri and Ikymbon River valleys. This would lead to high usage rates near the road head with consequent impacts being concentrated within a confined area.

56. This alternative would, however, relieve some of the environmental pressures on Mount Bunday Training Area. It would also allow regeneration to occur in the over grazed and eroded areas of Angalarri and Ikymbon River valleys while experience is being gained in the environmental management of the property.

57. The cost of this alternative is \$10.7 million.

Preferred development alternative

58. Defence prefers Alternative 2, which is full infrastructure development. Defence advised the Committee that Alternative 2 is the only alternative which meets the user requirement, while also providing the infrastructure necessary for management and safety. In response to a suggestion from the Committee that a phased development of the BFTA be considered—which is implicit in the

other alternatives, Defence advised that the training area is required by the year 2000 and time does not permit phased development. The 1st Brigade will be totally relocated to Darwin by the year 2000 and the existing training area at Mount Bunday is suitable for sub-unit training, and therefore inadequate for Brigade strength manoeuvres and field firing. Defence considered the phasing of construction but the need to have facilities, costing \$53.66 million, available in time was considered a high priority.

Committee's Conclusion

59. A number of development alternatives were considered by Defence, of which full infrastructure development comprising access and training support facilities would meet the requirements of the phased relocation of 1st Brigade to Darwin from southern states by the year 2000.

THE PROPOSAL

60. The extent of the proposed work—identified as Alternative 2, comprises access and training support facilities.

- Proposed works to provide access to the BFTA will comprise:
 - a bridge across the Victoria River;
 - road access from Timber Creek to the bridge; and
 - an airfield to support sustained C130 operations in the vicinity of the access road and bridge.

61. Members of the Timber Creek community questioned the location of the proposed airfield, and suggested that the airfield which serves the community could be upgraded by Defence. Defence advised that use of the Timber Creek airfield was considered but it has serious glide slope limitations for larger RAAF aircraft. Timber Creek is also beneath the runway approach path.

62. The extent of the proposed training facilities is:

- a range control complex;
- manager's facilities—one in the south; one in the north;
- a training force maintenance area, including a camp for 500 personnel and storage and maintenance facilities for 200 vehicles;

- a camp for 500 personnel in the Koolendong Valley;
- an all weather road linking the southern access to the north of the Angalarri Valley in the vicinity of the entrance to the property near Wombungi Station;
- an all weather road linking the southern access to the Koolendong Valley;
- a C130 capable airfield to support training in the Koolendong Valley; and
- a heavy landing craft ramp to support joint training.

PLANNING AND DESIGN

Range control complex

63. Sketches of possible layouts for the range control complex are contained in APPENDIX B and are based on existing facilities in the Shoalwater Bay Training Area, the Mount Bunday Training Area and those being provided for the Townsville Field Training Area.

64. The main office building will have a concrete floor slab; concrete block exterior and interior plaster rendered walls; plasterboard ceilings; colorbond roofing; air conditioning; with standard finishes to walls, floor, doors and windows. Other buildings such as the Quartermaster store will have a concrete floor, steel frames and colorbond steel cladding.

500 person camps

65. It is intended that for flexibility, each camp should be constructed as two 250 person modules. All buildings will have engineer's certification and are to be cyclone rated for the local area. Building details are envisaged to be:

- floor—100 mm thick reinforced concrete slab on ground;
- frame—hot dipped galvanised steel;
- cladding—steel colorbond wall and roof sheeting;
- no internal lining; and
- windows and doors—fixed, steel colorbond ventilation louvres; aluminium framed sliding windows; insect/security screens.

66. Sketches of possible layouts for a 250 person camp module are contained in APPENDIX B. The sketches are based on existing facilities in the Shoalwater Bay Training Area, the Mount Bunday Training Area and those being provided for the Townsville Field Training Area.

Roads

67. All roads are planned to be unsealed gravel all-weather two lane roads built to normal country road standards. However, due to the high intensity of rainfall encountered in the area which can give rise to flash flooding and extended periods of inundation, the construction of culverts will be restricted with causeways being provided wherever practical. All roads are to be capable of being used by the Army's range of tracked and wheeled vehicles, including tank/plant transporters. It is intended that construction materials will be won locally.

68. The need for roads can be justified on the grounds of safety and economy. From the point of view of safety, Defence emphasised the need to have guaranteed routes for the evacuation of accident victims. From an economic perspective, savings would result from tracked vehicles being transported into the training area rather than under their own power.

Airfields

69. Airfields will be constructed to meet RAAF standards for the sustained operation of C130 aircraft.

Energy conservation measures

70. Preliminary investigations and advice from the Power and Water Authority of the NT indicate that it is not economical to provide reticulated power into the BFTA. Therefore, the range control complex, management facilities and the 500 person camps will be equipped with their own generators to provide power on an as required basis. A back-up generator will be provided for safety reasons. Where possible, solar power will be used. Defence is investigating developments in remote area, low demand, power supplies which have been specifically designed for remote stations, mines and similar establishments.

Master planning and further works

71. The report of the Range Siting Board provides the Master Plan for the BFTA. It identifies all facilities to meet the user requirement. The facilities

included in this proposal satisfy the basic requirements to allow formation-level manoeuvre and live firing training.

72. Defence advised that additional works to those proposed might be required but will be dependent upon the finalisation and acceptance of a Range Development Plan. The Range Development Plan, a sub-section of the Environmental Management Plan, is being developed as part of the Environmental Impact Statement process. It is expected that any additional works will be minor in nature.

73. Defence also advised that a requirement to provide road access to the Yambarran Plateau, an additional C130 capable airstrip and another austere camp, has already been identified as a possible future need. This will be confirmed after practical experience is gained on range usage. Further development may be required in the future to accommodate new doctrine, tactics, organisations or environmental management goals.

Fire protection

74. All construction and fire protection requirements will, as a minimum, be in accordance with the provisions of the Building Code of Australia (BCA), the Defence Manual of Fire Protection Engineering (FACMAN 2) and all other applicable Codes and Standards. FACMAN 2 details Defence fire protection policy for asset protection and building function protection. The levels of fire protection specified are above BCA requirements and have been determined by a risk assessment and risk management approach to fire protection.

75. Defence will require certification from a suitably qualified certifier, that the design and construction meet the requirements of the BCA, FACMAN 2, relevant Codes and Standards and any additional Territory, Local Government and Defence requirements.

76. The NT Bushfire Council will be invited to examine the project, visit the site and offer comment throughout the construction phase to ensure that the Brigade's operational requirements are met.

77. Any recommended departures from BCA requirements in relation to the project will be technically assessed by Defence specialist fire protection staff. Agreed departures (ensuring an equivalent or higher level of protection than BCA requirements) will require written approval at Director General level.

78. Successful tenderers will be required to produce a Quality Assurance Plan to clearly show how BCA, Australian Standards and any additional Defence

requirements in relation to fire protection/fire safety, will be met and the required standards for construction/installation maintained.

79. The provision of roads and water points throughout the BFTA will aid in the control of wild fires should they occur. CSIRO has recommended a change in the fire regime from late season to early season burns. This will limit the severity of fires. Wild fire control and management procedures are to be developed in conjunction with the Bush Fire Council.

80. Development and management activities will comply with the fire management measures identified in the Environmental Management Plan, Fire Management Sub-Plan, which is currently being developed as part of the Environmental Impact Statement process.

Codes and Standards

81. Where appropriate, the design of the proposed facilities will conform to the relevant sections of the following:

- current Australian Standards and Codes, including the BCA;
- local, Territory and Commonwealth Environmental Acts;
- FACMAN 2;
- the Defence Security Manual;
- the Occupational Health, Safety and Welfare Act;
- the Defence Explosives Safety Manual;
- the Army Facilities Cabling Manual;
- Unsealed Roads Manual; and
- the Manual of NATO Safety Principles for the Storage of Military Ammunition and Explosives.

Occupational health and safety

82. The health and safety of all workers employed on the construction and operation of the proposed facilities will be protected by strict compliance with the *Commonwealth Employment Act 1991 (Occupational Health and Safety)* and the Army's *Manual of Occupational Health and Safety*.

Impact areas and Unexploded Ordnance (UXO)

83. The 1991/92 Australian National Audit Office Report No 38—*Efficiency Audit on Department of Defence, Management of Training Areas*, recommended that Army should ensure that designated impact areas are of the smallest practical size consistent with realistic training and the need to minimise unexploded ordnance pollution of land. Army agreed to this recommendation.

84. In determining the BFTA impact areas, the Range Siting Board built on experience gained from previous range siting boards, notably the Townsville Field Training Area. Impact areas will:

- be located within areas where it is expected that environmental impacts will be minimal;
- exclude areas of known or potential environmental or heritage value;
- be of the smallest practical size;
- be large and diverse enough to provide realism in training;
- be large enough to allow heavily used parts to be periodically rested through rotational management;
- have a suitable buffer around the boundaries; and
- have the potential to be cleared of unexploded ordnance.

Public access

85. A number of issues relating to access to the BFTA were raised by members of the Timber Creek community and the Committee. Defence advised that under a pastoral lease there are certain access rights to fishermen and as long as the pastoral lease is not converted to freehold (addressed later in this report), the right of access will remain. Potential conflict between recreational fishing on rivers and the location of impact areas have been taken into account by Defence in its planning. The impact areas will have buffer zones and splinter zones to cope with ricochets. All buffers will be contained within the BFTA boundaries. The two major rivers—the Victoria and the Fitzmaurice, mark two of the boundaries. Defence advised the Committee that there will not be a target area within 20 kilometres of a major river. Defence will nevertheless be obliged to exercise a duty of care to control access.

86. In response to questions about procedures to be used by Defence to ensure that members of the public are not within danger areas when live firing is undertaken, Defence advised the Committee that set procedures will be instituted in all cases. These procedures are designed to ensure that no unauthorised people are within the area.

Committee's Conclusions

87. The proposed facilities will provide the infrastructure to permit and support cost effective and realistic training for Australian Defence Force units stationed, or deployed for training, in the north.

88. The infrastructure to be provided is necessary to ensure the long term operational and environmental viability of the Bradshaw Field Training Area as a manoeuvre and live fire training area.

PROPERTY CONSIDERATIONS

Exploration permits

89. There are currently a number of active exploration permits in the Western Hills sector of the property. This sector is least suitable for military training by ground forces and is generally inaccessible except by air. Defence advised the Committee that the three licences are due to expire in 1999. In addition, there are five exploration lease applications on the BFTA, four of which are in the Western Hills sector, which Defence does not expect to use greatly. In addition, the NT Department of Minerals and Energy has advised that a Reservation from Occupation (RO) for mining activities has been established for all areas within the property west of and including the Koolendong Valley.

90. Defence also pointed out that Commonwealth policy would permit access for exploration and mining activities in circumstances where the access would not significantly prejudice Commonwealth use of the property. Access would be subject to conditions which protect the Commonwealth's interest, particularly environmental values.

Lease back option to previous owner

91. Settlement for purchase of the pastoral lease included a three year lease back option to the former lessee. Grazing, although being scaled down towards the end of the lease period, will continue on the property until February 1999. By then, the property will be de-stocked and much of the existing fencing and other infrastructure that is not conducive to its future use will be removed. Due

to past overgrazing and consequent erosion, it is not intended to re-establish grazing on the property once the current lease expires.

Access road and bridge

92. All infrastructure development, except the access road and bridge over the Victoria River, will be contained within the boundaries of the property. The access road and bridge will become NT Government assets on completion

Title

93. Defence has acquired Perpetual Pastoral Lease Number 1089, issued by the NT Government under which the property is held. Defence, in cooperation with the NT Government is continuing to examine the options for purchasing the freehold title for the property. Title to the Mount Bunday Training Area has already been converted to freehold. The issue of converting the BFTA lease to freehold has complexities associated with the Wik decision, which are currently under consideration by the Government. Defence made available to the Committee, on a commercial-in-confidence basis, details of the cost of the lease.

Land acquisition

94. Negotiations have commenced with the NT Government in relation to an access easement to the property in the vicinity of Timber Creek.

ENVIRONMENT AND HERITAGE

A pastoral property

95. The Bradshaw property has been used for pastoral purposes since 1894. During this period, it has suffered some environmental degradation, mainly through erosion and weed infestation and through the application of a late dry season fire regime. The change in use of the property to military training will subject the land systems to different pressures. The total impact generated by these pressures has still to be quantified. Defence pointed to experience in the management of other Defence training areas which has indicated that only about one percent of a property will actually be impacted by Defence activities. This limited impact, coupled with Defence's commitment to and track record in the sustainable use of training areas, will ensure that environmental constraints are clearly identified and effectively managed.

Defence environmental management record

96. Defence believes it has a good record in the environmental management of its training areas. For example, the restoration of the seriously degraded Puckapunyal Training Area in Victoria which has taken place over three decades has, according to Defence, produced a remarkable result. Puckapunyal was formerly seriously degraded by previous grazing, heavy traffic and constant use during the Second World War. The area is now recognised as a model of restoration and environmental management and the Committee commends Defence for its environmental management policies.

97. Another example is the Shoalwater Bay Training Area on the coast of Queensland. This area of 274,000 hectares was acquired by the Army in 1965. It was then a degraded grazing property. In 30 years, Army's environmental management and the ability to allow land to be rested, have resulted in the area being declared the last great wilderness on the east coast of Australia. In short, at the end of 30 years of Defence stewardship, a degraded property has been transformed into an area of national significance which has been entered on the Register of the National Estate. Defence is therefore confident, based on these experiences, that in conjunction with the NT Government, a similar result will be achieved at Bradshaw.

98. The Committee questioned Defence about any financial outlays required to rehabilitate the environment in the BFTA. Defence confirmed that the rehabilitation of Puckapunyal required construction activity and special works to restore the area. Much of the regeneration of Shoalwater Bay occurred as a result of natural regeneration with the cessation of grazing. Much of the restoration of the BFTA will occur in a similar manner, through natural regeneration and the application of sound environmental management practices.

99. Techniques for monitoring the impacts of training continue to be developed by the Army. A recent military exercise in the Shoalwater Bay Training Area—Exercise Tandem Thrust, used an environmental management system which monitored the impact of training in real time. This involved an examination of impacts before and after training activities. The environmental management system will be developed further on the BFTA.

Environmental and heritage constraints

100. Processes have been initiated to determine the environmental and heritage constraints that will need to be applied to the use of the BFTA. It may be assumed, pending finalisation of environmental studies, that a series of key determinant issues for future range management and operation will apply to the

BFTA. Experience from the management of other field training areas indicates that the following key issues will apply:

- minimisation of the number and size of impact areas in order to limit contamination from explosive ordnance;
- the ability to cycle the usage of areas within the range to allow recovery of high usage areas; and
- the protection of specified elements of the local environment.

Environmental impact assessment

101. Defence submitted a Notice of Intention to Environment Australia in October 1996 in relation to the proposed use of the Bradshaw property. In November 1996, the NT Government Minister responsible for environmental assessment determined that there should be an EIS. On 17 January 1997, the Minister for the Environment (Senator the Hon Robert Hill) agreed and directed that an EIS be undertaken under Commonwealth legislation, with the NT taking a leading role in the assessment. The Draft Guidelines for the EIS were developed jointly by Environment Australia and the NT Department of Lands, Planning and Environment. An advertisement was placed in the NT press on 15 February 1997 seeking comments on the draft guidelines. There has been an EIS coordination committee established with representatives from Defence, the NT Government and Environment Australia. This environmental assessment is one of the first occasions where studies will be assessed by two Governments. There will therefore be dual supervision.

102. Should it be established that the proposed site for a facility would have an adverse environmental or heritage impact, Defence assured the Committee that a more appropriate location would be found. Defence added that the approach being adopted to environmental impact assessment is different from assessments undertaken previously. Environmental assessments of the Townsville Field Training Area were undertaken first, followed by the application of military requirements to match environmental concerns. This resulted in changes to military objectives and the need to undertake a further environmental assessment. The cost of environmental impact assessments for the Townsville Field Training Area was \$4 million.

103. The proposed timings for the ongoing environmental assessment process are:

- Public comments on draft guidelines invited—15 February 1997

- Public comments on draft guidelines close—15 March 1997
- Commence preparation of EIS—March 1997
- Undertake scientific studies—commenced August 1996
- Assess Environmental Impact Statement—October 1997

Management plan

104. Defence is presently documenting a full Environmental Management Plan for the BFTA. This Plan will be subjected to public scrutiny through the community consultation and Environmental Impact Statement processes.

105. Defence proposes, subject to the Committee recommending that the works proceed, to commence construction of the access road and the bridge over the Victoria River before the environmental impact assessment is finalised.

106. Therefore, a separate environmental assessment for these components of the proposal is required. This will be managed by the NT Department of Transport and Works. The Department of Transport and Works is also to be commissioned to undertake the construction of the bridge and the access roads as it has acknowledged expertise in that type of construction. This approach for environmental impact assessment of the access road and bridge was highlighted in the draft guidelines for the Environmental Impact Statement. No adverse comments were received in relation to this approach.

Heritage

107. The presence of Aboriginal archaeological sites on the BFTA has been confirmed by surveys. Defence has commissioned studies, as part of the Environmental Impact Statement, to accurately record and assess all Aboriginal sites on the property. It is expected that some of these sites will be of high Aboriginal or scientific significance. Defence Standing Orders will be issued to prohibit live firing and other activities in the vicinity of these sites. Access to them by unauthorised personnel will be forbidden to ensure that they remain undisturbed.

108. It is also known that there are a number of significant sites relating to early European activities and occupation in the area. A study has also been commissioned to identify and assess these sites. Procedures identical to those for Aboriginal sites of significance will be established to protect sites of significance to the European heritage of Bradshaw.

109. The procedures to protect significant heritage sites will be developed in consultation with the relevant Commonwealth and NT Government authorities responsible for their protection.

Acoustics

110. Residents will not be disturbed by the training activities because the few homesteads on neighbouring properties are sufficiently distant to minimise impacts. Community reaction to noise varies considerably with the degree of public knowledge and understanding of the reason for the noise. Military activities which are well advertised generally attract fewer complaints than incidents which come without warning. The noise sub-plan which is to be developed as an element of the Environmental Management Plan will direct the need for training activities to be advertised as a major component of noise management.

111. The township of Timber Creek is approximately 30 kilometres from the boundary of the nearest proposed impact area, while the Bullo River and Auvergne homesteads are more than 40 kilometres from any impact area. The unoccupied Wombungi Outstation is located over 30 kilometres from a proposed impact area.

112. The nearest boundary of the Spirit Hills property is in excess of 40 kilometres from a proposed impact area, while the homestead is well over 80 kilometres from the same proposed impact area. All these communities are also acoustically shielded from both impact areas and firing positions by significant escarpments. This shielding will further improve noise attenuation, thereby reducing the potential of acoustic impact.

Consultation so far

113. Defence has attempted to establish positive relationships with all stakeholders from the outset and intends that all issues raised should be effectively managed. These relationships are being promoted by making publicly available all data and reports—except those dealing with the locations of sites of significance to Aborigines, conducting community consultation programs (including community input into the Environmental Management Plan) and by maintaining close contact with the local community as part of a good neighbour policy.

114. Defence has commissioned Turnbull Fox Phillips, a specialist firm which has effectively managed community consultation programs for other Defence projects, to manage the BFTA Community Consultation Program.

115. In addition to the Community Consultation Program, a Local Consultative Committee, chaired by the Department of Defence Project Director, has been established as part of the communication process, with membership invited at an official or representative level from the following areas:

- the NT Government;
- ATSIC and the Northern Land Council;
- Aboriginal Areas Protection Authority;
- Primary Industries;
- Tourism and Recreation;
- Local Government;
- Conservation; and
- Landcare Groups.

116. As additional groups and organisations are identified as being stakeholders in the proposal, their representatives will be invited to join the committee.

Convoys and traffic

117. An indirect impact from use of the BFTA will be increased military traffic along the Stuart and Victoria highways. Defence agreed that convoys would increase traffic and any inconvenience will be minimised by breaking convoy elements into small packets limited to a number of vehicles. The NT Government advised that the type and number of vehicles involved are of concern to traffic design engineers and that it may be necessary to upgrade the two national highways. This may include passing lanes and other arrangements. The NT Department of Transport and Works is collaborating with Defence in assembling data to be used for the evaluation.

Feral animals and noxious weeds

118. The Committee questioned Defence about the means by which feral animals and noxious weeds on the BFTA will be controlled. Defence advised that the property has about 1,100 wild horses and 1,200 donkeys. The control of feral animals will be addressed in the EIS. The NT Government has indicated to Defence that the control of feral animals and noxious weeds should be carefully

monitored. In relation to noxious weed control, Defence advised that the proposed works include extensive vehicle washing facilities.

STAFF IMPLICATIONS

119. It is estimated that six military range control staff will be required at the BFTA at any one time. These personnel will be based in Darwin and rotate through the BFTA on short detachments. Full time caretakers will be located on site at the Range Control Complex and on the northern boundary.

CONSULTATIONS

120. The primary contact within the NT Government has been designated as the Department of Lands Planning and Environment. In addition to this primary contact, Defence established communications and correspondence with:

- NT Government Ministers and Government Members;
- Darwin City Council;
- Palmerston Town Council;
- Litchfield Shire Council;
- Katherine Town Council;
- Timber Creek Community Government Council;
- NT Government Departments and Authorities, including the:
 - Department of the Chief Minister;
 - Department of Asian Relations, Trade and Industry;
 - Department of Correctional Services;
 - Department of Education;
 - Department of Housing and Local Government;
 - Department of Mines and Energy;
 - Department of Primary Industries and Fisheries;
 - Department of Sport and Recreation;
 - Department of Transport and Works;

- Katherine Regional Tourist Association;
- Office of Aboriginal Development;
- Parks and Wildlife Commission;
- Police, Fire and Emergency Services;
- Territory Health Services; and
- Work Health Authority.

NT Government

121. The NT Government expressed strong support for the proposal at the public hearing and in a written submission. The Government commended Defence in being transparent and consultative in its planning and development processes.

122. An area of concern to the NT Government was the proper identification and management of areas where UXO may result within the BFTA. At the public hearing, the NT Government expressed satisfaction that Defence is aware of its concern and that it will be dealt with in an appropriate manner.

123. The NT Government also raised with the Committee the need to involve small business to the maximum extent possible in the development and management of the BFTA.

124. The BFTA is also seen by the NT Government as an opportunity to attract friendly foreign defence force training activity which would add to the Territory's economy and increase the international profile of Australia and the Territory. It therefore fully supports foreign force training activity.

Timber Creek community

125. A public meeting was convened by the Committee at Timber Creek and the following matters were raised by members of the community:

- whether there will be restrictions to commercial or private aircraft overflying the BFTA—Defence advised that restricted areas would be established by proclamation. The Notice to Airmen (NOTAM) process would advise when restrictions are activated. Not all areas would necessarily be restricted simultaneously. A check-fire procedure would also be instituted and schedules and training programs could be discussed with the

range manager. The Regional Airspace Coordination Committee could be approached if specific points required resolution;

- whether watercraft training will affect river usage—Defence advised that river access would continue to the high water mark. Rivers will not be affected by live firing because of the large buffer zones. Whilst Army landing craft may use the river, this usage would be low and the use of Navy landing craft would be infrequent;
- whether the BFTA would be used constantly and if combined exercises were envisaged—Defence advised that the property would be used mainly during the dry season but small groups may use the area in the latter part of the wet season. There would be some combined exercises but only to the extent of the BFTA's capacity;
- whether access to the BFTA would be through Timber Creek—Defence advised that there would be considerable cost penalties in using a northern approach and therefore access would be through Timber Creek. This may therefore create business opportunities; and
- whether there would be a fuel depot on the BFTA or a resupply depot located elsewhere—Defence advised that there will be a fuel storage facility on the BFTA because 1st Brigade could use up to 40,000 litres of fuel daily.

Committee's Conclusions

126. The proposed development has the strong support of the NT Government.

127. Environmental impact assessments of the use of the property by Defence for a field firing and manoeuvre area are being undertaken and the results of these assessments will require consideration by relevant Territory and Commonwealth Ministers.

CONSTRUCTION AND LOCAL IMPACT

Project management

128. It is proposed that Defence engage a Project Manager following the usual two-stage tendering process. This process involves the placement, by Defence,

of advertisements in local and national newspapers calling for expressions of interest. Four companies will be short-listed to go to tender. The Project Manager will be responsible for arranging suitable contract packages for all works and be the superintendent for the works. The project will involve mostly civil works such as roads, airfields and camp areas, involving heavy horizontal construction and will attract major construction companies. Defence has established a number of panels for architects, engineers and builders, including a special panel to provide maximum opportunity to small and medium enterprises. In order to give local firms greater opportunities, building work will be broken down into smaller than usual packages. Building work will be worth \$12 million and this would provide opportunities for local builders working as subcontractors. Selection will be based on value for money considerations. Building work will be divided into two classifications: contracts over and under \$4 million.

Internal infrastructure development

129. These elements of the project are to be delivered under traditional project management arrangements as a series of discrete work packages. The packages will be delivered as either Design and Construct or Document and Construct Contracts. The main advantages of this method of delivery are:

- the project can be organised flexibly into a series of smaller packages;
- competitive pricing can be achieved at all levels of work; and
- participation is possible by a range of contractors and trades, which is particularly suitable for a community where local contractors will be keen to participate.

130. Defence will investigate the use of Army engineers for elements of the work. Due to training commitments it appears that Army engineer involvement will be fairly limited.

Bridge and access road construction

131. It is proposed that the NT Department of Transport and Works be contracted to undertake this element of the project as that Department has an acknowledged expertise in constructing these types of facilities throughout the NT. The Department of Transport and Works has advised that if they are engaged to manage the task, they would complete detailed design of all facilities in-house and then call open tenders for construction.

132. Defence undertook to investigate the merits and practicalities of a suggestion from the Timber Creek community that the bridge have provision for pedestrian access.

133. In response to a question from a representative of the Ngaliwurru-Wuli Association about the precise location of the proposed bridge, Defence advised that although testing was continuing, it would probably be sited on the Timber Creek side of Little Horse Creek.

Local economic impact

134. As part of the Environmental Impact Statement process, Defence has commissioned Dr Ram Vemuri of the University of the NT to conduct a study to assess the economic impacts on the local communities at Timber Creek, Kununurra and Katherine as a result of the project. The study was due to be completed by June 1997.

135. There will be economic benefits to be derived from the construction works which are planned to extend over 42 months. Some of the works will be of a suitable size and nature to attract tenders from local trades and builders. Initial investigations by Defence indicate that the expected nature and frequency of usage of the BFTA will provide some benefits through increases in commodity consumption levels (eg, food and fuel) as a result of troop deployments into the area. Period contracts for the supply of commodities, such as fuel and foodstuffs, will be let competitively.

Other Defence works in the NT

136. Other Defence works, planned or in progress in the NT, are listed below:

Title	Year of Decision	Cost \$m
APIN Stage 1	1992	\$198.2
APIN Stage 2	1995	\$268.3
Mount Bunday Training Area	1995	\$5.5
Darwin Naval Base Redevelopment	1997	\$24.6
RAAF Darwin	1996	\$59.5
RAAF Tindal	1997	\$31.4
RAAF Delamere Air Weapons Range	1998	\$10.0

COST AND PROGRAM

137. The preliminary Defence estimate for the proposed construction works is \$51.2 million at December 1996 prices. The out turn cost is \$53.66 million. Subject to Parliamentary approval, construction is scheduled to commence in late 1997, with completion by late 2000.

Committee's Recommendation

138. The Committee recommends the development of infrastructure on the Bradshaw Field Training Area, near Timber Creek, NT at an estimated out turn cost of \$53.66 million.

CONCLUSIONS AND RECOMMENDATIONS

139. The Committee's conclusions and recommendations and the paragraphs in the report in which they occur are set out below:

- 1. A phased relocation of sub-units from Sydney and Puckapunyal to 1st Brigade at Robertson Barracks, near Darwin, is underway and is expected to be completed by the year 2000. (Paragraph 36)**
- 2. At present, elements of 1st Brigade undertake field firing and manoeuvre training at the Mount Bunday Field Firing Range. The limited size of Mount Bunday will restrict use of the range to sub-units. (Paragraph 37)**
- 3. The requirement to train 1st Brigade as a single entity requires sufficient land. This has been overcome by the acquisition for development of the pastoral lease of Bradshaw Station, a 8,710 square kilometre property. (Paragraph 38)**
- 4. The Bradshaw property lacks the necessary infrastructure to enable training at Brigade strength to be undertaken. (Paragraph 39)**
- 5. There is a need to develop the necessary infrastructure on the Bradshaw Field Training Area to allow sub-units, units and formations to conduct collective and joint training in live fire and manoeuvre activities. (Paragraph 40)**

6. A number of development alternatives were considered by Defence, of which full infrastructure development comprising access and training support facilities would meet the requirements of the phased relocation of 1st Brigade to Darwin from southern states by the year 2000. (Paragraph 59)

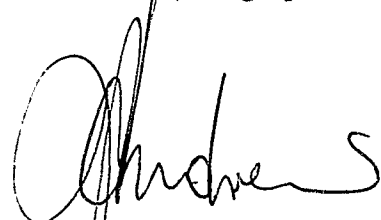
7. The proposed facilities will provide the infrastructure to permit and support cost effective and realistic training for Australian Defence Force units stationed, or deployed for training, in the north. (Paragraph 87)

8. The infrastructure to be provided is necessary to ensure the long term operational and environmental viability of the Bradshaw Field Training Area as a manoeuvre and live fire training area. (Paragraph 88)

9. The proposed development has the strong support of the NT Government. (Paragraph 126)

10. Environmental impact assessments of the use of the property by Defence for a field firing and manoeuvre area are being undertaken and the results of these assessments will require consideration by relevant Territory and Commonwealth Ministers. (Paragraph 127)

11. The Committee recommends the development of infrastructure on the Bradshaw Field Training Area, near Timber Creek, NT at an estimated out turn cost of \$53.66 million. (Paragraph 138)



Neil Andrew MP
Chairman

19 August 1997

WITNESSES

EASTER, Mr Bryan, Project Director, Facilities and Properties Division, Department of Defence, Campbell Park Offices, Canberra, ACT

LANS, Lieutenant Colonel Benjamin, Training Area Design, Army Headquarters, Russell Offices, Army Headquarters, Department of Defence, ACT

McCANN, Brigadier Raymond Leslie, Director General Accommodation and Works—Army, Campbell Park Offices, Department of Defence, Canberra, ACT

MARTIN, Lieutenant Colonel Joseph John, Combat Support—Force Development Land, Army Headquarters, Russell Offices, Department of Defence, Canberra, ACT

PINNEY, Mr John, Deputy Secretary Lands, Northern Territory Department of Lands, Planning and Environment, GPO Box 1680, Darwin, NT

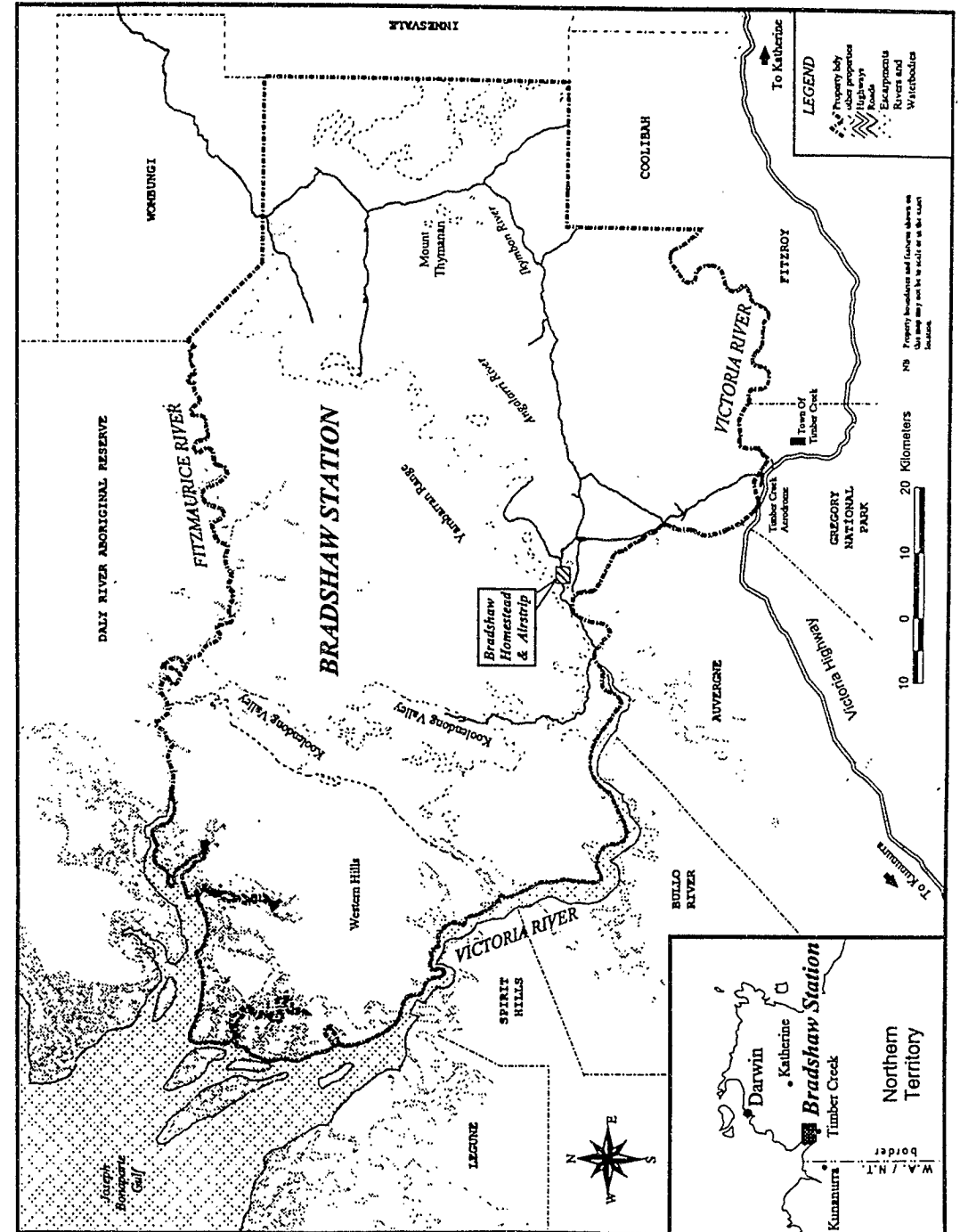
TWEEDIE, Lieutenant Colonel Peter Marshall, Commanding Officer, Darwin Logistic Battalion, Department of Defence, Robertson Barracks, Palmerston, NT

WALLACE, Brigadier James John Arundel, Commander, 1st Brigade, Headquarters 1st Brigade, Robertson Barracks, Palmerston, NT

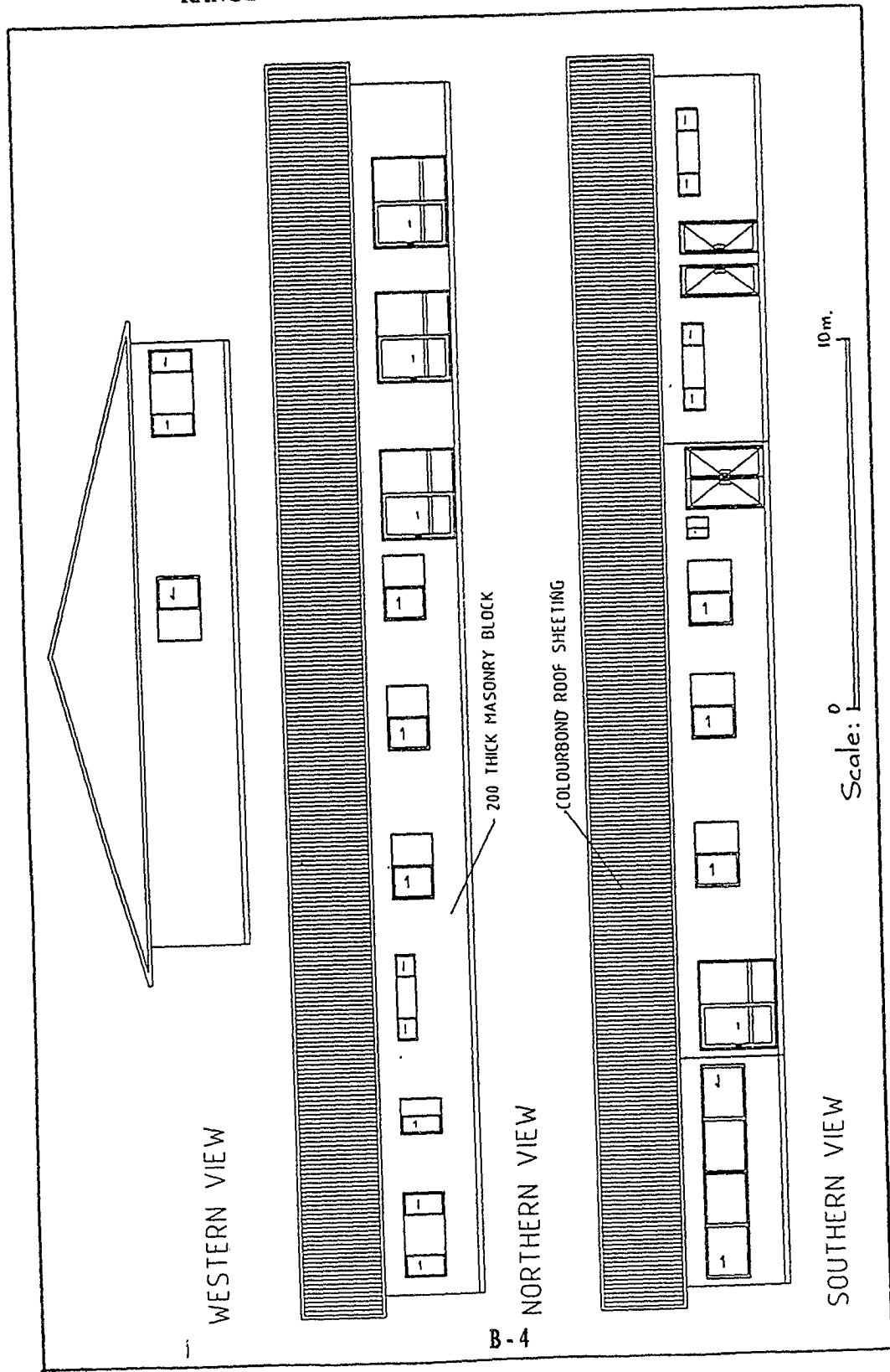
APPENDIX B

PROJECT PLANS

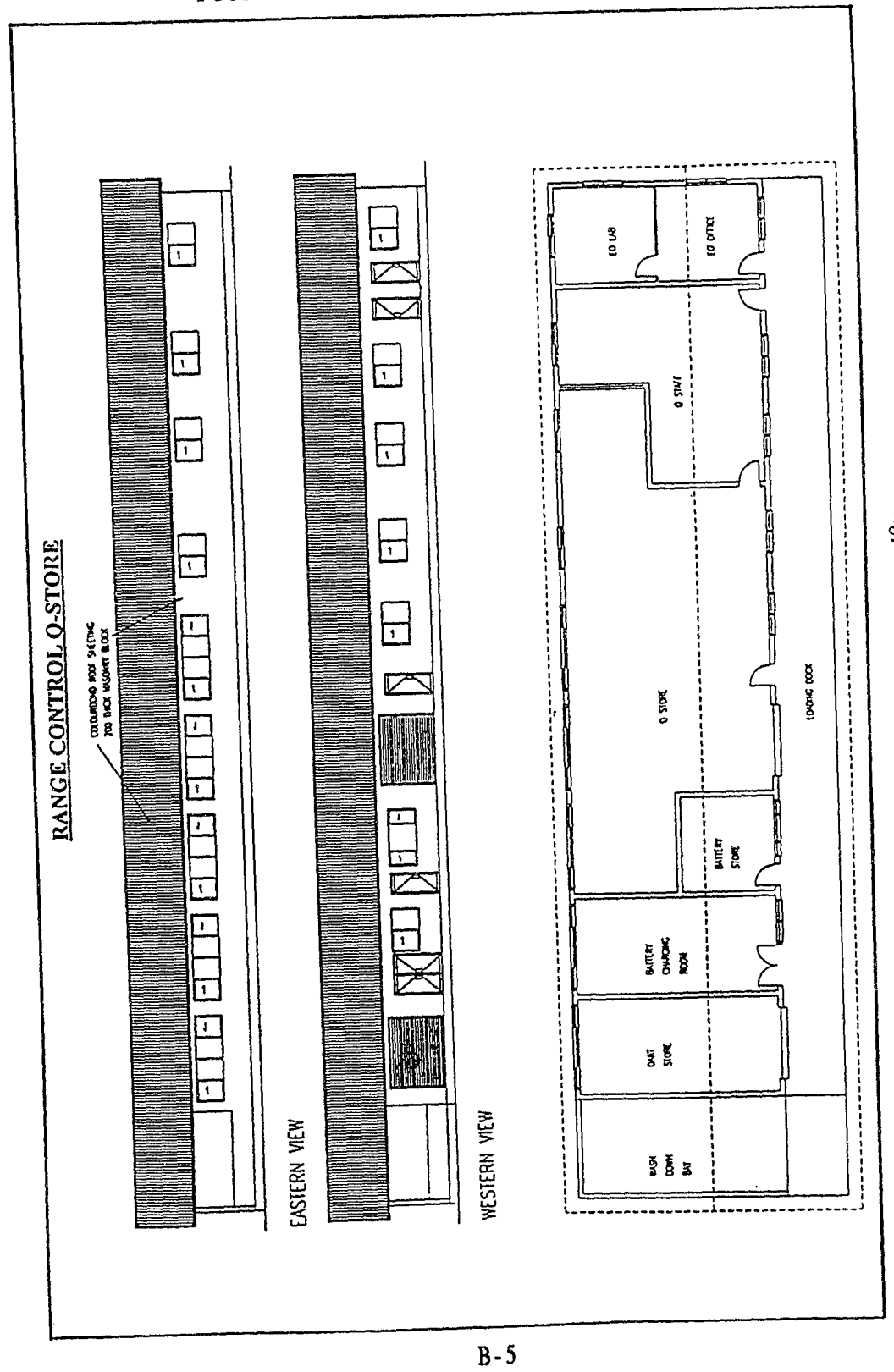
	Page
Location	B - 1
Range control complex	B - 2
Range control headquarters building—plan	B - 3
Range control headquarters building—elevation	B - 4
Range control quartermaster store	B - 5
Workshop/machinery shed	B - 6
250 person camp module—plan	B - 7
Administration building—plan and elevation	B - 8
Washroom and ambulance building	B - 9
Toilet block—plan	B - 10
Kitchen—plan	B - 11



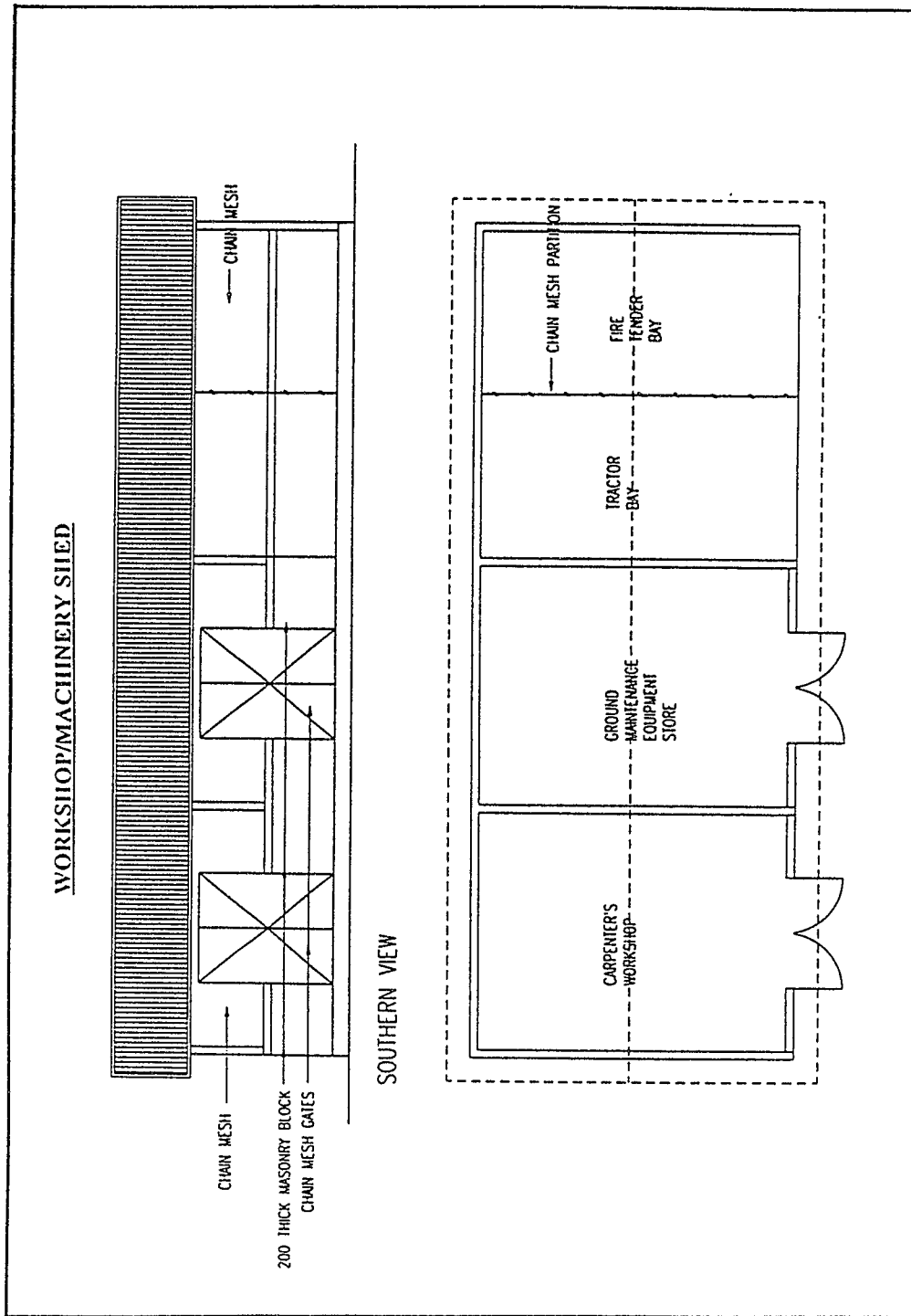
RANGE CONTROL HQ BUILDING ELEVATION VIEWS



POSSIBLE BFTA RANGE CONTROL Q STORE

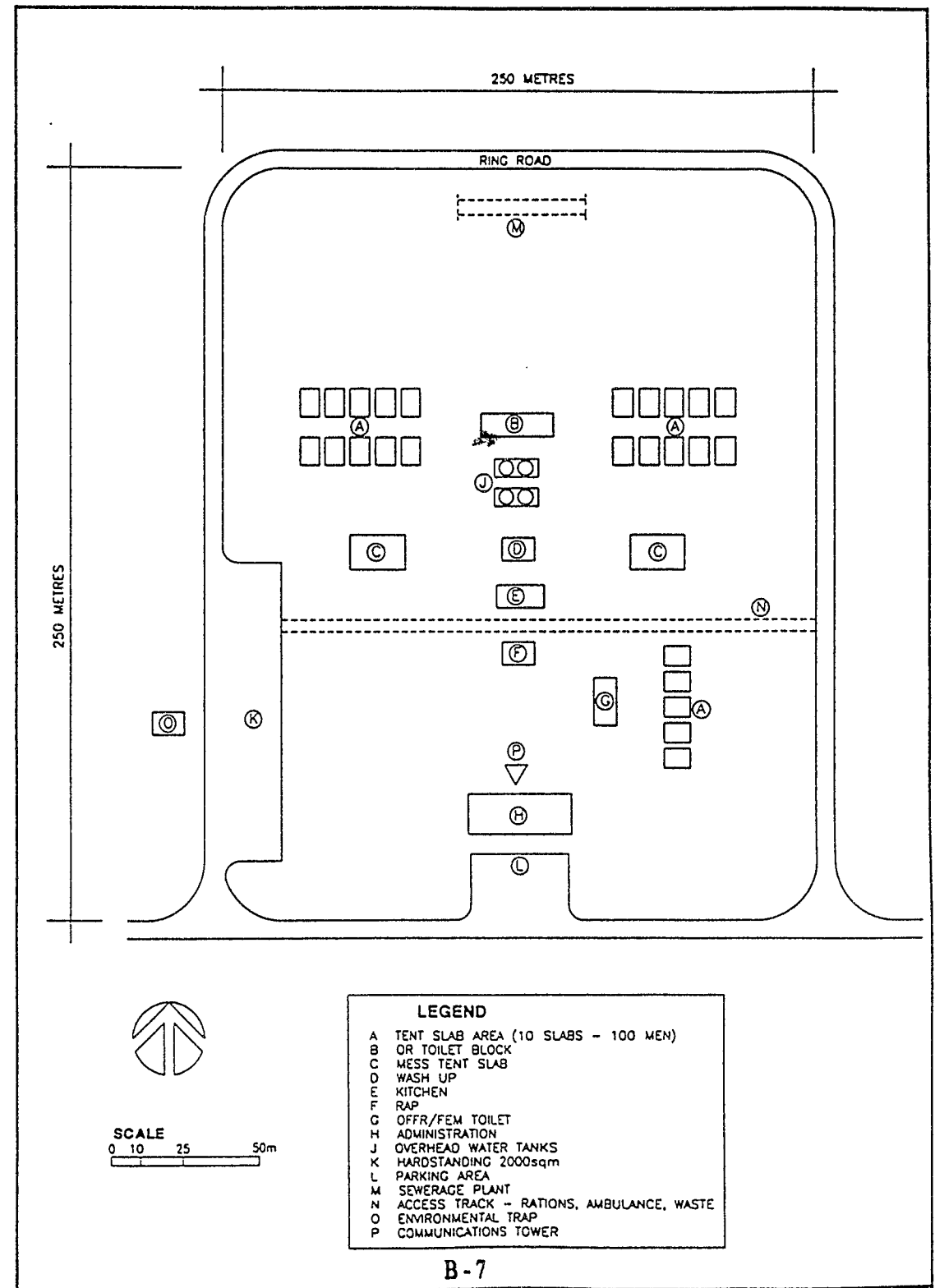


POSSIBLE BFTA RANGE CONTROL WORKSHOP/ MACHINERY SHED



B-6

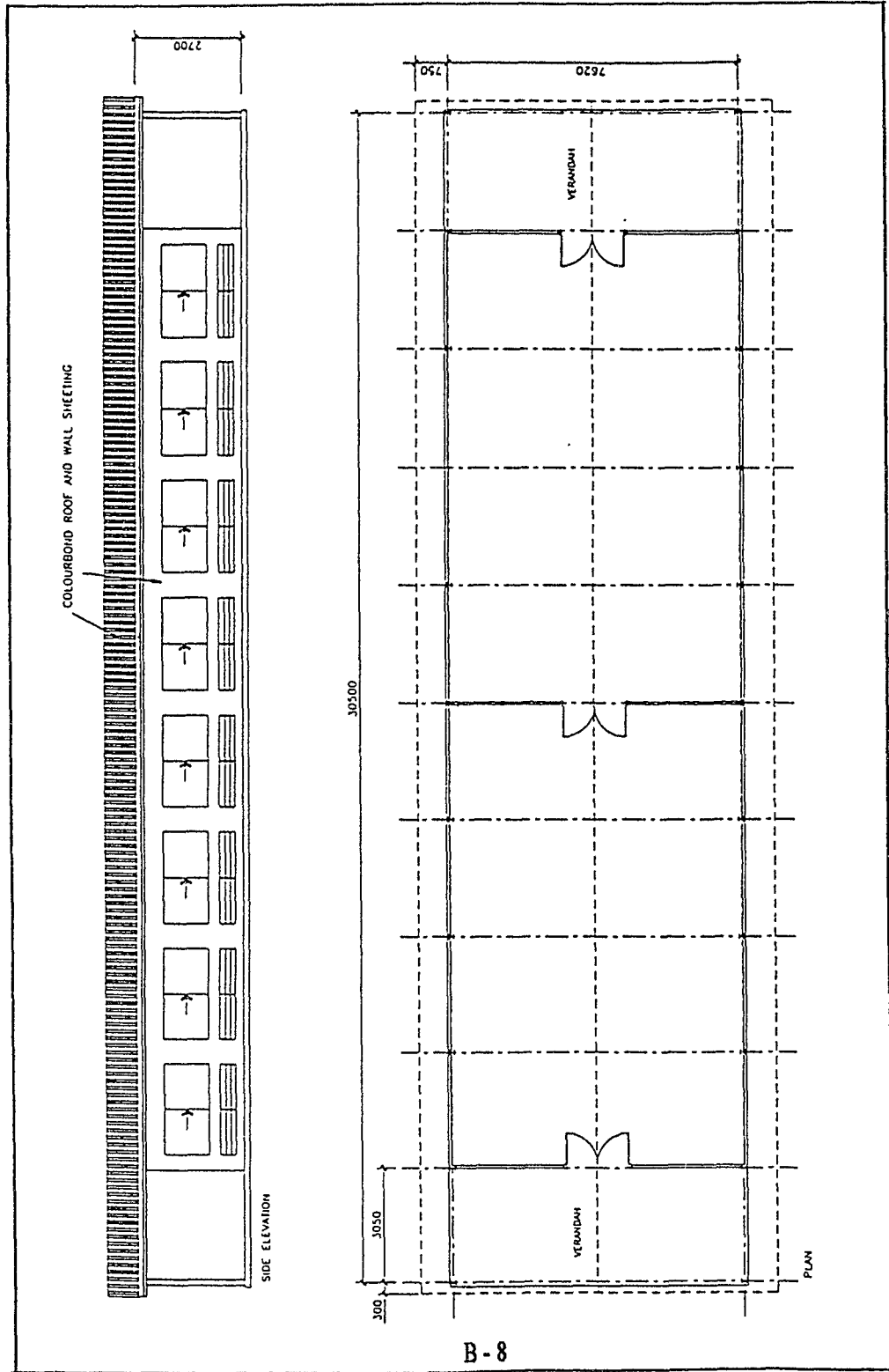
250 PERSON CAMP MODULE - BRADSHAW FIELD TRAINING AREA
- POSSIBLE SITE PLAN



- LEGEND**
- A TENT SLAB AREA (10 SLABS - 100 MEN)
 - B OR TOILET BLOCK
 - C MESS TENT SLAB
 - D WASH UP
 - E KITCHEN
 - F RAP
 - G OFFR/FEM TOILET
 - H ADMINISTRATION
 - J OVERHEAD WATER TANKS
 - K HARDSTANDING 2000sqm
 - L PARKING AREA
 - M SEWERAGE PLANT
 - N ACCESS TRACK - RATIONS, AMBULANCE, WASTE
 - O ENVIRONMENTAL TRAP
 - P COMMUNICATIONS TOWER

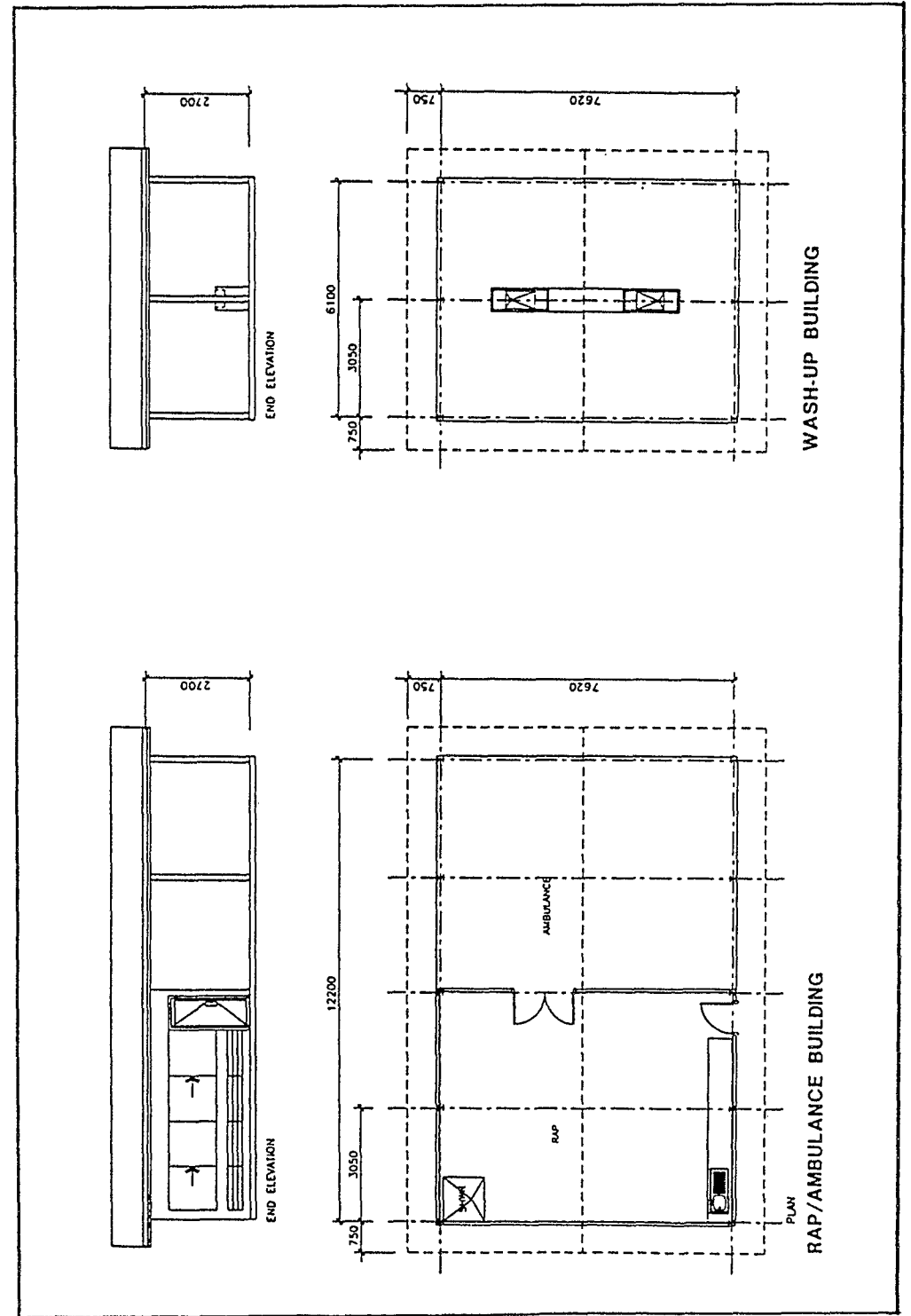
B-7

ADMINISTRATION BUILDING -
BRADSHAW FIELD TRG AREA ADMINISTRATION FLOOR PLAN



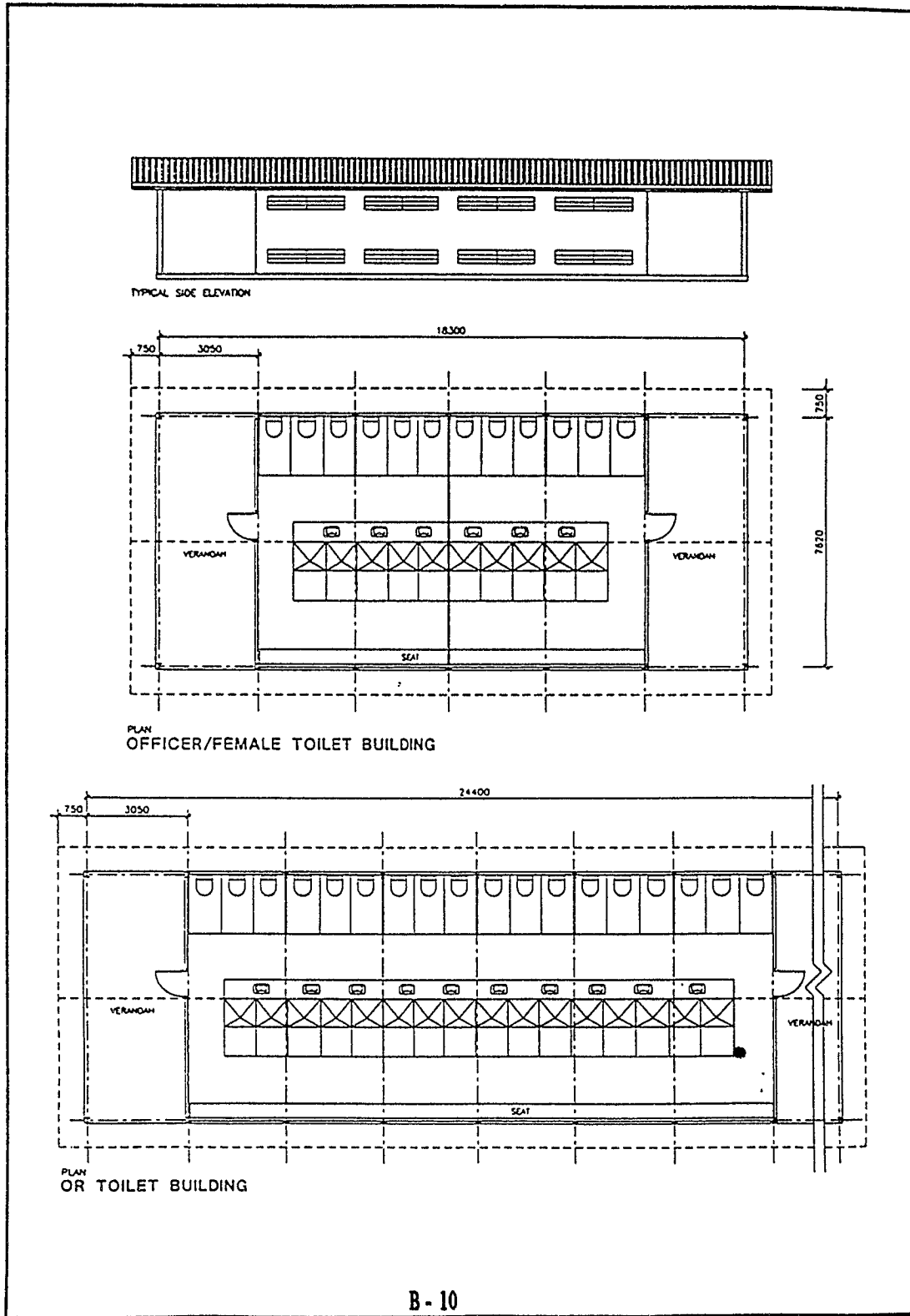
B-8

BRADSHAW FIELD TRG AREA WASH ROOM AND RAP



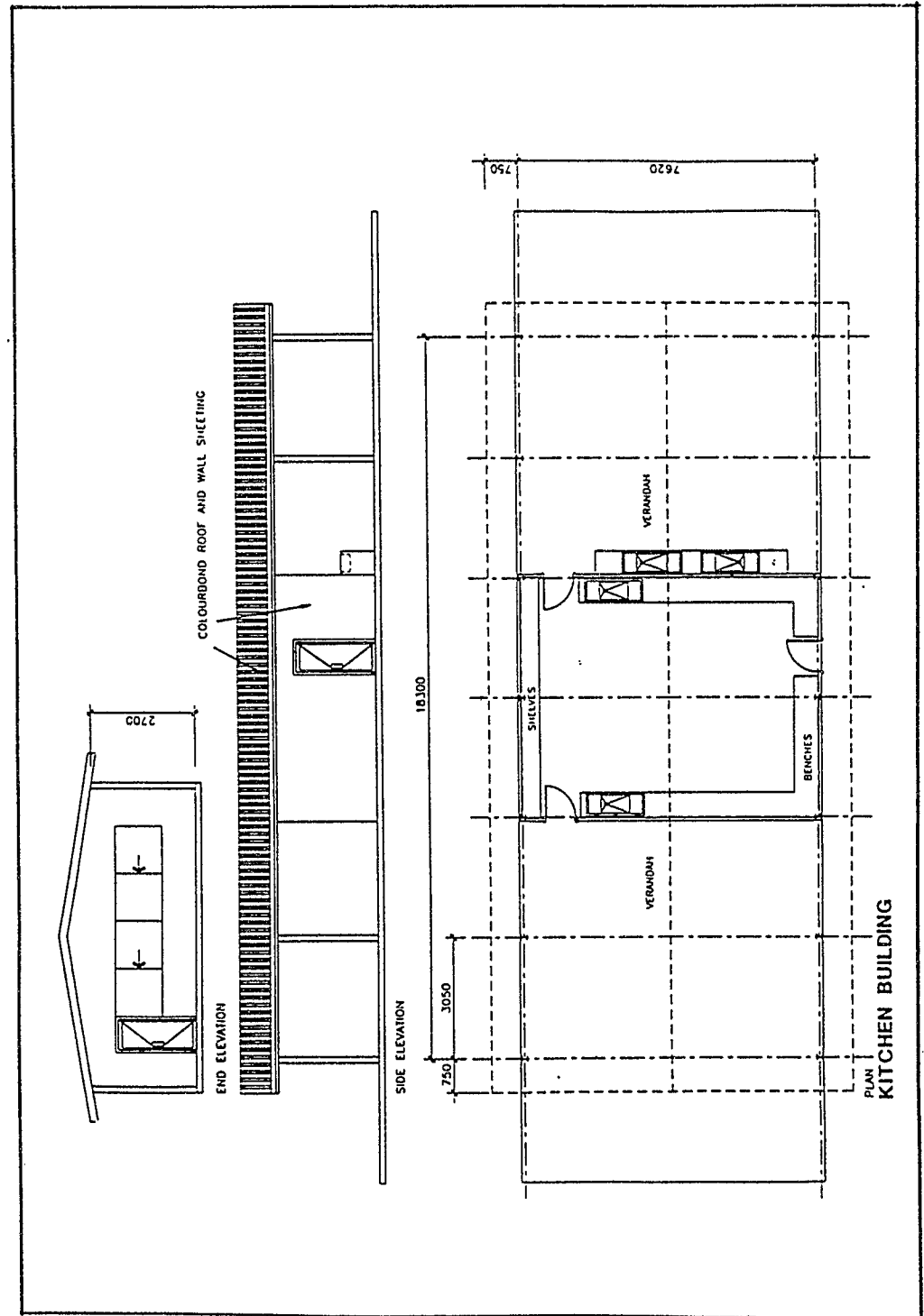
B-9

BRADSHAW FIELD TRG AREA TOILET BLOCK FLOOR PLAN



B-10

BRADSHAW FIELD TRG AREA KITCHEN FLOOR PLAN



B-11