



**PROVISION OF FACILITIES FOR THE COLLOCATION AND  
RE-EQUIPPING OF  
1st AVIATION REGIMENT AT ROBERTSON BARRACKS**

**DARWIN, NORTHERN TERRITORY**

**STATEMENT OF EVIDENCE  
TO THE  
PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS**

**DEPARTMENT OF DEFENCE  
CANBERRA, ACT  
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**TABLE OF CONTENTS**

|  | <u>Page</u> |
|--|-------------|
| INTRODUCTION   | 1           |
| OBJECTIVE  | 1           |
| BACKGROUND   | 2           |
| Location   | 2           |
| History of the Development of Robertson Barracks         | 2           |
| Existing 1st Aviation Regiment Structure and Disposition | 3           |
| Armed Reconnaissance Helicopter Project                  | 4           |
| Consequent Planning Basis for New Facilities             | 4           |
| Site Options Considered                                  | 5           |
| GOVERNING CONSIDERATIONS                                 | 7           |
| Defence Policy   | 7           |
| Master Planning at Robertson Barracks                    | 8           |
| Airspace Management                                      | 8           |
| THE REQUIREMENT  | 9           |
| Works Elements   | 9           |
| Headquarter Facilities                                   | 10          |
| Technical Support Squadron Aircraft Workshop             | 11          |
| Aircraft Hangars   | 12          |
| Aircraft Pavements                                       | 13          |
| Logistic Support Squadron Facilities                     | 14          |
| Unit Instruction and Training Building                   | 16          |
| Living-in Accommodation                                  | 17          |

|   |    |
|---|----|
| DESIGN CONSIDERATIONS                                       | 18 |
| Design Standards  | 18 |
| Design Philosophy   | 18 |
| Philosophy Adopted for Design of the Fire Protection System | 19 |
| Philosophy Adopted for Energy Management and Lighting       | 20 |
| Philosophy Adopted for Precautions against Legionella       | 21 |
| Design Features   | 21 |
| Acoustics   | 22 |
| ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS                  | 22 |
| Cost of Works   | 22 |
| Construction Workforce                                      | 22 |
| Establishment Population                                    | 22 |
| Timings   | 23 |
| Environmental Implications                                  | 23 |
| Heritage Considerations                                     | 23 |
| Childcare Provisions  | 23 |
| Landscaping   | 24 |
| CONSULTATION WITH EXTERNAL AUTHORITIES                      | 24 |
| PROJECT DELIVERY MECHANISM                                  | 25 |
| FUTURE DEFENCE WORKS AT ROBERTSON BARRACKS                  | 25 |
| OTHER DEFENCE WORKS IN THE NORTHERN TERRITORY               | 25 |
| Completed Works   | 25 |
| Works in Progress   | 26 |

**LIST OF FIGURES:**

|           |  |
|-----------|--|
| Figure 1  | Robertson Barracks Site Option   |
| Figure 2  | Robertson Barracks – Proposed Location   |
| Figure 3  | Indicative Site Plan   |
| Figure 4  | Indicative Sketch Headquarter Building   |
| Figure 5A | Indicative Sketch Aircraft Workshop (Northern Portion)                                   |
| Figure 5B | Indicative Sketch Aircraft Workshop (Southern Portion)                                   |
| Figure 6  | Indicative Sketch Aircraft Hangar  |
| Figure 7  | Indicative Sketch Headquarters Logistics Support Squadron Building                       |
| Figure 8  | Indicative Sketch Main Store   |
| Figure 9  | Indicative Sketch Vehicle Shelter  |
| Figure 10 | Indicative Sketch General Engineering Workshop   |
| Figure 11 | Indicative Sketch Unit Instruction and Training Building                                 |
| Figure 12 | Proposed Locations – Additional Living-In Accommodation                                  |
| Figure 13 | Indicative Sketch Living-In Accommodation: Officers and Senior Non-Commissioned Officers |
| Figure 14 | Indicative Sketch Living-In Accommodation: Other Ranks                                   |

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## INTRODUCTION

1. In December 2001 Government approved the acquisition of twenty two armed reconnaissance helicopters from Eurocopter International Pacific (now Australian Aerospace) at a cost of \$1.3B. The aircraft, referred to as the *Tiger*, will be introduced into service between the end of 2004 and mid 2008. Initial deliveries will be to the Army's Aviation Training Centre at Oakey, Queensland, while the 1st Aviation Regiment is the combat unit to be equipped.

2. The nature of the equipment, and its employment as a key component of the land force combined arms team, is such that its potential potency is optimised if commanded and orchestrated in training and operations from a single Regimental site. Presently, the Regiment has its Headquarters, its technical and logistic support squadrons and other elements located at Oakey in Queensland. Its two reconnaissance squadrons are located at Lavarack Barracks in Townsville North Queensland, and RAAF Base Darwin. There is also a troop-sized detachment of the surveillance squadron of the Regiment at RAAF Base Darwin.

3. In conjunction with a requirement to re-organise the unit, the Headquarters of the 1st Aviation Regiment and its reconnaissance squadrons will be brought together into a single location. Once equipped with new helicopters, the characteristics of the Regiment's combat power will be most closely aligned with that of the mechanised capability organic to the 1st Brigade located at Robertson Barracks, Darwin. This alignment is most evident in characteristics of firepower, speed of movement and response, multiple role and communications capabilities.

## OBJECTIVE

4. The objective of this proposal is to provide new facilities for the collocation of elements of the 1st Aviation Regiment, and for its re-equipping with the new Armed Reconnaissance Helicopter, at Robertson Barracks in Darwin.

## **BACKGROUND**

### **Location**

5. Robertson Barracks is located within the Litchfield Shire, approximately five kilometres north of Palmerston and 20 kilometers east of Darwin. The Base occupies an area of approximately 700 hectares. A location map is provided at Figure 1.

### **History of the Development of Robertson Barracks**

6. Robertson Barracks is named after Lieutenant General Sir Horace Robertson who, as a Colonel, commanded the Darwin Mobile Force prior to WWII.

7. Selection of the Robertson Barracks site and development of the complex began in 1989, to house the 2nd Cavalry Regiment, located previously at Holsworthy Barracks, Sydney. Subsequently, Defence's Force Structure Review foreshadowed in 1991 the intention to establish a larger Army presence in the Darwin Region. The presence was to comprise an armoured regiment, logistic support and an aviation squadron, to relocate to Darwin by 1995. This was to be followed by a mechanised infantry battalion, a combat engineer regiment, additional logistic support and an artillery regiment during the period 1998 to 2000.

8. The primary occupant of Robertson Barracks is the 1st Brigade, with the following major units based at Robertson Barracks and under its command:

- Headquarters 1st Brigade
- 1st Armoured Regiment
- 2nd Cavalry Regiment
- 8th/12th Medium Regiment (Artillery)
- 1st Combat Engineer Regiment
- 1st Command Support Regiment
- 5th/7th Battalion, Royal Australian Regiment
- 1st Combat Services Support Regiment



9. Additionally, there are supporting agencies, minor units and training units resident within Robertson Barracks. The main training unit is the Regional Training Centre – Northern Territory.

### **Existing 1st Aviation Regiment Structure and Disposition**

10. The 1st Aviation Regiment presently comprises the following:

- Headquarters 1st Aviation Regiment;
- 161st Reconnaissance Squadron;
- 162nd Reconnaissance Squadron;
- 171st Operational Support Squadron;
- 173rd Surveillance Squadron;
- Headquarters Squadron; and
- Technical Support Squadron

11. Apart from the reconnaissance squadrons and a troop detachment of the Surveillance Squadron located at RAAF Base Darwin, the unit is located at Oakey, Queensland. The 161st Reconnaissance Squadron and the 162nd Reconnaissance Squadron are two of the Regiment's rotary wing squadrons, and are based at RAAF Base Darwin and Lavarack Barracks (Townsville, North Queensland) respectively.

12. 161st Reconnaissance Squadron's accommodation at RAAF Base Darwin is a combination of existing base facilities (in part shared with the RAAF) and new facilities constructed in 1994-1995. The new facilities were a component of a \$200m project, being the subject of the Public Works Committee's Tenth Report of 1992 "Facilities for an Increased Army Presence in the North". Accommodation at Townsville's Lavarack Barracks for 162nd Reconnaissance Squadron was provided as part of the \$23.4m Lavarack Army Barracks Stage 1 Redevelopment Project, being the subject of the Public Works Committee's Sixteenth Report of 1992 "Redevelopment of Lavarack Army Barracks in Townsville, Stage 1".

## **Armed Reconnaissance Helicopter Project**

13. The Armed Reconnaissance Helicopter Project (also referred to as Project AIR87) will provide the Australian Defence Force with an armed reconnaissance helicopter capability. The *Tiger*, as the selected helicopter, will be provided to the 1st Aviation Regiment's two reconnaissance squadrons, to replace the *Kiowa* light observation helicopters that have been in service with the Australian Army since 1971. Twenty two *Tiger* aircraft are being procured under Project AIR87. One *Tiger* will be located at RAAF Base Edinburgh as a dedicated test and evaluation aircraft. Four *Tiger* aircraft, to be employed in the training of aircrew, ground crew and maintenance technicians, will be located at Oakey. The Oakey facilities for AIR87 and redevelopment were the subject of the Public Works Committee's Tenth Report of 2001 "Redevelopment of the Army Aviation Centre Oakey, Queensland". The remaining 17 *Tiger* aircraft will be operated by the 1<sup>st</sup> Aviation Regiment (eight aircraft per squadron and one in deeper level maintenance).

14. The employment of the *Tiger* with the combined arms team will fundamentally change the way in which land forces will conduct warfighting in the future. To optimize the combat power of the new armed reconnaissance capability, the 1st Aviation Regiment will reorganise to concentrate like components of the Regiment.

### **Planning Basis for New Facilities**

15. As a result of the acquisition of the Armed Reconnaissance Helicopter, the 1st Aviation Regiment will be restructured. The project scope will, as a consequence of the functional re-organisation and the re-equipping project, see the collocation of all operational Armed Reconnaissance Helicopters and related command elements onto one site. The Regiment will be a major unit of some 400 personnel, 17 aircraft and about 160 vehicles, organised into:

- Headquarters 1st Aviation Regiment;
- 161st Reconnaissance Squadron;
- 162nd Reconnaissance Squadron;
- Logistic Support Squadron; and

- Technical Support Squadron

16. Working accommodation will be required for each of these elements, as well as domestic accommodation and airside facilities.

17. It is intended that with its dissimilar functions, the 173rd Surveillance Squadron will become an independent unit under Headquarters 16th Brigade (Aviation), rather than remain as a sub unit of the Regiment. The 171st Operation Support Squadron has been identified as the basis of a possible additional troop lift capability, to be placed under independent command of either 16th Brigade or as a squadron within the 5th Aviation Regiment (which is part of the 16<sup>th</sup> Brigade). These changes will permit the 1<sup>st</sup> Aviation Regiment to focus on its central role of reconnaissance.

### **Siting Options Considered**

18. Credible siting options are those that will provide operational and/or training synergy to enhance the new capability, being options involving collocation with Army brigades or with the Aviation training function. The main options to locate the new 1st Aviation Regiment are, therefore, Townsville (North Queensland), Darwin or Oakey (SouthEast Queensland).

19. The Townsville option would place the Regiment in proximity to the 3rd Brigade, one of Army's two ready deployment formations. The site could be at either RAAF Base Townsville or with 3rd Brigade at Lavarack Barracks. The primary difficulty with the Townsville option is that insufficient development space exists at either site. Space could not be provided without significantly prejudicing current activities at or proximate to the site, either in terms of safety or noise, raising environmental concerns (mainly in relation to development at RAAF Base Townsville) or preventing subsequent development in areas being master planned for other uses. Therefore, while the location option might otherwise see some limited synergy with the existing 5th Aviation Regiment, the development requirements for 1st Aviation Regiment preclude Townsville as a reasonable option.

20. The Oakey option would collocate the Regiment's operations and individual training with the Army Aviation training units at the Army Aviation Centre. While at first

sight this appears plausible, there is limited development space available within the Defence controlled land area at Oakey. Of greater significance is that this would separate the Regiment from both of the ready deployment brigades located in Darwin and Townsville. Since it is with these formations that the new capability will be employed, the Regiment needs to be located at or near one of them in order to develop the collective training and other opportunities to develop the full potential of its combat power. The Oakey option is not therefore the preferred option.

21. The Darwin option provides development space at either RAAF Base Darwin, or with the 1st Brigade at Robertson Barracks. Apart from the available development space, the 1st Brigade is Army's mechanised ready deployment formation, and so the formation with the high mobility capability that is most consistent with 1st Aviation Regiment's intended capability. Three site options are available in Darwin for the Regiment:

- Redevelop on and around the site currently occupied by 161st Reconnaissance Squadron at RAAF Base Darwin,
- A greenfield site development in space available in RAAF Base Darwin, or
- A greenfield site at Robertson Barracks (Figure 1).

22. Development in and around the existing 161st Reconnaissance Squadron location at RAAF Darwin is the least desirable from a facilities and master planning perspective. Issues of particular impact are the Regiment's spatial requirements and the need to plan for expansion, noise impacts on working and living in accommodation, engineering services, and safety constraints associated with existing explosives and fuel storage facilities. Noise is also a concern to surrounding residential areas.

23. The cost of a greenfield site development would be similar at either RAAF Base Darwin or Robertson Barracks. Since Robertson Barracks offers the greater utility to the Regiment, without attracting spatial and noise concerns that may be attached to any site at RAAF Base Darwin, the Robertson Barracks option is the focus of development planning. The Barracks option also promotes the development of close operational ties between the 1st Brigade and the 1st Aviation Regiment at all levels within the command and management structure of the Brigade. The site is Commonwealth owned property controlled by the Department of Defence.

## GOVERNING CONSIDERATIONS

### Defence Policy

24. *Australia's Strategic Policy 1997* described the future direction of the Australian Defence planning into the 21st Century. It foreshadowed the requirement in force structure development for the Land Forces that a response capacity required sufficient mobility and firepower to prevail. This involved a mix of armed helicopters and ground vehicles. It states:

*Within an area of operations, our forces also need sufficient mobility and firepower to prevail over enemy forces. Against the type of incursions that could penetrate our maritime defences, lightly armed forces supported by a mix of armed helicopters and ground vehicles will be the appropriate response force.*

25. *Defence 2000* confirmed the requirement. In review of capabilities for the "Combat Weight" of the Land Forces, it noted the following:

*8.27 The Government believes that our land forces should have sufficient firepower, protection and mobility to provide clear advantage in any likely operations in defence of Australia or in our immediate region. It therefore aims to introduce a program of rapid enhancement of a range of combat capabilities for our land forces. The key elements of this program are as follows:*

*. Two squadrons (around 20-24 aircraft) of Armed Reconnaissance Helicopters planned to enter service from 2004-05. These will constitute a major new capability for Army, providing deployable, flexible, high precision, and highly mobile firepower and reconnaissance.*

## **Master Planning at Robertson Barracks**

26. The Barracks was acquired in 1989 as the site for the 2nd Cavalry Regiment, the first unit to relocate to the north in what became the Army Presence in the North Relocation Project. The proposed site for the 1st Aviation Regiment facilities is in the northern sector of, and fully within, Robertson Barracks. The designated area is consistent with the Barracks planning as illustrated at Figure 2. It is zoned for “training and future major unit development’ and is suitable for the Regiment in terms of land use, size and relative isolation from the Barracks domestic areas. Figure 3 shows the proposed site plan.

## **Airspace Management**

27. The helicopter landing point at Robertson Barracks is located close to a primary instrument approach to Darwin Airport. This raises the possibility that helicopter departures and arrivals at Robertson Barracks might either be delayed by or cause delay to other aircraft departing or arriving at Darwin Airport. While Defence acknowledges that restrictions on its helicopter movements might be imposed, it is in the process of implementing a set of procedures that will allow Army aircraft at Robertson Barracks to operate independently of other Darwin air traffic. This could involve establishing a low-level helicopter lane to the north east of Robertson Barracks that will segregate Robertson Barracks arrivals and departures from over-flying Darwin traffic. It will also ensure that Army helicopters will arrive at and depart Robertson Barracks over Defence or Commonwealth controlled land, thus reducing noise impacts. Defence, in consultation with AirServices Australia, is well advanced in producing a proposal intended to achieve agreement with the Civil Aviation Safety Authority to an air traffic management scheme.

28. In order to accommodate the new capability as it is introduced, this scope of work addresses the facilities required for the accommodation of the 1st Aviation Regiment and the new helicopters. The works are to be sufficiently developed by the end 2004, to facilitate the establishment of the unit in Darwin at Robertson Barracks, in time for it to train and effectively prepare for receipt of the new aircraft.

## THE REQUIREMENT

29. The proposal is to construct those facilities necessary to permit:
- The relocation of Headquarters 1st Aviation Regiment and its Logistic Support Squadron and Technical Support Squadron from Oakey in south east Queensland to Robertson Barracks in Darwin;
  - The relocation of the 161st Reconnaissance Squadron from RAAF Base Darwin to Robertson Barracks, to collocate with its Regimental Headquarters; and
  - The relocation of 162nd Reconnaissance Squadron from Lavarack Barracks, Townsville to Robertson Barracks, to collocate with its Regimental Headquarters.

### Works Elements

30. The works will include the following elements:
- Headquarter facilities for the Regiment, for the two flying squadrons, for Technical Support Squadron and the Logistics Support Squadron;
  - A logistics precinct, comprising a regimental quartermaster's store, catering for regimental and squadron equipment, stores and maintenance requirements;
  - A specialised workshop for aircraft repair and maintenance, and a discrete workshop for the repair and maintenance of vehicles and stores;
  - Hangars and shelters for 17 aircraft and unit vehicles, as well as an aircraft wash bay, compounds, aircraft parking aprons and taxiways, take-off and landing pads;
  - Training facilities, including general training and instructional facilities consistent with that being provided for other units in Robertson Barracks,

and provisions for a simulation facility (to be provided by others) specific to the needs of pilots, battle captains, flying instructors and operations planners of the Regiment;

- Engineering services, roads and landscaping, inclusive of relevant security and environmental provisions; and
- Living accommodation must also be supplemented in the Robertson Barracks complex, to cope with the increased accommodation liability. It is planned that living-in accommodation units will be provided for some 110 personnel.

31. The specific requirements for each element of the project are outlined below.

## **HEADQUARTER FACILITIES**

### **Function**

32. The Headquarter facilities accommodate the headquarters staff for the Regiment and the two reconnaissance squadrons.

33. The Commanding Officer and his Regimental Headquarters staff are primarily engaged in planning and execution activities at the regimental level, and in particular, in those activities involving coordinated planning with members of Army's combined arms team and the wider Australian Defence Force joint team. Functions include operations, logistics, administration, personnel, flying and ground safety, flying standardisation, training and intelligence related activities, for which the Commanding Officer is responsible. Supporting staff must therefore be located nearby to ensure efficient prosecution of all regimental functions. The commanders and staff of each of the two reconnaissance squadron headquarters are primarily engaged in the planning and execution of operational and training activities that ensure the readiness of all squadron personnel.

34. In addition to command and staff functions, the Headquarter facilities will house the ground mission management system that is used by aircrew to plan *Tiger* missions.



The system is also the primary means through which the Regiment communicates reconnaissance data subsequent to operational missions to the wider Defence Force. Some 120 personnel will be employed within the Headquarters facilities.

### **Options**

35. The facilities appropriate for adaption to Headquarter use at Robertson Barracks are already fully utilised. Accordingly, it is proposed that new secure facilities be provided for the Regiment Headquarters and the two Reconnaissance Squadron Headquarters. The construction of new facilities will provide a purpose designed solution to address the operational requirements of the Regimental and Squadron Headquarters.

### **Proposal**

36. New facilities are proposed for the Regimental Headquarters and the two Reconnaissance Squadron Headquarters of the 1st Aviation Regiment. Figure 4 refers.

## **TECHNICAL SUPPORT SQUADRON AIRCRAFT WORKSHOP**

### **Function**

37. The Technical Support Squadron provides those specialist workshop skills and equipment necessary to support the aircraft. Squadron facilities will therefore be purpose designed for use by both Defence Force and contractor personnel, to conduct maintenance on up to five of the Regiment's 17 *Tiger* aircraft at any one time. Aircraft wash facilities are also necessary to support the maintenance activities, and to assist in extending the life of the airframe. The remaining 12 aircraft are located with the Reconnaissance Squadrons.

38. Discrete work areas are also required in the aircraft workshop to allow the repair of components. These components often require clean work areas, or controlled environments that can not be provided in the general aircraft hangar area. Remaining bays must be segregated by type of work. Spare parts required for all maintenance activities will be held in the Repair Parts Store adjacent to the aircraft workshop.

39. Approximately 90 Defence and contractor personnel will work within the Aircraft Workshop building. Consideration is also given to the possibility that *Black Hawk* aircraft visiting 1st Aviation Regiment could require access to the maintenance and wash facilities during operational and training deployments to Darwin, so selective larger bay space will be required.

### **Options**

40. The Technical Support Squadron requires unique, purpose built facilities, to ensure the efficient and effective maintenance of the *Tiger* airframe. There is no alternative facility available, so a new facility is proposed. The aircraft wash facility may be modelled on facilities provided for 5th Aviation Regiment in Townsville, where washing occurs in a dedicated bay, using semi automated equipment.

### **Proposal**

41. The following new workshop facilities are proposed to meet the requirements of the Technical Support Squadron of the 1st Aviation Regiment (Figures 5A and 5B refer):

- Office accommodation for Defence Force and Contractor personnel;
- Five aircraft maintenance bays;
- One maintenance bay to be enlarged for *Black Hawk* use;
- Aircraft wash bay, sufficiently large for *Black Hawk* use; and
- Spare parts holding store;

## **AIRCRAFT HANGARS**

### **Function**

42. Aircraft hangars are required to provide environmental protection and security for the Regiment's *Tigers*. The hangars are individual enclosures, designed to provide for a controlled environment and for security consistent with the equipment and its fit. In addition to protecting aircraft, the aircraft hangars provide the area from which aircraft

sorties are dispatched. Aircrew will be provided with their flying clothing and safety equipment, and where final preparations are made on the aircraft to tailor them for the each mission type.

43. Hangars are required for the total 12 on-line Reconnaissance Squadron aircraft in a location readily accessible to the Reconnaissance Squadron Headquarters facilities and to the aircraft standing areas. Further, in order to allow for operational and training rotations with squadron sized elements of units such as the *Black Hawk* equipped 5th Aviation Regiment, six of the *Tiger* bays are required to be of sufficient size to provide for *Black Hawk* size aircraft. Approximately 45 personnel will be present in the aircraft hangar complex to provide the described flight line services.

### **Option**

44. There are no facilities existing that provide for demands of the new aircraft. Accordingly, the *Tiger* aircraft require aircraft hangers designed specifically for the purpose, to protect the aircraft from the harsh tropical climate and provide necessary security, with six of the 12 bays of sufficient size to accommodate *Black Hawk*.

### **Proposal**

45. The following new facilities are proposed to meet this requirement (Figure 6 refers):

- 12 aircraft shelters, six of which are enlarged;
- office accommodation for ground crew personnel; and
- Storage facilities for ground crew equipment.

## **AIRCRAFT PAVEMENTS**

### **Function**

46. Aircraft hard-stand surfaces are required around the hangars and technical workshop buildings, to allow the safe regular movement of aircraft either when towed or taxiing with rotors turning. In addition, concrete pads are required where the 12 Reconnaissance Squadron aircraft are frequently parked, as normal tarmac surfaces can

quickly degrade if in contact with aircraft fuel and oils. Taxiway, landing and take off points are also required, as is lighting to appropriate airfield standards to support operations at night in air movement areas. To facilitate use by visiting aircraft, and to provide for access into the hangars and workshop areas for these aircraft, pavement design and dimensions appropriate to the *Black Hawk* are required.

### **Proposal**

47. It is proposed that all aircraft pavements be constructed as part of the project scope, this component being integral to the hangar and technical workshop works, and to the safe operation of the aircraft. The pavement is to be designed for provide for the higher standard *Black Hawk* use, where this is necessary to provide access to the hangar areas and workshop.

## **LOGISTIC SUPPORT SQUADRON FACILITIES**

### **Function**

48. The Logistics Support Squadron facilities will accommodate the range of general support functions required for a deployable manoeuvre regiment. As well as general administration for Regiment personnel, office and personnel support functions undertaken include health services, stores management, pay and allowances, and management and planning of field catering. The Squadron is also responsible for the Regiment's field stores, weapons storage and maintenance, and operation of the vehicle fleet. Facilities are therefore also required for general and secure storage, and covered storage for vehicles. Additional special purpose facilities are required for storage of gases, oils and lubricants, and battery storage and charging in support of day-to-day operations.

49. A total of up to 47 personnel will work within the Logistic Support Squadron facilities.

## Options

50. **Option 1 – Use Existing Facilities.** There is insufficient spare capacity to collocate the requirements of the Support Squadron into either one general area or into an area that will provide the necessary level of proximate support to the Regiment. This is not a functional option, lending itself to inefficiencies in flow of work and management.

51. **Option 2 – Refurbish Existing Facilities and Construct New facilities.** While existing facilities at Robertson Barracks are generally fully utilised, existing stores buildings 922 and 923 are available. The buildings in an area likely to offer sufficient development space inside the Barracks, are in the area proposed for the regiment, and can be modified to meet some of the Logistic Support Squadron storage requirements. Some additional works will be required for general workshop, and vehicle storage. The option also facilitates the use of some existing pavement areas.

52. **Preferred Option.** Option 2 is recommended. The refurbishment of existing facilities and construction of new facilities will provide a purpose designed solution to address the operational and administrative requirements of Logistic Support Squadron.

## Proposal

53. The following new facilities are proposed for Logistic Support Squadron:

- Logistic Support Squadron Headquarters (Figure 7 refers);
- Refurbished Regimental Quartermaster Store and Squadron Quartermaster Stores, being the Main Quartermaster Store (Figure 8 refers);
- Vehicle shelter (Figure 9 refers);
- General Engineering Workshop (Figure 10 refers);
- Miscellaneous office accommodation, other minor buildings for gases, oils and lubricants, battery storage and charging, and deployment and task stores; and
- Security measures and engineering services.

## UNIT INSTRUCTION AND TRAINING BUILDING

### Function

54. Within Robertson Barracks, development has been based on a central military instructional facility for larger assemblies or specialist requirements, augmented by individual unit training facilities for regimental sized organisations. The individual regimental facilities provide for training and instruction (configured for either troop or squadron size), general briefing areas, and break-out areas for all ranks for their own individual training and development. Since all Regiment personnel will require access to the facility at various times, its layout must provide for high flexibility in use.

### Options

55. **Option 1 – Use of Existing Facilities.** The facilities at Robertson Barracks are already fully utilised by existing resident units and supporting activities, too remote for day-to-day use as envisaged, or the design is specialised to the extent that it is inappropriate for general use. There are no surplus facilities that could be utilised to meet the general regimental requirement.

56. **Option 2 – New Facilities.** 1st Aviation Regiment, like the other major units at Robertson Barracks, requires an instructional facility to provide for internal training courses and development activities. The standard of facility has already been established at Robertson Barracks, and it has been shown as a satisfactory basis for a new facility for 1st Aviation Regiment. There is sufficient reserved real estate available at the Barracks in the area identified for the Regiment for the construction of this facility.

### Proposal

57. It is proposed that a unit training facility be provided, on the same basis as presently provided for in other major units at Robertson Barracks (Figure 11 refers).

## LIVING-IN ACCOMMODATION

### Function

58. Robertson Barracks provides living-in accommodation for single Officers, Senior Non Commissioned Officers and Other Ranks. During the Army Presence In the North Stage 1 and 2 Projects, accommodation was constructed to meet the demands of units relocating to Darwin including an additional 96 rooms for transit accommodation. This accommodation (including the transit rooms) is now fully utilised by permanent living-in personnel, and Defence recently constructed a further 120 transit rooms (demountable type) to meet an ongoing demand for transit accommodation at Robertson Barracks.

59. All existing living in accommodation is utilised. Rental assistance has not alleviated the demand on living in accommodation because of the high rental and limited availability in the Darwin region. Additionally, some provision is required to provide for the unique flight safety requirements associated with sleep by day and night for aircrew involved in the conduct of sustained reverse cycle operations.

### Options

60. **Option 1 – Rental Assistance.** This option would involve the use of off-base accommodation in the civilian community. This option would also involve significant transport support and is considered inappropriate given the high cost of the Darwin rental market, and discriminatory in its application to those entitled and wishing to live in.

61. **Option 2 – Construct new accommodation.** This option provides for the construction of sufficient live-in accommodation to meet the immediate requirement for 1st Aviation Regiment. This amounts to some 110 bedspaces, though in the medium term (to 2009, when the Regiment reaches its full strength), a further 40 bedspaces may be required.

### Proposal

62. It is proposed that 110 bedspaces be provided for in the current project scope, noting that additional demand may arise later. In the interim, the market will continue to

be tested to assess whether that latent demand might only be solved with additional living in accommodation having to be built. Figures 12 to 14 refer.

## **DESIGN CONSIDERATIONS**

### **Design Standards**

63. The planning for the facilities needs to make provision for the requirements of the Air Standardisation Coordinating Committee for Australian Defence Force Airfields. These criteria are noted in the Australian Defence Force publication “Aerodrome Design Criteria”. Where appropriate, the design of new facilities will conform to the relevant sections of:

- Building Code of Australia;
- Relevant Australian Standards and Codes;
- Occupational Health and Safety Act, 1991;
- Defence Manual of Fire Protection Engineering;
- Defence Security Manual;
- Environment Protection and Biodiversity Conservation Act 1999; and
- Workplace Health and Safety Act and Regulations.

### **Design Philosophy**

64. The general philosophy to be adopted with the design of the proposed facilities shall incorporate the following considerations:

- the provision of cost effective and utilitarian facilities of energy efficient design suitable for the climate (including cyclonic) conditions, and of a style compatible with the facilities at Robertson Barracks;
- adoption where possible of conventional construction techniques and materials, in particular those commonly used by the construction industry in the Darwin area;



- an awareness that organisational changes, advances in such things as weapons technology, surveillance technology, military simulation and command and control systems will require flexibility to be designed into all facilities; and
- through life costs must be considered design and in the selection of plant and materials.

65. The design, structure, servicing and siting of buildings is to ensure that future expansion is possible. Each sub-element of the facility should have the capacity for future expansion. This is of particular importance in sizing and terminating in-ground services, and in design of mechanical plant.

### **Philosophy Adopted for the Design of the Fire Protection System**

66 The following philosophy has been adopted in respect of the design of the fire protection systems:

- All construction and fire protection requirements will, as a minimum, be in accordance with the provisions of the Building Code of Australia, the Defence Manual of Fire Protection Engineering and all other applicable Codes and Standards;
- Defence will require certification from a suitably qualified certifier, that the design and construction meet the requirements of the Building Code of Australia and the Defence Manual of Fire Protection, relevant Codes and Standards and any additional Territory and Defence requirements;
- Any recommended departures from BCA requirements in relation to the project will be technically assessed by Defence specialist fire protection staff. Departures (ensuring an equivalent or higher level of protection than Building Code requirements) will require written approval of the Department of Defence; and

- Successful tenderers will be required to produce a Quality Assurance Plan to clearly show how the building Code of Australia, Australian Standards and any additional Defence requirements in relation to fire protection/fire safety will be met and maintained.

67. The aircraft have been categorised as national strategic assets and guidelines on the appropriate protective measures, in terms of construction methods and materials, intruder alarm systems and human resources, are contained within Government and Defence security manuals.

### **Philosophy Adopted for Energy Management and Lighting**

68. A key design focus is improved energy management to ensure ecologically sustainable development and reduction of greenhouse gas emissions. The design of all power supply, electrical and mechanical equipment will include an assessment of energy use applying life cycle costing techniques and power demand analysis, energy efficiency being a key objective in Defence facility projects.

69. Concept designs are to include an analysis of energy delivery and consumption systems, incorporating an estimate of any additional energy consumption and costs that are expected to result from the implementation of the concepts. Facilities will incorporate building management systems, metering and other provisions to measure energy use and to allow regular energy audits.

70. To reduce energy consumption and consequential greenhouse gas emissions, lighting is to be controlled, where possible, by photoelectric switches in conjunction with time switch schedules. This is to include provision of personal sensor controlled lighting to intermittently occupied areas. Lamps are to be high efficiency fluorescent, compact fluorescent or discharge types. External lighting is to be designed to minimise glare and colour distortion. Where appropriate, time switches are to be installed at airconditioner controls to reduce running costs when premises are unoccupied.

## **Philosophy Adopted for Precautions against Legionella**

71. As air cooled airconditioning systems are proposed, no specific precautions against the legionella bacillus are considered necessary. Potable water would be below the temperature range where legionella can breed to levels affecting health.

## **Design Features**

73. The design, structure, servicing and siting of buildings is to ensure that future expansion is possible.

73. Maximum flexibility is required for most internal office accommodation facilities. Except where the need for security or noise reduction dictates otherwise, minimum use is to be made of structural internal walls or columns. In general terms, internal walls in office areas are to be of demountable partition or workstation type to facilitate economical rearrangement. Building services are to be compatible with this requirement.

74. This project will require:

- The maximum use of existing infrastructure to minimise capital facilities costs;
- The adoption of conventional construction techniques and materials, commonly used by the construction industry in regional Australia, with due regard given to climatic and cyclonic conditions;
- The utilisation of readily available and durable materials that combine long life with minimum maintenance;
- Sympathy with the existing buildings and precinct; and
- Landscaping and the preservation of the visual environment.

75. The building works and services will be fully fitted out, with all communications, light fittings, partitions, floor treatments and furniture.

## **Acoustics**

76. The nature of 1st Aviation Regiment operations is inherently noisy, particularly around the airfield operational areas. In these areas, sound attenuation provided through construction techniques and materials will generally be supplemented by personal aural protection. Sound attenuation is especially important in classrooms and domestic accommodation (in particular, sleeping accommodation, to cope with reverse cycle operations), and specific levels, as specified within Australian Standards, will be met.

77. Vibration isolation of mechanical plant and equipment is an associated and essential design consideration and the designers and construction contractors will be required to limit vibration levels to comply with the recommended vibration levels as set out in Australian Standards.

## **ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS**

### **Cost of Works**

78. The capped budget for this project is \$75m in July 2002 figures, based on local cost considerations. This includes management, design, construction costs, furniture, fittings and wash/refuel equipment together with appropriate allowances for contingency. The Goods and Services Tax liability is not included.

### **Construction Workforce**

79. Over the construction period of some two years, an average of about 150 personnel will be directly employed on construction activities. In addition, it is anticipated that construction will generate further job opportunities off-site from design and the supply, manufacture and distribution of components and materials.

### **Establishment Population**

80. Robertson Barracks presently supports a work population of about 3500 personnel. The relocation of 1st Aviation Regiment will add a further 400 personnel.

**Timings**

81. Subject to Parliamentary approval of the project, early works are to be committed by mid 2003, with major design and construction commencing before late 2003. Project delivery is to be sufficiently developed by December 2004 to facilitate occupation by key functions, with completion of all outstanding works by around mid 2005.

**Environmental Implications**

82. The facilities project has been discussed with Environment Australia, particularly the application of the *Environment Protection and Biodiversity Conservation Act 1999*, and the identification of impacts of National Environmental Significance, as defined under that Act. The facilities project has also been discussed with the Environment Protection Division of the Northern Territory's Department of Infrastructure, Planning and Environment. There are no impacts of national environmental significance, nor are there any impacts not already identified through existing usage of the Barracks, and managed through the application of the Robertson Barracks Environmental Management Plan.

83. Contractors for the provision of facilities will be required to produce Construction Environmental Control Plans as a contractual obligation, and these procedures will be audited as an element of project management.

84. Defence is also undertaking a separate study into equipment acquisition aspects, with a view to referral to Environment Australia to establish whether there are issues of significance with respect to the *Tiger*.

**Heritage Considerations**

85. There are no heritage considerations associated with this proposal.

**Childcare Provisions**

86. The Army Presence in the North project constructed a childcare centre at Palmerston and a community centre at Robertson Barracks. Subsequently, Defence

entered into a ten year lease for the sixty place Durack Child Care Centre which is collocated with the Palmerston Child Care Centre, and leases a further forty family day care places within the Darwin CBD.

87. Additionally, a forty-place Preschool/Kindergarten is to be constructed at RAAF Base Darwin to meet existing Defence needs in the inner Darwin region. It is not proposed to construct any further childcare facilities as part of this project.

### **Landscaping**

88. Landscape design will be in accordance with the Robertson Barracks Landscaping Master Plan. The project should not give rise to any substantial alteration in the essential character of the existing facilities or landscaping, and thus landscaping works will be directed to the rectification of any areas disturbed during construction, as well as enhancing the general visual environment. Care will be taken to avoid compromising existing environmental sensitivities by adopting landscaping practices in keeping with local environmental conditions. Landscaping will also contribute to passive security protection of the unit.

## **CONSULTATION WITH EXTERNAL AUTHORITIES**

89. The following authorities and organisations have been or will be consulted with during the development of the project:

- Federal and Territory Government agencies;
- Environment Australia;
- Air Services Australia;
- Civil Aviation Safety Authority;
- NT Regional Airspace Policy Advisory Committee;
- Litchfield Shire Council;
- Darwin City Council;
- Palmerston City Council;

- Aboriginal Areas Protection Authority NT;
- Australian Greenhouse Office,
- Defence Housing Authority;
- Royal Australian Institute of Architects, and
- Institution of Engineers, Australia.

### **PROJECT DELIVERY MECHANISM**

90. The project will be delivered through a traditional Head Contract approach, based on defined packages of work. This system is appropriate to delivery of complex projects where the management of design is important, where it must coalesce with requirements of the equipment being procured, and where site possession can be provided to a contractor without interference with the ongoing Barracks' activities.

### **FUTURE DEFENCE WORKS AT ROBERTSON BARRACKS**

91. There is one other work currently proposed for Robertson Barracks, being an acquisition related project to provide facilities for a Tactical Training and Simulation Centre, budgeted at \$5.5m. This project will be completed before late 2003.

### **OTHER DEFENCE WORKS IN THE NORTHERN TERRITORY**

#### **Completed Works**

92. The Army Presence in the North Stage 1 Project at \$199.74m was completed at Robertson Barracks in 1998. The last works package of the \$264m APIN Stage 2 project (being the subject of the Public Works Committee's Ninth Report of 1995 "Facilities for an Increased Army Presence in the North (APIN) Stage 2") were completed at Robertson Barracks in 2002. Other completed Defence works in recent years are as follows:

- Darwin Naval Base Redevelopment: \$12.6m;
- Shoal Bay Facilities: \$6m;

- RAAF Base Darwin Operational Support Facilities: \$7.3m; and
- RAAF Base Darwin 114 MCRU Facilities: \$5.8m.

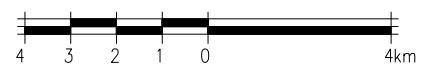
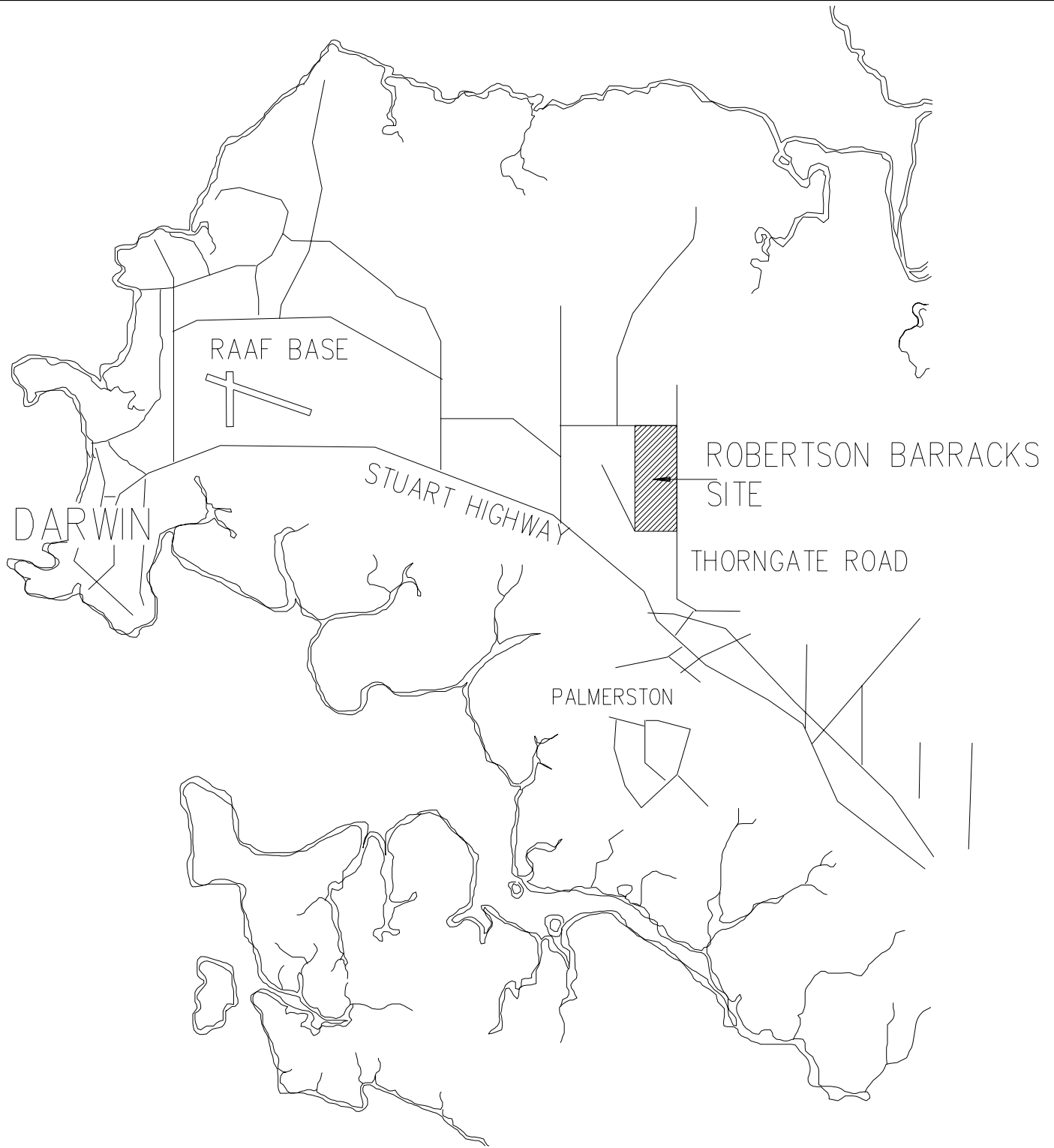
### **Works in Progress**

93. Other work in progress related to this initiative is the development of Bradshaw Field Training Area (\$64.8m) (being the subject of the Public Works Committee's Eighth Report of 1997 "Development of Infrastructure on the Bradshaw Field Training Area, Near Timber Creek, NT"). Construction of an access bridge over the Victoria River has been completed as part of the Bradshaw works, while the remaining works will commence upon the registration of an Indigenous Land Use Agreement.

95. Other projects in progress are:

- RAAF Base Darwin Post Force Structure Review Works: \$59.5m
- RAAF Base Darwin Various Redevelopment Works: \$11.7m
- RAAF Base Tindal Junior Ranks Accommodation: \$5.8m
- RAAF Base Tindal Marksmanship Training Range: \$4.38m
- RAAF Base Tindal Perimeter Security Fence (Referred to the Parliamentary Works Committee for consideration this financial year)





# ROBERTSON BARRACKS SITE OPTION



Figure 1

Campbell Road

Existing Facilities

Lighthorse Road

1st Aviation Regiment Main Works

Thorngate Road

Sites 1-4 Live-In Accommodation

SITE No.1

SITE No.2

SITE No.3

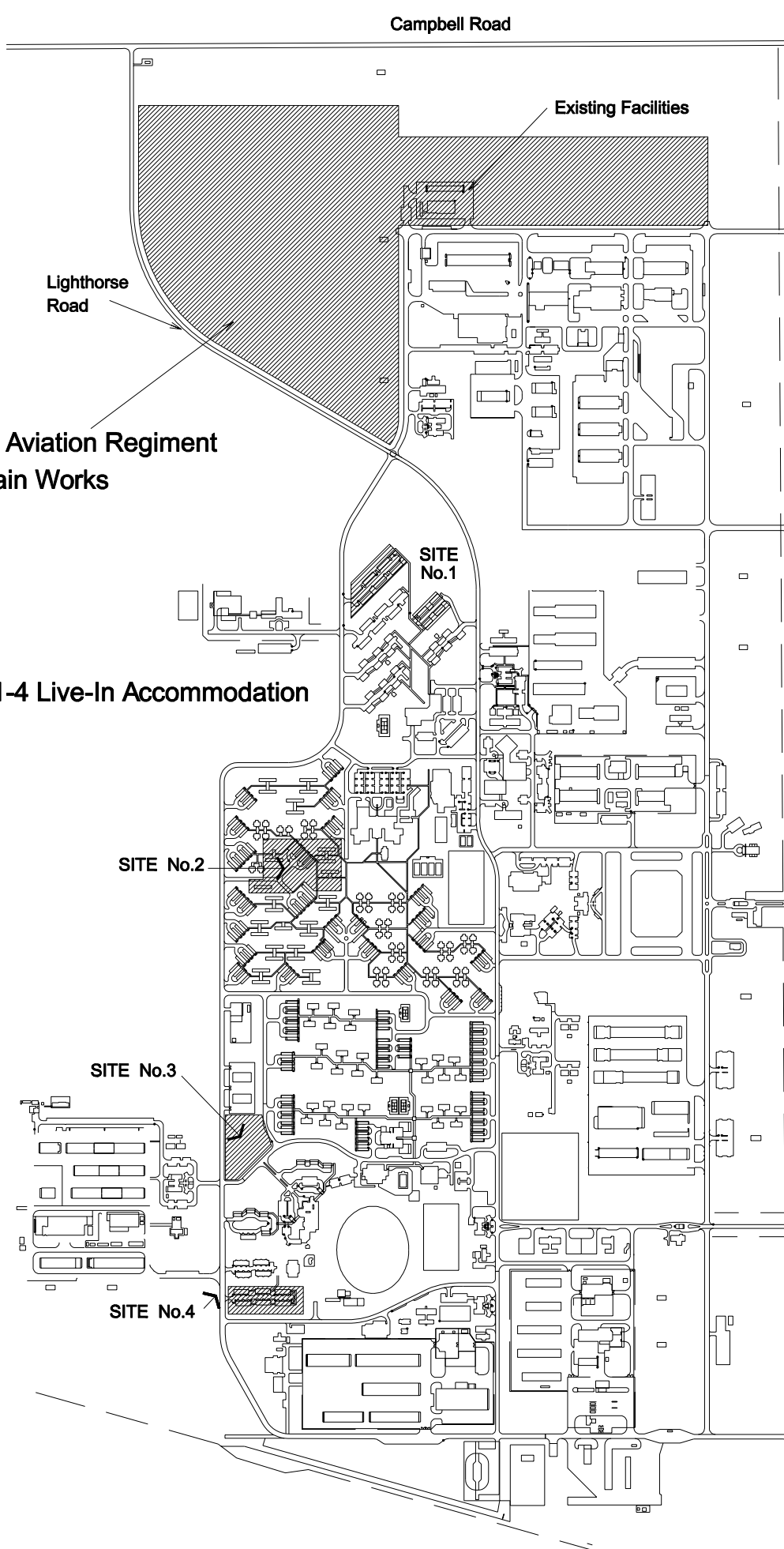
SITE No.4

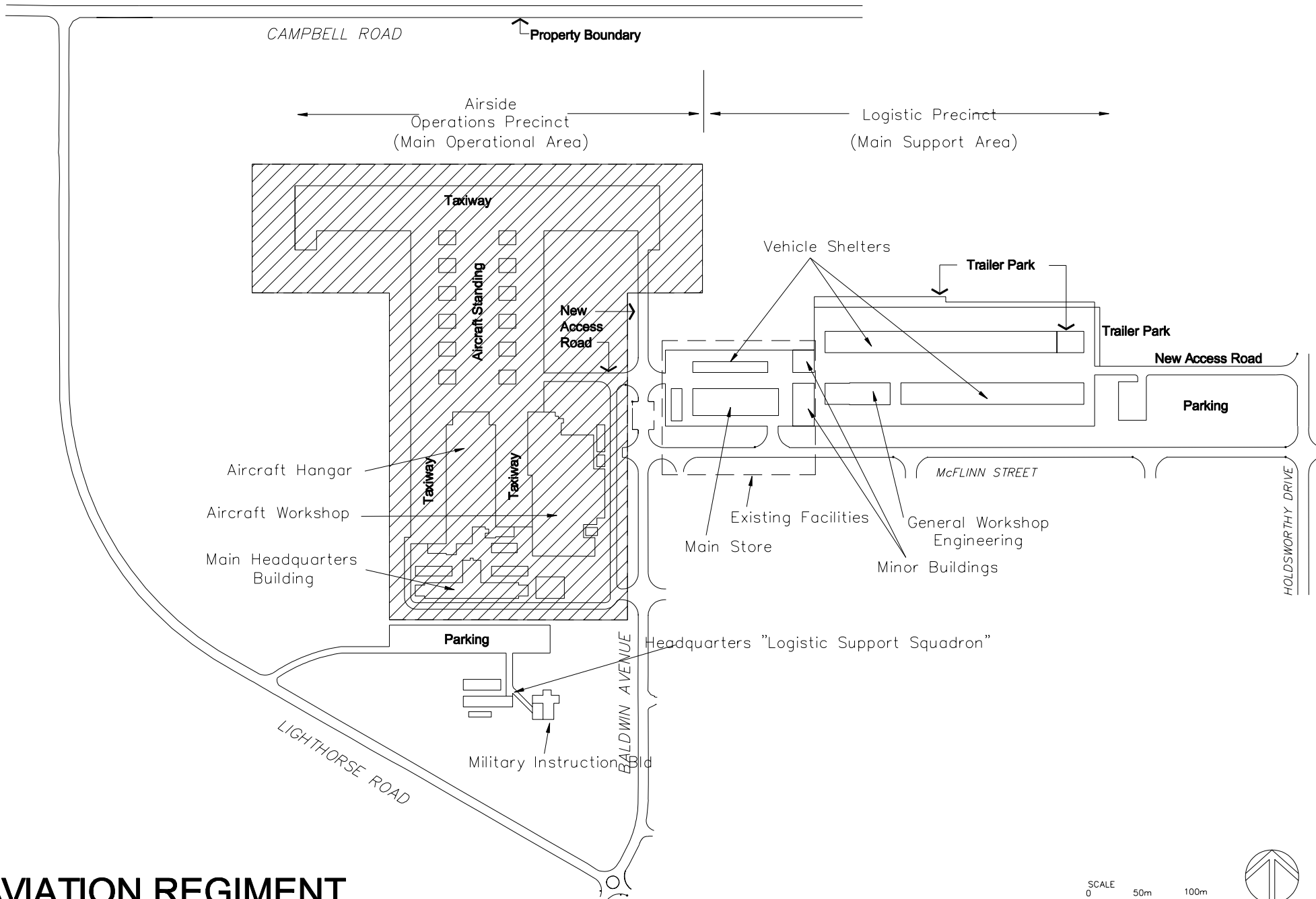
SCALE  
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# Robertson Barracks Proposed Location - 1st Aviation Regiment

## Figure 2





**1st AVIATION REGIMENT**  
**Indicative Site Plan**

**Figure 3**

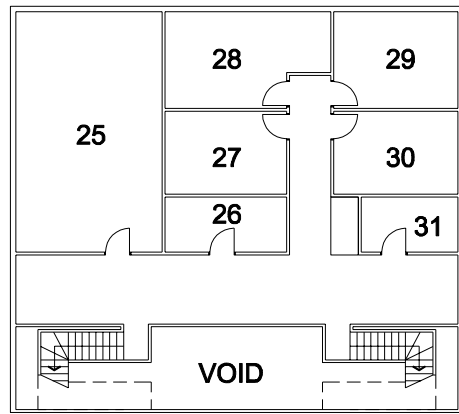
## LEGEND FIGURE 4

### REGIMENTAL HEADQUARTERS

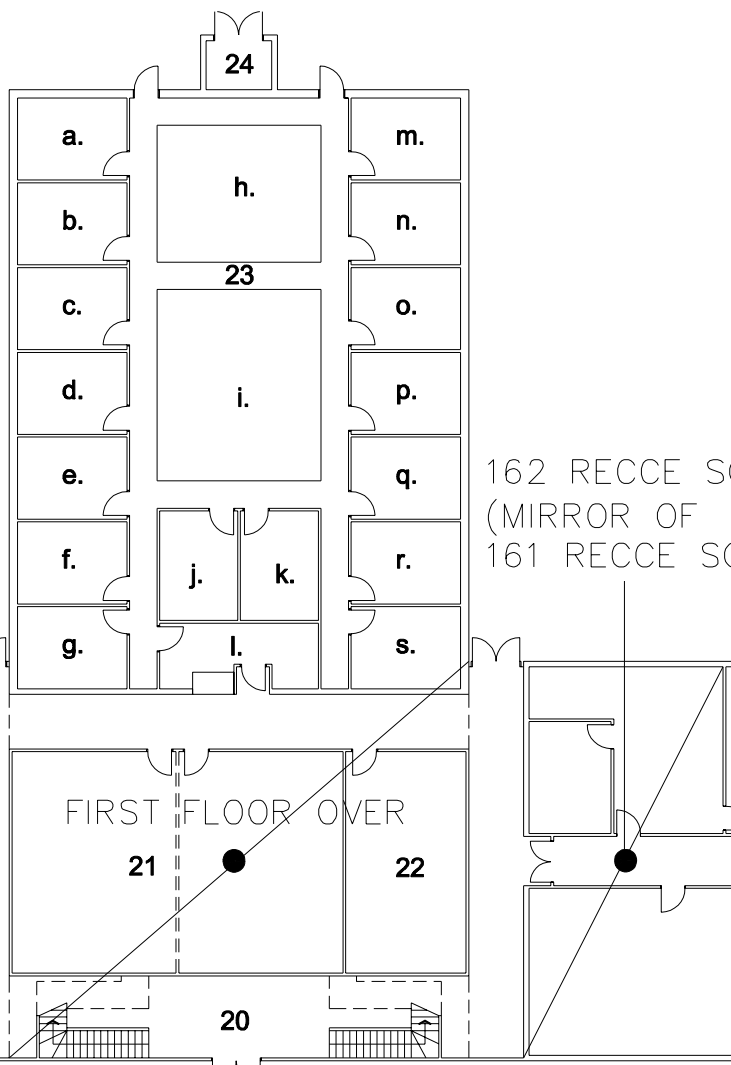
|          |                              |        |                            |
|----------|------------------------------|--------|----------------------------|
| 20       | Entrance                     | 23 (s) | Female Toilets             |
| 21       | Briefing Room                | 24     | Plant Room                 |
| 22       | Operations Ready Room        | 25     | Regimental Conference Room |
| 23       | Regimental Operations Centre | 26     | Male Toilet                |
| 23 (a-g) | Operations Offices           | 27     | Regimental sergeant Major  |
| 23 (h-i) | Open Planning Areas          | 28     | Commanding Officer         |
| 23 (j)   | Operations Officer           | 29     | Second in Command          |
| 23 (k)   | Intelligence Officer         | 30     | Chaplain                   |
| 23 (m-q) | Operations Offices           | 31     | Female Toilet              |
| 23 (r)   | Male Toilets                 |        |                            |

### RECONNAISSANCE SQUADRON HEADQUARTERS

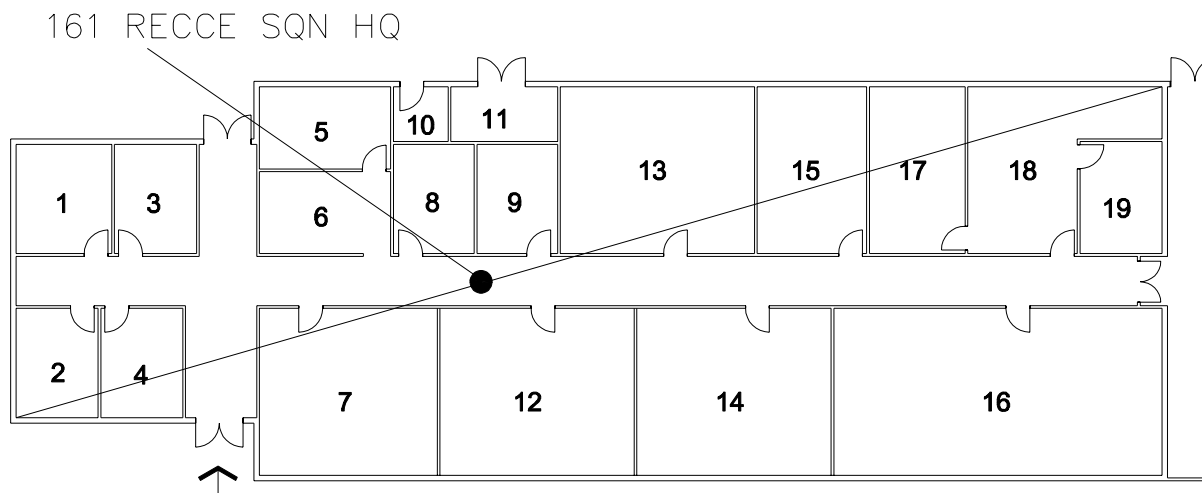
|    |                             |    |                                |
|----|-----------------------------|----|--------------------------------|
| 1  | Squadron Officer Commanding | 11 | Plant Room                     |
| 2  | Squadron Sergeant major     | 12 | Reconnaissance Troop Office #1 |
| 3  | Second in Command           | 13 | Reconnaissance Troop Office #2 |
| 4  | Liaison Officer             | 14 | Reconnaissance Troop Office #3 |
| 5  | Map Room                    | 15 | Conference Room                |
| 6  | Reproduction                | 16 | Planning Room                  |
| 7  | Squadron Orderly Room       | 17 | Operations Planning Room       |
| 8  | Flight Planning Office      | 18 | Operations Room                |
| 9  | Flight Planning Office      | 19 | Operations Officer             |
| 10 | Communications Room         |    |                                |



FIRST FLOOR – RHQ



162 RECCE SQN HQ  
(MIRROR OF  
161 RECCE SQN)



GROUND FLOOR –  
ARH SQN HQ & REGT OPERATIONS ROOM

ENTRY

ENTRY

# Headquarter Building Indicative Sketch



Figure 4

**LEGEND FIGURE 5A – AIRCRAFT WORKSHOP**

|    |                                 |    |                                       |
|----|---------------------------------|----|---------------------------------------|
|    | <b>Helicopter Wash</b>          | 15 | Instrument Room                       |
| 1  | Helicopter Wash Bay             | 16 | Radio / Navigation Room               |
| 2  | Chemical Store                  | 17 | Air Conditioning Plant Room           |
| 3  | Plant Room                      | 18 | Amenities (toilets, change rooms)     |
| 4  | Female Toilet / Cleaner's Room  | 19 | Aircraft Maintenance Bay #2           |
| 5  | Male Toilet                     | 20 | Armament Section Office               |
| 6  | Office                          | 21 | Armament Section Office               |
| 7  | Open Office                     | 22 | Armament Store                        |
| 8  | Communications Room             | 23 | Amenities (toilets, changerooms, etc) |
|    |                                 | 24 | Air Conditioning Plant Room           |
|    | <b>Aircraft Workshop</b>        | 25 | Aircraft Maintenance Bay #3           |
| 9  | Aircraft Maintenance Bay #1     | 26 | Aircraft Section Office               |
| 10 | Avionics Section Office         | 27 | Sheet Metal Workshop                  |
| 11 | Avionics Workshop               | 28 | Jig Room                              |
| 12 | Night Vision Goggles Room       | 29 | Non Destructive Testing Room          |
| 13 | Electronic Countermeasures Room | 30 | Hydraulic Press Room                  |
| 14 | Avionics Store                  | 31 | Aircraft Section Store                |



FLOOR PLAN

# AIRCRAFT WORKSHOP

(Drawing 1 of 2 - Northern Portion)  
 Indicative Sketch Plan

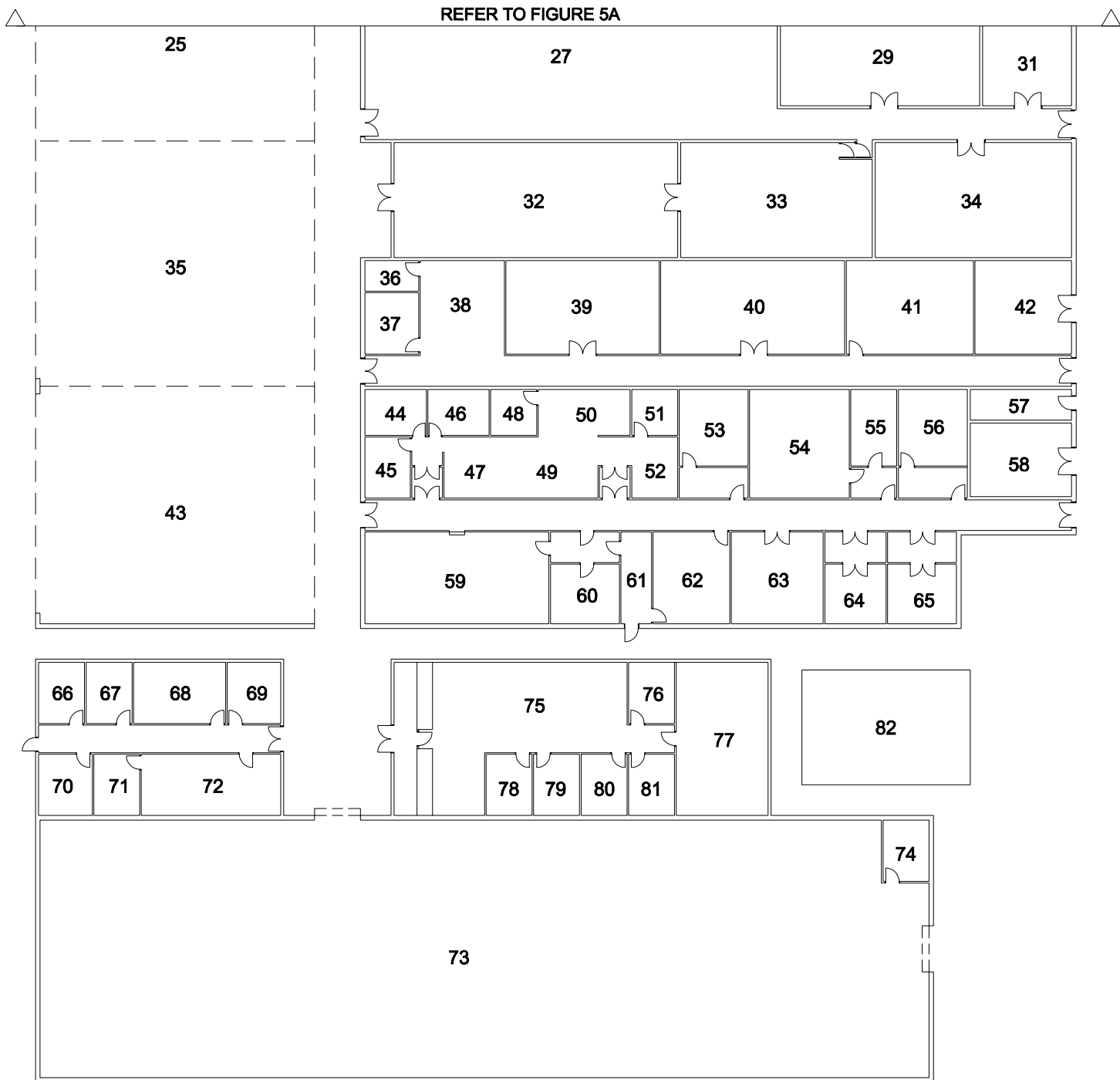


Figure 5A

**LEGEND FIGURE 5B – AIRCRAFT WORKSHOP**

|    |  |    |   |
|----|--|----|---|
|    | <b>Aircraft Workshop (Cont.)</b>                                       | 57 | Communications Room   |
| 32 | Dirty Room   | 58 | Air Conditioning Plant Room                                   |
| 33 | Clean Room   | 59 | FSP Store   |
| 34 | Repair Parts Store   | 60 | FSP Office  |
| 35 | Aircraft Deep Maintenance Bay #1                                       | 61 | Battery Workshop  |
|    |  | 62 | Avionics Maintenance  |
|    | <b>Life Support Section</b>  | 63 | Role Equipment & Bay Service                                  |
| 36 | Laundry  | 64 | Life Support Workshop   |
| 37 | Office   | 65 | Tool Store  |
| 38 | Equipment Service and Sowing   |    |   |
| 39 | Clothing Store   |    | <b>Technical Support Squadron Headquarters</b>                |
| 40 | Raft Room  | 66 | Second in Command   |
| 41 | Helmet Fitting Room  | 67 | Squadron Sergeant major                                       |
| 42 | Air Conditioning Plant Room  | 68 | Conference Room   |
|    |  | 69 | Forward Repair Group Troop Office                             |
|    | <b>Eurocopter International Pacific (EIP) Maintenance Organisation</b> | 70 | Officer Commanding  |
| 43 | Aircraft Deep Maintenance Bay #2                                       | 71 | Repair Parts Store Section-Officer In Charge                  |
| 44 | EIP Manager  | 72 | Repair Parts Store Section Office                             |
| 45 | ADF Embedded Personnel Officer In Charge                               | 73 | Repair Parts Store  |
| 46 | EIP Field Service Representative                                       | 74 | Receipts and Issue Office                                     |
| 47 | EIP Shift Team Leader  |    |   |
| 48 | Technical Publications Library   |    | <b>Electrical &amp; Mechanical Engineers Operations Troop</b> |
| 49 | EIP Maintenance Control Section Office                                 | 75 | Maintenance Control Section                                   |
| 50 | EIP Computer Office  | 76 | Archives  |
| 51 | Briefing Room  | 77 | Technical Library   |
| 52 | Documentation Office   | 78 | Electrical & Mechanical Engineer AERO Office                  |
| 53 | Female Toilet  | 79 | Electrical & Mechanical Engineer AERO Office                  |
| 54 | Lunchroom  |    |   |
| 55 | Locker Room  |    |   |
| 56 | Male Toilet  |    |   |





FLOOR PLAN



# AIRCRAFT WORKSHOP

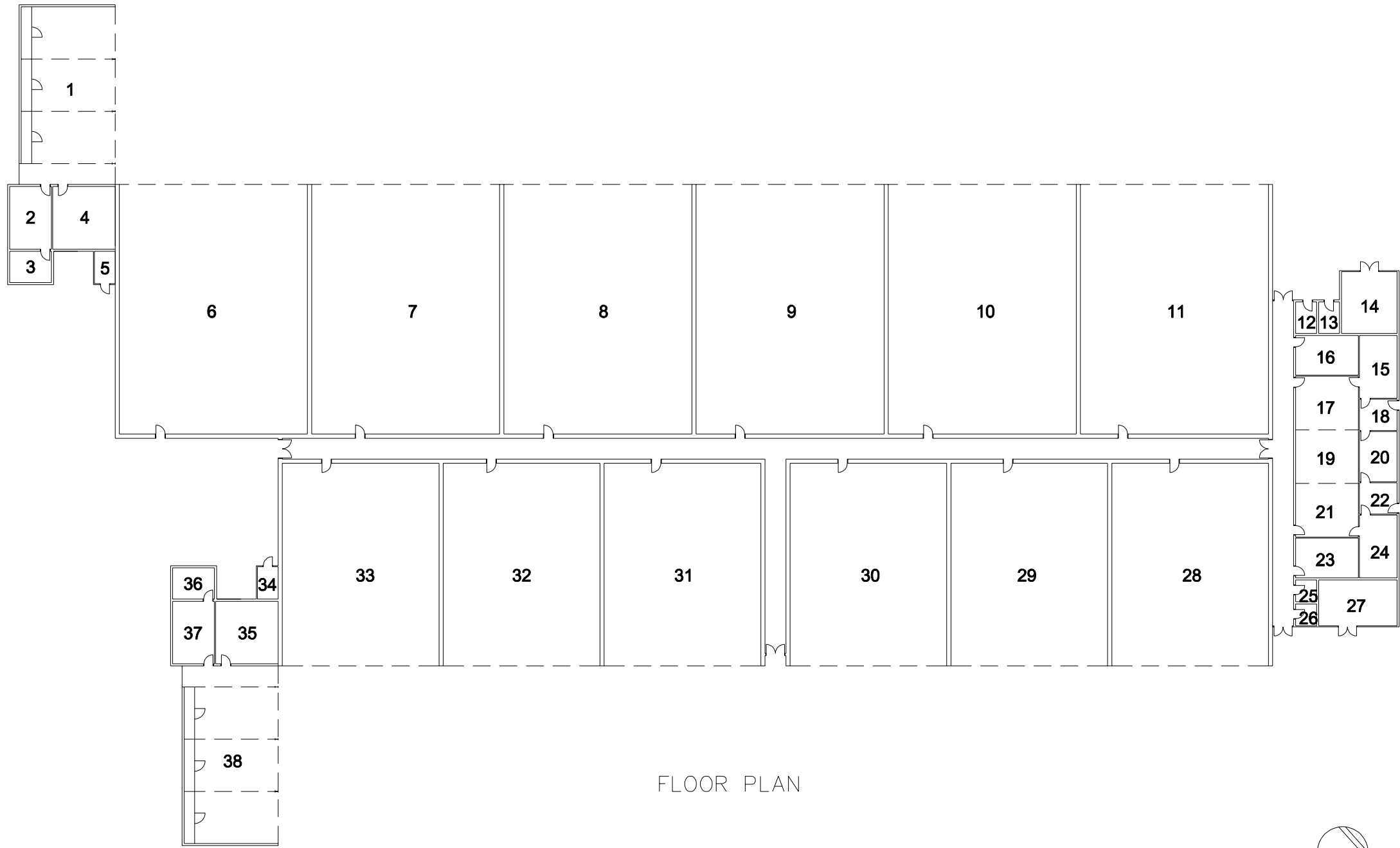
(Drawing 2 of 2 - Southern Portion)  
Indicative Sketch Plan



Figure 5B

**LEGEND FIGURE 6– AIRCRAFT HANGERS**

|    |  |    |                                      |
|----|--|----|--------------------------------------|
| 1  | Forward Repair Troop Vehicle Parking   | 20 | Control Room                         |
| 2  | Forward Repair Troop Troop Office      | 21 | Safety Equipment                     |
| 3  | Forward Repair Troop Officer in Charge | 22 | Airfield Access Room                 |
| 4  | Forward Repair Troop Office            | 23 | Ground Control Room                  |
| 5  | Communications Room                    | 24 | Air Crew Room                        |
| 6  | Aircraft Shelter #1                    | 25 | Unisex Toilet                        |
| 7  | Aircraft Shelter #2                    | 26 | Cleaner’s Room                       |
| 8  | Aircraft Shelter #3                    | 27 | Ground Support Equipment Room        |
| 9  | Aircraft Shelter #4                    | 28 | Aircraft Shelter #6                  |
| 10 | Aircraft Shelter #5                    | 29 | Aircraft Shelter #5                  |
| 11 | Aircraft Shelter #6                    | 30 | Aircraft Shelter #4                  |
| 12 | Communications Room                    | 31 | Aircraft Shelter #3                  |
| 13 | Plant Room                             | 32 | Aircraft Shelter #2                  |
| 14 | Ground Support Equipment Room          | 33 | Aircraft Shelter #1                  |
| 15 | Air Crew Room                          | 34 | Communications Room                  |
| 16 | Ground Crew Room                       | 35 | Forward Repair Troop Office          |
| 17 | Safety Equipment                       | 36 | Forward Repair Troop Office          |
| 18 | Airfield Access Room                   | 37 | Forward Repair Troop Troop Office    |
| 19 | Safety Equipment Workshop              | 38 | Forward Repair Troop Vehicle Parking |



FLOOR PLAN

**AIRCRAFT HANGAR**  
**Indicative Sketch Plan**

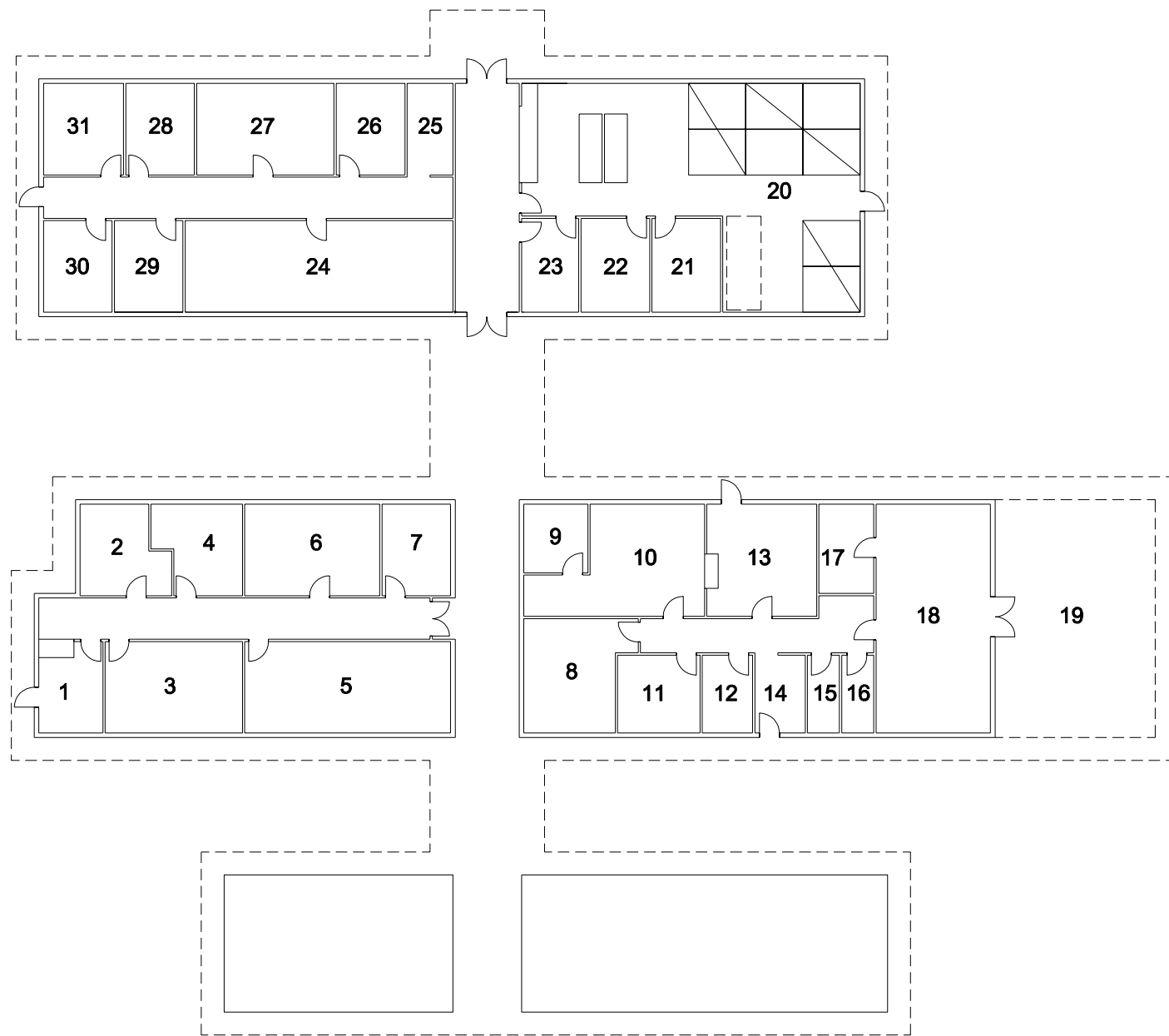
SCALE  
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**Figure 6**

**LEGEND FIGURE 7 – LOGISTIC SUPPORT SQUADRON HEADQUARTERS**

|    |                            |    |                                      |
|----|----------------------------|----|--------------------------------------|
| 1  | Reception                  | 17 | Store Room                           |
| 2  | Duty Officer Room          | 18 | Treatment Room                       |
| 3  | Recreation Room            | 19 | Ambulance Bay                        |
| 4  | Guard Commanders Room      | 20 | Regimental Headquarters Orderly Room |
| 5  | Dormitory                  | 21 | Chief Clerk Office                   |
| 6  | Hearing Room               | 22 | Adjutant's Office                    |
| 7  | Store Room                 | 23 | Interview Room                       |
| 8  | Regimental Medical Officer | 24 | Operations Room                      |
| 9  | Regimental Aid Post Office | 25 | Reproduction Room                    |
| 10 | Orderly Room               | 26 | Troop Commander's Office             |
| 11 | Nursing Officer            | 27 | Conference Room                      |
| 12 | Audiometry Room            | 28 | Warrant Officer Caterer's Office     |
| 13 | Waiting Area               | 29 | Squadron Sergeant Major's Office     |
| 14 | Kitchenette                | 30 | Second in Command's Office           |
| 15 | Disabled Toilet            | 31 | Officer Commanding                   |
| 16 | Disabled Shower            |    |                                      |



ANCILLARY AREAS

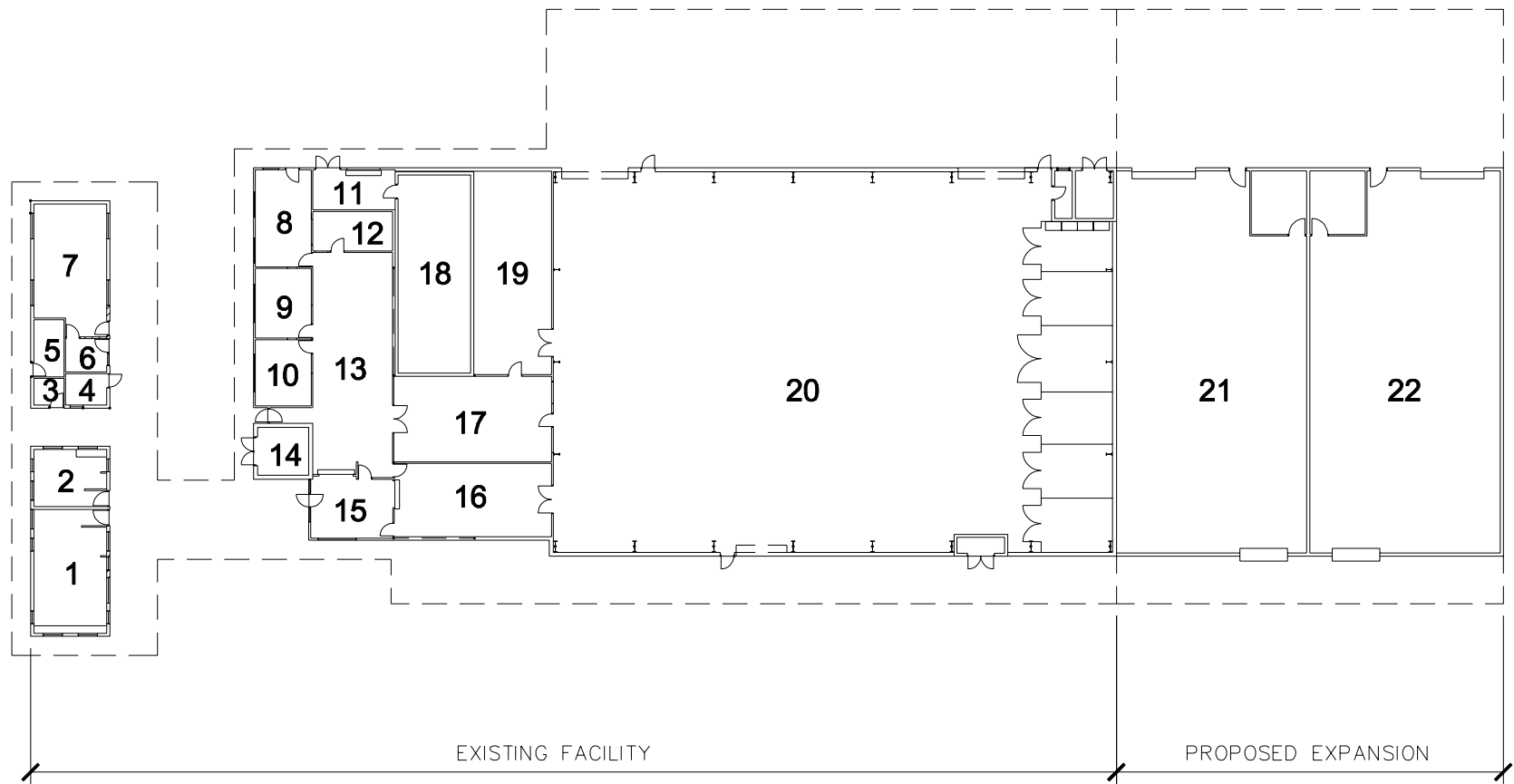
**LOGISTICS SUPPORT SQUADRON - HEADQUARTERS**  
**Indicative Sketch Plan**



**Figure 7**

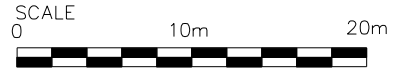
**LEGEND FIGURE 8- MAIN STORE**

|    |                               |    |  |
|----|-------------------------------|----|--|
| 1  | Male Toilet                   | 12 | Printer Room                                 |
| 2  | Female Toilet                 | 13 | General Office                               |
| 3  | Cleaner's Room                | 14 | Plant Room                                   |
| 4  | Disabled Toilet               | 15 | Foyer  |
| 5  | Communications Room           | 16 | Clothing Store                               |
| 6  | Kitchenette                   | 17 | Office                                       |
| 7  | Lunch Room / Conference Room  | 18 | Armoury                                      |
| 8  | Ledger Office                 | 19 | Stationary Store                             |
| 9  | Quarter Master's Office       | 20 | Warehouse                                    |
| 10 | Quarter Master's Store Office | 21 | Reconnaissance Squadron Quarter Master Store |
| 11 | Quatrer Master Office         | 22 | Reconnaissance Squadron Quarter Master Store |



FLOOR PLAN

**MAIN STORE**  
**Indicative Sketch Plan**

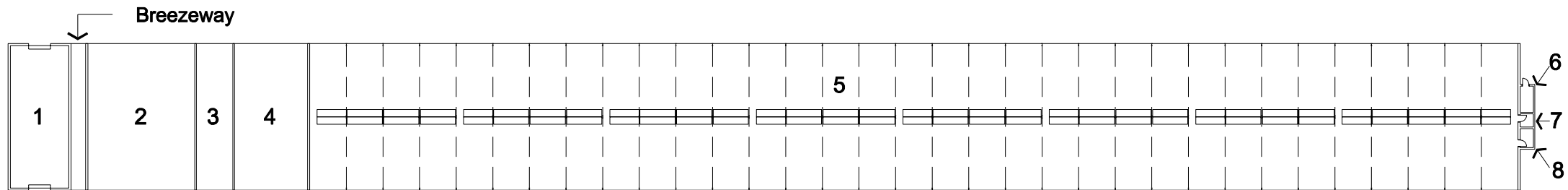


**Figure 8**

**LEGEND FIGURE 9– INDICATIVE VEHICLE SHELTER**

|   |  |   |                      |
|---|--|---|----------------------|
| 1 | Transport Troop Tyre Change                  | 5 | Vehicle Parking Bays |
| 2 | Aircraft Support Troop Offices and Amenities | 6 | Unisex Toilet        |
| 3 | Aircraft Support Troop Rearm Store           | 7 | Plant Room           |
| 4 | Aircraft Support Troop Refuel Store          | 8 | Communications Room  |





**VEHICLE SHELTER**  
**Indicative Sketch Plan**

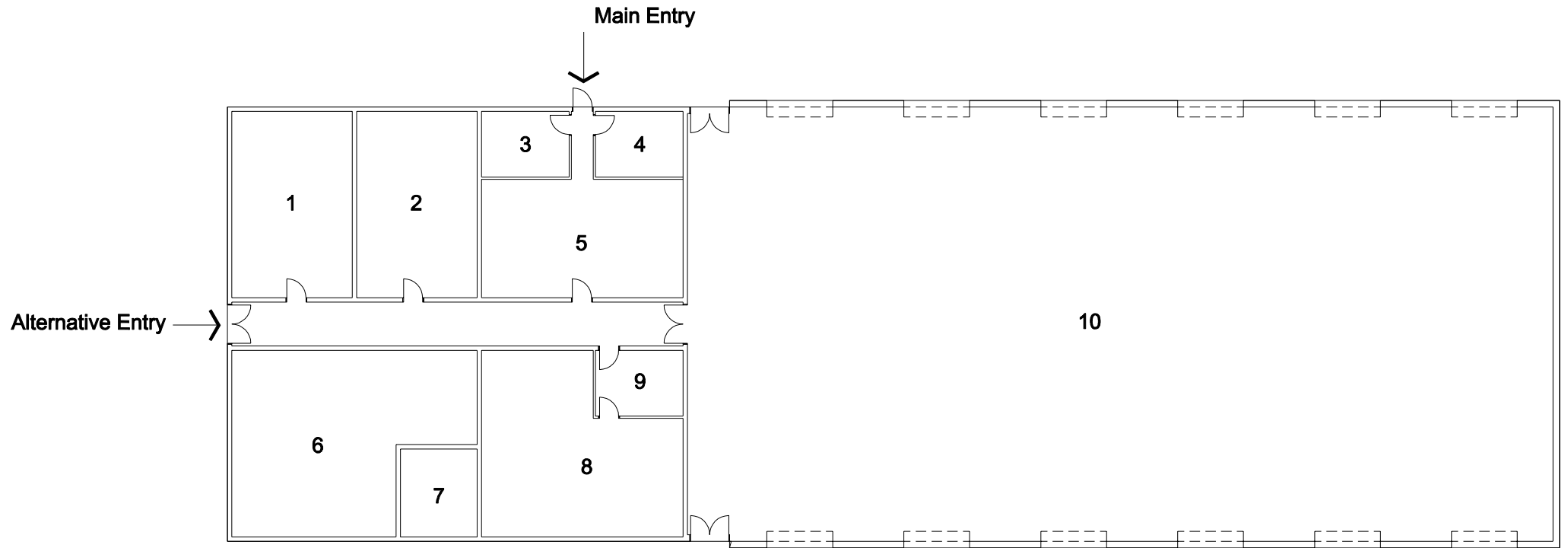
SCALE  
0 10m 20m



**Figure 9**

**LEGEND FIGURE 10– GENERAL ENGINEERING WORKSHOP**

|   |                                       |    |                     |
|---|---------------------------------------|----|---------------------|
| 1 | Electronic Instrument Repair Workshop | 6  | Amenities           |
| 2 | Electronic Instrument Repair          | 7  | Field Store         |
| 3 | Troop Commander's Office              | 8  | Repair Parts Store  |
| 4 | Artificer (Mechanical) Office         | 9  | Repair Parts Office |
| 5 | Troop Office                          | 10 | Workshop            |



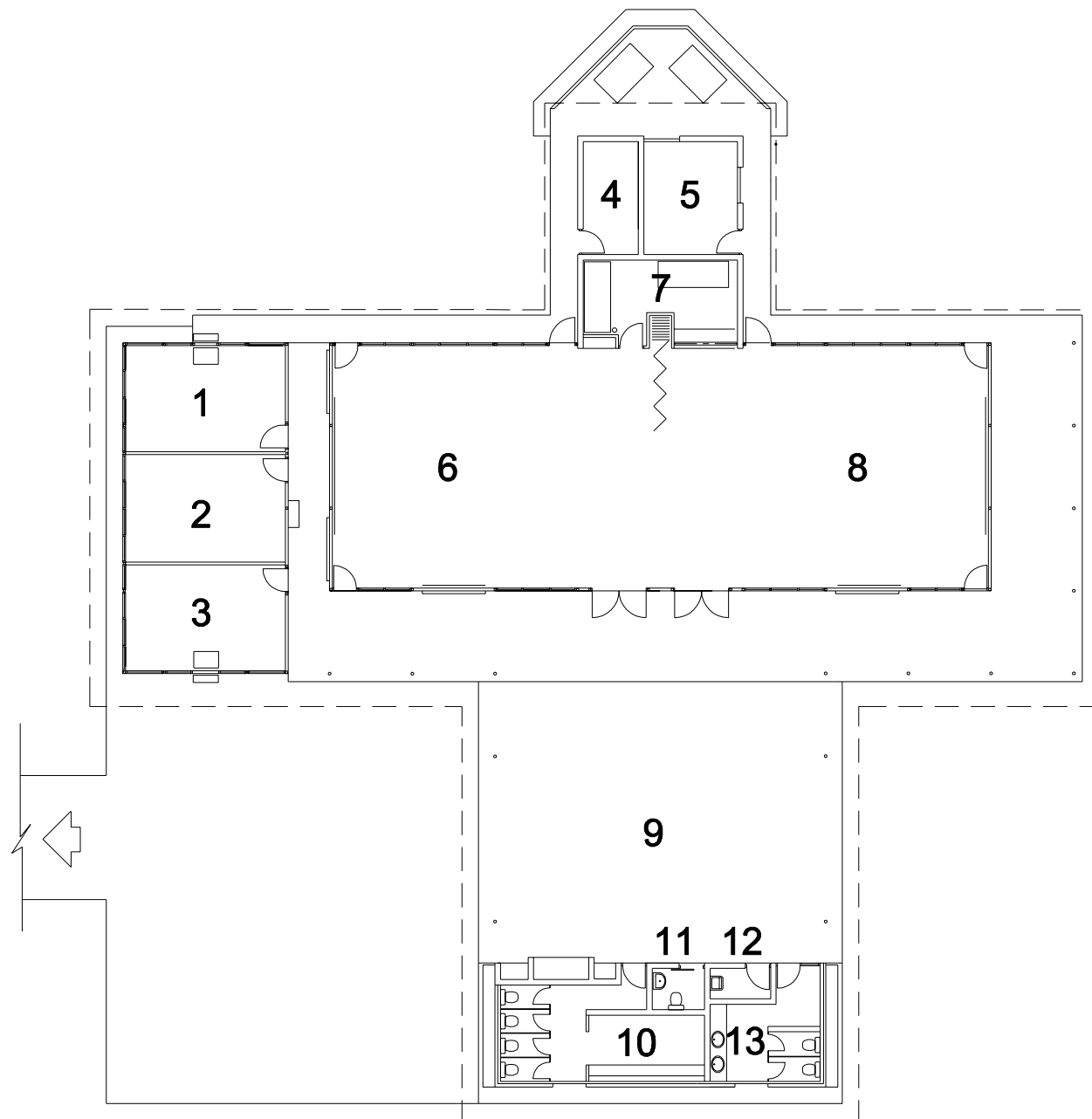
**GENERAL ENGINEERING WORKSHOP**  
**Indicative Sketch Plan**



**Figure 10**

**LEGEND FIGURE 11- MILITARY INSTRUCTION AND TRAINING BUILDING**

|   |                     |    |                                |
|---|---------------------|----|--------------------------------|
| 1 | Syndicate Room      | 8  | Lecture Room                   |
| 2 | Syndicate Room      | 9  | Covered External Training Area |
| 3 | Syndicate Room      | 10 | Male Toilet                    |
| 4 | Communications Room | 11 | Disabled Toilet                |
| 5 | Plant Room          | 12 | Cleaner's Room                 |
| 6 | Library             | 13 | Female Toilet                  |
| 7 | Lecture Room        |    |                                |



**UNIT INSTRUCTION AND TRAINING BUILDING**  
Indicative Sketch Plan



**Figure 11**

Campbell Road

Existing Facilities

Lighthorse Road

Sites 1-4: Live-In Accommodation

Thorngate Road

SITE No.1

SITE No.2

SITE No.3

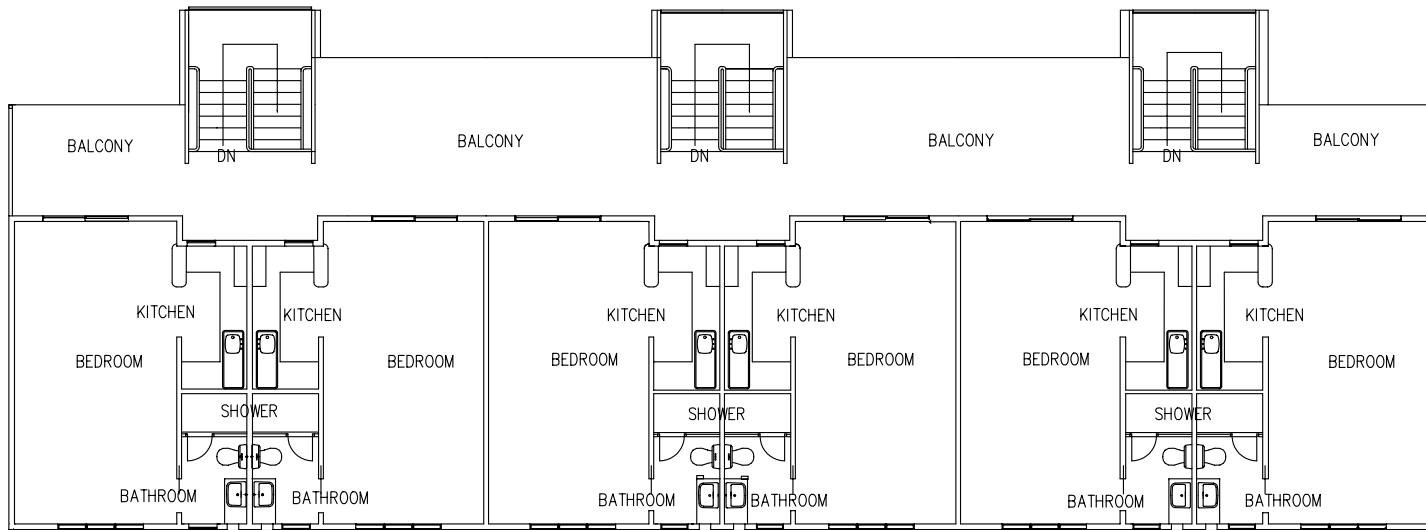
SITE No.4

SCALE  
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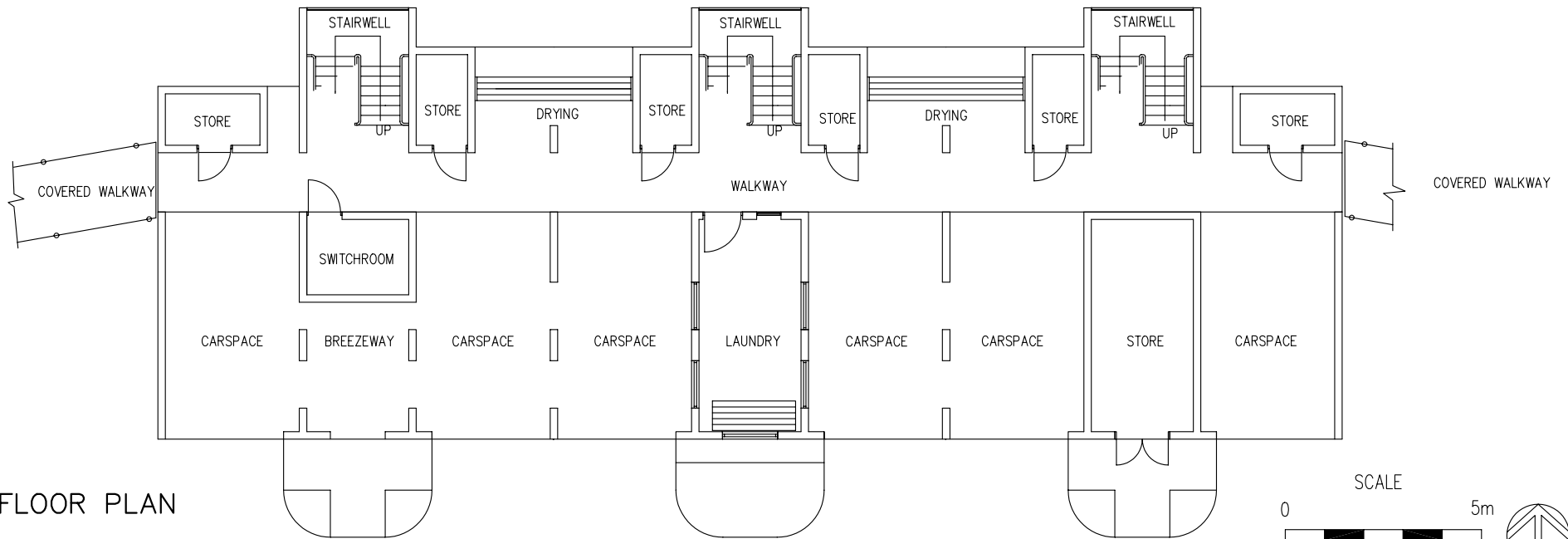


Robertson Barracks  
Proposed Locations-  
Additional Living - In Accommodation

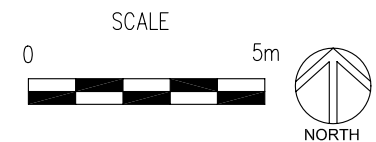
Figure 12



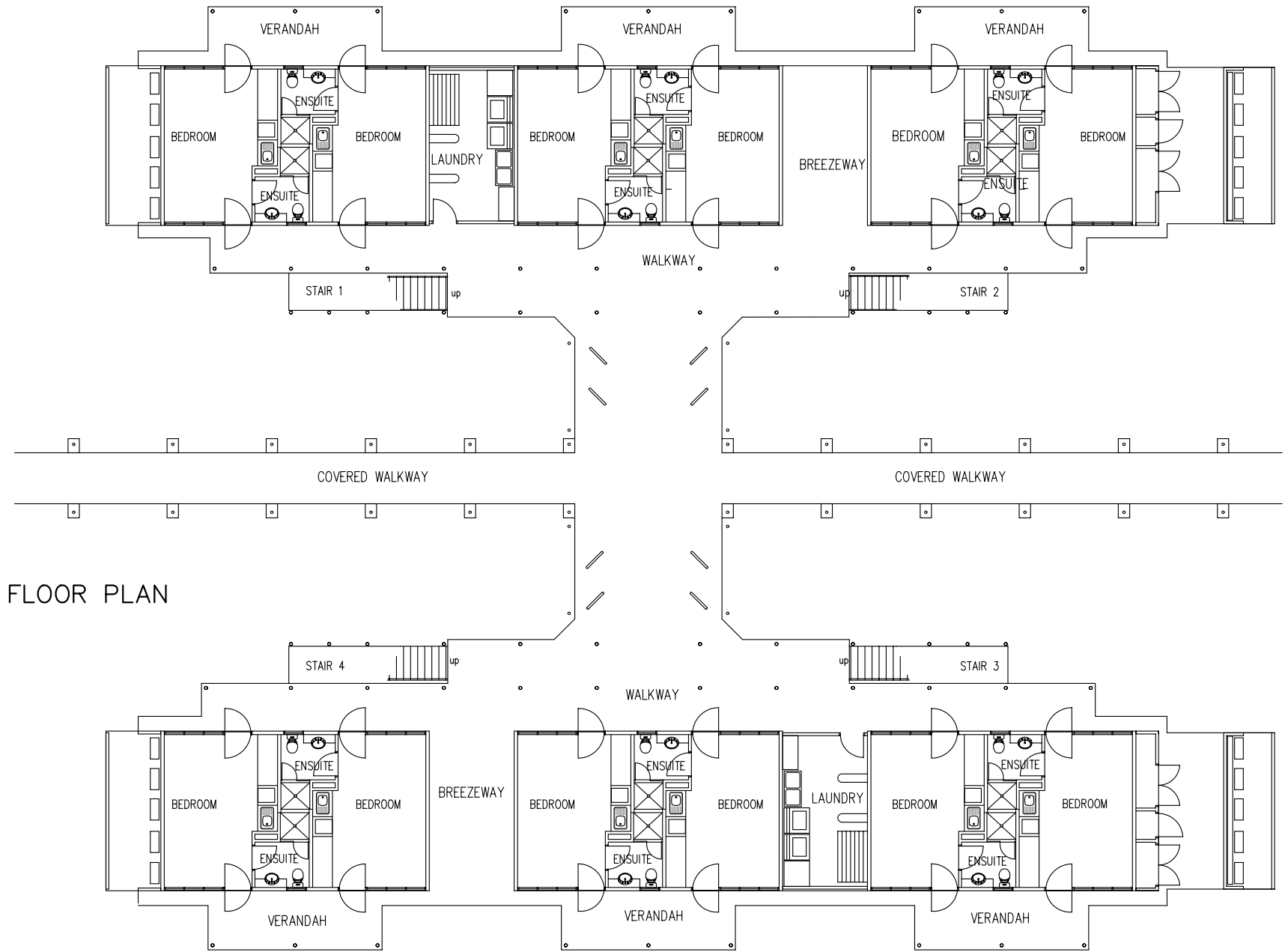
FIRST FLOOR PLAN



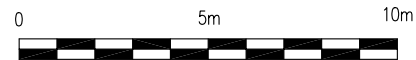
GROUND FLOOR PLAN



Living In Accommodation - Officers & Senior Non-Commissioned Officers **Figure 13**



SCALE



Living In Accommodation - Other Ranks

Figure 14