



DEFENCE SCIENCE AND TECHNOLOGY ORGANISATION

ORDNANCE BREAKDOWN FACILITY

PORT WAKEFIELD, SOUTH AUSTRALIA

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

**DEPARTMENT OF DEFENCE
CANBERRA ACT
AUGUST 2004**

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GLOSSARY

ADF	-	Australian Defence Force
DSTO	-	Defence Science and Technology Organisation
ECC	-	Environmental Certificate of Compliance
EMP	-	Environmental Management Plan
MFPE	-	Manual of Fire Protection Engineering
P&EE	-	Proof and Experimental Establishment
Ordnance	-	Military materiel, such as weapons and ammunition.

INTRODUCTION

1. The Department of Defence proposes to construct a new facility for the breakdown and examination of ammunition and weapons at the existing Proof and Experimental Establishment (P&EE) site at Port Wakefield, South Australia, approximately 100km north of Adelaide. The Ordnance Breakdown Facility is required to enable the breakdown and analysis of large items of explosive ordnance, which exceed the capabilities of existing facilities at the P&EE and Defence Science and Technology Organisation (DSTO) Edinburgh in Adelaide.

BACKGROUND

2. The Australian Defence Force (ADF) maintains a research capability for explosive ordnance and weapons that supports deployed and training forces. The majority of the existing capability is split between DSTO Edinburgh and P&EE Port Wakefield and is restricted by safety requirements for the investigation of small sized ordnance.

3. This submission proposes the construction of a new facility that will support research into a wider cross section of weapons typically encountered by the ADF.

4. The location at Port Wakefield was selected after assessment of alternative sites across Australia and is within reasonable proximity to ordnance breakdown personnel based at DSTO Edinburgh. Additionally, the new facility can share aspects including site security, large scale radiography facilities, support workshops, emergency services, and ordnance disposal facilities already located at Port Wakefield that are essential for the operation of the proposed facility and will be used during breakdown activities.

GOVERNING CONSIDERATIONS

5. Security of Australia and its interests remains the central tenant of Defence policy. Research into weapons and ordnance is an important element that supports the work of the ADF and its supporting organisations in delivering adequate levels of security to Government.

6. Research into weapons and ordnance is inherently dangerous and involves militarily sensitive source material as well as nationally classified methods. Consequently, the tasks at the Ordnance Breakdown Facility must satisfy Defence requirements for the handling and storage of explosives and for protection of information regarding the ordnance stored at the facility and the methods used to disassemble and analyse the ordnance. Hence, a number of broad considerations govern the facilities requirement of this project. These include:

- a. Protective security. The facility will be constructed to control access to all elements of the facility at all times.

- b. Information security. The facility must maintain a very high standard of protection of all data and communications sources.
- c. Materiel and Personnel Safety. All facilities must be constructed in such a manner as to minimise the risk to personnel and other facilities at all stages of the operation.
- d. Public Safety. All facilities will be constructed to ensure that public safety remains the highest priority. The PE&E site at Port Wakefield was selected to ensure adequate buffer zones surround the facility.

REQUIREMENT

- 7. The proposed new facility at the P&EE, Port Wakefield was selected after assessment of alternative sites across Australia. The location at Port Wakefield is within reasonable proximity to ordnance breakdown personnel based at DSTO Edinburgh.
- 8. The primary function of the proposed Ordnance Breakdown Facility is to provide the ADF with the capability to safely disassemble and research a range of weapons and ordnance.
- 9. The following facilities have been identified as necessary for the facility.
 - a. Control room. A control room is required to remotely monitor and operate equipment within each of the active building sites at various times of operation. An existing, under-utilised room within the current Environmental Test Facility workshop building at the P&EE will be remodelled for this capability. Its location, adjacent to existing amenities and administration facilities at the P&EE, will reduce costs and enhance operational simplicity.
 - b. Cutting Building. A building is required in which radiography and remotely controlled cutting of ordnance can be conducted. This building will provide separate rooms for operation of remotely controlled cutting equipment, radiographic examination and equipment storage along with an enclosed external loading bay.
 - c. Disassembly Building. A building is required in which cut or prepared ordnance can be safely disassembled. This building will provide separate rooms for breakdown of explosive ordnance, radiographic examination and equipment storage along with an enclosed external unloading/loading bay.
 - d. Explosive Ordnance Storehouses. Two separate magazine buildings are to be provided for the storage of explosive ordnance and broken down components.
 - e. Storage Building. A light frangible storage building is required for the storage of general equipment for use within the breakdown and cutting buildings.

- f. Engineering services. The site is a greenfield site adjacent to the existing P&EE site and suitable power, water, sewerage, communications, and sealed access road infrastructure is to be provided.
- g. General Security. The facility is to be provided with security fencing around the perimeter and a Type 1 security system.

Comparison of Options

10. Defence considered a number of options to deliver the required level of capability. These included: leaving the capability as the status quo, upgrading existing facilities at DSTO Edinburgh, or constructing a new facility at Port Wakefield. The Defence Infrastructure Sub-Committee reviewed the options in April 2004 and agreed that the capability deficiency should be addressed and recommended the construction of a new facility at the selected site at Port Wakefield. A potential upgrade of existing facilities at DSTO Edinburgh was dismissed, as it was not possible to satisfy both public and departmental safety requirements. Additionally the option of constructing a new Ordnance Breakdown Facility at the P&EE provided opportunities to maximise cost effectiveness by making use of the existing support facilities and services.

DESIGN CONSIDERATIONS

Site Selection

11. The Department conducted a Siting Board to determine the ideal location of the facility. This board contained relevant Defence stakeholders and selected a location for the Ordnance Breakdown Facility north of the existing Environmental Test Facility at Port Wakefield, bounded by farmland and existing roads. Additional land was acquired in order to guarantee appropriate explosive ordnance safeguarding distances between the existing Environmental Test Facility, public roads and the proposed Ordnance Breakdown Facility buildings.

Design Development

12. The Department conducted a facilities option study to consider options for the structural form and site layout of the Ordnance Breakdown Facility. The study recommended that the key buildings that would contain explosive ordnance should be constructed for blast mitigation rather than containment. Layout would be designed to minimise the need for movement of heavy items and limit the requirement for paved areas.

Performance Requirements

13. The Department reviewed the required performance and determined that the new facility should meet the following general performance criteria:

- a. Facilities must have adequate amenities to support all personnel.
- b. Facilities must be capable of operating 24 hours per day if required.
- c. The siting of the facilities must be in accordance with the Siting Board recommendations.
- d. The facility must be sited such that the range danger template does not encroach on areas of public access, such as the perimeter roads.
- e. Facilities should meet the requirements of all Australian Standards, codes of practice, environmental standards, Defence standards and manuals and certifying agency requirements.
- f. Facilities should meet Defence accommodation standards where feasible.
- g. Facilities should comply with Defence energy consumption goals and requirements.
- h. Facilities should comply with the P&EE Environmental Management Plan.
- i. New facilities should make use of existing P&EE facilities where appropriate.

14. Whilst Defence generally undertakes to design new facilities to achieve a minimum four star rating on the Green Building Council of Australia Green Star rating scheme, this is unlikely to be possible on this facility due to the specialised nature of the design. Security and safety requirements preclude many of the construction practices normally associated with ecologically sustainable development such as opening windows, natural daylight and natural ventilation. However, such practices have been included where possible.

Design Features

15. The Department has developed detailed design information for all elements of the facility. Design features of note are described below:

16. Remote Control Room. The proposed remote control room will be located in an existing facility that will be upgraded to accommodate this function. The purpose of the room is to remotely monitor and record activity and control devices in the disassembly and cutting buildings, via multi purpose fibre-optic links. Special wall construction is not required however the security of the existing building is to be upgraded to enable the room to be secure in accordance with the required Defence standards.

17. Disassembly Building. This building contains separate rooms for breakdown, radiographic examination, equipment storage and plant, and a loading bay. The building will be clad with pre-finished profiled metal sheeting to match with existing adjacent buildings, with specific internal details as follows:

- a. Loading Bay. The loading bay is under the main roof with sliding or roller doors at both ends to screen unloading activities from distant public view and from sun, rain and wind, particularly wind-blown dust. A lifting device to remove ordnance from the trucks to trolleys is included.
- b. Breakdown Room. The breakdown room walls and roof are to be of “hardened” or reinforced construction to mitigate the effects of accidental detonation. Walls, where facing externally, are to be clad with pre-finished profiled metal sheeting to match the exterior of existing adjacent buildings. The door to the breakdown room is also constructed to mitigate the effects of accidental detonation. Devices within the room are remotely controlled from the Remote Control Room via multi purpose fibre-optic links.
- c. Radiographic Room. The radiographic room is used to discuss and plan activities, and view radiographs. The room is located within the breakdown room and the internal walls and ceiling are not required to be of hardened or reinforced concrete construction as activities in this room are not undertaken concurrently with work in the breakdown room. An internal window is required to provide views of the breakdown room. External views and windows are not required.
- d. Store Room. This room is used to store equipment associated with work undertaken in the disassembly building. Equipment may be used in the store room. Equipment washing facilities will be provided.
- e. Plant Room. An internal undercover, enclosed or partially enclosed plant room is preferred to provide increased life for plant in the harsh Port Wakefield environment. Appropriate protection from vandalism is also required.

18. Cutting Building. This building contains separate rooms for machining, radiographic examination, equipment storage, plant and a loading bay. This building is similar to the disassembly building. Cladding to the building is pre-finished profiled metal sheeting to match with existing adjacent buildings with internal details as follows:

- a. Loading Bay. The loading bay is under the main roof with sliding or roller doors to screen unloading activities from distant public view and from weather effects, particularly wind-blown dust. A lifting device to remove ordnance from the trucks to trolleys is included.

- b. Machining Room. The machining room walls and roof will be of “hardened” or reinforced construction to mitigate the effects of accidental detonation. These walls, where facing externally, will be clad with pre-finished profiled metal sheeting to match with existing adjacent buildings. The door to the machining room is also constructed to mitigate the effects of accidental detonation. Devices within the room are remotely controlled from the remote control room via multi purpose fibre-optic links.
- c. Radiographic Room. The radiographic room is used to discuss and plan activities, and view radiographs. The room is located within the machining room and the internal walls and ceiling are not required to be of hardened or reinforced concrete construction as activities in this room are not undertaken concurrently with work in the machining room. An internal window is required to provide views of the machining room. External views and windows are not required.
- d. Store Room. This room is used to store equipment associated with work undertaken in the cutting building. Equipment may be used in the store room. Equipment washing facilities will be provided.
- e. Plant Room. An internal undercover, enclosed or partially enclosed plant room is preferred to provide increased life for plant in the harsh Port Wakefield environment. Appropriate protection from vandalism is also required.

19. Explosive Storehouses. The construction of each explosive storehouse will be to the relevant Defence standard for explosive ordnance. The structural form is to be similar to the existing explosive ordnance storehouses at the P&EE, Port Wakefield. The storehouses are to have an undercover loading bay with a vertical wind/rain/view screen. The overhead cover is a lightweight canopy. Furthermore:

- a. Each storehouse requires a crane to remove ordnance from trucks to trolleys, and a separate crane unloads ordnance inside the magazine from the trolleys to racks.
- b. The explosive storage capacity of each of the explosive storehouses shall be such that the range danger template does not encroach on areas of public access, such as the perimeter roads.
- c. Environmental controls for temperature or humidity are not required.

20. Store Shed. The store shed is to be located near the explosive storehouses. Toilet facilities are not required as use of the facility will be for short periods and toilets in the Control Room are in close proximity. A flammable liquids storage cabinet is to be located within this building. Safety provisions will be in accordance with the requirements of the Defence Manual of Fire Protection Engineering (MFPE).

21. Access Roads. There are no existing roads to the proposed facilities. An access road is to be constructed connecting the buildings with the existing road network, with access through the existing entrance to the P&EE Environmental Test Facility. It is anticipated that vehicles accessing the range will include cars through to semi trailers.
22. Parking. A bitumen sealed parking area for 2 cars will be provided at each building. Car parking to the existing Control Building is adequate to cater for the staff using the remote control room.
23. Footpaths. Footpaths are not generally required. Foot traffic between the Cutting and Disassembly buildings will use the new access road.
24. Fencing. The existing fence surrounding the Environmental Test Facility shall be extended to encompass the new facility.
25. Safety Barrier. A safety barrier in the form of a boom gate will be positioned on the access road to both the disassembly and cutting facilities at an appropriate distance from the buildings.
26. Net Explosive Quantities. The disassembly and cutting buildings will be required to accommodate ordnance to specified limits.
27. Occupational Health & Safety. The design features of the facility must be compatible with the *Occupational Health and Safety (Commonwealth Employment) Act 1991*, the *South Australian Health Act, 1995*, and the associated safety and welfare Regulations.

ANCILLARY ISSUES

Cost of Works

28. The budget for this facility is \$8.4 million and was determined at the 90% level of design. This includes construction costs, professional design and management fees and charges, furniture fittings and equipment together with appropriate allowances for contingency and escalation, but excludes Goods and Services Tax liability. Ongoing support costs for the facility will vary on expected usage but are in the order of \$0.268 million per annum.

Construction Workforce

29. Over the construction period of 12 months, an average of 10 personnel with a maximum of approximately 20, are expected to be employed on construction activities. In addition, it is anticipated that the construction will generate further job opportunities off-site from the prefabrication of components, and the manufacture and distribution of materials.

Timing

30. Subject to Parliamentary approval, construction of the facilities is planned to commence in late 2005. Project completion is planned to occur by late 2006.

Property Aspects

31. Whilst all of the Ordnance Breakdown Facility buildings will be located on Commonwealth land at Port Wakefield, the Defence Siting Board determined that it was necessary to acquire an adjacent farmhouse, piggery and farmland to accommodate explosive ordnance safeguarding arcs.

32. The required land was purchased by Defence from three separate parties in July and November 2002 at a cost to date of \$642,300 with negotiations currently underway to resolve any outstanding claims for these properties. Agreement was reached with the property owners to vacate the property prior to the commencement of construction of the facility.

Environmental Considerations

33. An Environmental Impact Assessment was completed for the project on 20 July 2001. An internal Defence Environmental Clearance Certificate (ECC) was subsequently issued for the project in August 2001 in accordance with the Environmental Management Plan (EMP) for the P&EE site. An updated certificate will be prepared for the facility prior to commencement of construction. All design, construction and commissioning activities associated with the facility will comply with the ECC and EMP.

34. The most significant environmental risk is soil contamination issues associated with the existing farm buildings and infrastructure. An Environmental Construction Management Plan will be prepared for the project. All design, construction and commissioning activities associated with the proposed Ordnance Breakdown Facility will be required to comply with that plan and the ECC.

Cultural Heritage

35. The P&EE is located on lands traditionally used by Aborigines of the Kaurna language group. There are no Native Title/Indigenous Land Use Agreements in place and the Environmental Impact Assessment determined that there are no issues known that impact on the proposed site.

Heritage

36. Neither the Ordnance Breakdown Facility site nor the P&EE are heritage listed with the Australian Heritage Commission, National Trust, State Heritage Branch or Local Council.

Biodiversity

37. Flora. There are several plants of significance listed within the wider P&EE area however the Environmental Impact Assessment found none to be present at the nominated site due to past clearing and stock grazing.

38. Fauna. The construction of the new facility is likely to have a positive impact on a threatened bird species, the Slender-billed (Samphire) thornbill. This species is listed as Vulnerable under both the SA NPW Act and the Commonwealth EPBC Act. Currently, the farmland proposed to be acquired for the project contains areas of Samphire and saltbush habitat that is in poor condition and the Samphire thornbill does not appear to use this land. The habitat is present only in the safe guarding zone and not in the proposed construction area for the project. Following land acquisition and removal of the existing land degradation factors (weeds, piggery effluent and grazing) it is anticipated that the condition of the vegetation will improve and therefore allow the Samphire thornbill to expand its range and use of this habitat.

Consultation

39. The following organisations have been or will be consulted during development of the project:

- a. Federal and State representatives for the area;
- b. Environment Australia;
- c. Port Wakefield Council;
- d. SA Fire Brigade;
- e. Local Chamber of Commerce; and
- f. Australian Greenhouse Office.

DELIVERY MECHANISM

40. The project will be delivered using a construction contractor under the Defence Head Contract agreement. A design has already been completed for the project in order to ensure that the proposed facility meets specialist Defence requirements.

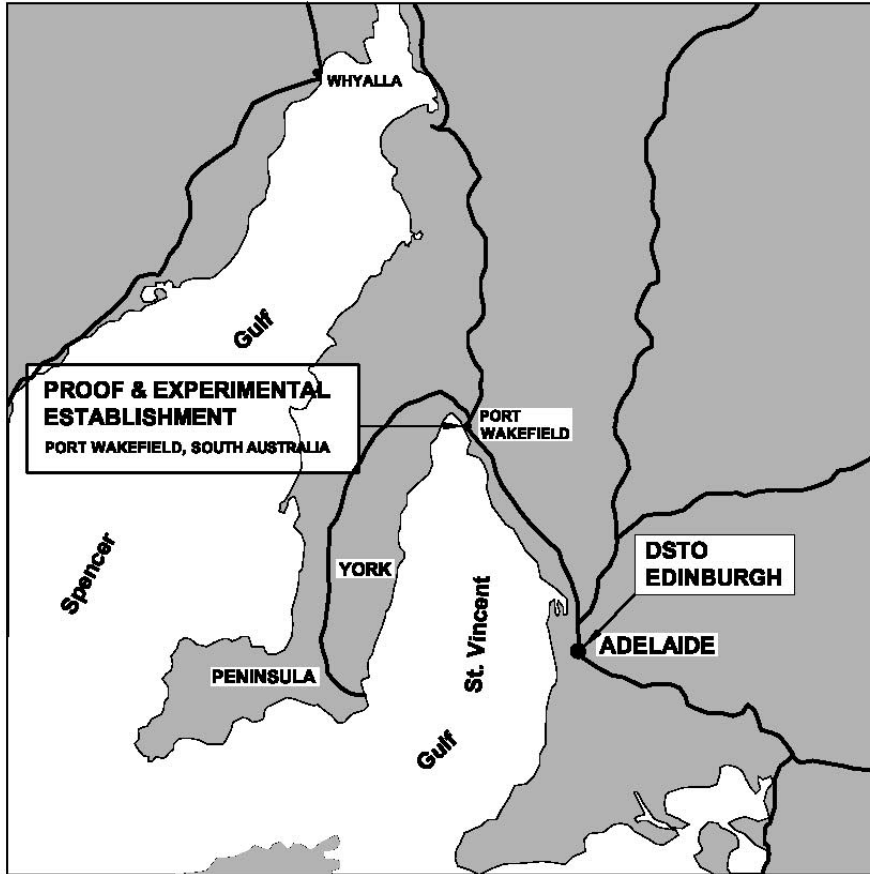
Annexes:

- A. Ordnance Breakdown Facility Location Map
- B. Ordnance Breakdown Facility Site Layout
- C. Preliminary Plans and Elevations of ordnance Breakdown Facility Buildings

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Annex A

Ordnance Breakdown Facility Location Map

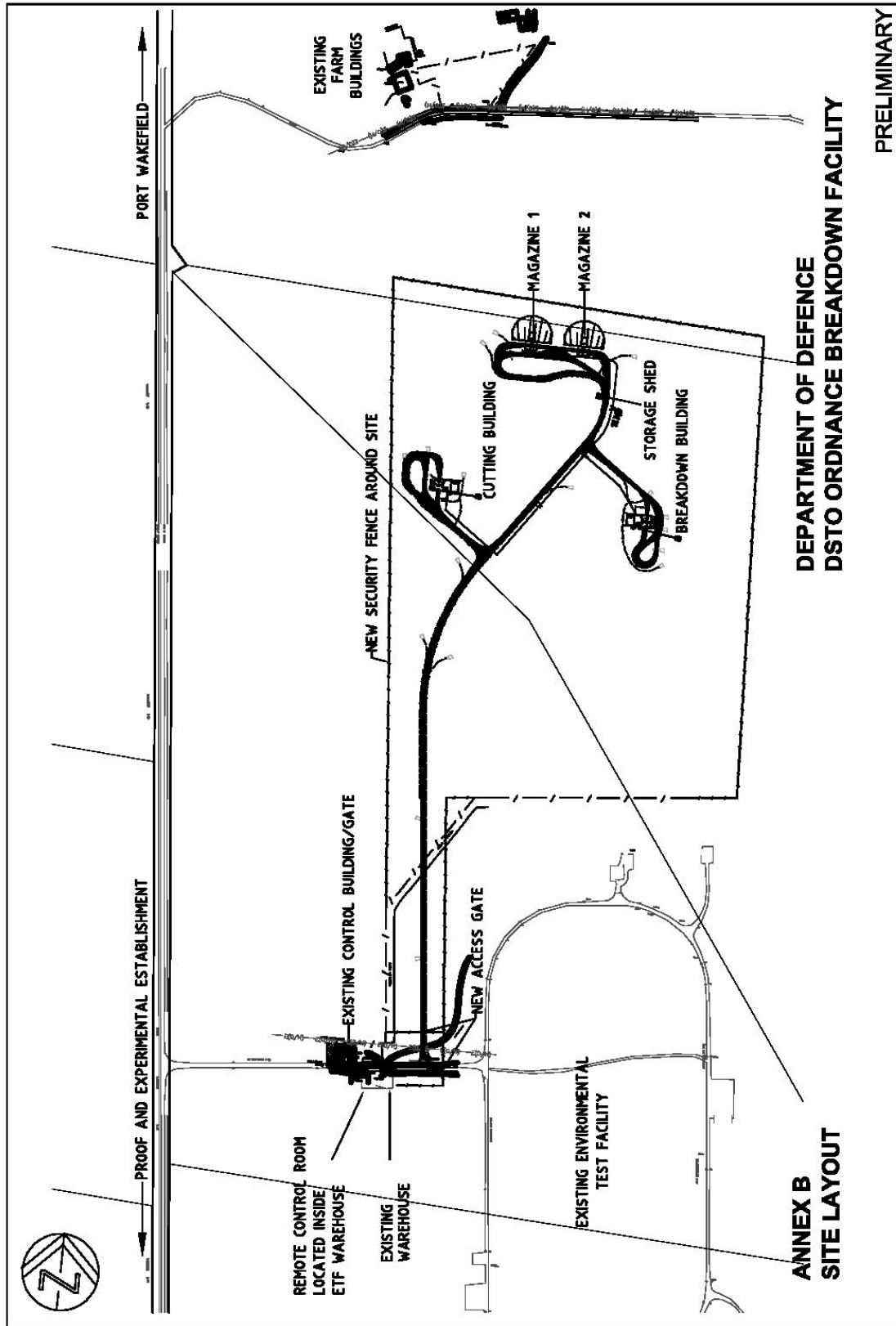


**LOCATION MAP FOR DSTO ORDNANCE BREAKDOWN FACILITY
(NEW FACILITY TO BE LOCATED AT THE EXISTING DSTO PROOF &
EXPERIMENTAL ESTABLISHMENT, PORT WAKEFIELD, SA)**

APPENDIX A

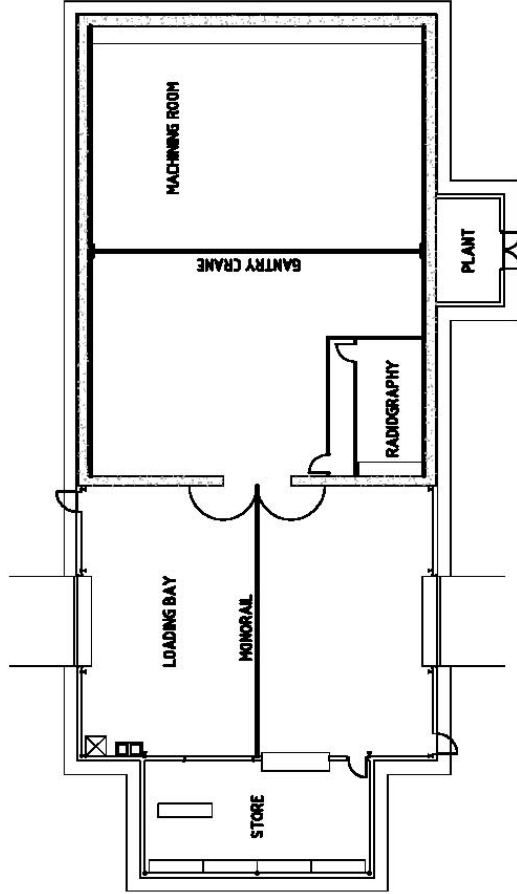
Annex B

Ordnance Breakdown Facility Site Layout



Annex C

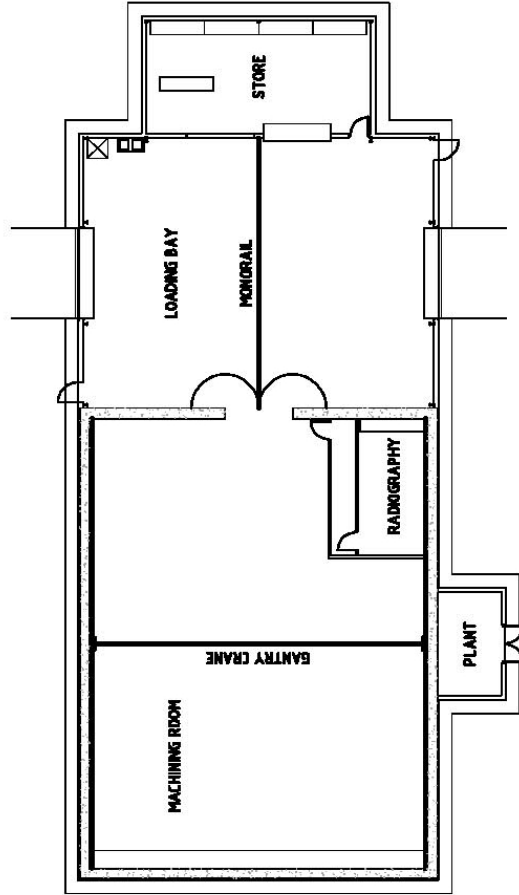
Preliminary Plans and Elevations of Ordnance Breakdown Facility Buildings



**ANNEX C-1
CUTTING BUILDING
FLOOR PLAN**

**DEPARTMENT OF DEFENCE
DSTO ORDNANCE BREAKDOWN FACILITY**

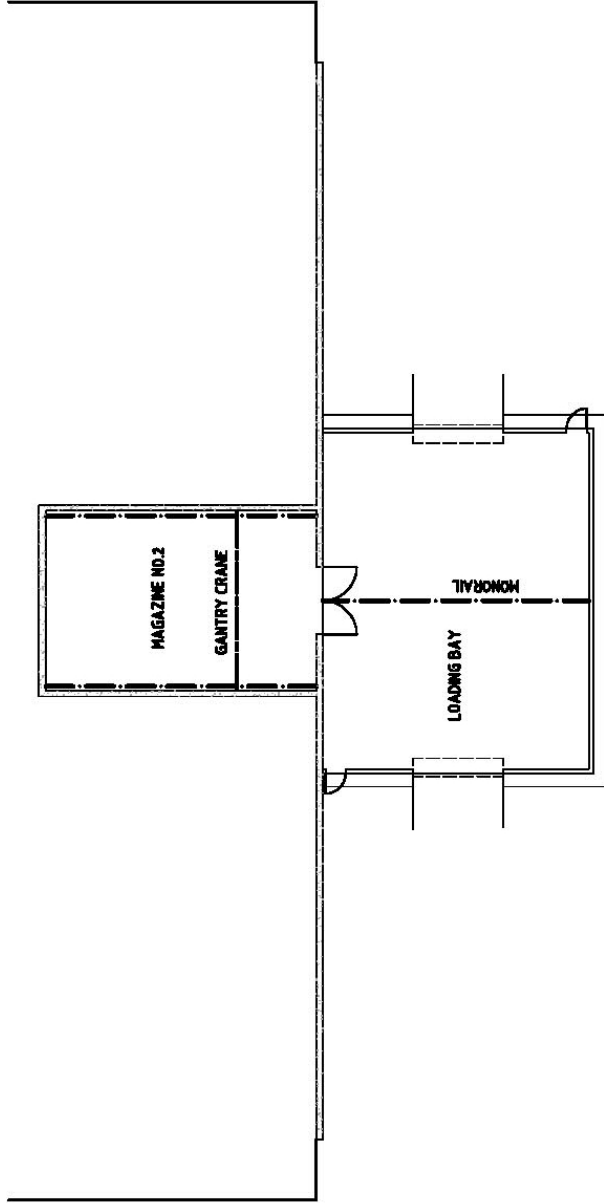
PRELIMINARY



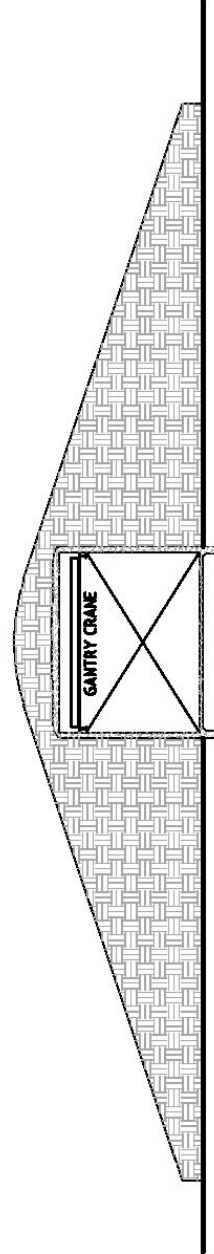
**ANNEX C-2
DISASSEMBLY BUILDING
FLOOR PLAN**

**DEPARTMENT OF DEFENCE
DSTO ORDNANCE BREAKDOWN FACILITY**

PRELIMINARY



PLAN

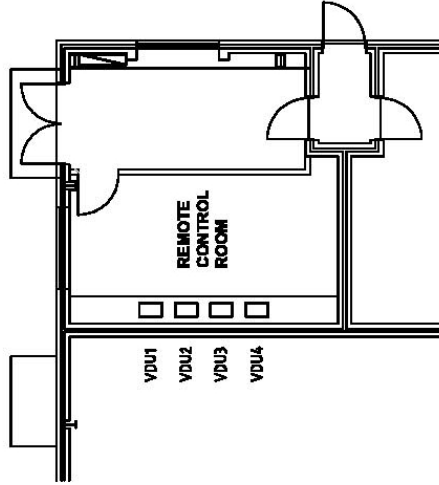
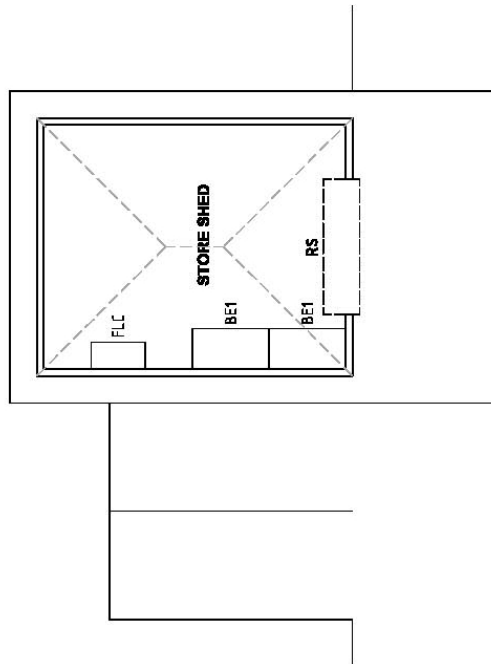


SECTION

**ANNEX C-3
MAGAZINE AND LOADING BAY No.2
PLAN AND SECTION**

**DEPARTMENT OF DEFENCE
DSTO ORDNANCE BREAKDOWN FACILITY**

PRELIMINARY



**ANNEX C-4
STORE SHED AND REMOTE CONTROL ROOM
PLANS**

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PRELIMINARY

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