



**Australian Government**

**Department of Defence**

# LAND 17 PHASE 1A INFRASTRUCTURE PROJECT

Gallipoli Barracks, Enoggera, Queensland  
Lavarack Barracks, Townsville, Queensland  
Robertson Barracks, Darwin, Northern Territory  
RAAF Base Edinburgh, Adelaide, South Australia  
Bridges Barracks, Puckapunyal, Victoria  
Gaza Ridge Barracks, Bandiana, Victoria

Statement of Evidence  
to the  
Parliamentary Standing Committee  
on Public Works

Canberra, Australian Capital Territory

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# LAND 17 Phase 1A Infrastructure Project

## Need for the Works

### Identified Need

1. The LAND 17 capability project will enhance the Australian Army's indirect fire support system through the replacement of the 105mm Hamel Howitzer and 155mm M198 Howitzer fleets. The project will be delivered in three phases:
  - a. Phase 1A – procurement of 35 M777-A2 lightweight towed guns, an AFATDS and munitions fuses;
  - b. Phase 1B – procurement of a Digital Terminal Control System; and
  - c. Phase 1C – procurement of self propelled Howitzer guns.
2. LAND 17 Phase 1A was approved by Government in 2009. This proposal addresses the Phase 1A infrastructure component. Phase 1B does not have any facilities implications. Facility requirements relating to Phase 1C will be the subject of a separate referral if approved by Government.
3. The LAND 17 Phase 1A infrastructure project proposes to provide new and upgraded facilities to support the introduction of the new M777-A2 lightweight towed guns, and provide facilities suited to the organisational changes that have occurred in conjunction with the introduction of the new gun into the Australian Defence Force (ADF). The facilities proposed include those directly associated with the storage, security and maintenance of the new guns, and those that support more broadly the new capability, including training and working accommodation, tow vehicle shelters and hardstands, and some engineering services works.
4. The proposed facilities works supporting this new capability will be undertaken at six Defence sites:
  - a. Gallipoli Barracks, Enoggera, Queensland;
  - b. Lavarack Barracks, Townsville, Queensland;

- c. Robertson Barracks, Darwin, Northern Territory;
- d. RAAF Base Edinburgh, Adelaide, South Australia;
- e. Bridges Barracks, Puckapunyal, Victoria; and
- f. Gaza Ridge Barracks, Bandiana, Victoria.

## Options Considered for Meeting the Need

- 5. To meet the identified need, Defence has considered the options of building new or refurbishing existing facilities. In some instances, the re-use of facilities was considered not cost effective due to the dilapidation, structural inadequacy and functional inefficiencies posed. In other instances, the existing facilities were not located appropriately or in accordance with approved establishment zone plans. In these instances, the facilities proposed are to be new construction, located primarily on previously developed sites. In all other instances, the existing facilities are proposed to be upgraded to the extent required.
- 6. A number of siting options for new construction were considered during the early planning of the project. In all cases, the sites chosen are in accordance with the base zone plans.
- 7. This proposal comprises a mix of new construction and refurbished facilities to provide the most cost effective solution to meet working and training needs arising from the LAND 17 Phase 1A project.

## Historical Background

- 8. Prior to the LAND 17 Capability Project, the Australian Army's offensive support system was based on procedures that date back to the 1960s, and ammunition and Howitzer technologies developed in the 1970s which were introduced into Australian service in the 1980s. The LAND 17 Capability Project introduces changes to the Australian Army's Artillery Regiments organisational structure, introduces new digital Advanced Field Artillery Tactical Data Systems called the AFATDS and introduces a new replacement lightweight towed gun platform. The force structure for the Royal Australian Artillery Regiments was changed in 2009 as a result of the Force Structure Review. In this review it was determined that the previous structure was not optimised

for the ongoing provision of technical and tactical support to the Combined Arms commanders (with elements in each Brigade not having dedicated support). The new force structure allows for each of the Army Battle Groups to have dedicated Command and Liaison elements while grouping the delivery elements into task organised capability bricks. The LAND 17 Capability Project is a critical step in assisting the Government to meet the Defence White Paper 2009 (DWP09) commitments.

9. The need for facilities and infrastructure is driven by the requirement to support the LAND 17 initiative which will substantially enhance the Army's artillery capability. To sustain this enhancement, enabling elements including the Army's training establishments will need to increase their output. Existing facilities are not sufficient to implement and sustain the new ADF artillery systems being supported through the Government's LAND 17 initiative. Facilities and supporting infrastructure are required to provide effective working, training and security conditions to support the new capability by securing the guns and AFATDS equipped vehicles in accordance with their security classification, and to accommodate the changed organisational structure.

#### **1<sup>st</sup> Regiment, Royal Australian Artillery**

10. The 1<sup>st</sup> Regiment, Royal Australian Artillery (1 Regt) is located at Gallipoli Barracks Enoggera, Queensland. The existing 1 Regt working accommodation does not meet the unit's functional and operational requirements for its primary gun battery, A Battery, or its observation post batteries, 104, 105 and 114 Batteries. The facilities currently occupied by the Batteries are not sized to accommodate all of the personnel and do not comply with statutory requirements. The existing 1 Regt gun hangars do not have sufficient space for the new guns and provide only limited covered areas for gun crews to perform day to day maintenance on the guns.
11. The existing workshop facility is dated and has insufficient capacity and inadequate amenities to maintain 1 Regt's new vehicle and gun fleet. In addition, the existing facility does not comply with the Building Code of Australia or Defence's Manual of Fire Protection and Engineering.
12. 1 Regt's existing vehicle compound has insufficient space to house the vehicles required to operate the new artillery capability. The existing vehicle park provides limited sheltered area for the garaging of the regiment's vehicles and limited covered areas for the vehicle crews to perform day to day servicing of their vehicles.

**4<sup>th</sup> Regiment, Royal Australian Artillery**

13. The 4<sup>th</sup> Regiment, Royal Australian Artillery (4 Regt) is located at Lavarack Barracks, Townsville. 4 Regt has a requirement for secure storage and classrooms in order to store and train and operate the AFATDS being provided under the LAND 17 Phase 1A project. The current facilities are inadequate for this purpose and there is a lack of secure storage.
14. 4 Regt has purpose-built working accommodation with adequate space for the storage of guns and vehicles of the gun battery, 106 Battery, and its observation post batteries, 107, 108 and 109 Batteries. However, the gun hangars do not comply with the necessary security standards for elements of the LAND 17 Phase 1A capability.

**8<sup>th</sup> /12<sup>th</sup> Regiment, Royal Australian Artillery**

15. The 8<sup>th</sup> /12<sup>th</sup> Regiment, Royal Australian Artillery (8 /12 Regt) is an operationally split unit located at both Robertson Barracks, Darwin and at RAAF Base Edinburgh, Adelaide. 8/12 Regt has a requirement for classrooms and secure storage in order to store and train and operate the AFATDS being provided under LAND 17 Phase 1A. The current facilities are inadequate for this purpose and there is a lack of secure storage.
16. 8<sup>th</sup> /12<sup>th</sup> Regt has purpose-built working accommodation with adequate space for the storage of guns and vehicles of its gun battery, 101 Battery, and its observation post battery, 103 Battery. However, the gun hangars do not comply with the necessary security standards for elements of the LAND 17 Phase 1A capability.
17. The detached 102 Battery of 8/12 Regt, located at RAAF Base Edinburgh, has a requirement for secure storage and classrooms in order to store, train and operate the AFATDS being provided under LAND 17 Phase 1A. The current facilities are inadequate for this purpose and there is a lack of secure storage.
18. 102 Battery has purpose-built working accommodation with adequate space for storing guns and vehicles needed to support the sub-unit's role and associated equipment. However, the gun hangars do not comply with the necessary security standards for elements of the LAND 17 Phase 1A capability.



### **The School of Artillery**

19. The School of Artillery (SOARTY) is located at Bridges Barracks, Puckapunyal Victoria. SOARTY has classrooms which are currently used for training of students on various networked artillery systems. SOARTY has a requirement for a classroom and secure storage in order to train on and hold the AFATDS system being provided under LAND 17 Phase 1A. The current classrooms are inadequate for this purpose and there is a lack of secure storage. In addition, 53 Support Battery (the lightweight towed gun training and support Battery at SOARTY) requires a refurbishment of existing facilities to address security and building compliance issues.

### **The Army Logistics Training Centre**

20. The Army Logistics Training Centre (ALTC) is located at Gaza Ridge Barracks, North Bandiana, Victoria. ALTC will be allocated one M777-A2 gun under LAND 17 Phase 1A which will be held by the Armaments and Construction Wing of the Army School of Electrical and Mechanical Engineering. The training facilities used by the Armaments and Construction Wing, are not able to support the school's training and maintenance requirements for the new gun and associated equipment. The current training facilities are of inadequate size to store and operate the training aids provided under the LAND 17 Phase 1A project.

### **Heritage Impact**

21. The Defence Estate Policy and Environment Branch has considered the proposed works for all sites and the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999. In particular, where the majority of the works are proposed at Gallipoli Barracks, Enoggera, they have also considered the works in relation to the Gallipoli Barracks Heritage Management Plan. They have advised that a referral will not be required for this project under the Act for the proposed scope.
22. The proposed works do not impact on or affect any buildings listed on the Commonwealth Heritage List.

### **Environmental Impact**

23. An Initial Environmental Review prepared in 2008 did not identify any significant environmental concerns for the facilities proposed under the LAND 17 Phase 1A

project. It is not anticipated that a referral will be required under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth).

24. The design of the proposed works has specifically considered the outcomes and recommendations of the Initial Environmental Review and has incorporated features to mitigate environmental impacts. This includes siting buildings to minimise tree loss and maximise passive solar design, capturing rainwater for use in toilet cisterns, gardens and grassed areas to reduce potable water usage, and installing insulation and energy efficient equipment to minimise energy consumption.
25. The LAND 17 Phase 1A project will be managed in accordance with the Defence Environmental Management framework. The building contractors will be required to produce Construction Environmental Management Plans to articulate environmental control measures. The building contractors' environmental procedures for construction activities will be required to be adhered to as a contractual obligation and compliance with the approved plan will be periodically audited throughout the project. A Defence Environmental Clearance Certificate will be issued prior to commencing construction activities.

## Key Legislation

26. The following key legislation is relevant to this project:
  - a. *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth); and
  - b. *Building and Construction Industry Improvement Act 2005* (Cwlth).
27. The design will comply with all relevant and current Defence Standards, Australian Standards, Codes and Guidelines including, but not limited to, the following:
  - a. Building Code of Australia;
  - b. *Occupational Health and Safety Act 1991* (Cwlth);
  - c. *Disability Discrimination Act 1992* (Cwlth);
  - d. *Fair Work Act 2009* (Cwlth);
  - e. Defence Manual of Fire Protection Engineering; and
  - f. Defence Infrastructure Management policies and processes.
28. A qualified and practicing certifier will be required to certify that the design and finished construction of the proposed facilities meet the requirements of the Building Code of Australia, relevant Australian Standards and codes, the Defence Manual of Fire

Protection Engineering and any additional State, Local Government and Defence requirements.

29. The building contractor will be required to produce Project Quality Plans. These plans will clearly show how the building codes, Australian Standards and any additional Defence requirements in relation to security, fire protection and fire safety will be met and how the required standards for construction and installation are to be maintained.

## Impacts on Local Communities

30. The proposal will generate an amount of short-term employment predominantly in the building, construction and unskilled labour markets in those areas where works will be undertaken: Brisbane; Townsville; Darwin; Adelaide; Seymour; and Albury-Wodonga. A moderate number of personnel are expected to be directly employed on construction activities that will also generate some off-site job opportunities from the manufacture and distribution of materials over the construction period. Defence anticipates that local building sub-contractors will be employed on a large proportion of the construction works. This will provide a positive economic impact to small and medium enterprises in the regions.
31. Construction traffic routes will be managed to minimise any disruption to the local communities during the construction period. Each of the construction sites is located well within the base boundaries and construction activities will not cause any disruption to residents adjacent to the bases where works are proposed.

## Consultation with Stakeholders

32. Consultation has occurred, or will occur with the following stakeholders:
  - a. The Hon Teresa Gambaro MP, Federal Member for Brisbane;
  - b. Mrs Jane Prentice MP, Federal Member for Ryan;
  - c. Mr George Christenson MP, Federal Member for Dawson;
  - d. The Hon Warren Snowdon MP, Federal Member for Lingiari;
  - e. Mr Nick Champion MP, Federal Member for Wakefield;
  - f. Mr Rob Mitchell MP, Federal Member for McEwan;

- g. Mrs Sophie Mirabella MP, Federal Member for Indi;
- h. Mrs Natasha Griggs MP, Federal Member for Solomon;
- i. Ms Kate Jones MP, State Member for Ashgrove;
- j. Mrs Rosemary Menkens MP, State Member for Burdekin;
- k. Mr Gerry Wood MLA, Member Legislative Assembly for Nelson;
- l. Hon Mike Rann MP, State Member for Ramsay;
- m. Ms Cindy McLeish MP, State Member for Seymour;
- n. Mr Bill Tilley MP, State Member for Benambra;
- o. Brisbane City Council;
- p. Townsville City Council;
- q. Litchfield City Council;
- r. Salisbury City Council;
- s. Mitchell Shire Council;
- t. Wodonga City Council;
- u. Queensland Department of Transport and Main Roads;
- v. Energex;
- w. Queensland Fire and Rescue Services (and other state equivalents); and
- x. Australian Greenhouse Office.

## Purpose of Works

### Project Location

33. The proposed works are to be undertaken at the following six military establishments across Australia:
- a. Gallipoli Barracks, Enoggera, Queensland;
  - b. Lavarack Barracks, Townsville, Queensland;
  - c. Robertson Barracks, Darwin, Northern Territory;
  - d. RAAF Base Edinburgh, Adelaide, South Australia;
  - e. Bridges Barracks, Puckapunyal, Victoria; and
  - f. Gaza Ridge Barracks, Bandiana, Victoria.
34. All sites are Commonwealth owned and Defence controlled. The locations of these establishments are shown on the map of Australia provided in Attachment 1.

### Project Objectives

35. The aim of the project is to provide the facilities and supporting infrastructure necessary to support the new M777-A2 lightweight towed guns artillery capability. The project will enhance Army's Land Force capability and provide efficiencies in the delivery of the capability through the provision of either new or expanded and modified facilities.

### Project Description and Scope of Works

36. Generally, the project will deliver new and upgraded facilities to support the introduction into service and sustainment of the LAND 17 Phase 1A capability. This includes the following proposed works:
- a. New working accommodation, vehicle storage, workshops and gun hangars for elements of the 1st Regiment, Royal Australian Artillery, located at Gallipoli Barracks, Queensland;

- b. Refurbished working accommodation and gun hangars for elements of 4th Regiment, Royal Australian Artillery, located at Lavarack Barracks, Queensland;
  - c. Refurbished working accommodation and gun hangars for elements of 8th /12th Regiment, Royal Australian Artillery located in Robertson Barracks, Northern Territory;
  - d. New and refurbished working accommodation for elements for 102 Battery of 8th /12th Regiment, Royal Australian Artillery located in RAAF Base Edinburgh, South Australia;
  - e. Refurbished training facilities for elements of the School of Artillery, Victoria; and
  - f. New training facilities for an element of the Army Logistics Training Centre, Victoria.
37. Modification and upgrade of engineering services and civil infrastructure to support the new and refurbished facilities is proposed at each location.

**Project Element 1 - 1<sup>st</sup> Regiment, Royal Australian Artillery (1 Regt)**

38. **Location of the Proposed Works.** The majority of the works proposed under the LAND 17 Phase 1A infrastructure project are located at Gallipoli Barracks, Enoggera. Gallipoli Barracks is the home of Army's 7<sup>th</sup> Brigade which includes 1 Regt. Enoggera is approximately 7 km northwest of Brisbane's Central Business District. The proposed works for 1 Regt are to be built adjacent to the current unit precinct in Gallipoli Barracks. A location plan for the Barracks is provided in Attachment 2. A site plan showing the extent of these works is provided in Attachment 3.
39. **Scope Element 1 - Battery Headquarters Facility.** The proposed Battery (Bty) Headquarters Facility comprises new working and training accommodation and storage for four of 1 Regt's batteries; A Bty, 104 Bty, 105 Bty and 114 Bty. The proposed facilities include command and operations office areas, battery Quartermaster stores, an armoury, subordinate Troop offices, briefing and conference areas, an orderly room administration area, and ablutions. These facilities will allow the four batteries to exercise effective command and control of their sub-units and to prepare for field operations. Floor plans for this new facility are provided in Attachments 4 and 5.

40. Defence proposes to provide a two storey concrete, masonry and steel structure with steel cladding, aluminium window frames with high efficiency glazing and aluminium sun shades. This building will be approximately 3,660m<sup>2</sup> and will accommodate 226 personnel.
41. This is a mixed use building with an office focus. Dedicated office spaces for the administration areas, ready rooms, briefing rooms and training rooms are required for the batteries as well as storage areas and associated ablutions. Service intensive functions such as showers and lockers will be grouped and the more utilitarian functions, such as unit stores, will be on the ground floor.
42. The Batteries require AFATDS operations and storage facilities. The facility will allow the regimental headquarters and all of its batteries to use the AFATDS in secure operations rooms with one being provided for each user group to allow for concurrent tasking.
43. The Batteries require various secure storage areas in order to hold signals equipment, classified documentation and other valuable items such as audio visual equipment in addition to valuable personal kit. The Batteries will be provided with an armoury to securely store AFATDS equipment, unit personal weapons and vehicle-mounted weapons.
44. **Scope Element 2 - Gun Hangar and Workshop.** The introduction of the LAND 17 Phase 1A capability into 1 Regt will initially require 1 Regt to operate and maintain 8 guns. In the mature state, 1 Regt will be allocated 12 guns. Due to the changes in the dimensions of the new gun and the classified operating system used on the gun, there is the need for new secure gun storage. A floor plan for this new facility is provided at Attachment 6.
45. The new gun hanger will be a steel framed structure with steel cladding that will be constructed to provide a secure area. This building will be approximately 1,720m<sup>2</sup>, with office accommodation for two personnel and hangar space for 12 guns. The ends of each gun bay will be secured by roller shutters which will allow drive-through access by the gun tractor. Each gun bay within the hangar will also have power, survey markers and storage cages. The bays will be built so that the gun and associated classified equipment can be stored as a complete capability.

46. A gun workshop will be attached to the hangar. The workshop will have a five tonne crane lifting capability and will hold general engineering and welding equipment. The workshop will have storage for petroleum, oil and lubricants, batteries and repair parts necessary to support first and second line repairs on the guns.
47. **Scope Element 3 - Vehicle Shelter.** The gun batteries will require secure shelter for 42 vehicles (including Bushmaster Protected Mobility vehicles and B vehicles) as well as associated trailers and modules. Due to the sensitive equipment fitted to the vehicles, secure storage is required. A floor plan for this new facility is provided at Attachment 7.
48. The vehicle shelters will be a steel framed structure with steel cladding and roller shutters that will be constructed to meet the standards required under the definition of a “Secure Area” under the Defence Security Manual. The building will be approximately 2,140m<sup>2</sup> with a design capacity for 42 vehicles.
49. It is proposed to provide a vehicle shelter that is large enough to allow the crews to conduct routine daily maintenance tasks around the vehicles and also be able to accommodate storage of the Complete Equipment Schedule for each vehicle.
50. **Scope Element 4 -Site Works.** The site works within the 1 Regt precinct will require site levelling due to the sloping site. There is also drainage that is necessary for the large amount of hardstand areas; new road works; visitor and disabled parking areas.

### **Project Element 2 - 4th Regiment, Royal Australian Artillery (4 Regt)**

51. **Location of the Proposed Works.** The proposed works for 4<sup>th</sup> Regt are to be built in the current unit precinct within Lavarack Barracks, Townsville. A location plan for the Barracks is provided in Attachment 8.
52. **Project Scope.** 4 Regt is accommodated in facilities at Lavarack Barracks, with many of these facilities recently provided under the Lavarack Barracks Redevelopment Stage 4 Project. This accommodation was designed to be compliant with LAND 17 equipment, but the details on the gun acquisition were not available for a complete design. Enhancements are required to address the security and training requirement shortfall. It is proposed to provide refurbished facilities for elements of 4 Regt, namely 106, 107, 108, and 109 Batteries.



53. **Scope Element 1 – AFATDS Training Facility.** A facility is required to allow the regiment to train on the AFATDS in Barracks and to prepare for field operations. The floor plans for this upgraded facility are provided in Attachments 9 and 10.
54. It is proposed to refurbish approximately 320m<sup>2</sup> of an existing multi-storied building into five dedicated eight person training rooms. The facility will allow the regimental headquarters and all of its gun batteries to use the AFATDS in secure operation rooms with one being provided for each user group to allow for concurrent tasking. The regiment will be provided with a vault to securely store AFATDS equipment.
55. **Scope Element 2 - Gun and Vehicle Hangar.** The introduction of the LAND 17 Phase 1A capability into 4 Regt will, in the mature state, provide 12 guns to replace the 18 guns currently held by the unit. Due to the classified operating systems which are used, this creates the need for secure gun and vehicle storage. A floor plan for this facility is provided at Attachment 11.
56. It is proposed to enclose the existing gun and vehicle hangar so that the guns and associated classified equipment can be stored as a complete capability with the vehicles whilst in Barracks.
57. **Scope Element 3 - Site Works.** Due to the requirement for security and communication cabling to be installed to both upgraded buildings, trenching and reinstatement works are required.

### **Project Element 3 - 8th /12th Regiment, Royal Australian Artillery (8/12 Regt)**

58. **Location of the Proposed Works.** Due to the unique operational arrangements of this regiment, some duplication of facilities has been necessary to facilitate the nature of training and operational activities that this unit performs. This unit is split between two sites; Robertson Barracks Darwin, and RAAF Base Edinburgh, Adelaide. 8/12 Regt undertakes operations and training as a formed unit at each of the two locations for significant portions of the year resulting in the requirement for some duplication. The proposed works for 8/12 Regt in Darwin are to be built in the current unit precinct within Robertson Barracks. A location plan for the Barracks is provided in Attachment 12.
59. **Project Scope.** 8/12 Regt has purpose-built working accommodation with adequate space for the storage of guns and vehicles of its gun batteries. However, these facilities

do not comply with security requirements, now necessary to house the new gun and vehicles. It is proposed to provide refurbished facilities for elements of 8/12 Regt.

60. **Scope Element 1 – AFATDS Training Facility.** A facility is required to allow the regiment to train on the AFATDS in Barracks and in preparation for field operations. Floor plans for this new facility are provided in Attachment 13.
61. It is proposed to convert an existing 266m<sup>2</sup> single story ablution block into a dedicated training facility. The facility will allow the regimental headquarters and all of its gun batteries to use the AFATDS in four secure eight person operations rooms to allow for concurrent tasking.
62. The regiment will be provided with a vault to securely store AFATDS's equipment.
63. **Scope Element 2 - Gun and Vehicle Hangar.** The introduction of the LAND 17 Phase 1A capability into the 8/12 Regt requires 101 Battery to hold four guns. Due to the sensitive operating systems associated with the guns, there is a need for secure gun and vehicle storage. This project will upgrade existing gun hangars and vehicle shelters to meet this requirement. A floor plan for this gun and vehicle hangar is provided at Attachment 14.
64. The existing facilities have a capacity for eight guns. This project proposes to upgrade the security provisions of the existing shelters to meet 8/12 Regt's unique requirement for flexible training arrangements, whereby additional guns may be stored at Robertson Barracks (having temporarily relocated from Adelaide) during major exercises and training activities.
65. **Scope Element 3 - Site Works.** The proposed site works for this element will include a new access pathway around the proposed AFATDS training facility, vehicle parking and trenching for the communication and security services.

**Project Element 4 - Detached Battery 8th /12th Regiment, Royal Australian Artillery (8/12 Regt)**

66. **Location of the Proposed Works.** Under the Government's Hardened Networked Army (HNA) initiative new facilities were established at RAAF Base Edinburgh to house a battalion group based on the 7<sup>th</sup> Battalion Royal Australian Regiment (7 RAR), relocated from Darwin. One complete gun battery from 8/12 Regt was relocated to

Adelaide as part of the 7 RAR Battalion Group. The proposed LAND 17 works for the detached Battery of 8/12 Regt in Adelaide are to be built in the current sub-unit precinct within RAAF Base Edinburgh. A location plan for the Barracks is provided in Attachment 15.

67. **Project Scope.** 102 Battery of 8/12 Regt is accommodated in facilities at RAAF Base Edinburgh in Adelaide. This accommodation was designed to be compliant with LAND 17 equipment under the HNA project, but the security details on the guns were not available for a fully compliant design. Enhancements are required to address the security and training requirement within the gun hangers. 102 Battery requires new working accommodation to support its use of the AFATDS. It is proposed to provide new and refurbished facilities for 102 Battery.
68. **Scope Element 1 – AFATDS Training Facility.** The facility will allow the regiment to train on the AFATDS in Barracks to prepare for field operations. Floor plans for this new facility are provided in Attachment 16.
69. It is proposed to provide a new dedicated AFATDS facility. The facility will allow the regimental headquarters and most of its batteries to use the AFATDS in secure operations rooms with one being provided for each user group to allow for concurrent tasking. A vault will be provided to securely store AFATDS equipment.
70. The proposed new facility will be a single story steel framed building with steel cladding and high efficiency glazing. The building will be approximately 260m<sup>2</sup> in size with four operations rooms with a capacity to train eight personnel each.
71. **Scope Element 2 - Gun and Vehicle Hangar.** Whilst 102 Battery will typically be allocated four guns, the regiment will deploy its entire allocation of eight guns to RAAF Base Edinburgh for exercise purposes. Due to the classified operating systems which are used, this creates the need for secure gun and vehicle storage. A floor plan for these refurbished facilities is provided at Attachment 17.
72. The existing facilities are able to store the required eight guns and associated support vehicles. Under this project, it is proposed to enclose the existing shelters and vehicle hangars with steel cladding and roller doors to meet the secure area requirements.

73. **Site Works.** The proposed site works for this element will include the preparation of the new AFATDS facilities site and services trenching to the gun hangers and AFATDS facility.

#### **Project Element 5 - School Of Artillery**

74. **Location of the Proposed Works.** The proposed works for the School of Artillery are to be built in the current School of Artillery's precinct at Bridges Barracks in Puckapunyal. A location plan for the Barracks is provided in Attachment 18.
75. **Project Scope.** The current facilities are an appropriate size to fit the new equipment, however the facilities require upgrades to power, security and communications services in order to fulfil the M777-A2 security and training requirements.
76. The new guns and associated equipment are required to be stored in a secure area, however the existing buildings do not currently meet the security standard required to store the guns and AFATDS vehicles. To meet the security standard, the project will upgrade all external openings with upgraded doors, frames and metal window grills, and the external cladding will require tamper evident screws to be installed.
77. The project will also refurbish the building internally to provide four class rooms necessary to meet the new training requirements. The works within this building will total 392m<sup>2</sup> with new and refurbished spaces including a design capacity for eight personnel and four guns.
78. **Scope Element 1 – Battery Facilities.** The existing 1,060m<sup>2</sup> facility will be upgraded for 53<sup>rd</sup> Support Battery. The current holding of six guns will be reduced to four of the new guns. Space for two personnel, four Protected Mobility Vehicles and four Heavy Integrated Load Handling System vehicles is required. A floor plan for this refurbished facility is provided at Attachment 19.
79. This facility requires substantial refurbishment to bring it up to a level of compliance and to meet Defence requirements for secure areas in order for it to hold these replacement guns.
80. The existing hangar can be modified to meet the security requirements of these additional vehicles.

81. **Scope Element 2 - Artillery Training Hangar.** The facility is adequately sized to hold current and future artillery gun platforms and does not require structural modifications. The hangar requires minor building services enhancements in order for it to have the capability of trickle charging the batteries for the replacement guns and a security upgrade in order to house the four new guns. A floor plan for this new facility is provided at Attachment 20.
82. The space within the existing artillery training hangar which has been allocated to the Surveillance and Target Acquisition Wing is capable of being modified to allow training in the operation of the AFATDS. Space is also available for modification to allow secure storage of these systems.
83. During the transition phase whilst phasing out the old capability, the current guns will be held in existing shelters in the School of Artillery's transport compound. Additional secure cages will be provided to hold the Complete Equipment Schedules for the current gun platforms.
84. **Scope Element 3 - Site Works.** To meet the new security requirements, new communications and security are required. This will require trenching and reinstatement works to be carried out.

### **Project Element 6 - Army Logistics Training Centre**

85. **Location of the Proposed Works.** The proposed works for the Army Logistics Training Centre are to be built in the current Army Logistics Training Centre precinct at Gaza Ridge Barracks in North Bandiana. A location plan for the Barracks is provided in Attachment 21.
86. **Project Scope.** Until recently, gun maintenance training was being conducted at Latchford Barracks in Bonegilla. As part of a training rationalisation initiative, this training has recently been relocated to Building 100 at Gaza Ridge Barracks in North Bandiana. To support this relocation, a number of bays, previously used for vehicle maintenance training, were re-assigned to gun maintenance training. This has led to overcrowding of training areas within the building as well as other difficulties caused by co-locating different types of training requirements. To address the identified shortfall, it is proposed to provide a new facility to allow the Army Logistics Training Centre to fulfil its role of maintenance training on the new gun platform.

87. **Scope Element 1- Gun Maintenance Training Hangar.** A new facility is required to allow the Armaments and Construction Wing to train students in the maintenance of the replacement gun. A floor plan for this new facility is provided at Attachment 22.
88. The proposed gun maintenance training hanger will be approximately 630m<sup>2</sup> in size and will be a steel frame structure with metal cladding. This building will be a mixed use structure with office accommodation for six instructors, two ten person training rooms and a maintenance hanger with space to break the gun into components for maintenance. This equates in size to two gun bays.
89. The gun maintenance training hangar will have training bays sized for the M777-A2 and supporting training aids. The necessary storage space to secure attractive items will be provided. The hangar will have a gantry crane to provide a lifting capability.
90. **Scope Element 2 - Site Works.** The site works will consist of site levelling and trenching for all building services.

## Details and Reasons for Site Selection

91. The selection of sites for each project element has been undertaken in accordance with Infrastructure Division planning policy requirements. Site Selection Boards conducted during the period December 2010 – July 2011, considered Defence policies regarding environment, heritage and operational requirements in selecting the sites.
92. Where applicable, the selected siting locations for all new buildings proposed under this project are consistent with the Gallipoli Barracks, Edinburgh Defence Precinct and Albury-Wodonga Military Area Zone Plans.

## Public Transport

93. Gallipoli Barracks is not directly serviced by public transport, however, the Gaythorne railway station is within 700m of the main entrance of the Barracks and a public bus services Samford Road which is within a 500m walking distance of the Lloyd Street entry to the Base.
94. RAAF Base Edinburgh is serviced by public transport with a single bus route to the main entry. Due to the intermittent frequency of public transport, there is a high reliance on private motor vehicles.

95. The Puckapunyal Military Area, Gaza Ridge Barracks and Robertson Barracks sites are not serviced by public transport and as a result Defence personnel are required to use private motor vehicles for transport to and from the base.
96. Lavarack Barracks has a limited bus service that terminates within 200m of the Barracks entry. The public transport service does not align with the daily routine of the soldiers. In addition, the size of the Barracks means a reliance on private motor vehicles occurs.

## Local Roads and Traffic Concerns

97. **Gallipoli Barracks, Enoggera, Queensland.** Gallipoli Barracks is situated in a largely residential area. The Barracks is bordered by Samford Road to the north. There are three entry points to the Barracks at Lloyd Street, Wanimmo Street and Fraser's Road. There is an existing convoy gate at the intersection of Lavarack Parade and Samford Road which is used for large convoys to exit the base under police escort outside of peak times. There are also a number of permanently locked gates, such as Browns Dip Road, that can be used on occasions. Defence is currently planning a new entry into the Barracks from Samford Road in conjunction with the Queensland Department of Transport and Main Roads. This LAND 17 infrastructure project proposes to provide facilities for personnel who have already relocated to Gallipoli Barracks under the artillery capability restructuring. No further personnel are proposed to be introduced through this project.
98. **ALTC Gaza Ridge Barracks North Bandiana Victoria.** Gaza Ridge Barracks is accessed from the Murray Valley Highway. This project will not increase the number of personnel on the Base. Other than modest natural growth, Defence does not foresee significant change in the current use or personnel numbers in the coming years.
99. **Bridges Barracks Puckapunyal Victoria.** The Puckapunyal Military Area is located off the Seymour Tooborac Road and the site is within the Puckapunyal Military Area. This project will not increase the number of personnel on the Base. Other than modest natural growth, Defence does not foresee significant change in the current use or personnel numbers in the coming years.
100. **RAAF Base Edinburgh, South Australia.** This project will not increase the number of personnel on the Base from that which occurs already when 8/12 move to RAAF

Base Edinburgh during the wet season. Other than modest natural growth, Defence does not foresee significant change in the current use or personnel numbers in the coming years.

101. **Robertson Barracks, Darwin.** This project will not increase the number of personnel on the Base. Other than modest natural growth, Defence does not foresee significant change in the current use or personnel numbers in the coming years.
102. **Lavarack Barracks, Townsville.** This project will not increase the number of personnel on the Base. Other than modest natural growth, Defence does not foresee significant change in the current use or personnel numbers in the coming years.

### Zoning, Local Approvals and Land Acquisition

103. All proposed works are, or will be constructed within the designated boundaries of Gallipoli Barracks at Enoggera, Lavarack Barracks at Townsville, Robertson Barracks at Darwin, RAAF Base Edinburgh at Adelaide, Bridges Barracks at Puckapunyal and Gaza Ridge Barracks at North Bandiana. These properties are Commonwealth owned and Defence controlled. In all cases the land is designated “Defence Special Purposes”.
104. No civilian authority design or construction approvals are required, although the works will comply with the relevant Standards and Regulations as applicable.
105. The proposed redevelopment does not require acquisition of additional land or involve any land disposal actions. There will be no change to existing land use conditions at the bases.

### Planning and Design Concepts

106. The general philosophy adopted for the design of the proposed facilities incorporates the following considerations:
  - a. provision of cost effective and functional facilities of energy efficient design suitable for the climate of the site and of a style compatible with the existing base aesthetics;
  - b. adoption where possible of conventional construction techniques and materials, in particular those commonly used by the construction industry and consistent with those already utilised on the base;
  - c. maximum use of existing infrastructure and facilities to minimise capital costs;



- d. utilisation of readily available and durable materials that combine long life while minimising maintenance;
- e. recognition of site constraints, security requirements, the established zone plan, functional relationships to existing facilities and operational determinants; and
- f. planning services and structure design to accommodate flexibility.

## Structural Design

107. Structural design will take into account the soils and weather conditions encountered in the Brisbane, Townsville, Darwin, Adelaide, Puckapunyal and Bandiana areas. Proposed new facilities will generally be steel framed structures with concrete floor slabs, brick faces or equivalent external walls, and a metal roof appropriate to the environment. Internal walls would generally be non-load bearing frames lined with plasterboard to provide for maximum flexibility in future floor layout.

## Materials and Furnishings

108. The architectural expression of the proposed new facilities is consistent with the adjacent 'industrial character' working and training facilities at each site. The predominant architectural character is one of consistency and restraint in keeping with predominant metal cladding with judicious use of translucent sky lights. Materials and finishes will be selected from those readily available locally for their functionality, durability, and low maintenance and for their ecologically sustainable design properties.

## Mechanical Services

109. The mechanical services for each new and refurbished building under this proposal have been designed according to the function and needs of each building. The purpose of the mechanical service's systems is to provide mandatory ventilation, thermal comfort and air quality conditions in accordance with specific user needs and the requirements of the Building Code of Australia.

## Hydraulic Services

110. Local council municipal water reticulation mains provide domestic and fire fighting water supply to the six sites. Hydraulic services works for water supply, sewerage and stormwater within each precinct or facility involve extension of infrastructure entirely within the base or barracks concerned.

111. Potable water will be connected to the existing supply, with roof water collected and stored for toilet flush and other non-potable uses. The sewer will utilise the existing sewer networks.
112. Preliminary investigations of trunk services for all proposed development sites were conducted during the concept design development with the following findings:
- a. **Gallipoli Barracks Water.** The existing infrastructure is being upgraded across the Barracks under a separate project which includes the provision of a new trunk ring main as well as a separate fire fighting water main. New water services proposed for the works at 1 Regt will be connected to this internal trunk water main network inside the barracks.
  - b. **Gallipoli Barracks Sewer.** The barracks internal sewer reticulation network includes a sewer main which has an external catchment entering the site from the municipal system at Bliss Street. This sewer main traverses the site collecting internal catchment from the north of the site and discharges back into the municipal system. The existing infrastructure is being upgraded under the Enhanced Land Force Stage 2B project, and undertaken in accordance with Brisbane City Council Requirements for “live works”.

Sanitary drainage from all fixtures located within the new facilities will connect onto this system. Trade waste will be separately drained to a centrally located drain and treated with an above ground coalescing plate separator. Water from the drains on the floors of the workshop and storage areas will be treated to the standard required by Defence’s trade waste agreement prior to discharging to sewer. Waste oil will be stored on site for appropriate disposal.

- c. **Lavarack Barracks Water.** The water services supply from the existing water main provides adequate pressure and is in a satisfactory condition. New water services supply will extend from the existing water main. No modifications or upgrades to the infrastructure are required.
- d. **Lavarack Barracks Sewer.** The sewer infrastructure is in good condition. Sanitary drainage from all fixtures located within the new facility will be drained directly through a new gravity sanitary drainage system and connected to the existing gravity sewer main. Vents and drainage pipes will be constructed with consideration to provide flexibility of future building requirements and fixture

configurations. All vent pipes will be extended throughout the building to discharge to the atmosphere. Any work required to this sewer main will be undertaken in accordance with Townsville City Council requirements for “live works”.

- e. **Robertson Barracks Water.** The water services supply from the existing water main provides adequate pressure and is in a satisfactory condition. New water services supply will extend from the existing water main. No modifications or upgrades to the infrastructure are required.
- f. **Robertson Barracks Sewer.** The sewer infrastructure is in good condition. Sanitary drainage from all fixtures located within the new facility will be drained directly through a new gravity sanitary drainage system and connected to the existing gravity sewer main. Vents and drainage pipes will be constructed with consideration to provide flexibility of future building requirements and fixture configurations. Any work required to this sewer main will be undertaken in accordance with Litchfield City Council requirements for “live works”.
- g. **RAAF Base Edinburgh Water.** New water services supply will extend from the existing water main. Site investigations with regard to domestic water pressure and flow testing have indicated that the piping is in a suitable condition for commercial purposes.
- h. **RAAF Base Edinburgh Sewer.** Sanitary drainage from all fixtures located within the new facility will be drained directly through a new gravity sanitary drainage system and connected to the existing gravity sewer main. Vents and drainage pipes will be constructed with consideration to provide flexibility of future building requirements and fixture configurations. Any work required to this sewer main will be undertaken in accordance with Salisbury City Council requirements for “live works”.
- i. **Puckapunyal Water.** The water services supply from the existing water main provides adequate pressure and is in a satisfactory condition. New water services supply will extend from the existing water main. No modifications or upgrades to the infrastructure are required.

- j. **Puckapunyal Sewer.** The sewer infrastructure is in good condition. There are no works proposed that will require connection to the sewer network and no modifications or upgrades to the infrastructure are required.
- k. **Bandiana Water.** New water services supply will extend from the existing water main. Site investigations with regard to domestic water pressure and flow testing have indicated that the piping is in a suitable condition for commercial purposes.
- l. **Bandiana Sewer.** Sanitary drainage from all fixtures located within the new facility will be drained directly through a new gravity sanitary drainage system and connected to the existing gravity sewer main. Trade waste will be separately drained to a centrally located drain and treated with an above ground coalescing plate separator. Water from the drains on the floors of the workshop and storage areas will be treated to the standard required by Defence's trade waste agreement prior to discharging to sewer. Waste oil will be stored on site for appropriate disposal. Vents and drainage pipes will be constructed with consideration to provide flexibility of future building requirements and fixture configurations. All vent pipes will be extended throughout the building to discharge to the atmosphere. Any work required to this sewer main will be undertaken in accordance with Wodonga City Council requirements for "live works".

## Electrical Services and Fire Protection

- 113. Lighting, power, lightning protection and fire detection will be provided in accordance with the relevant Australian Standards and Defence requirements. The electrical infrastructure and switchboards will have modest spare capacity to allow for some future growth or demand.
- 114. All 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. The Manual of Fire Protection Engineering details Defence fire protection policy for asset protection and building function protection. The levels of fire protection specified are above Building Code of Australia requirements and have been determined by a risk assessment and risk management approach to fire protection.

115. The respective State and Territory Fire and Rescue Services of Queensland, Northern Territory, South Australia and Victoria will be invited to comment on the project, visit the site and offer comment throughout the construction phase to ensure that their operational requirements are met.

## Acoustics

116. The new facilities will comply with the Building Code of Australia and Australian Standards for noise and acoustics. Noise assessments have been conducted for the proposed facilities. Externally located mechanical plant will be appropriately selected and treated to minimise noise impact on the environment within a suitable internal and external noise range.
117. The external building fabric will restrict noise transmission ingress as per the Australian Standards with respect to road traffic noise (and aircraft noise in the case of RAAF Base Edinburgh as per AS2021-2000) and externally located building services plant.

## Landscaping

118. This proposal will not cause any substantial change in the essential landscape character of the sites. Landscaping works will restore areas disturbed during construction and provide general improvement to the built environment. Precautions will be taken to avoid compromising environment sensitivities by adopting landscaping practices in accordance with local environmental conditions and the Construction Environmental Management Plan.

## Water and Energy Conservation Measures

119. The Commonwealth is committed to Ecologically Sustainable Development and the reduction of greenhouse gas emissions. Defence reports annually to Parliament on its energy management performance and on its progress in meeting the energy efficiency targets established by the Government as part of its commitment to improve Ecologically Sustainable Development. Defence also implements policies and strategies in energy, water and waste to improve natural resource efficiency and to support its commitment to the reduction of energy consumption, potable water consumption and waste diversion to landfill. This project has addressed this policy by

adopting cost-effective and ecologically sustainable development as a key objective in the design development and delivery of new facilities.

120. The ecologically sustainable measures for the project are balanced with other requirements for Defence buildings, including security, heritage and occupational health and safety considerations, to ensure that Defence's operational capability is not compromised.
121. These buildings will be designed, constructed, operated and maintained to ensure that they use energy efficiently and comply with:
  - a. Part I.2 and Section J of Volume One of the Building Code of Australia, 2009;
  - b. Part 3.12 of Volume Two of the Building Code of Australia, 2009;
  - c. Defence Green Building Requirements (DGBR);
  - d. The Energy Efficiency in Government Operations (EEGO) policy; and
  - e. NABERS Energy rating system.
122. All buildings will comply with the relevant energy efficiency provisions in the Building Code of Australia, except where there are energy efficiency requirements imposed by Defence that are of a higher standard. In this project, each building is subject to the standards of the Defence Green Building Requirements Part 1 and the Building Code of Australia minimum energy efficiency performance requirements. All new offices and offices subject to major refurbishment are required to comply with the minimum energy performance standards in the EEGO policy for office buildings greater than 2000m<sup>2</sup>.
123. Defence has adopted the principles of the EEGO policy in relation to office accommodation. The Battery Headquarters facility at Gallipoli Barracks has a floor area of approximately 3,660m<sup>2</sup>. The whole building will target 4.5 stars rating using the National Australian Built Environment Ratings System (NABERS) Energy for Offices as required by Defence Green Building policy.
124. Although not specifically identified by legislation enhanced environmental outcomes will be achieved for the remainder of the facilities proposed under this project that are less than 2,000m<sup>2</sup>. Those that are mixed-use buildings will have separate digital on market status metering and office lighting that supplies up to 10 W/m<sup>2</sup>. Where available, fit for purpose and cost-effective appliances that comply with the United States Environmental Protection Agency 'Energy Star' program will be selected.

125. Each new building will be modelled to determine the predicted energy consumption and design targets will be determined for each building, depending on the building classification. Energy management is a key aspect in the design of the new facilities and the initiatives which will be considered are:

- a. orientating the buildings to minimise east and west solar gain;
- b. installing a Building Management System in each building, linked to the site wide Regional Utilities Management System where available;
- c. in-building load control devices such as motion sensors where practical;
- d. natural ventilation and mixed mode systems wherever feasible and cost effective;
- e. installation of ceiling fans in selected areas to enhance comfort without the use of air conditioning;
- f. separate digital energy metering for tenanted areas, central services and computer (data) centres;
- g. energy efficient lighting (T5 fluorescent light fittings in office areas) supplemented by energy efficiency techniques such as occupancy sensing and after-hours automatic shut-off controls; and
- h. energy efficient appliances.

126. Efficient water use is a key aspect of the design. Key water saving measures for all new construction will include:

- a. all tap ware and fittings compliant with the Water Efficiency Labelling Standards scheme to provide a minimum of a 3 Star water conservation rating;
- b. pressure limiting valves to limit pressure at all appliances;
- c. provision for separate internal and external reticulation of cold water to all toilets and urinal flushing for future connection to non-potable water supply infrastructure;
- d. sub-metering of all major water supplies to each new building; and

- e. rainwater harvesting from roof areas complete with storage tanks and pressure pumping to supply localised landscaping, wash down areas and toilet flushing.

127. The Australian Greenhouse Office, in the Department of Sustainability, Environment, Water Population and Communities, has been consulted with respect to these energy efficiency requirements.

## Demolition and Disposal of Existing Structures

128. No building demolition is proposed under this project.

## Zone Planning

129. Each of the project elements, both new construction and refurbishment of existing buildings are sited in accordance with the respective Zone Plans for their location.

## Provisions for People with Disabilities

130. Access and facilities for the disabled will be provided where necessary in accordance with the Building Code of Australia, Australian Standard AS1428 and Defence's policy "Disabled Access and Other Facilities for Disabled Persons". Where possible, the use of existing facilities and access has been identified and incorporated in the design.

131. Dispensations will only be sought where operational requirements are inconsistent with Building Code of Australia requirements.

## Childcare Provisions

132. There are no increases in personnel numbers at 1 Regt, 4 Regt or 8/12 Regt as a result of this project. Training courses at Puckapunyal and Bandiana to support the new capability are of short duration and do not require the long term posting of individuals to any of the Barracks. Therefore, there is no requirement for additional childcare facilities at any of the six locations.

## Occupational Health and Safety Measures

133. The facilities to be provided under this project will comply with Department of Defence Occupational Health and Safety policy, the Occupational Health and Safety Act 1991



(Cwlth), Occupational Health and Safety (Commonwealth Employment - National Standards) Regulations and the Defence Occupational Health and Safety manual.

134. In accordance with Section 35(4) of the Building and Construction Industry Improvement Act 2005 (Cwlth), contractors will be required to hold full occupational health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Occupational Health and Safety Accreditation Scheme. All construction sites will be appropriately secured to prevent access during the construction period. No special or unusual public safety risks have been identified.

## Cost-effectiveness and public value

### Outline of Project Costs

135. The estimated out-turned cost of this project is \$46.5 million, excluding Goods and Services Tax. This cost estimate includes the construction costs, management and design fees, furniture, fittings and equipment, contingencies and an escalation allowance.
136. An increase in the net operating costs is expected due to the construction of the new facilities and the associated increases in facilities maintenance, cleaning and utilities expenses.

### Details of Project Delivery System

137. The proposed delivery system is by a number of Head Contracts. This project delivery system has been selected on the basis of the well defined scope, the limited risk of disruption of operational activities at the Barracks, the low value of the works and lack of interdependencies with other concurrent projects. A single Project Manager has been engaged to represent Defence, co-ordinate the works and act as Contract Administrator.

### Construction Schedule

138. Subject to Parliamentary clearance of the project, construction is expected to commence in mid-2012. All major works are expected to be complete by mid-2013.

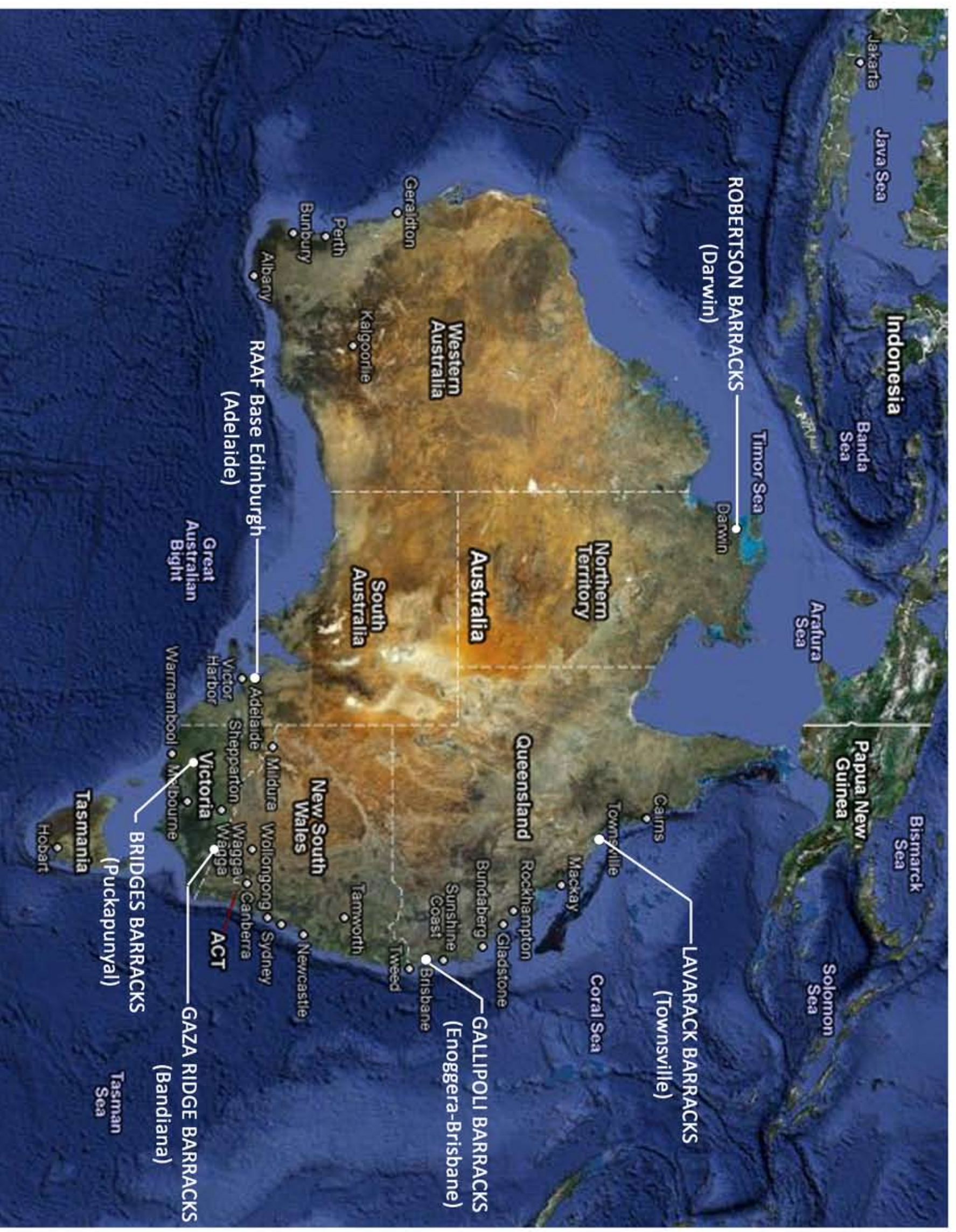
## Public Value

139. The proposed works is an enabler for the Australian Defence Force Artillery capability. The proposed works will provide a workplace that is fit for purpose and allows personnel to undertake their roles and responsibilities in an environment that meets a specific task. The works will also improve personnel morale, impacting on recruitment and retention which will have a flow-on impact to capability support levels.

## Revenue

140. No revenue will be derived from this proposal.

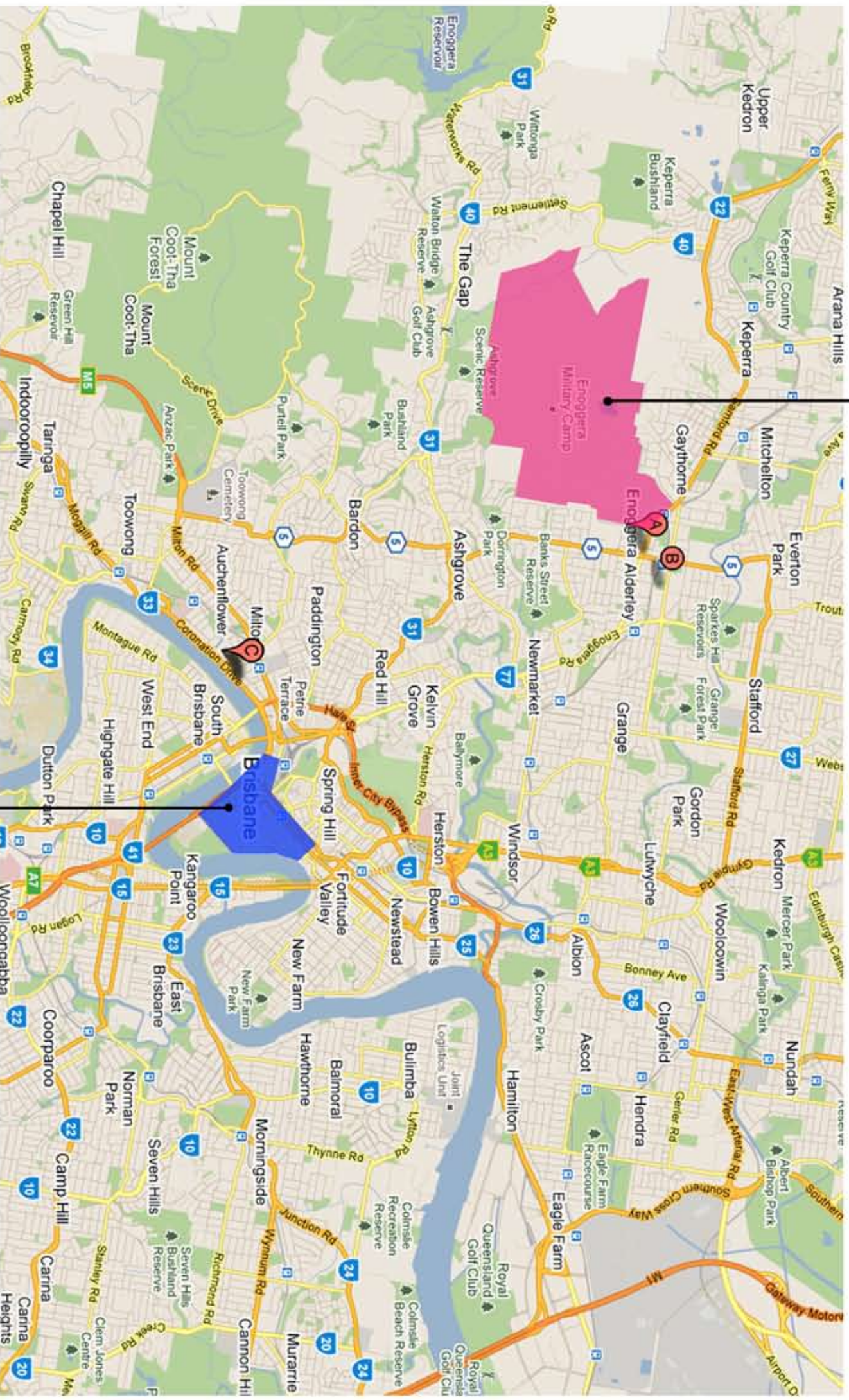




LAND 17 1A FACILITIES PROJECT ELEMENT LOCATIONS

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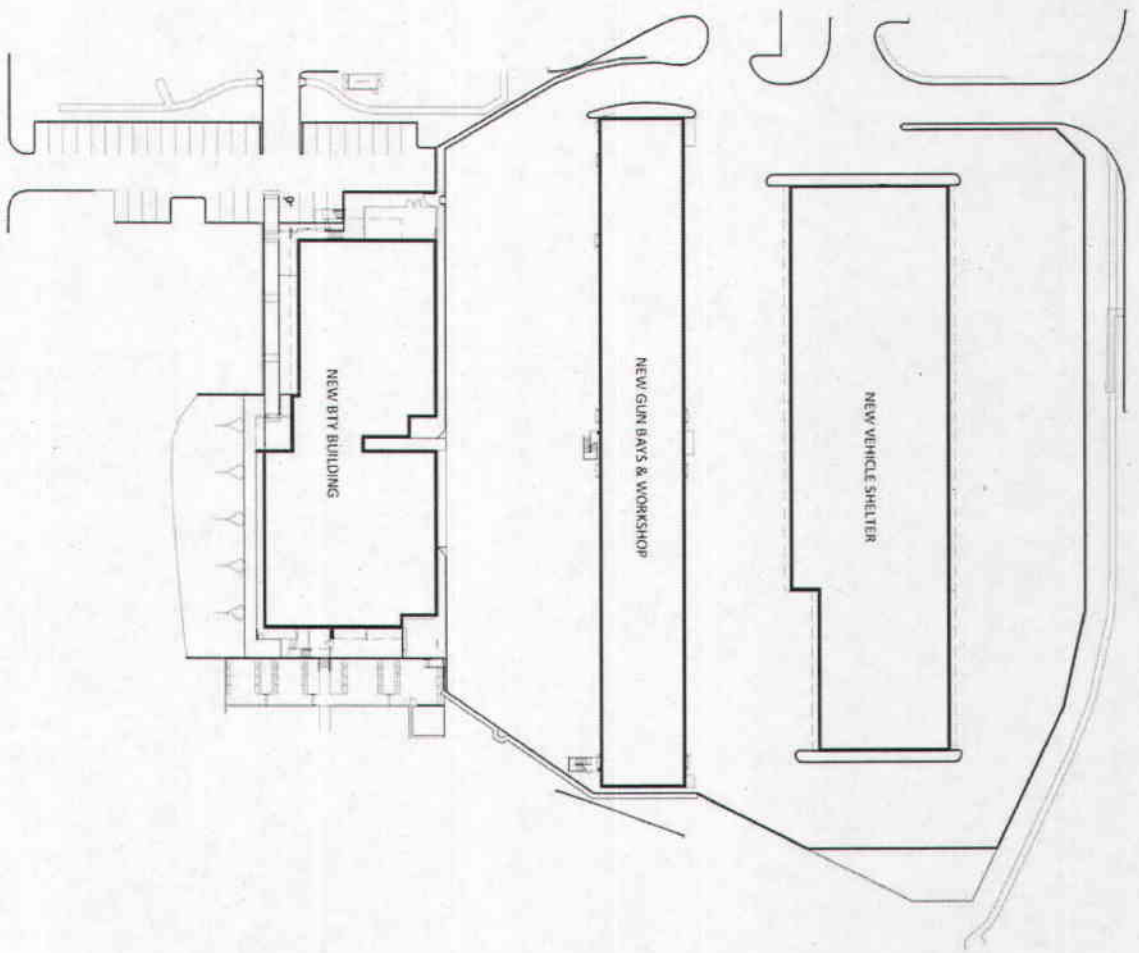
GALLIPOLI BARRACKS

BRISBANE CBD

GALLIPOLI BARRACKS LOCATION PLAN

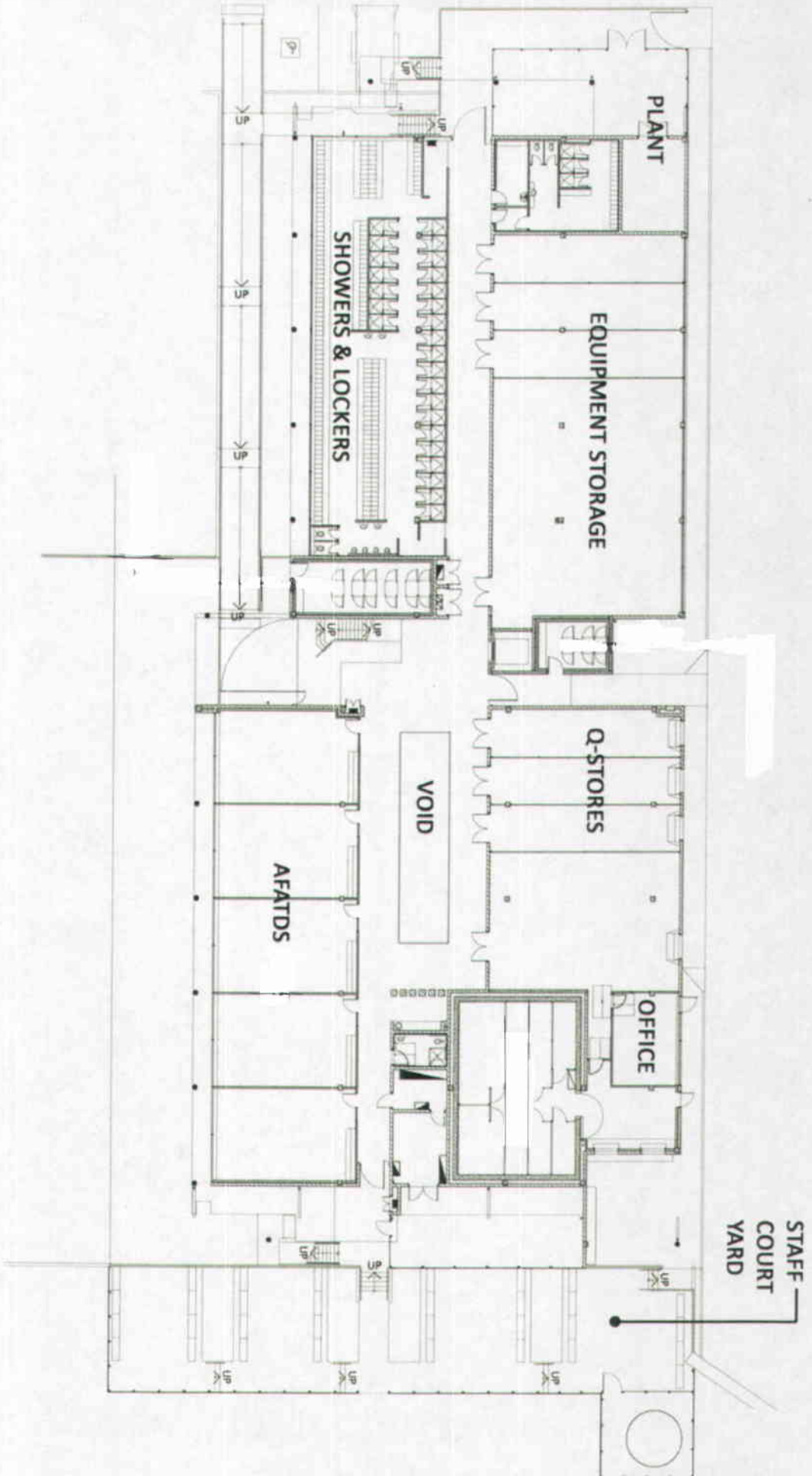
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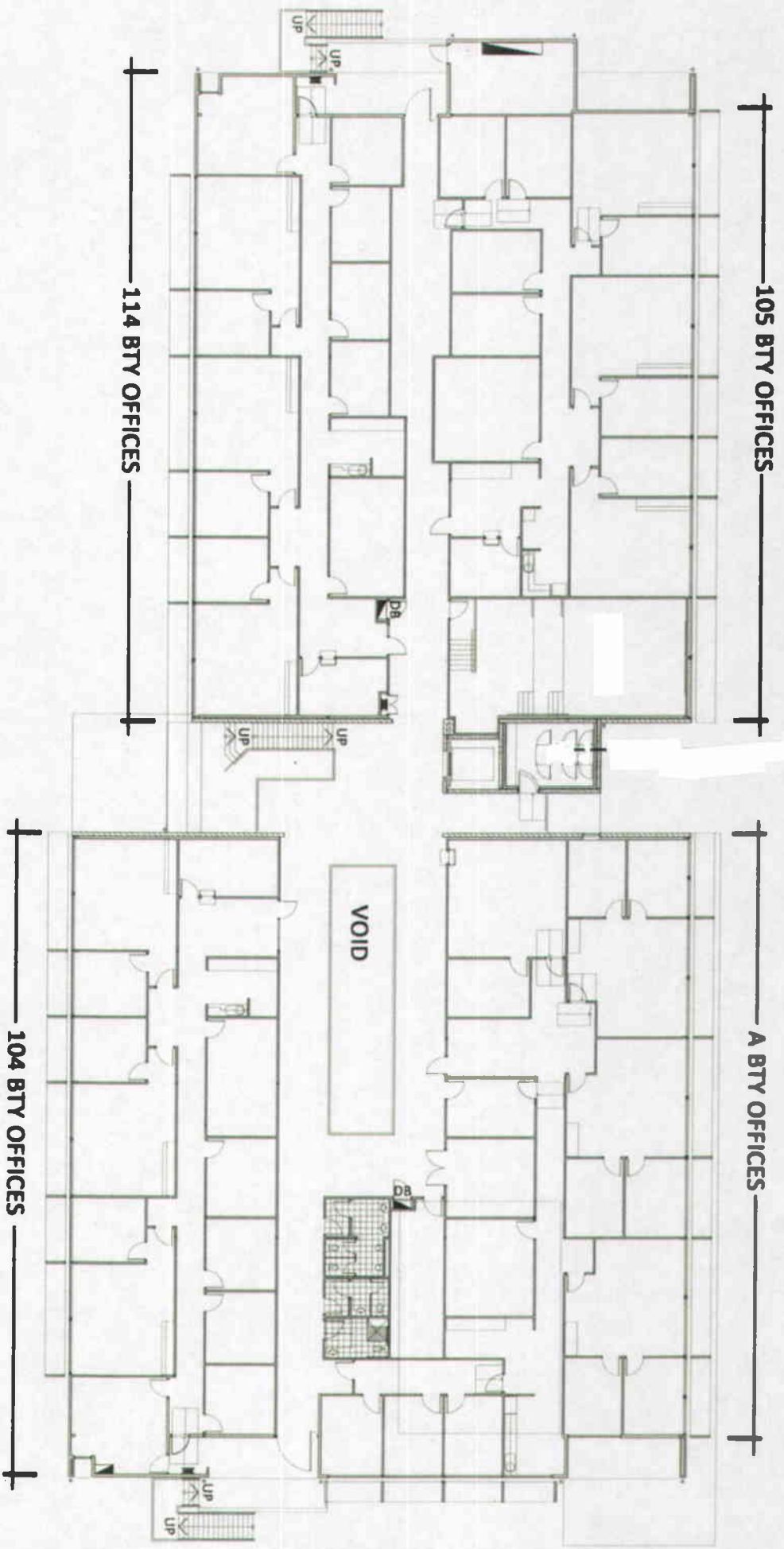
**PRECINCT SITE PLAN**  
**1st REGIMENT ROYAL AUSTRALIAN ARTILLERY**

SCALE: NTS @ A3



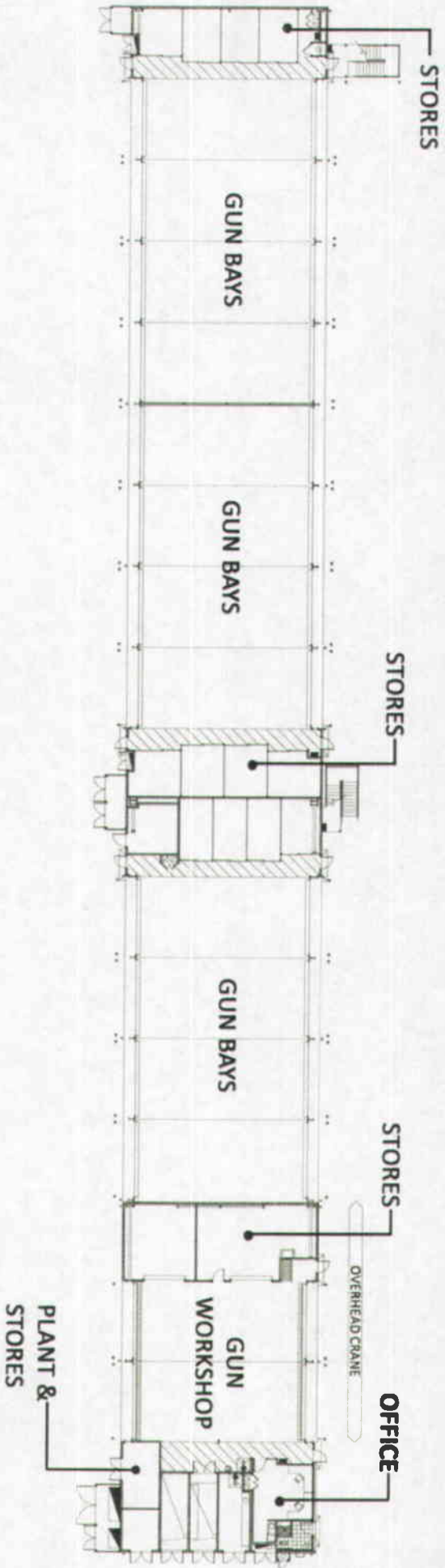
**A & OP BATTERY HEADQUARTERS GROUND FLOOR PLAN**  
**1st REGIMENT, ROYAL AUSTRALIAN ARTILLERY**

SCALE: NTS @ A3



**A & OP BATTERY HEADQUARTERS FIRST FLOOR PLAN  
1st REGIMENT, ROYAL AUSTRALIAN ARTILLERY**

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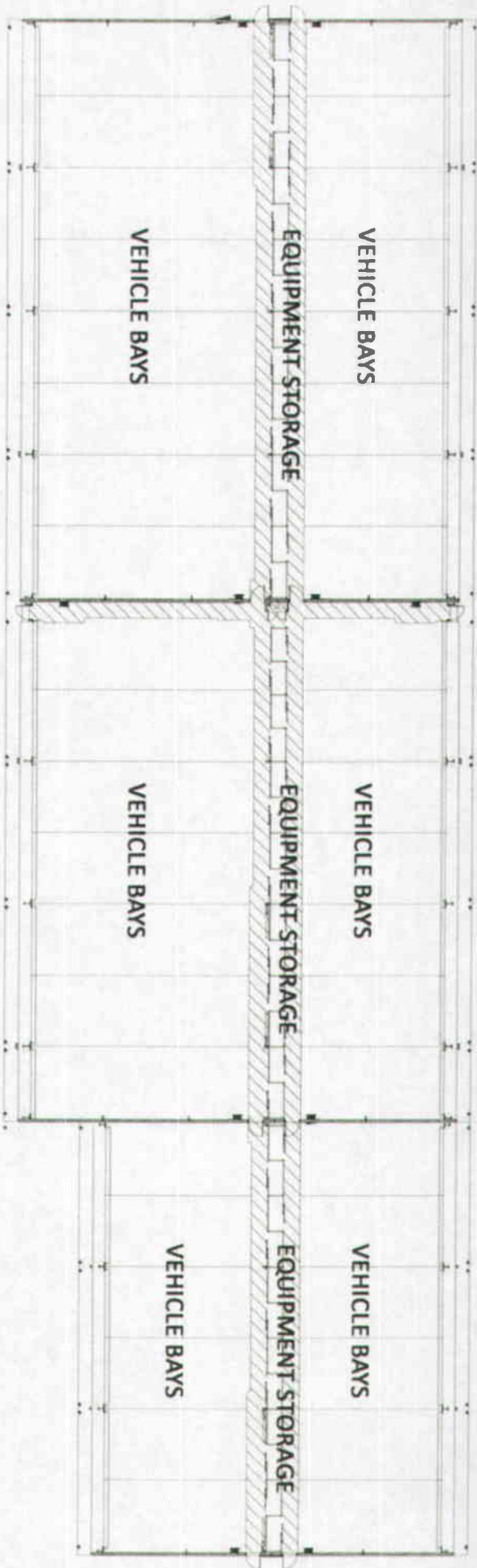


**A BATTERY GUN HANGAR & WORKSHOP FLOOR PLAN**  
**1st REGIMENT, ROYAL AUSTRALIAN ARTILLERY**

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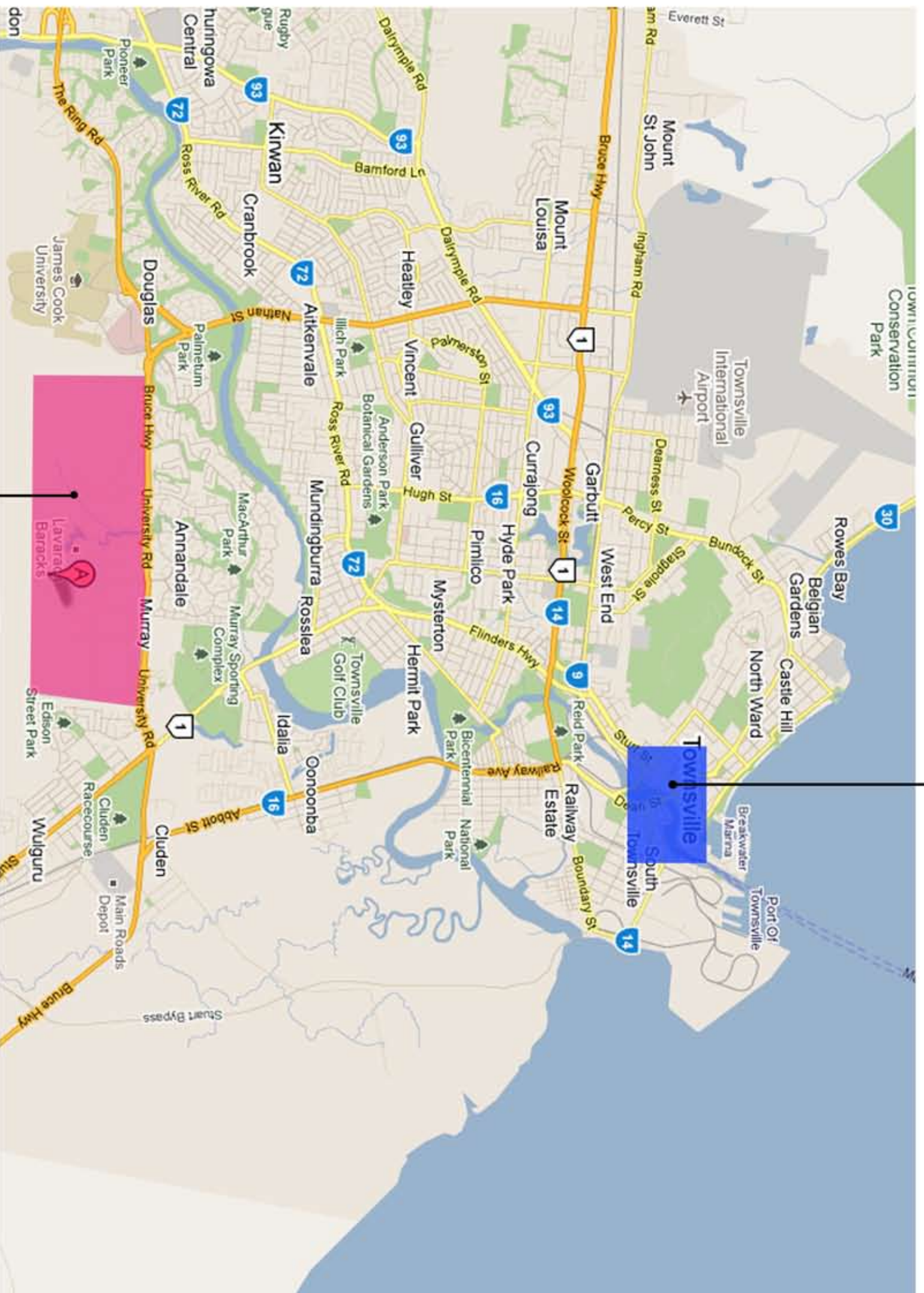


**ATTACHMENT 07**



**A BATTERY VEHICLE SHELTER FLOOR PLAN  
1st REGIMENT, ROYAL AUSTRALIAN ARTILLERY**

SCALE: NTS ● A3



TOWNSVILLE CBD

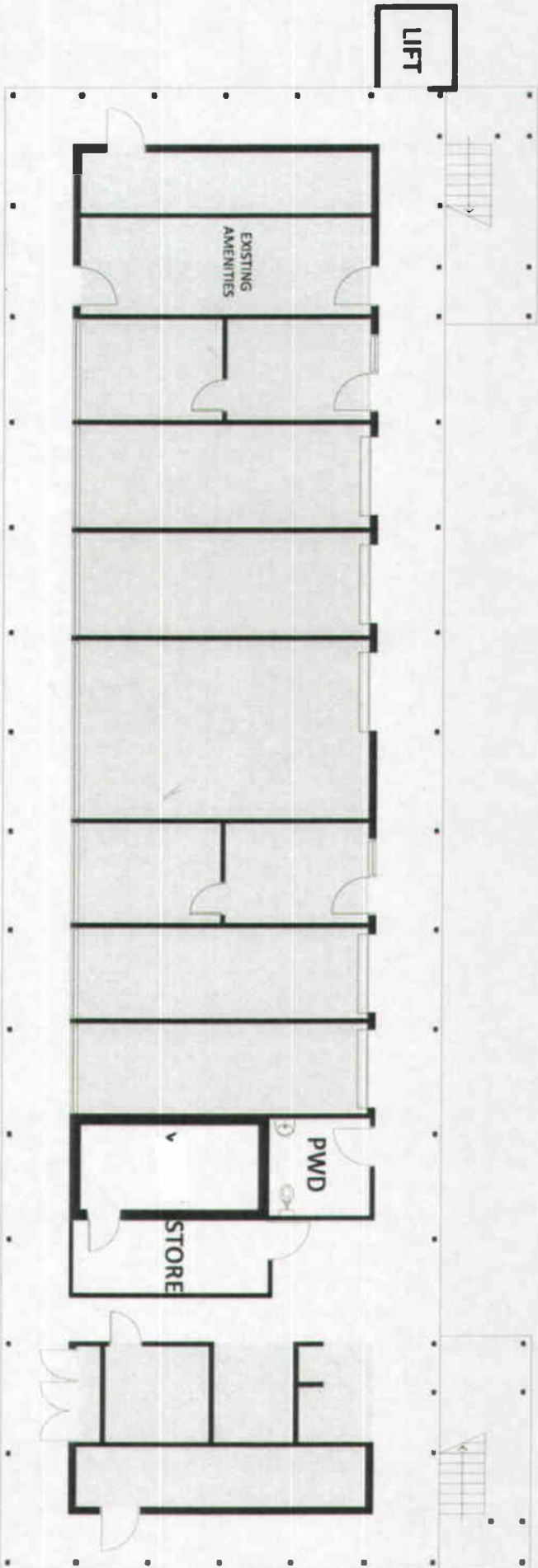
LAVARACK BARRACKS

# LAVARACK BARRACKS LOCATION PLAN

SCALE: NTS @ A3



**TOWNSVILLE AFATDS TRAINING FACILITY GROUND FLOOR PLAN**  
**4th REGIMENT, ROYAL AUSTRALIAN ARTILLERY**

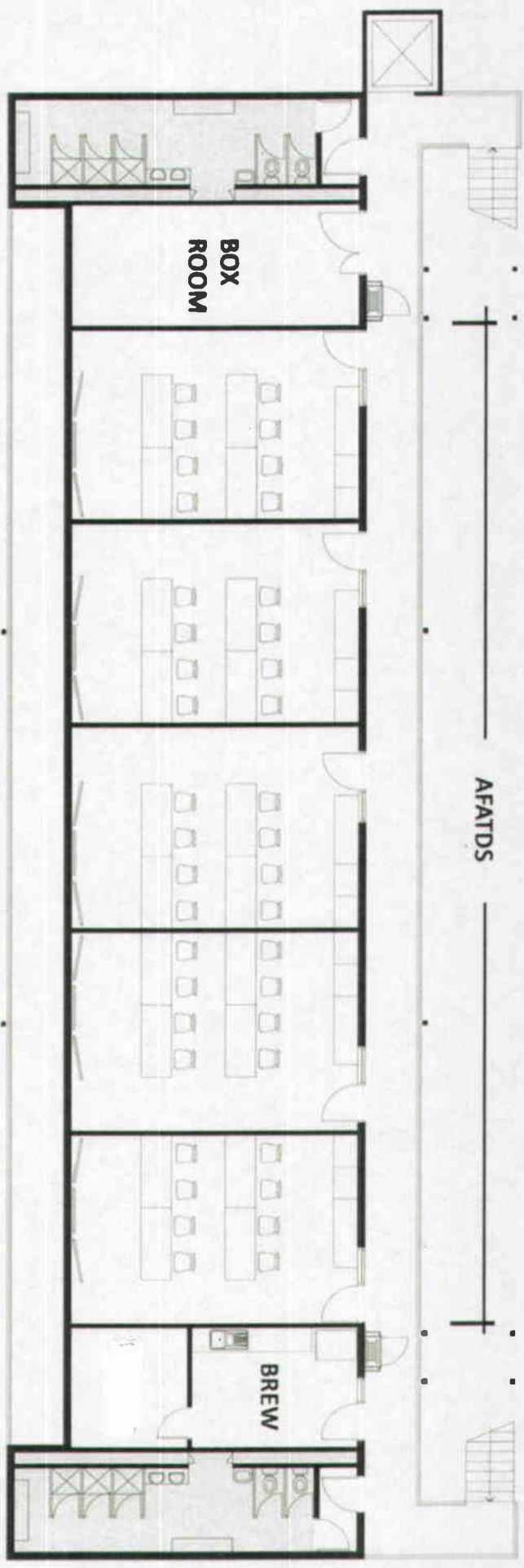


GROUND FLOOR

Denotes no works to be carried out

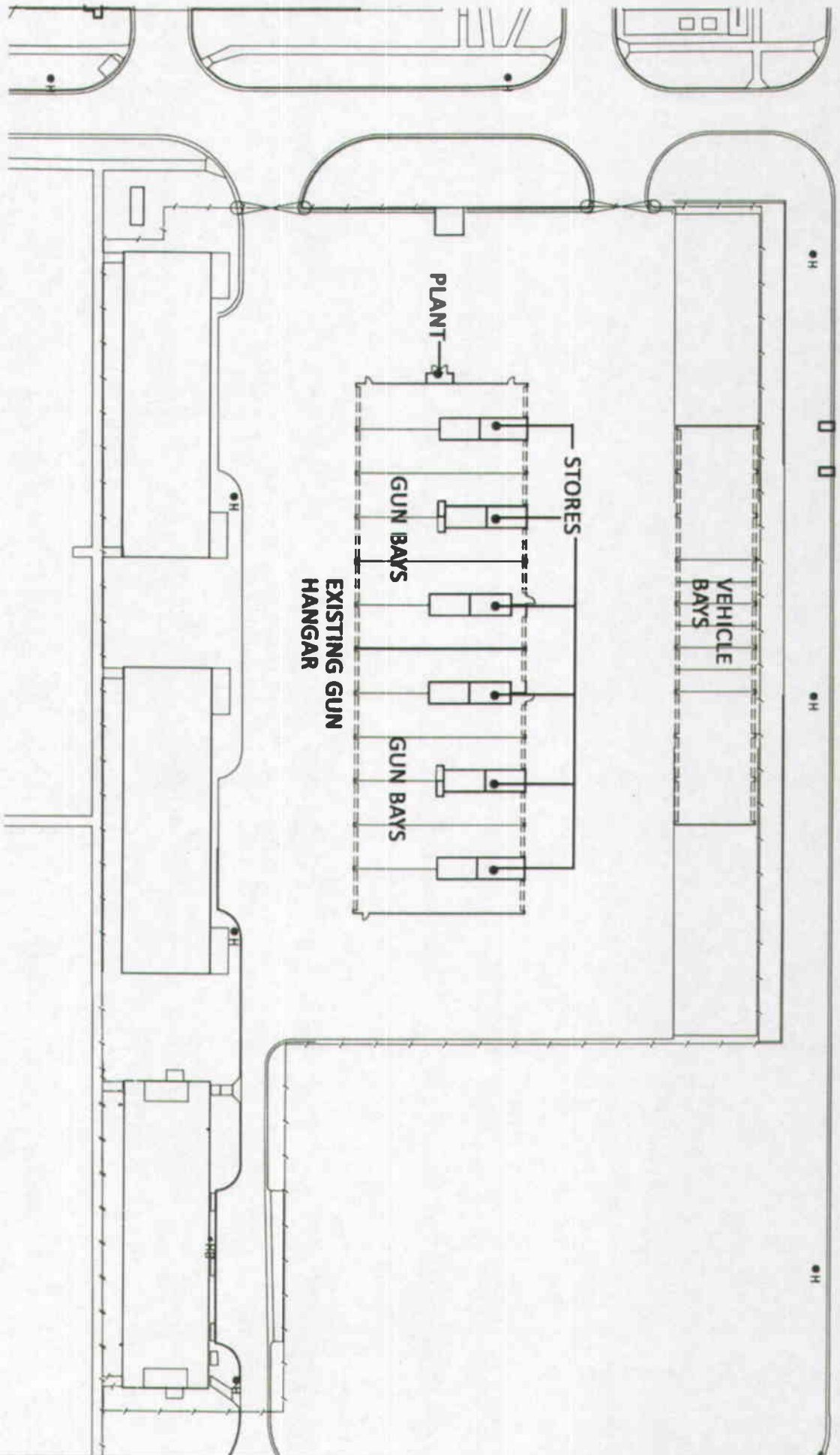
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TOWNSVILLE AFATDS TRAINING FACILITY SECOND FLOOR PLAN  
4th REGIMENT, ROYAL AUSTRALIAN ARTILLERY



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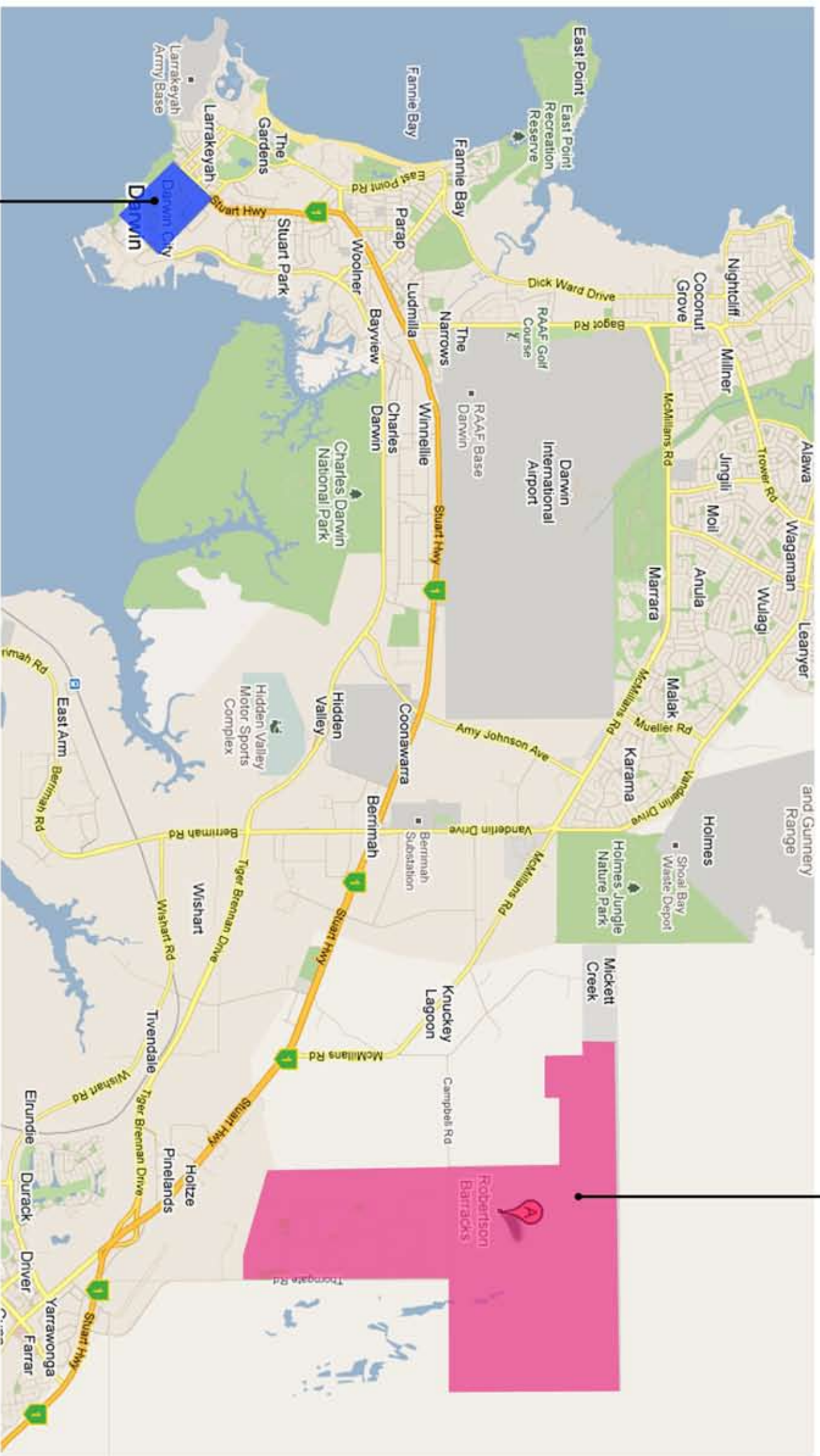
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106 BATTERY GUN HANGAR FLOOR PLAN  
4th REGIMENT, ROYAL AUSTRALIAN ARTILLERY

SCALE: MTS ● A3





ROBERTSON BARRACKS

DARWIN CBD

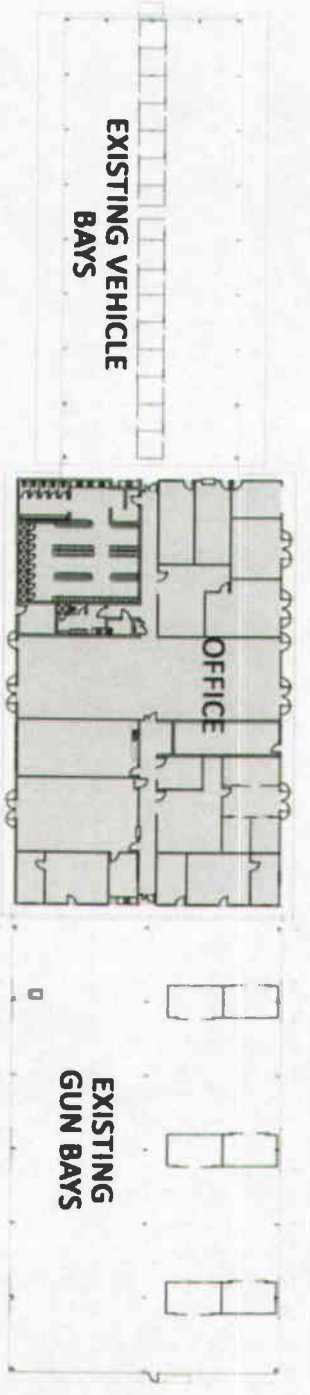
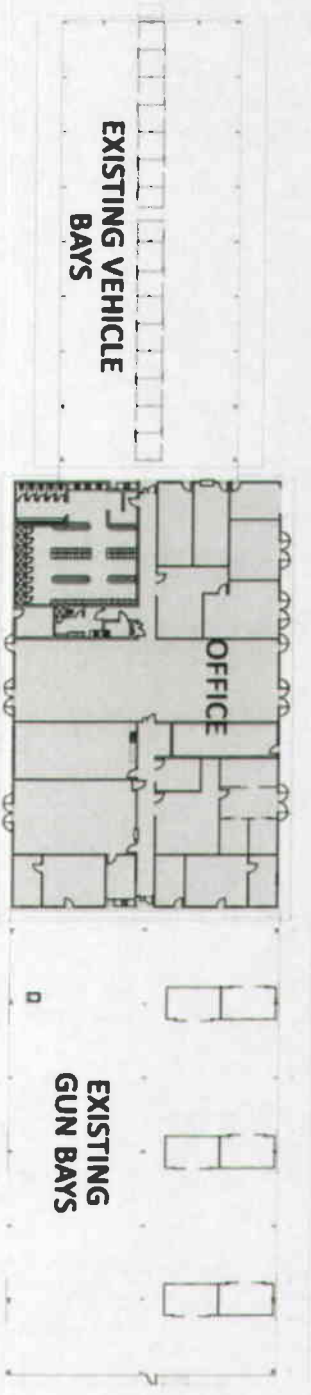
# ROBERTSON BARRACKS LOCATION PLAN

SCALE: NTS @ A3



**DARWIN AFATDS TRAINING FACILITY FLOOR PLAN**  
**8th/12th REGIMENT, ROYAL AUSTRALIAN ARTILLERY**

SCALE: NTS @ A3

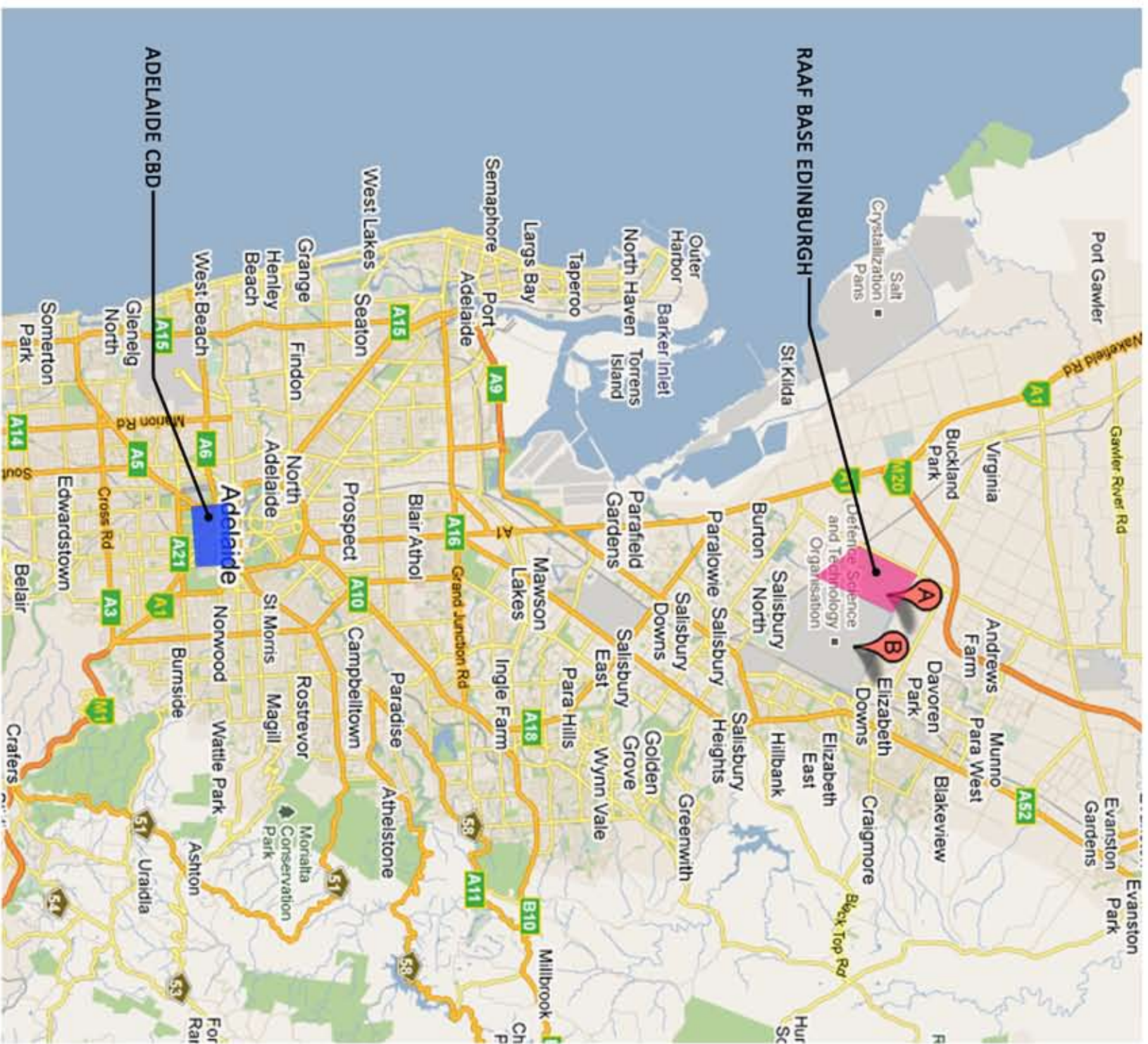


Denotes no works to be carried out

DARWIN GUN HANGAR FLOOR PLAN  
8th/12th REGIMENT, ROYAL AUSTRALIAN ARTILLERY

SCALE: NTS @ A3

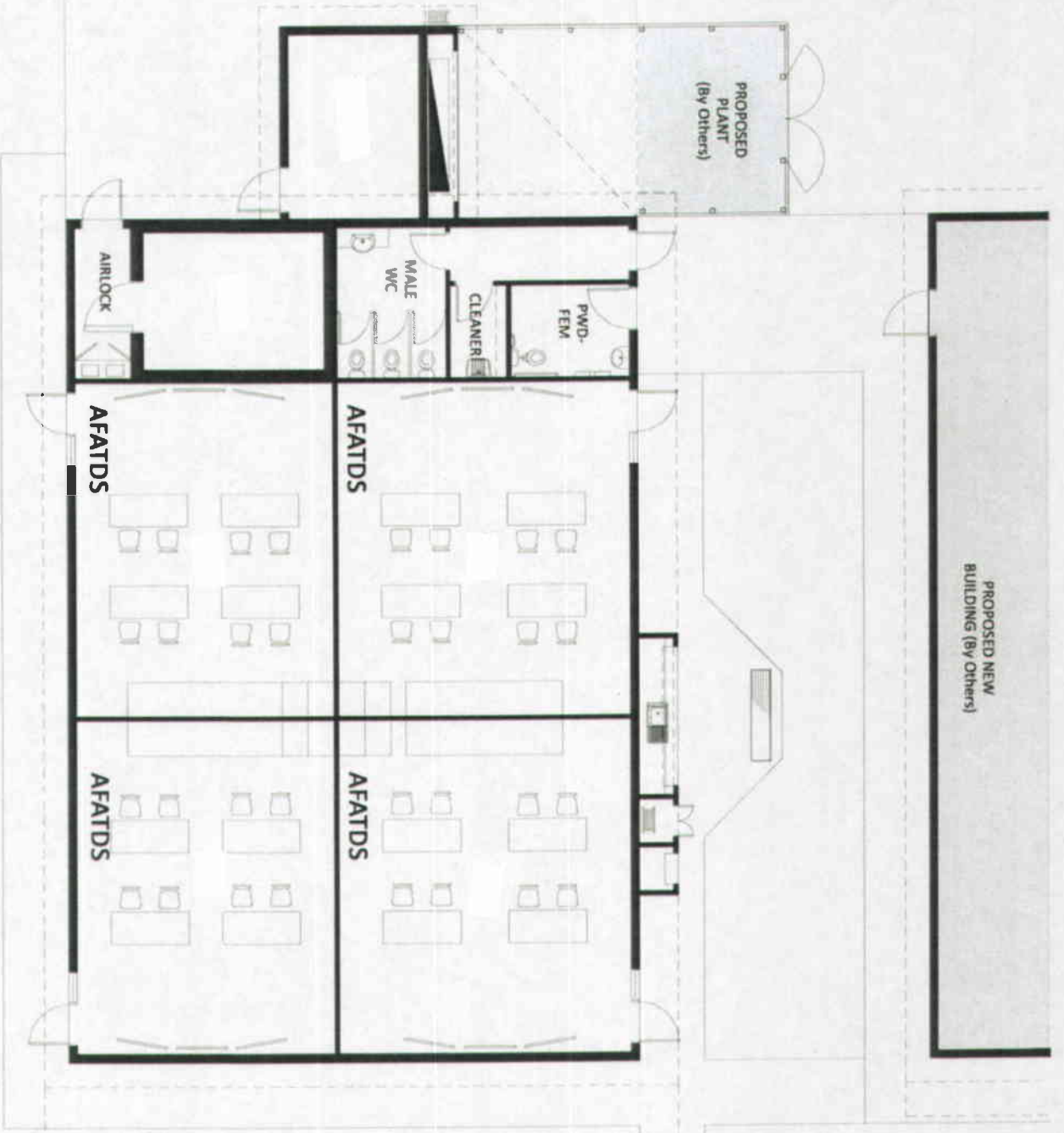




RAAF BASE EDINBURGH LOCATION PLAN

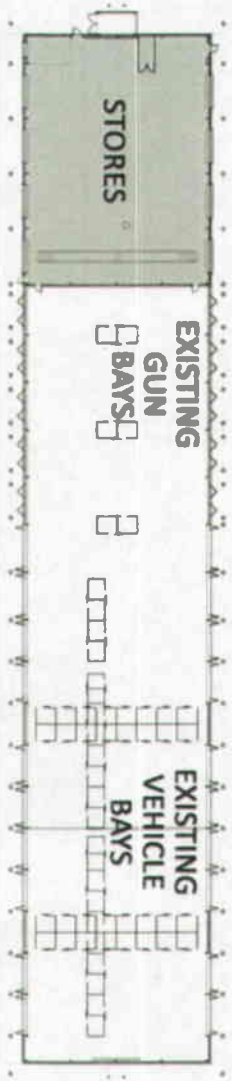
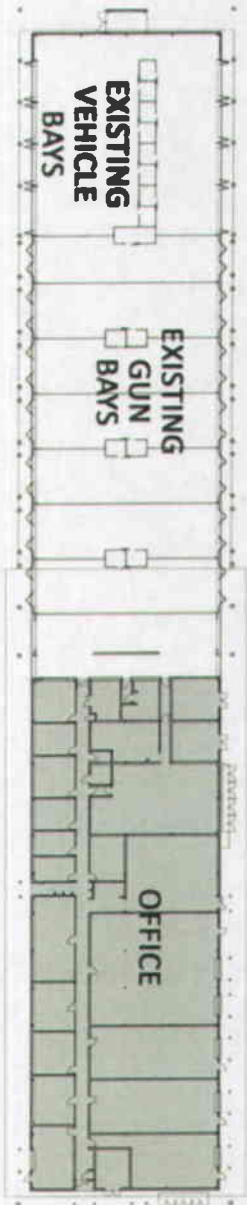
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**ADELAIDE AFATDS TRAINING FACILITY FLOOR PLAN**  
**8th/12th REGIMENT, ROYAL AUSTRALIAN ARTILLERY**



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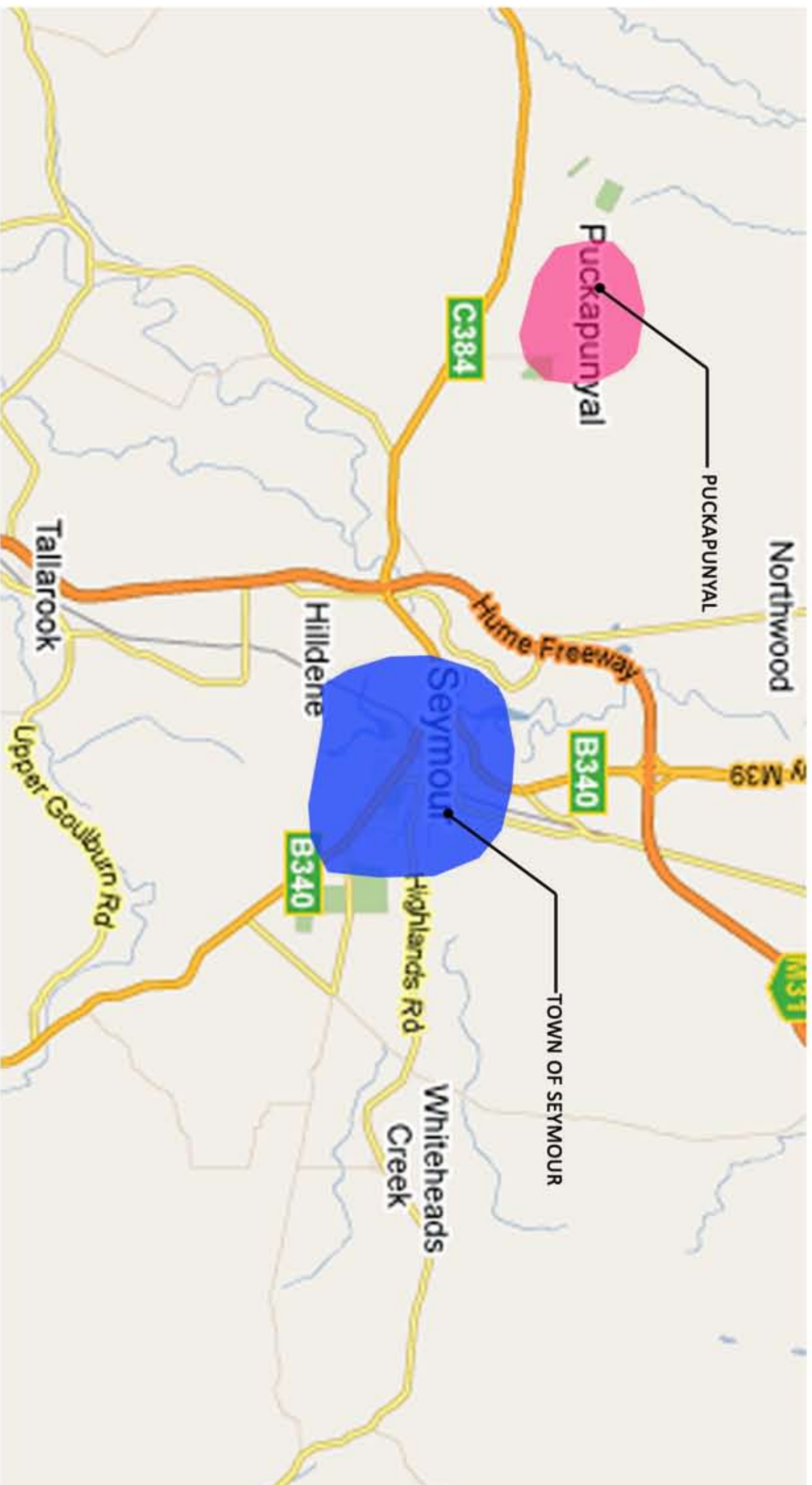




Denotes NO WORKS to area

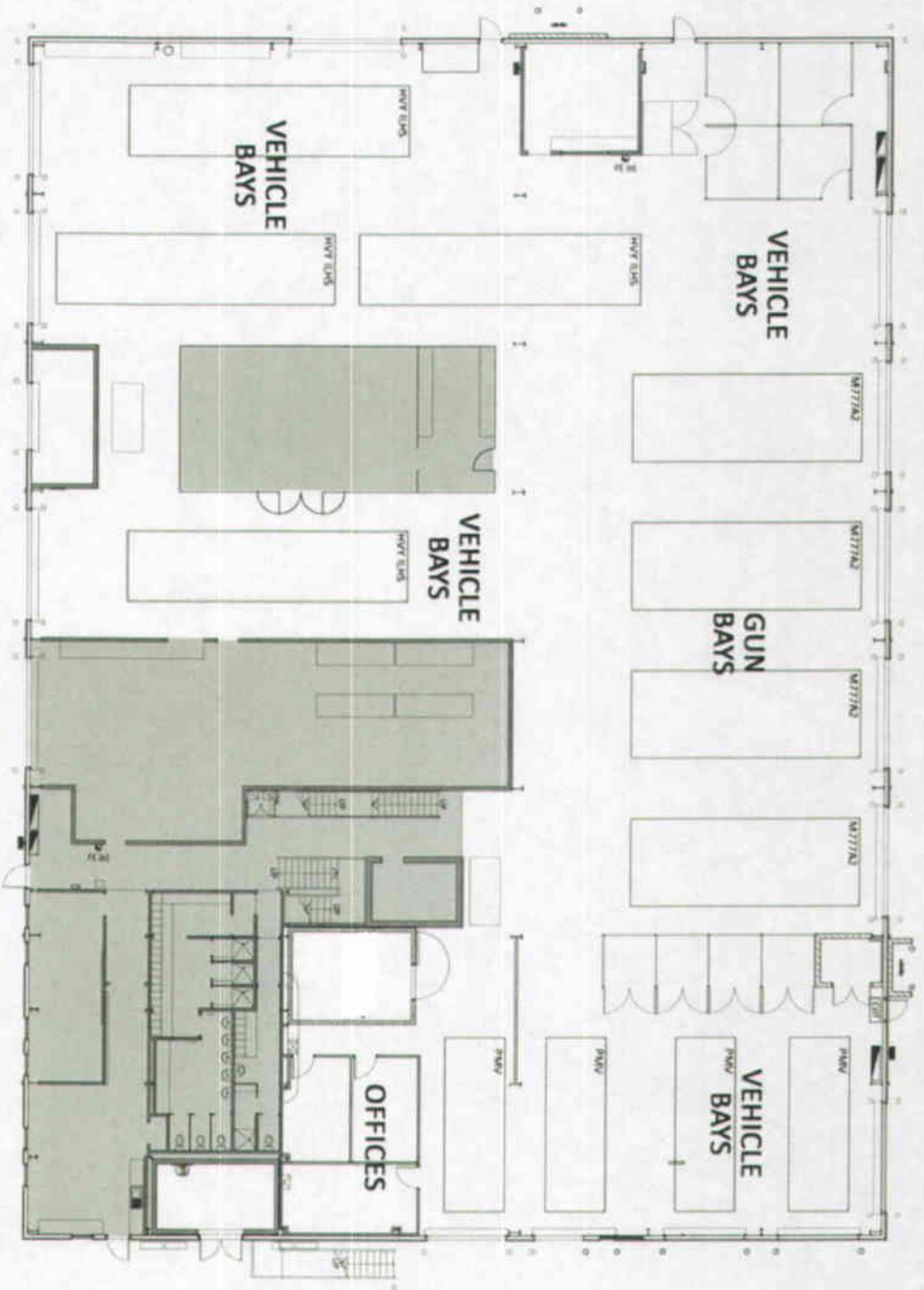
**ADELAIDE GUN HANGAR FLOOR PLAN**  
**8th/12th REGIMENT, ROYAL AUSTRALIAN ARTILLERY**

SCALE: NTS @ A3



PUCKAPUNYAL LOCATION PLAN

SCALE: NTS @ A3

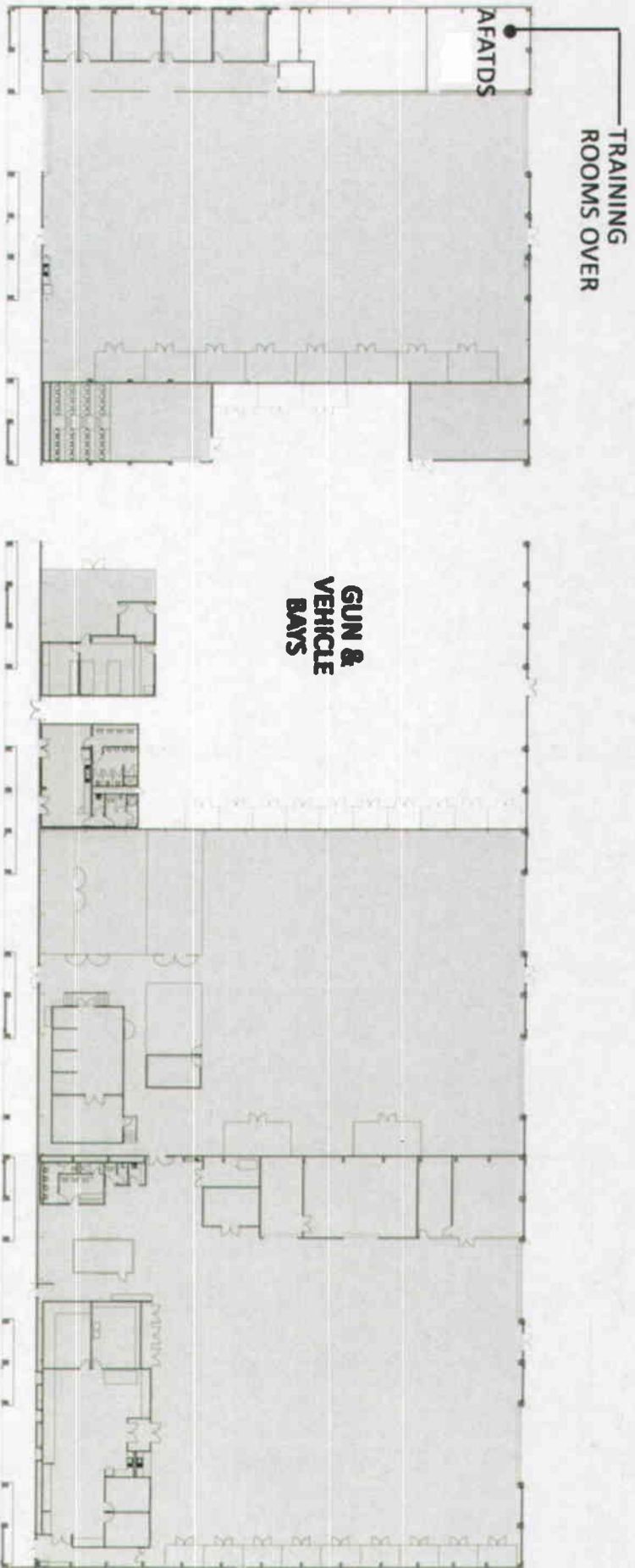


 Denotes NO WORKS to area

53rd SUPPORT BATTERY HEADQUARTERS FLOOR PLAN  
SCHOOL OF ARTILLERY

SCALE: NTS @ A3

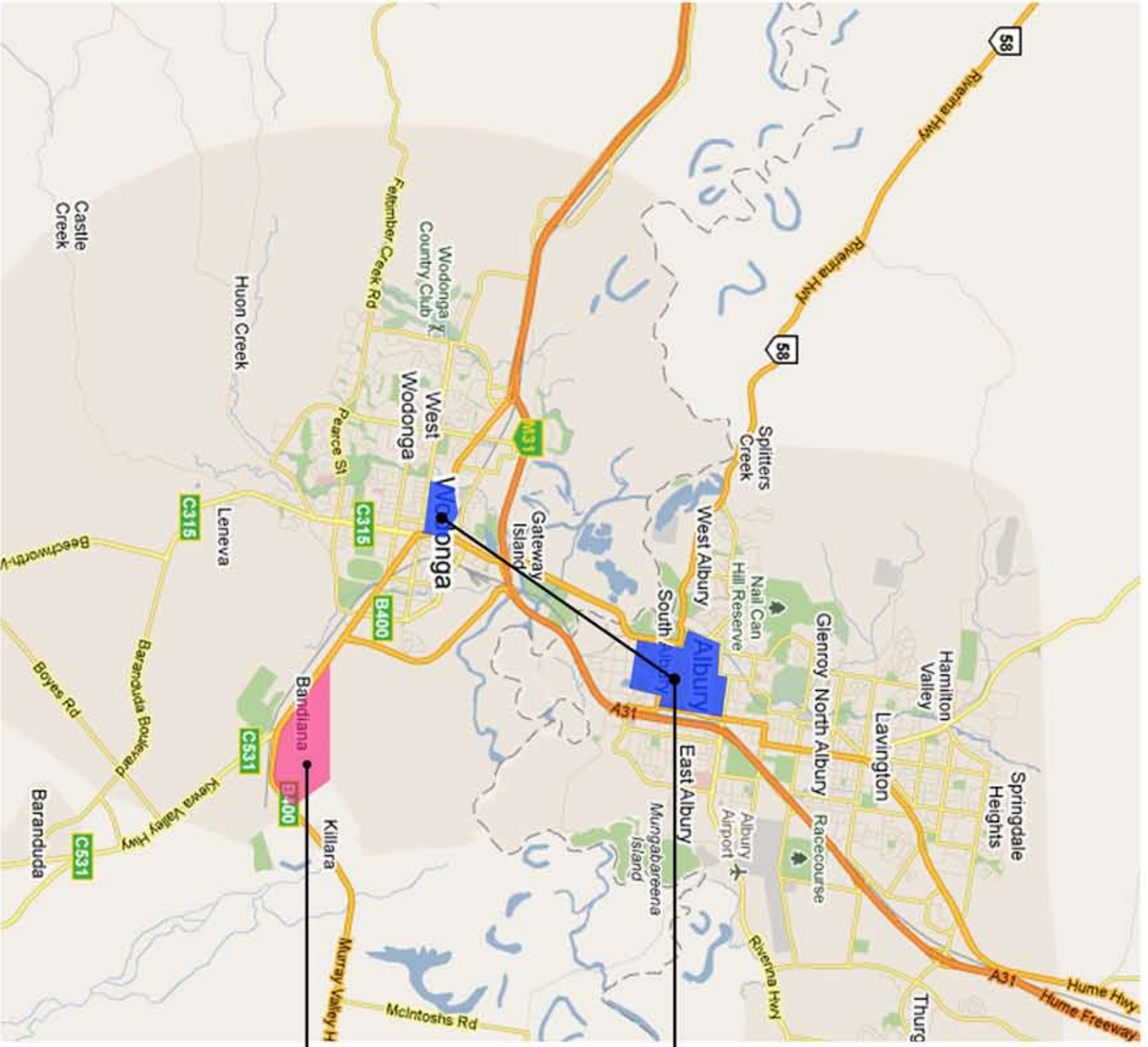
**ARTILLERY TRAINING FACILITY FLOOR PLAN  
SCHOOL OF ARTILLERY**



**Denotes Areas with no work to be carried out**

SCALE: NTS @ A3





ALBURY-WODONGA

GAZA RIDGE BARRACKS

# GAZA RIDGE BARRACKS LOCATION PLAN

SCALE: NTS @ A3

**MAINTENANCE TRAINING FACILITY FLOOR PLAN  
ARMY LOGISTICS TRAINING CENTRE**

