



**DEPARTMENT  
OF DEFENCE**

**BRADSHAW FIELD TRAINING AREA**  
**SUPPLEMENT TO DRAFT ENVIRONMENTAL IMPACT STATEMENT**

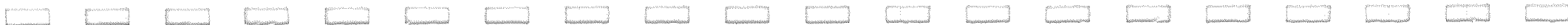
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## TABLE OF CONTENTS

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ABBREVIATIONS AND DEFINITIONS.....	V
1 INTRODUCTION.....	1-1
1.1 PREAMBLE.....	1-1
1.2 PURPOSE OF THE SUPPLEMENT.....	1-1
1.3 FORMAT OF THE SUPPLEMENT.....	1-2
1.4 ENVIRONMENTAL MANAGEMENT DOCUMENTS.....	1-2
2 SUMMARY OF SUBMISSIONS.....	2-1
2.1 NUMBER AND SOURCE OF SUBMISSIONS .....	2-1
2.2 SUMMARY OF ISSUES AND COMMENTS .....	2-1
3 RESPONSE TO ISSUES AND COMMENTS .....	3-1
3.1 EIS PROCESS .....	3-1
3.1.1 Environmental assessment for bridge over Victoria River .....	3-1
3.1.2 Timeframe for development and EIS process .....	3-1
3.2 INFORMATION MANAGEMENT .....	3-2
3.2.1 Environmental Management and Geographic Information Systems.....	3-2
3.3 ENVIRONMENTAL MANAGEMENT .....	3-3
3.3.1 Monitoring programs.....	3-3
3.3.2 Delineation and management of conservation areas.....	3-7
3.3.3 Cooperative management arrangements.....	3-7
3.3.4 Commitment to the integrity of the landscape .....	3-8
3.3.5 Need for a regional environmental plan .....	3-8
3.3.6 Environmental Management Plan .....	3-9
3.3.7 Baseline surveys.....	3-10
3.3.8 Role and composition of Environmental Advisory Committee .....	3-12
3.4 PROPOSAL.....	3-14
3.4.1 Selection and use of Bradshaw Station as a field training area.....	3-14
3.4.2 Training area infrastructure.....	3-15
3.4.3 Construction activities.....	3-18
3.4.4 Amount of disturbance.....	3-18
3.4.5 Planning and approval of training activities.....	3-19
3.5 CLIMATE.....	3-20
3.5.1 Cyclone awareness.....	3-20
3.5.2 Automated weather stations .....	3-20
3.6 GEOLOGY, LANDFORM AND SOILS.....	3-20
3.6.1 Areas for wet season training.....	3-20
3.6.2 Soil monitoring program.....	3-20
3.6.3 Acid sulphate soils .....	3-21
3.6.4 Vulnerability of watersheds to degradation .....	3-22
3.6.5 Mapping of soil constraints.....	3-22

3.7	VEGETATION .....	3-24
3.7.1	Limitations of baseline vegetation surveys .....	3-24
3.7.2	Construction impacts .....	3-24
3.7.3	<i>Melaleuca minutifolia</i> disturbance .....	3-24
3.7.4	Siting of infrastructure .....	3-25
3.7.5	Consideration of annual species .....	3-25
3.7.6	Weeds and weed management .....	3-25
3.7.7	Vegetation management and monitoring .....	3-27
3.7.8	Rehabilitation of disturbed areas .....	3-28
3.8	FAUNA .....	3-29
3.8.1	Core fauna habitats .....	3-29
3.8.2	Sensitive areas .....	3-31
3.8.3	Fauna surveys .....	3-31
3.8.4	Role in the regional conservation network .....	3-34
3.8.5	Research projects .....	3-34
3.8.6	Spotted Grass Frog .....	3-35
3.8.7	Management and monitoring .....	3-35
3.8.8	Gouldian Finch .....	3-36
3.8.9	Dingo control .....	3-36
3.8.10	Wildlife corridor .....	3-36
3.9	FIRE .....	3-37
3.9.1	Priority areas for fire management .....	3-37
3.9.2	Fire management for sensitive habitats .....	3-37
3.9.3	Coordination of fire management activities .....	3-40
3.9.4	Research projects .....	3-40
3.10	WATER RESOURCES .....	3-40
3.10.1	Monitoring .....	3-40
3.10.2	Baseline surveys .....	3-41
3.10.3	Precautions against fuel spills .....	3-41
3.10.4	Artificial watering points .....	3-41
3.10.5	Water requirements for construction .....	3-41
3.10.6	Damming or excavation of waterways .....	3-42
3.10.7	Use of chemicals and pesticides .....	3-42
3.10.8	Protection of sensitive wetlands .....	3-43
3.10.9	Springs and waterholes .....	3-43
3.11	VISUAL QUALITY .....	3-44
3.11.1	Visual assessment of communications towers .....	3-44
3.12	WILDERNESS AND WILD RIVERS .....	3-45
3.12.1	Current NWI ratings .....	3-45
3.12.2	Impact on wilderness ratings .....	3-46
3.12.3	Wild rivers .....	3-49
3.13	NOISE AND VIBRATION .....	3-52
3.13.1	Fauna impacts .....	3-52
3.14	AIR QUALITY .....	3-54
3.14.1	Air quality impacts from detonation of weapon systems .....	3-54
3.15	PROBLEM INSECTS AND PATHOGENS .....	3-54
3.15.1	Importation of disease organisms .....	3-54



3.16	HERITAGE AND SACRED SITES .....	3-54
3.16.1	Collation of recommendations.....	3-54
3.16.2	Priorities for training area use and archaeological surveys.....	3-59
3.16.3	Training area planning process .....	3-59
3.16.4	Register of the National Estate listings .....	3-61
3.16.5	Management of steeply dissected gorges and escarpments .....	3-62
3.16.6	Casual vandalism .....	3-62
3.16.7	Personnel induction and awareness.....	3-62
3.16.8	Monitoring program .....	3-64
3.16.9	Scope of heritage surveys .....	3-64
3.16.10	Additional records.....	3-66
3.16.11	Assessment of Aboriginal archaeological sites .....	3-67
3.16.12	Delineation of heritage management zones .....	3-70
3.16.13	Identification of new sites .....	3-70
3.16.14	Use of areas of low archaeological sensitivity .....	3-71
3.16.15	Risk to sites from incidents .....	3-71
3.16.16	Additional assessment for changes to proposal .....	3-71
3.16.17	Cultural landscapes .....	3-71
3.16.18	Management strategies .....	3-72
3.16.19	Aboriginal sacred sites .....	3-72
3.16.20	Aboriginal association with Bradshaw Station.....	3-73
3.16.21	Native title claims.....	3-73
3.16.22	Aboriginal land.....	3-73
3.16.23	Constraints for construction and operational activities .....	3-73
3.17	SOCIAL AND ECONOMIC FACTORS .....	3-73
3.17.1	Mineral potential .....	3-73
3.17.2	Access and rights to potential economic resources .....	3-73
3.17.3	Impacts of interstate ADF training .....	3-73
3.17.4	Economic relationship between Bradshaw Station and Timber Creek.....	3-73
3.17.5	Current and planned property status.....	3-73
3.17.6	Regional tourism activity .....	3-73
3.17.7	Consultation with adjacent land holders.....	3-73
3.18	PUBLIC ACCESS, HEALTH AND SAFETY .....	3-73
3.18.1	Access to the Angalarri River .....	3-73
3.18.2	Access to the Victoria and Fitzmaurice Rivers .....	3-73
3.18.3	Aboriginal access.....	3-73
3.19	TRANSPORT .....	3-73
3.19.1	Transport of tracked vehicles .....	3-73
3.19.2	Traffic impact assessment methodology .....	3-73
3.19.3	Airspace use and restrictions .....	3-73
3.20	WASTE MANAGEMENT .....	3-73
3.20.1	Effluent disposal .....	3-73
3.20.2	POL and other chemicals .....	3-73
3.21	EXPLOSIVES AND HAZARDOUS MATERIAL MANAGEMENT .....	3-73
3.21.1	Rehabilitation and unexploded ordnance eradication.....	3-73
3.21.2	Storage of explosives and hazardous materials .....	3-73
3.21.3	Purpose of warning signs .....	3-73

3.22	CUMULATIVE ENVIRONMENTAL IMPACTS .....	3-73
3.22.1	Framework for assessment and performance indicators.....	3-73
3.22.2	Conservation values of the Angalarri Valley.....	3-73
3.23	CONSULTATION.....	3-73
3.23.1	Community consultation process .....	3-73
3.23.2	Consultation during EIS preparation.....	3-73
4	REFERENCES .....	4-73

## APPENDICES

### Appendix A Corrections to Draft EIS

# ABBREVIATIONS AND DEFINITIONS

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## ABBREVIATIONS

<b>AADT</b>	Average Annual Daily Traffic
<b>AAPA</b>	Aboriginal Areas Protection Authority
<b>ADF</b>	Australian Defence Force
<b>AHC</b>	Australian Heritage Commission
<b>BFTA</b>	Bradshaw Field Training Area
<b>DLPE</b>	Department of Lands, Planning and Environment
<b>DOD</b>	Department of Defence
<b>DPIF</b>	Department of Primary Industry and Fisheries
<b>DTW</b>	Department of Transport and Works
<b>EA</b>	Environment Australia
<b>EAC</b>	Environmental Advisory Committee
<b>ECC</b>	Environmental Certificate of Compliance
<b>EIS</b>	Environmental Impact Statement
<b>EMIS</b>	Environmental Management Information System
<b>EMP</b>	Environmental Management Plan
<b>GIS</b>	Geographic Information System
<b>HAC</b>	Heritage Advisory Council
<b>HEIA</b>	High Explosive Impact Area
<b>LCH</b>	Landing Craft Heavy
<b>LCM8</b>	Landing Craft Medium
<b>NLC</b>	Northern Land Council
<b>NOI</b>	Notice of Intention
<b>NT</b>	National Trust of Australia
<b>NTG</b>	Northern Territory Government
<b>POL</b>	Petrol, oil and lubricant
<b>PWCNT</b>	Parks and Wildlife Commission of the Northern Territory
<b>RAAF</b>	Royal Australian Air Force
<b>RAN</b>	Royal Australian Navy
<b>RCF</b>	Range Control Facility
<b>RDA</b>	Range Danger Area
<b>REC</b>	Regional Estate Centre
<b>RSB</b>	Range Siting Board
<b>RSO</b>	Range Standing Order
<b>SOP</b>	Standing Operating Procedure
<b>TFMA</b>	Training Force Maintenance Area
<b>THS</b>	Territory Health Services
<b>TWS</b>	The Wilderness Society
<b>UXO</b>	Unexploded Ordnance

## DEFINITIONS

**Asset Road:** An engineered, permanent and maintained road providing vehicular access.

**Brigade:** A tactically balanced grouping of combat units, with supporting armaments and administration appropriate for its allotted task. The total strength of a brigade, including its support and administrative elements, may be about 4 700 personnel.

**Convoy:** A grouping of vehicles travelling under control along a defined route.

**Delegate:** This refers to an appointed Defence position responsible for approving certain actions and documentation. The Delegate is also referred to as the Local Controlling Authority. The positions nominated as a Delegate could include the Regional Estate Manager, the Defence Corporate Support Manager, the Defence Environment and Heritage Division Director, or the Head of Defence Estate Organisation.

**Dismounted Training:** Training carried out by soldiers when they have dismounted from their organic transport. Normally refers to infantry operating on foot without armoured personnel carriers but can include assault troopers (armour), air mobile infantry and motorised infantry.

**Engineer Training:** Training that involves engineer assets. This training may involve the detonation of high explosive demolition charges.

**Environmental Certificate of Compliance:** A Defence document which details specific environmental procedures and practices associated with a specific training exercise.

**Exercise:** A military manoeuvre or simulated wartime operation involving planning, preparation and execution. It is carried out for the purpose of training and/or evaluation. It may be conducted by a single unit, combined units or jointly by units of the three services of the ADF.

**Field (Live) Firing:** The firing of live ammunition under conditions that simulate as closely as possible the conditions that may be experienced in combat.

**Field Firing Area:** An area in which live firing of weapons and manoeuvre can be practiced under simulated battle conditions.

**Formation:** A grouping of a combat, combat support and service units, usually containing in excess of 2000 soldiers.

**High Explosive Ordnance:** Projectiles including aerially delivered projectiles and bombs that have a high explosive warhead.

**Indirect Fire:** Fire is indirect when it is directed at a target that cannot be seen by the firer. Indirect fire is usually directed onto the target by an observer who can see the target and who relays information, including adjustment of aim, to the firer.

**Joint Training:** Training planned and conducted by elements of two or more of the ADF services.

**Landing Craft Hard:** Short for landing craft hard standing. A prepared area of beach or bank where a landing craft can approach close enough to enable the front door to be lowered and stores and equipment discharged onto dry land. Would often involve landing craft beaching during the discharge operation but must allow landing craft to refloat unaided.

**Landing Craft Heavy:** Naval vessel with a crew of about twelve and the capacity to carry a number of tanks and/or stores and equipment. Designated "heavy" because it can carry heavy equipment such as a tank. Sea going vessel.

**Landing Craft Medium:** Army vessel with a crew of three and a limited capacity to carry stores and equipment. It is normally only suitable for inshore operations.

**Local Controlling Authority:** See **Delegate**.

**Manoeuvre Area:** These areas permit land force combat and combat support elements the freedom to manoeuvre and deploy off-road on foot, in wheeled or tracked vehicles, or by aircraft, and practice offensive and defensive operations. If so designated, a manoeuvre area may also be a field firing area.

**Manoeuvre Training:** Training conducted to practice the manoeuvre of units and formations using their organic mobility to achieve an advantage over the enemy in order to accomplish the mission. Manoeuvre includes the direct and indirect fire of all the available assets.

**Platoon:** A grouping of about 30 soldiers, similar to a troop.

**Range Control Facility:** Access to and within a field firing area is controlled by the Range Control staff. The facility they occupy is often sited to provide access control into and out of the range. Provides facilities for 24 hour manning, communications with all parts of the range and with other units and headquarters, briefings and the administration of the range.

**Range Danger Area:** An area which includes those areas of land or water, together with a specified airspace, within which danger to life, limb or property may be expected to occur arising from the initiation of specified ammunition or explosive ordnance. A range danger area is totally within the external boundaries of the range.

**Range Danger Area Safety Trace:** Different types of ammunition fired by different weapons have different characteristics. Each ammunition that has different characteristics has a different "safety trace" or template. The trace is placed on the map of the range relative to the firing point to be used for the particular ammunition and would show the areas that are potentially dangerous ie where blast, ricochet or shrapnel could fly.

**Range Siting Board:** The purpose of a Range Siting Board is to recommend the suitability of a training area or range for the activities or proposals described in the Terms of Reference. A Convening Authority assembles a suitable Board and provides it with Terms of Reference. An Approving Authority accepts or rejects the recommendations of the Board and directs further consideration. A Confirming Authority ensures consistency of approved training activities across the ADF. The activities proposed in Terms of Reference are not to be conducted until the Range Siting Board has been confirmed.

**Range Standing Order:** A Defence document that describes the rules and regulations for using a range facility.

**Reconnaissance:** To investigate and report back generally in advance of the main body.

**Reconnaissance Group:** Group who regularly conducts reconnaissance. Commanders at all levels have a reconnaissance group that often consists of the commander and a small number of key advisers only.

**Scale A Camp:** Historical form of camp accommodation. Consists of tented accommodation for sleeping and messing, permanent construction for kitchens, showers and latrines. Working accommodation varies between tents and permanent construction. Tented areas normally provided with concrete bases. Degree of engineering services varies with the nature and permanence of the camp.

**Service:** One of the armed services of the ADF ie Royal Australian Navy, Australian Army or Royal Australian Air Force.

**Service Support:** The provision of supplies, maintenance, medical support, rations, fuel etc to combat and combat support units, which allows those units to operate.

**Standing Operating Procedure:** A Defence document which details standard procedures and processes for day-to-day training activities, environmental management and the operation of a training area.

**Sub-Unit:** A company or squadron usually of between 70 and 170 soldiers.

**Surveillance:** To observe without being observed.

**Training Force Maintenance Area:** An area where the unit/s using the training area can maintain their stores and equipment. Similar to a light industrial area where vehicles are cleaned and serviced, stores and equipment cleaned and serviced and/or stored.

**Training Sectors:** Sectors established within the training area to assist with the control of training. Ideally the sectors also facilitate administration and management including environmental management of the training area.

**Troop:** A grouping of about 30 soldiers, similar to a platoon.

**Unexploded Ordnance:** Explosive ordnance which has been primed, fused, armed or otherwise prepared for action and which has been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installations, personnel or material, and which remains unexploded either by malfunction, by design or for any other cause.

**Unit:** A grouping of a number of sub-units (company or squadron) of between 300 and 800 soldiers.

# 1 INTRODUCTION

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## 1.1 PREAMBLE

The Department of Defence proposes to establish a military training area at Bradshaw Station, a cattle station near Timber Creek within the Victoria River Region of the Northern Territory. Defence has purchased the pastoral lease for Bradshaw Station and proposes to develop the necessary infrastructure to facilitate its long term sustainable use as a training area for the Australian Defence Force (ADF) in northern Australia. The training area, to be known as the Bradshaw Field Training Area (BFTA), is required to meet the essential training requirements to support formation manoeuvre and field live firing principally by the Australian Army's 1<sup>st</sup> Brigade.

A Draft Environmental Impact Statement (Draft EIS) has been prepared to satisfy the requirements of the Commonwealth *Environment Protection (Impact of Proposals) Act 1974* and the Northern Territory *Environmental Assessment Act*. The Draft EIS presents the context and rationale for the proposal, describes the proposal and the existing environment, assesses the potential environmental impacts of development and use of the property and establishes an Environmental Management Plan (EMP) for the long term environmental management of BFTA as a sustainable military training area.

The Draft EIS was made available for government and public comment from 17 November 1997 to 17 December 1997. Defence has received submissions on the Draft EIS from the Commonwealth and Northern Territory governments, from non-government organisations and from the public.

## 1.2 PURPOSE OF THE SUPPLEMENT

This document is a Supplement to the Draft EIS and is required to be prepared under the provisions of the Commonwealth *Environment Protection (Impact of Proposals) Act 1974* and the Northern Territory *Environmental Assessment Act*.

The purpose of a Supplement is to respond to the issues raised in government and public submissions made on the Draft EIS and to consider modifications to the proposal in response to submissions made on the Draft EIS. This Supplement presents the following:

- > a summary of the issues raised in submissions made on the Draft EIS
- > a response to the issues raised in submissions made on the Draft EIS
- > corrections to the Draft EIS

The Supplement and the Draft EIS constitute the final EIS for the project. The final EIS will be assessed by the Commonwealth and Northern Territory governments. Recommendations on the environmental aspects of the proposal will be formulated by the Commonwealth and Northern Territory Environment Ministers and forwarded to the Minister for Defence. The Minister for Defence must take into account these recommendations in making a decision on the proposal.

Copies of the Supplement have been forwarded to the Commonwealth and Northern Territory governments and to those other organisations and members of the public who made submissions on the Draft EIS.

### 1.3 FORMAT OF THE SUPPLEMENT

This Supplement contains four sections. The content of each section is as follows:

- > Section 1 provides background on the project and Draft EIS and outlines the purpose and format of the Supplement.
- > Section 2 outlines the number and source of submissions and presents a tabulated summary of submissions made on the Draft EIS. The summary groups comments made on particular issues and further groups these issues into broader categories of related issues which largely follow the section headings from the Draft EIS. The tabular summary identifies the source of a comment and provides section references for the Draft EIS and the Supplement for each comment.
- > Section 3 provides a detailed response to issues and comments from the submissions. The response is presented by issue, using the issue categories from the summary table to group specific comments. Specific comments from the submissions relating to an issue are summarised in bold italics and the response is provided underneath the comment.
- > Appendix A contains corrections to the Draft EIS and addresses editorial and other minor issues and comments from the submissions.

### 1.4 ENVIRONMENTAL MANAGEMENT DOCUMENTS

An element of the Draft EIS process was the preparation of an Environmental Management Plan (EMP) to provide strategic level guidance on the environmental management of BFTA. It is intended that the EMP contained in the Draft EIS be revised by Defence at the completion of the EIS process to incorporate corrections and amendments noted throughout the Supplement. The EMP will then be reissued to relevant Defence personnel as a complete and corrected stand alone document.

Other interrelated stand alone management documents will also be developed for BFTA at the completion of the EIS process. These include Range Standing Orders (RSO), which provide a legal framework for operational use of the training area, and Standing Operating Procedures (SOP), which provide detailed management procedures for training area users.

These three stand alone management documents will be dynamic in nature and subject to periodic formal review.

The Environmental Guidelines for Construction Activities (EGCA), specifically developed for infrastructure construction on BFTA, will be revised and reissued to construction contractors as a complete and corrected stand alone document incorporating corrections and amendments from the assessment process.



## **2 SUMMARY OF SUBMISSIONS**

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### **2.1 NUMBER AND SOURCE OF SUBMISSIONS**

Six (6) submissions on the Draft EIS were forwarded to Defence. These included:

- > a consolidated set of comments from the Northern Territory Government, incorporating comments from a number of government departments and agencies
- > a consolidated set of comments from Environment Australia (Commonwealth Government), incorporating comments from the Environment Protection Group, the Biodiversity Group and the Australian and World Heritage Group of Environment Australia
- > a submission from The Wilderness Society
- > a submission from the National Trust of Australia (Northern Territory)
- > a submission from the Northern Land Council
- > one public submission from a private individual

### **2.2 SUMMARY OF ISSUES AND COMMENTS**

Table 2.1 presents a complete summary of issues and comments from submissions for which responses are provided in this Supplement. The summary table is arranged by issue and is divided into columns providing the following information:

- > issues, grouped into broader categories of related issues
- > a summary of the comments made in submissions relating to each issue
- > the name of the author of each comment
- > a reference indicating the section(s) of the Draft EIS to which each comment relates
- > a Supplement section reference indicating where the response to each comment can be found

The summary does not include comments that do not require acknowledgment or a response. Also not included are editorial comments or comments relating to minor errors, inconsistencies or omissions. These are addressed in Appendix A.

**Table 2.1 – Summary of Issues and Comments**

Key: NTG – Northern Territory Government; EA – Environment Australia; NLC – Northern Land Council; NT – National Trust of Australia; TWS – The Wilderness Society.

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
<b>EIS Process</b>				<b>Section 3.1</b>
Environmental assessment for bridge over Victoria River	The construction of the bridge over the Victoria River should not have been commenced outside of the EIS as it is a breach of the spirit and intent of the process and acts to foreclose infrastructure siting options that may have been feasible and precludes community consultation.	TWS	Section 3.2.1	Section 3.1.1
	The reason for separate environmental assessment of the bridge over the Victoria River is unclear.	NLC	Section 3.2.1	Section 3.1.1
Timeframe for development and EIS process	There is no timeline specified for the development and the EIS process.	NLC	Section 3.5	Section 3.1.2
<b>Information Management</b>				<b>Section 3.2</b>
Environmental Management and Geographic Information Systems	Further information should be provided on the Geographic Information System.	NTG	Section 1.6	Section 3.2.1
	Further information should be provided on the Environmental Management Information System, particularly the use of these systems to develop Environmental Certificates of Compliance and for the ongoing maintenance of BFTA.	NTG	Section 1.6 Section 21.1	Section 3.2.1
<b>Environmental Management</b>				<b>Section 3.3</b>
Monitoring programs	The Draft EIS provides insufficient detail on monitoring programs and the monitoring tasks listed in the EMP provide little practical guidance or reference to appropriate standards or procedures. More detailed information on monitoring programs for BFTA is required.	NTG	Part C Part D	Section 3.3.1
	There is a need to develop monitoring programs that describe the ecological character of the area to provide early warning of potential adverse impacts. Permanent monitoring sites must be established and a scientific approach to monitoring taken. Specific detail of the monitoring requirements should be provided.	NLC	Part D	Section 3.3.1
	Little information is provided on reporting requirements and the NLC suggests that monitoring reports be provided to the Environmental Advisory Committee.	NLC	Section 3.4.6	Section 3.3.1
Delineation and management of conservation areas	The delineation of areas of conservation value and appropriate management of these areas has not been adequately provided.	NTG	Part C Part D	Section 3.3.2
Cooperative management arrangements	The potential for a cooperative management arrangement through a Memorandum of Understanding between the Parks and Wildlife Commission of the Northern Territory and the Department of Defence is not recognised.	NTG	Section 1.8	Section 3.3.3

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Commitment to the integrity of the landscape	Statements such as "...measures such as non-targeting of significant landscape features... and resting and rehabilitation of training areas, would ensure long term modifications to the landscape would not result" provides no commitment to the continued integrity of the landscape.	NT	Section 10.2	Section 3.3.4
Need for a regional environmental plan	BFTA requires a regional environmental plan to manage construction and operational activities during the life of BFTA. The regional environmental plan should identify and map the environmental and heritage constraints so that construction and operational activities can be planned around these constraints.	EA	Part D	Section 3.3.5
Environmental Management Plan	The EMP should conform to ISO 14000 standards.	NLC	Part D	Section 3.3.6
	The Department of Defence Environmental Policy should be included.	NLC	Section 1.5.5 Section 20	Section 3.3.6
	The Department of Defence protocol for documenting and handling complaints should be included.	NLC	Section 20	Section 3.3.6
	Performance indicators for many of the sub-plans should include "no complaints".	NLC	Section 21	Section 3.3.6
	A more appropriate procedure for auditing and reporting would be for annual internal audits and five yearly independent audits. The results should be reported to the Environmental Advisory Committee.	NLC	Section 20.4.7	Section 3.3.6
Baseline surveys	Baseline surveys have occurred over a short period of time and represent only a snapshot of the environmental attributes of Bradshaw Station. Where areas have not been surveyed, the existence of an Environmental Management Plan is not sufficient to protect these areas. Information needs to be obtained for management plans to be effective. Baseline surveys need to be carried out to provide information so that the performance indicators can be identified and ecological thresholds established as early warning signals of environmental degradation.	EA	Part C Part D	Section 3.3.7
	Further surveying and monitoring of both flora and fauna are required to give a more complete indication of the existing natural history of Bradshaw Station. Additional field surveys must be completed before construction of new ring roads and camps and before full scale training exercises commence.	EA	Section 6 Section 7	Section 3.3.7
	Watersheds where construction and operational activities would occur should be comprehensively surveyed for environmental and heritage constraints before activities commence.	EA	Section 9	Section 3.3.7
Role and composition of Environmental Advisory Committee	The roles and responsibilities of the Committee should be outlined. The Committee should be the main body to which environmental monitoring data and other environmental results are presented and should provide recommendations as to appropriate actions arising.	NLC	Section 3.4.6	Section 3.3.8
	Recommend that a person nominated by the Environment Centre of the Northern Territory fill a position on the Committee to provide significant and independent expertise in biodiversity conservation.	TWS	Section 3.4.6	Section 3.3.8

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	Beneficial to include an Aboriginal representative on the Committee.	EA	Section 3.4.6	Section 3.3.8
	Committee should include representatives of the Native Title holders and adjacent Aboriginal land trusts. Meetings should be held more than twice a year.	NLC	Section 3.4.6	Section 3.3.8
	The Biodiversity Group should be invited to contribute a scientific representative to both the Steering Committee implementing the Environmental Guidelines for Construction Activities and the Environmental Advisory Committee.	EA	Section 3.4.6	Section 3.3.8
<b>Proposal</b>				<b>Section 3.4</b>
Selection and use of Bradshaw Station as a field training area	Concerned about the use of Bradshaw Station as a field training area and doubt the Army's ability to protect culturally and environmentally sensitive sites. Surely there are less sensitive areas that can be used.	Mr Gary Brooker	Section 2	Section 3.4.1
	Where no information has been gathered for a proposed training area, this area should be zoned as a constraint to training. As information is gathered, the constraints can be refined to allow the various forms of training. This particularly applies to the Western Hills Sector.	EA	Section 3.4	Section 3.4.1
	The Biodiversity Group recommends that no exercises or other activities be conducted in areas that have not been subjected to an adequate survey, such as the littoral zone.	EA	Section 3.4	Section 3.4.1
Training area infrastructure	The siting of the proposed camp on the Yambarran Plateau and proposed Yambarran HEIA is inadequately justified and inconsistent with the findings of baseline environmental studies.	NTG	Section 3.2	Section 3.4.2
	The Draft EIS suffers because of a lack of adequate and detailed diagrams and information detailing the location and design of the proposed infrastructure and development.	NLC	Section 3.2	Section 3.4.2
	It is not specified that internal road construction details, including location of borrow pits, would be the relevant NT Government departments' responsibility.	NLC	Section 3.2.2 Section 3.3	Section 3.4.2
	A clear description is required of how additional infrastructure would be developed and how the environmental impacts would be assessed and managed.	NTG	Section 3.2 Section 3.4.6	Section 3.4.2
Construction activities	The need to ensure that relevant operator's licences have been obtained should be included in the Personnel Induction and Safety Sub-Plan of the Environmental Guidelines for Construction Activities.	NTG	Vol 2A-Section 1	Section 3.4.3
	The requirement of the Personnel Induction and Safety Sub-Plan of the Environmental Guidelines for Construction Activities to locate infrastructure at least 1.6km from known mosquito breeding habitats is contrary to the recommendation of Territory Health Services that explosion craters and soil borrow pits within 4km of accommodation areas be filled or rendered free draining.	NTG	Vol 2A - Section 1 Vol 2B - Section 9	Section 3.4.3

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Amount of disturbance	There is no estimate of the amount of the area that would be significantly disturbed, including areas of vegetation clearance.	NLC	Section 3.3 Section 6.2	Section 3.4.4
Planning and approval of training activities	The EIS indicates that before an exercise plan is implemented, it is reviewed against specific environmental influences. Exercise plans may involve areas where environmental attributes have not been determined through baseline surveys and their sensitivity to military activities has not been assessed. It would therefore not be possible to review the plan against specific environmental influences. The planning and approval of training activities should correct this anomaly.	EA	Section 3.4.6	Section 3.4.5
<b>Climate</b> Cyclone awareness	Given the seasonal nature of cyclones, cyclone awareness briefings could be limited to those present at BFTA during the cyclone season.	NTG	Section 4.2	<b>Section 3.5</b> Section 3.5.1
Automated weather stations	Automated weather stations linked to the EMIS would provide useful and up to date information for environmental management.	NTG	Section 4.2	Section 3.5.2
<b>Geology, Landform and Soils</b> Areas for wet season training	Criteria need to be developed to identify areas capable of being used for wet season exercises and appropriate management should be determined.	NTG	Section 5.3	<b>Section 3.6</b> Section 3.6.1
Soil monitoring program	Further information on the proposed soil monitoring program is required.	NTG	Section 5.3 Section 21.2	Section 3.6.2
	Monitoring should include turbidity of surface waters in impacted areas.	NLC	Section 21.2	Section 3.6.2
Acid sulphate soils	The EMP should detail measures for identifying, before excavation or large scale groundwater pumping, potential acid sulphate soils in areas where surface elevation is less than 5m above mean sea level. Measures for avoiding their exposure to air, or other means of minimising the release of acid, should also be included.	EA	Section 5.3 Section 21.2	Section 3.6.3
Vulnerability of watersheds to degradation	As approximately 300km of road are proposed, the traffic impact upon soil and the soil's regenerative capacity would be important parameters to assess a watershed's vulnerability to degradation.	EA	Section 5.3 Section 9.3 Section 21.2 Section 21.6	Section 3.6.4
Mapping of soil constraints	When assessing the vulnerability of land units to degradation, the "soil constraints to military training" would be the most useful parameter to have mapped. The EIS should map the soil constraints for land units based on the information contained in Table 5.2.	EA	Section 5.2	Section 3.6.5

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
<b>Vegetation</b>				<b>Section 3.7</b>
Limitations of baseline vegetation surveys	The vegetation attributes of Bradshaw Station have not been adequately characterised as the baseline survey was conducted over a 2 week period during the dry season. The baseline survey should record the occurrence of floral species that appear during the "shoulders" of the wet season when training activities can be expected to occur. The baseline survey should also document the change in the vegetation during the dry and wet season as training activities could occur during this transition period.	EA	Section 6.1	Section 3.7.1
	It would be highly desirable to carry out a further plant survey either at the end of the wet season or early in the dry season to give a fuller picture of the existing vegetation. This should be undertaken before any final decision is made on the precise location of camps, roads and other military installations.	EA	Section 6.1	Section 3.7.1
	Vegetation constraints for construction and operational activities should be mapped based on, but not limited to, the information contained in Table 6.4 and those species which have been marked in bold in Table 6.1.	EA	Section 6.1	Section 3.7.1
	Coastal habitats have not been surveyed for their vegetation attributes and should be regarded as a constraint to construction or operational activities.	EA	Section 6.1	Section 3.7.1
Construction impacts	The Draft EIS does not adequately describe the impacts from construction upon the vegetation attributes of Bradshaw Station. "Short term effects are unavoidable during the construction of camps and airfields..." is not a satisfactory description of impacts.	EA	Section 6.2	Section 3.7.2
<i>Melaleuca minutifolia</i> disturbance	The Vegetation Management Sub-Plan of the EMP calls on Defence to "Minimise disturbance in <i>Melaleuca minutifolia</i> low woodland...". It is not clear how this would be achieved if this vegetation type occupies large tracts of the Angalarri Plain as it appears on Figure 6.3.	EA	Section 6.1 Section 21.3	Section 3.7.3
Siting of infrastructure	Guidelines for the final siting of the following infrastructure to reduce impacts on vegetation should be described: Koolendong Road corridor; Angalarri Loop and North Road Corridor; secondary roads; and the Training Force Maintenance Area and airfield.	EA	Section 6.2	Section 3.7.4
	More intensive surveys of flora would appear necessary before construction of the TFMA.	EA	Section 6.2	Section 3.7.4
Consideration of annual species	Consideration should be given to annual species that may not be apparent at the time of the annual monitoring program.	NTG	Section 6.2	Section 3.7.5
Weeds and weed management	Consideration should be given to the spread of weeds within BFTA by military vehicles during exercises.	NTG	Section 6.2	Section 3.7.6
	Castor Oil Plant ( <i>Ricinus communis</i> ) is known to occur along the Victoria River in the vicinity of BFTA and should be included in management considerations.	NTG	Section 6.1	Section 3.7.6

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	Further information is required regarding policy for usage of the vehicle washdown facility. Weed seed should be disposed of by burning.	NTG	Section 3.2.8 Section 6.2 Section 21.3	Section 3.7.6
	The weed list is not exhaustive. Noxious weed rating is not as exhaustive as environmental weed rating. It would be appropriate for an environmental weed rating to be used given that an objective of the development is to conserve natural resources.	NLC	Section 6.1	Section 3.7.6
	It is simplistic to say that removal of cattle and other livestock infers that the result is always a positive movement in land condition. If there are introduced pasture species present on the floodplain, the quick removal of livestock could result in the proliferation of weed species.	NLC	Section 6.2	Section 3.7.6
Vegetation management and monitoring	The management and monitoring recommendations of the vegetation consultant are strongly supported. Defence is urged to implement them in full as part of its commitment to the ecologically sustainable management of Bradshaw Station.	EA	Section 6.2 Section 21.3	Section 3.7.7
Rehabilitation of disturbed areas	Appropriate native species should be used for rehabilitation of areas damaged by training.	NTG	Section 6.2 Section 21.2 Section 21.3	Section 3.7.8
<b>Fauna</b> Core fauna habitats	Further information is required as to how core fauna habitats in the Western Hills, Lalngang and Little Fitzmaurice training sectors would be conserved if training were to occur in them before they are surveyed.	NTG	Section 7	<b>Section 3.8</b> Section 3.8.1
	The Little Fitzmaurice River frontage, northern regions of the Yambarran Plateau and hills to the north east of the Angalarri Plain are all part of designated manoeuvre areas. These areas should be considered as having constraints on manoeuvres until surveys indicate the presence or absence of core fauna habitats. Following surveys the constraints to using these areas can be refined.	EA	Section 7.2	Section 3.8.1
	The Western Hills, Lalngang and Little Fitzmaurice training sectors were not surveyed for core fauna habitats. It is recommended that these training sectors should be zoned as constraints to operational activities until surveys indicate the absence or presence of core fauna habitats.	EA	Section 7.2	Section 3.8.1
	Question as to what criteria would be used to determine the size of management zones surrounding core fauna habitats.	NTG	Section 7.2.4	Section 3.8.1
	Continued fauna, vegetation and water quality monitoring should be utilised to ensure that management strategies for use of water from Barramundi Waterhole and Mussel Hole Yard are effective.	NLC	Section 7.2.2 Section 9.3	Section 3.8.1

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	Core fauna habitats should also be shown on Figure 7.1 for the other training sectors. Further, Figure 7.1 should be modified and enlarged to display identified core fauna habitats and their buffer zones. Core fauna habitats should be zoned as constraints to operational activities.	EA	Section 7.1.2	Section 3.8.1
	It is noted that the EIS includes a recommendation that no training activities other than transit should occur in core fauna habitats. If such transit included access to tanks and tracked vehicles then it would appear that this exception has the potential to allow destruction in a designated area.	EA	Section 7.2.3	Section 3.8.1
	The core fauna habitats identified do not include waterholes within the Ikymbon training sector such as King Billabong. Defence management should provide for improvement of these areas as fauna and flora habitat.	EA	Section 6.2 Section 7.2.3 Section 9.3	Section 3.8.1
Sensitive areas	The two sensitive areas identified within the Mount Thymanan training sector should be regarded as areas that present a constraint to operational activities and should be mapped.	EA	Section 6.2 Section 7.1 Section 9.3	Section 3.8.2
Fauna surveys	Further surveys targeting both vertebrates and invertebrates should be carried out during the wet season and in previously unsurveyed areas of the property.	NTG	Section 7.1	Section 3.8.3
	The faunal attributes of Bradshaw Station have not been adequately characterised as the baseline survey was conducted during the dry season. Baseline surveys are required during the "shoulders" of the wet season when training activities can be expected to occur.	EA	Section 7.1	Section 3.8.3
	Faunal sampling should occur in the Yambarran and Wombungi HEIA to ascertain their faunal attributes.	EA	Section 7.1	Section 3.8.3
	The survey results strongly indicate that aquatic habitats have been inadequately surveyed. There is a need for comprehensive surveys in the "shoulders" of the wet season and constraint mapping for streams, springs and waterholes throughout BFTA, particularly those adjacent to, or in the watershed of, areas proposed for training activities.	EA	Section 7.1	Section 3.8.3
	More detailed baseline surveys of the freshwater aquatic fauna (macroinvertebrates and fishes) are required to establish distributional data for rare or restricted species and to provide baseline data to assess impacts of the development on freshwater systems.	NTG	Section 7.1	Section 3.8.3
	Further baseline surveys during the 1997/98 wet season are suggested for inclusion in the final EIS.	NLC	Section 7.1	Section 3.8.3
	More intensive surveys should be conducted on the TFMA before construction.	EA	Section 7.1	Section 3.8.3



ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	It would be desirable for the proposed Angalarri Loop Road to join the North Angalarri Road Corridor on the west bank of the Angalarri River to remove the need for a road crossing and to minimise impacts on the fish <i>Scortum neilli</i> .	NTG	Section 3.2.2 Section 7.2.2	Section 3.8.3
	The ERAES survey produced only limited results during the dry season and its deficiencies were not corrected by the addition of the October 1997 survey. This was limited in both duration and geographical extent. Additional, more comprehensive surveys must be conducted to confirm or eliminate the presence of endangered or vulnerable wildlife species and to also include areas where there is a remote possibility of their use for future exercises or which may be indirectly affected by activity.	EA	Section 7.1	Section 3.8.3
	An accurate inventory of wildlife species is required as the first stage in the development of an environmental management model that would play a key role in the region. Additional surveys are required for this purpose.	EA	Section 7.1	Section 3.8.3
	It is not known why bats were excluded from the surveys conducted given that they would be at risk in an environment threatened by high explosive devices.	EA	Section 7.1	Section 3.8.3
	Populations of the rock wallaby known as the Nabarlek have previously been located near the Holdfast Reach section of the Victoria River, within the Western Hills training sector of BFTA. Two of the actions recommended for this species in the Action Plan for Australian Marsupials and Monotremes is the undertaking of a survey where decline has occurred (including the Victoria River District) and the management of fire at colony sites. These recommendations support the need for further surveys and emphasise the sensitivity of sandstone habitats.	EA	Section 7.1	Section 3.8.3
	Surveys of the marine and littoral habitats of the Victoria and Fitzmaurice River mouths should be conducted to determine the possible presence of a number of species of marine turtles listed under the ESP Act. Dugongs may be present in the same areas as turtles as well as further up rivers on occasions.	EA	Section 7.1	Section 3.8.3
Role in the regional conservation network	Bradshaw Station has been identified as an important component of a regional conservation network. Conservation programs being undertaken in the surrounding areas and the role that BFTA can play to support them should be discussed.	EA	Section 7.2	Section 3.8.4
Research projects	If available, information should be provided on arrangements in train for research projects on fauna monitoring and feral animals (cats) funded by the Department of Defence and conducted by the PWCNT.	NTG		Section 3.8.5
Spotted Grass Frog	There is some doubt that the species identified as the Spotted Grass Frog ( <i>Lymnodynastes tasmaniensis</i> ) is indeed this species.	NTG	Section 7.1.3	Section 3.8.6
Management and monitoring	The management and monitoring recommendations of the fauna consultant are strongly supported and Defence is urged to implement them in full.	EA	Section 7.2.4	Section 3.8.7

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Gouldian Finch	The undertaking to establish permanent monitoring (sampling) sites in control and established areas does not appear to have been carried through to the EMP.	NTG	Section 7.2.4 Section 21.4	Section 3.8.7
	The EMP suggests that monitoring of fauna be carried out at the same sites and times as the fauna surveys. It is important to realise that seasonal aspects of fauna movement and not all habitats have been addressed.	NTG	Section 21.4	Section 3.8.7
	If available, further information should be provided on the scope and timing of studies concerning the presence and distribution of the Gouldian Finch.	NTG	Section 7.2.3	Section 3.8.8
	It is strongly recommended that Defence prohibit training activities in the Mount Thymanan area until further field surveys can be conducted. Should the presence of breeding Gouldians be confirmed, Defence should seek advice from the NT Parks and Wildlife Commission and the Gouldian Finch Recovery Team about an appropriate management policy.	EA	Section 7.2.3	Section 3.8.8
Dingo control	Question raised as to whether the Department of Defence would be continuing a dingo control program.	NTG	Section 7.1.3 Section 7.2.4	Section 3.8.9
Wildlife corridor	The siting of the TFMA and bridge over the Victoria River in close proximity to the wildlife corridor between Gregory National Park and Bradshaw Station would exacerbate the lowering of value of the corridor beyond that already experienced from the Victoria Highway cutting the neck of this corridor. Recommend that the TFMA be sited away from this corridor.	TWS	Section 3.2.1 Section 3.2.3 Section 7.2.2	Section 3.8.10
<b>Fire</b>				<b>Section 3.9</b>
Priority areas for fire management	The Fire Management Sub-Plan does not appear to detail priority areas requiring active fire management.	NTG	Section 21.5	Section 3.9.1
Fire management for sensitive habitats	The fire management requirements for sandstone habitats, monsoon forests and grasslands all differ and should be clearly defined in the EMP.	NTG	Section 8.3 Section 21.5	Section 3.9.2
Coordination of fire management activities	Further information should be provided on the coordination of fire management activities. This should include a description of the role of the EMIS in fire management.	NTG	Section 8.3	Section 3.9.3
	Fire management must be taken on a cooperative regional basis in order to be effective, including the opportunity for traditional Aboriginal owners to be involved. With adequate representation of Aboriginal landowners, the Environmental Advisory Committee could be used to assist in effective fire management.	NLC	Section 8.3	Section 3.9.3
Research projects	If available, information should be provided on arrangements in train for research projects on fire monitoring funded by the Department of Defence and conducted by the PWCNT.	NTG		Section 3.9.4

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
<b>Water Resources</b>				<b>Section 3.10</b>
Monitoring	Detail on monitoring activity in relation to surface and groundwater management is inadequate.	NTG	Section 9.3.3 Section 21.6	Section 3.10.1
	More practical means of monitoring water sources where extraction is to occur and water quality should be specified.	NTG	Section 9.3.3 Section 21.6	Section 3.10.1
	The performance indicators listed in the EMP have no linkage to any monitoring activities detailed elsewhere in the Draft EIS.	NTG	Section 21.6	Section 3.10.1
	Visible change is an unscientific and qualitative measure and a more appropriate measure should be provided.	NTG	Section 21.6	Section 3.10.1
Baseline surveys	No baseline macroinvertebrate surveys following the AUSRIVAS protocols were conducted for the EIS.	NTG	Section 9.3.3	Section 3.10.2
Precautions against fuel spills	Need to outline proposed precautions against spills from aircraft refuelling.	NTG	Section 9.3.2 Section 21.6 Section 21.12 Section 21.13	Section 3.10.3
Artificial watering points	The number and accessibility of artificial watering points to feral animals and native fauna should be minimised.	TWS	Section 9.1.6 Section 9.3	Section 3.10.4
Water requirements for construction	The EIS should state the expected volume of water that would be required for construction purposes from dams, bores and waterholes.	EA	Section 9.3.1	Section 3.10.5
Damming or excavation of waterways	The Environmental Guidelines for Construction Activities refer to the damming or excavation of waterways. It is not known why there would be a need for the damming of any waterways when there appear to be an adequate number of tanks and earth dams. It is recommended that any proposed damming of waterways be subjected to rigorous environmental analysis.	EA	Vol 2A – Section 1	Section 3.10.6
Use of chemicals and pesticides	Extreme caution must be exercised with the use of chemicals around waterways to avoid elimination of all forms of aquatic life that are dependent on that habitat. Such extreme caution must also be exercised in the use of pesticides in eradication programs for biting insects.	EA	Section 9.3.2 Section 18.1.4 Section 21.6 Section 21.12 Section 21.13	Section 3.10.7

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Protection of sensitive wetlands	The broad estuaries of the Victoria River, intertidal salt marshes, areas of riverine floodplain and scattered freshwater swamps along the Angalarri River are sensitive and should be protected. Two areas – Fitzmaurice River Middle Reaches and Victoria River Middle Reaches – are listed as Supplementary Sites in the Directory of Important Wetlands in Australia.	NLC	Section 7.1.3	Section 3.10.8
Springs and waterholes	Every effort should be made to avoid further impact on springs given their environmental and often cultural importance.	NLC	Section 9.1.3 Section 9.3	Section 3.10.9
	The floral and faunal attributes of springs should also be described so that impacts can be assessed.	EA	Section 9.1.3 Section 9.3	Section 3.10.9
	Detailed information should be provided on the flora and fauna attributes of Barramundi and Mussel Hole Yards so that possible construction impacts can be assessed.	EA	Section 9.1 Section 9.3.1	Section 3.10.9
<b>Visual Quality</b> Visual assessment of communications towers	Further information is required regarding the approximate number and height of towers to be built on BFTA along with an assessment of whether these structures would be visible from the Victoria Highway or Timber Creek.	NTG	Section 3.2.5 Section 10.2	<b>Section 3.11</b> Section 3.11.1
<b>Wilderness and Wild Rivers</b> Current NWI ratings	Erroneous to suggest that NWI ratings do not take into account existing property tracks or the impact of cattle grazing.	TWS	Section 11.1	<b>Section 3.12</b> Section 3.12.1
	The NWI does reflect disturbance associated with past and current grazing regimes.	EA	Section 11.1	Section 3.12.1
	No evidence has been provided within the Draft EIS to support the statement that "It is therefore apparent that the current NWI ratings overstate the wilderness quality of many areas within the property." This statement should be deleted.	EA	Section 11.1	Section 3.12.1
	Requests for detailed infrastructure and disturbance data from Defence and their consultants in order to update the NWI ratings for Bradshaw Station have been unproductive.	EA	Section 11.1	Section 3.12.1
	There is no indication that existing wilderness values for the property have been considered in the decision-making processes used to determine the siting of infrastructure and the locations for high impact training uses.	EA	Section 11.1	Section 3.12.1
	It is regrettable that Defence and/or their consultants did not provide WWRS staff with detailed information regarding existing infrastructure on the property and thereby guarantee the most accurate assessment of the impacts of proposed infrastructure on NWI ratings.	EA	Section 11.1	Section 3.12.1
Impact on wilderness ratings	The upgrading of existing tracks to roads, with heavier and more frequent traffic, would have a significant effect on wilderness quality.	TWS	Section 11.1	Section 3.12.2

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	Defence has ignored wilderness values when developing the EMP. No doubt this is because the planned infrastructure, particularly the planned road through the Koolendong Valley to the Fitzmaurice River cannot but severely impact on wilderness quality.	TWS	Section 11.1 Part D	Section 3.12.2
	The failure of the Draft EIS to discuss the impacts of the proposal on wilderness quality is a considerable oversight and significantly undermines the credibility of the entire assessment.	TWS	Section 11.1	Section 3.12.2
	The Wilderness Society recommends the following measures to mitigate the effects of infrastructure development on wilderness quality: that the proposed Koolendong Road terminate at the proposed Yambarran camp rather than continue north to the Fitzmaurice River; that the proposed North Angalarri Road terminate at a point no further north than Mount Thymanan; that the loop roads (Yambarran and Angalarri) not be constructed; that the TFMA be sited away from the corridor area between Gregory National Park and Bradshaw Station; and that the western and northern areas of Bradshaw Station not be available for military training purposes but be actively managed solely for their nature and conservation values, including wilderness and wild rivers.	TWS	Section 11.1	Section 3.12.2
	There is inadequate discussion on the impacts of elements of the proposed infrastructure on wilderness values. In particular, there is a failure to appreciate that the NWI utilises a set of road classes, with different road types having different impacts on wilderness quality ratings. The impact on NWI wilderness quality of unformed station tracks is significantly less than the formed, gravelled, two laned, all weather roads that are planned by Defence.	EA	Section 11.1	Section 3.12.2
	WWRS staff was unable to provide the EIS consultants with an NWI impact assessment of the proposed operations on Bradshaw Station as requested information was not provided. On requesting such information, WWRS staff were informed that the impacts of operations would be minimal and, therefore, not worth considering. This approach has meant that the public is not being informed on wilderness impacts connected with Defence operations or on Defence's response to these impacts.	EA	Section 11.1	Section 3.12.2
	There is no mention of the management of wilderness values in the EMP, despite the EIS noting that impacts on wilderness values would be minimised through implementation of the provisions of the EMP.	EA	Section 11.1 Part D	Section 3.12.2
	There is inadequate discussion on the impacts of elements of the proposed operations on wilderness quality. The frequency, intensity and types of training activities should be discussed in terms of their individual impacts on wilderness quality.	EA	Section 11.1	Section 3.12.2
	The assertion that wilderness values would not be markedly reduced by Defence use of the property is incorrect given the impact assessment on proposed infrastructure prepared by WWRS staff, the high impact nature of a number of the planned training uses, and the lack of any direct consideration of wilderness values in the EMP. Further, there is no evidence to support the suggestion that wilderness values for some areas of the property would benefit from the management practices to be implemented.	EA	Section 11.1 Part D	Section 3.12.2

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Wild rivers	There is no evidence that Defence is committed to minimising impacts on wilderness values.	EA	Section 11.1	Section 3.12.2
	There is no mention of the management of wild river values in the EMP, despite the EIS noting that impacts on wild river values would be minimised through implementation of the provisions of the EMP.	EA	Section 11.2 Part D	Section 3.12.3
	There is no indication that existing wild river values for the property have been considered in the decision-making processes used to determine the siting of infrastructure and the locations for high impact training uses.	EA	Section 11.2	Section 3.12.3
	There is no evidence that Defence is committed to minimising impacts on wild river values.	EA	Section 11.2	Section 3.12.3
	The construction of an excavated dam (Site 9) is proposed within an area that contains streams with high wild river value. The proposed dam could change the hydrological regime of the catchment and have an adverse impact on values. A more detailed discussion of the dam construction, including size and exact location is required to allow a full assessment of impacts.	EA	Section 3.2.8 Section 11.2	Section 3.12.3
<b>Noise and Vibration</b> Fauna impacts	Question as to whether there is any evidence to support the statement that animals would become accustomed to aerial and artillery bombardment.	NTG	Section 12.2.2	<b>Section 3.13</b> Section 3.13.1
<b>Air Quality</b> Air quality impacts from detonation of weapon systems	Further information is required on the likely impact to air quality from the detonation of high explosives, flares, pyrotechnics, phosphorous smoke bombs and any chemical agents likely to be used during training such as tear gas or defoliants. In particular, information is required on environmental toxicity and persistence and the likelihood of gases and smoke blowing outside the BFTA boundaries and causing nuisance.	NTG	Section 13.2.2	<b>Section 3.14</b> Section 3.14.1
<b>Problem Insects and Pathogens</b> Importation of disease organisms	There is confusion on the issue of importation of disease organisms inside people's bodies and the importation of exotic insects and the interpretation of little risk of importation of exotic disease by military personnel is at odds with the Territory Health Services recommendation that there is an increased risk.	NTG	Section 14.1.2 Vol 2B – Section 9	<b>Section 3.15</b> Section 3.15.1
<b>Heritage and Sacred Sites</b> Collation of recommendations	The recommendations contained in Section 15 need to be collated into a single section. A tabular format is suggested. A similar table should be prepared for the historic heritage component by amending Table 15.4 to include recommendations.	NTG	Section 15	<b>Section 3.16</b> Section 3.16.1
Priorities for training area use and archaeological surveys	Further information is required on the priorities for the use of training sectors and the archaeological surveys required before the nominated level of training intended for each training sector can be achieved.	NTG	Section 15.2	Section 3.16.2

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Training area planning process	The need to take into account baseline study results before selecting precise locations for activities rather than consider heritage values/sites at a later stage only in terms of mitigation is a major concern not adequately addressed in the EIS.	EA	Section 15	Section 3.16.3
Register of the National Estate listings	The EMP inadequately reflects the implications of future Register of the National Estate listings in terms of Defence's obligations under the AHC Act. The EMP needs to provide for these ongoing obligations in future BFTA heritage planning mechanisms.	EA	Section 21.9	Section 3.16.4
	The assumption that listing in the Register of the National Estate of large areas implies they receive "blanket protection" is unwarranted. Any significance assessment should identify what values are significant and management of these areas directed towards protecting the significant values. Protection of these values may be compatible with the use of large portions of a listed area for military training.	EA	Section 15.3.2	Section 3.16.4
	The EIS does not include an assessment of national estate values in heritage surveys (including the identification of cultural landscapes that may possess both natural and cultural values), along with an assessment of heritage values under NT legislation.	EA	Section 15.2 Section 15.3	Section 3.16.4
Management of steeply dissected gorges and escarpments	It is recommended that steeply dissected gorges and scarps are excluded from all training activities except where an archaeological survey has demonstrated that no sites or sites of low significance only occur in those areas.	NTG	Section 15.2.4	Section 3.16.5
Casual vandalism	Management and monitoring strategies proposed to ensure the protection of sites from casual vandalism need to be more clearly drafted to include a penalty provision for any individual who infringes Standing Orders and to underscore the fundamental importance of monitoring.	NTG	Section 15.1.4 Section 15.2.4 Section 15.3.4 Section 21.8 Section 21.9	Section 3.16.6
Personnel induction and awareness	Briefings to personnel should place particular emphasis on the penalties for disturbance or damage to archaeological sites under the provisions of the <i>Northern Territory Heritage Conservation Act</i> .	NT	Section 15.2.4 Section 15.3.4 Section 21.8 Section 21.9	Section 3.16.7
	Briefings for personnel are not addressed and there should be some detailed explanation within the EIS of the type of information that would be conveyed regarding Aboriginal culture and sacred and archaeological sites and European cultural heritage sites.	NT	Section 21.8 Section 21.9	Section 3.16.7
	Experience with training groups at Timber Creek confirms a past lack of awareness of heritage sites on the part of the military.	NT		Section 3.16.7

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	Defence personnel should undergo appropriate and accredited environmental and cross-cultural awareness training prior to undertaking exercises. This should include information on the penalties for disturbing Aboriginal sacred sites or archaeological sites under the relevant legislation.	NLC		Section 3.16.7
Monitoring program	There is little specific direction provided about the form which monitoring would take. The monitoring program should: have the objective of ensuring that no change occurs to selected sites as a result of the use of BFTA; establish a set of baseline monitoring sites which would be recorded in detail; begin in 1998 with the detailed recording (establishment) of the monitoring sites; include a range of site types in a variety of locations; include the north east Angalarri rock shelters, Kirindjingin, Yambarran Plateau 7 and 8, Golla Golla 1, Mussel Hole 4, Bradshaw Homestead historic complex, Buffalo Spring 6, Larung Yard 1 and the hawk hunting hides south of the Ikymbon River; and be established in cooperation with the Department of Lands, Planning and Environment and must incorporate a qualified archaeologist with conservation experience.	NTG	Section 15.2.4 Section 15.3.4 Section 21.8 Section 21.9	Section 3.16.8
Scope of heritage surveys	A map indicating areas where surveys have been undertaken should be provided to avoid duplication during future survey work.	NTG	Section 15.2.2	Section 3.16.9
	A major concern not addressed in the EIS is the need for the heritage surveys to be as comprehensive as possible.	EA	Section 15.2 Section 15.3	Section 3.16.9
	The omission of the escarpment area from the archaeological survey emphasises the need for a detailed study of this feature.	NT	Section 15.2.2	Section 3.16.9
	It is disappointing that the area of European heritage has not been dealt with in any detailed survey.	NT	Section 15.3	Section 3.16.9
	The survey is inadequate from an historic heritage perspective and the approach adopted is not systematic or scientific.	EA	Section 15.3	Section 3.16.9
Additional records	The Department of Lands, Planning and Environment undertook inspections of heritage sites on BFTA which found a further 43 sites not reported in the EIS. The data obtained generally supports the conclusions presented in the EIS.	NTG		Section 3.16.10
Assessment of Aboriginal archaeological sites	The EIS provides inadequate consideration of Aboriginal archaeological sites.	EA	Section 15.2	Section 3.16.11



ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	The survey objectives and methods used to collect information about Aboriginal archaeological sites are seriously flawed. The problems with using landforms as a method of stratifying samples, the problems with the methods used to collect the data, and the small sample sizes in some areas, indicate there are serious problems with the sensitivity model being proposed. Reliance on this model for management of archaeological resources is not recommended. The baseline studies should be repeated in a more systematic manner to allow for the development of a more reliable sensitivity zoning system. Recommended that a more rigorous scientific survey, and assessment of the significance, of archaeological expressions of past Aboriginal use of Bradshaw Station be undertaken before the EIS and EMP are approved.	EA	Section 15.2.2	Section 3.16.11
	Even if the sensitivity zoning model was adequate, there are still potential problems with the way in which it is being used. The best practice option uses sensitivity zoning to define areas with high sensitivity that should not be impacted upon. Other areas are then subject to survey before use, so that any significant sites within these areas can be protected.	EA	Section 15.2	Section 3.16.11
	The surveys for old Aboriginal sites seem to have been done without the participation of the Jaminjung (Djamandjung) community. They should have been consulted about the significance of sites and how they want them managed.	EA	Section 15.2.2	Section 3.16.11
	It is recommended that the archaeological data be recast in terms of the land unit information provided in Figure 5.2 – Land Units to generate a new, more refined predictive model for site distribution.	NTG	Section 15.2	Section 3.16.11
Delineation of heritage management zones	Fences and signs delineating management zones around sacred sites and archaeological objects or places should include reflective material or some other means of making them visible at night.	NTG	Section 15.2.4	Section 3.16.12
Identification of new sites	The reporting of new sites would rely on the Environmental Officer and would depend on specialised training to recognise and interpret new sites. The implications are that no new sites would be recorded unless further detailed studies, including the mapping of sites, are undertaken prior to BFTA becoming operational.	NT	Section 15 Section 21.8 Section 21.9	Section 3.16.13
Use of areas of low archaeological sensitivity	The use of areas of low archaeological sensitivity for engineering exercises requiring earthworks has serious implications as comparative analysis may confirm their significance in other areas. Alternatively, the destruction of other previously comparable sites would serve to enhance the significance of those of low archaeological sensitivity.	NT	Section 15.2.4	Section 3.16.14
Risk to sites from incidents	The risk to sites associated with incidents such as ricochets, inadvertent releases of air weapons, overshoots, skip and unexploded ordnance, particularly beyond the HEIA boundaries, has not been addressed in the Draft EIS or EMP.	NT	Section 3.4.2 Section 3.4.6 Section 15	Section 3.16.15
Additional assessment for changes to proposal	Future variations to HEIA boundaries should be subject to detailed assessment of the areas identified for inclusion into the HEIA.	NT	Section 3.4.2 Section 3.4.6	Section 3.16.16

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Cultural landscapes	The Koolendong Valley should be declared a cultural landscape containing a diverse range of Aboriginal, natural and cultural values to best protect individual sites.	NT	Section 15.2	Section 3.16.17
Management strategies	The management strategies for Aboriginal sacred sites, historic and Aboriginal archaeological sites and historic places contained in the Executive Summary of the Draft EIS are "motherhood" statements which provide little detail on either the extent of mitigation or commitment to the continued integrity of sites.	NT	Executive Summary	Section 3.16.18
Aboriginal sacred sites	The map of sacred sites should not have been published in the Draft EIS as it gives the locations of Aboriginal sacred sites, which should remain confidential.	NLC	Section 15.1.3	Section 3.16.19
	The management of sacred sites should include the traditional Aboriginal owners and full consultation should take place, regardless of the robustness of the site according to AAPA.	NLC	Section 15.1.4	Section 3.16.19
	There should be provisions to ensure sites not recorded by AAPA and which come to light in future be accorded the same status as recorded sites. The AAPA Authority Certificate should not be seen as the final word on sacred sites on Bradshaw Station.	NLC	Section 15.1.4 Section 21.8	Section 3.16.19
Aboriginal association with Bradshaw Station	Aboriginal groups other than the Jaminjung (Djamandjung) also affiliate with Bradshaw Station and should not be excluded from consultations.	NLC	Section 15.1.2	Section 3.16.20
Native title claims	The Draft EIS states that there is no native title claims current for Bradshaw Station. A claim was lodged on 12 November 1997 by the NLC.	NLC	Section 15.4	Section 3.16.21
Aboriginal land	Figure 15.6 does not make clear the extent of the land claim over the beds and banks of the Victoria River and should be amended accordingly. A written description of Land Claim 189 should be provided.	NLC	Section 15.5	Section 3.16.22
Constraints for construction and operational activities	The heritage attributes of Bradshaw Station should be mapped to identify constraints for construction and operational activities. Figure 15.3 does not contain any reference to the archaeological sensitivity of the north east of the Western Manoeuvre Area. Omission of information would be considered as a constraint to operational activities.	EA	Section 15.2.3	Section 3.16.23
<b>Social and Economic Factors</b>				
Mineral potential	The issue of mineral potential for the area has not been addressed.	NTG	Section 16.4	<b>Section 3.17</b> Section 3.17.1
Access and rights to potential economic resources	The Department of Mines and Energy is concerned that, if and when the land becomes Commonwealth freehold, any minerals present revert to Commonwealth ownership and the Northern Territory loses access and rights to potential economic resources.	NTG	Section 16.3 Section 16.4	Section 3.17.2

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
Impacts of interstate ADF training	ADF formations from southern bases attending major exercises at BFTA are likely to travel by road and are likely to contribute to the NT regional economy at a higher level than locally based units. They would also have the potential to affect traffic flows as well as businesses on the Stuart Highway south of Katherine.	NTG	Section 16.7.2	Section 3.17.3
Economic relationship between Bradshaw Station and Timber Creek	There is no indication as to the current economic relationship between Bradshaw Station (operating as a cattle station) and Timber Creek and the impact of it ceasing operation as such. Closure of tour operations to Bradshaw Station may have had an impact on Timber Creek.	NTG	Section 16.7.1	Section 3.17.4
Current and planned property status	Department of Defence should ensure compliance with the provisions of the <i>Native Title Act 1993</i> in relation to any development on the property in its current leasehold status and in the conversion of the property to freehold title, including the requirement to negotiate with native title holders and claimants.	NLC	Section 1.4 Section 15.4 Section 16.3	Section 3.17.5
Regional tourism activity	If tours of Bradshaw Station were previously conducted and these tours would no longer be allowed then this is an adverse impact on tourism activity in the region.	NTG	Section 16.7	Section 3.17.6
Consultation with adjacent land holders	Unclear as to how the strategy to consult adjacent land holders would be enacted as the NLC is unaware of any consultation with the Daly River Aboriginal Land Trust to date.	NLC		Section 3.17.7
<b>Public Access, Health and Safety</b>				<b>Section 3.18</b>
Access to the Angalarri River	The EIS contains contradictory statements on access to the Angalarri River upon conversion to freehold title.	NTG	Section 16.5.2	Section 3.18.1
Access to the Victoria and Fitzmaurice Rivers	No comment is made on the need to control access to the Victoria and Fitzmaurice Rivers during training exercises.	NTG	Section 16.5.2 Section 16.6.1	Section 3.18.2
Aboriginal access	Future access to BFTA by Aboriginal custodians and protocols for such access is of vital concern and native title negotiations would provide the best avenue for resolving this matter.	NLC	Section 3.4.5 Section 15	Section 3.18.3
	There are significant areas of Aboriginal land adjacent to BFTA and therefore neighbours require courteous treatment. Aboriginal people from these areas do not necessarily recognise arbitrary legal boundaries and may wish to access the area in accordance with their traditional rights.	NLC	Section 3.4.5	Section 3.18.3
	A formal bureaucratic system may inhibit indigenous people with legitimate cultural interests from requesting access to the property. It may be more appropriate to develop a less formal interface for indigenous people.	EA	Section 3.4.5 Section 15	Section 3.18.3
	Concerned that access costs for Aboriginal people are "to be borne by the users". Aboriginal people should not be defined as public and the use of the access protocol described in Section 15.1.4 should be at no cost to the Aboriginal community.	NLC	Section 15.1.4	Section 3.18.3

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
<b>Transport</b>				<b>Section 3.19</b>
Transport of tracked vehicles	Long hauls by tracked vehicles on National Highways are opposed due to the disruption caused to general traffic and the potential risk of damage to the road pavement.	NTG	Section 3.4.4 Section 17.1	Section 3.19.1
Traffic impact assessment methodology	As training exercises are to be largely confined to the dry season, the maximum AADT should have been used as the base figure in the analysis. The assumptions on which the derived traffic volume is based are not clear and may be in error. The assessment of the impact would be more credible using a more realistic value for the expected increase in daily traffic volumes.	NTG	Section 17.1	Section 3.19.2
	No figures are given for trips associated with joint exercises with foreign forces or concurrent exercises.	NTG	Section 17.1	Section 3.19.2
	The analysis assumes free flow conditions and treats vehicles in a packet as single unrelated units. This approach does not reflect the actual situation. Consideration may need to be given to: the need for significant length of passing lanes strategically placed to accommodate passing from both directions; amending the standard spacing between vehicles in a packet to allow two or three vehicles at close spacing so that a passing manoeuvre clears more than one vehicle; encouraging packets to close up on approaching passing lanes and slowing down to allow the passage of following vehicles whilst on the passing lane; increasing the convoy speed limit to 100 km/hr to coincide with the legal speed limit for large commercial vehicles; and utilising periods when non-commercial and tourist traffic volumes are low.	NTG	Section 17.1	Section 3.19.2
	The Draft EIS quotes NAASRA <i>Guide to Traffic Engineering Practice Part 1 – Roadway Capacity</i> as the primary reference. Further information is available in NAASRA <i>Traffic Engineering Practice Part 2 – Roadway Capacity</i> and AUSTROAD <i>Rural Road Design – Guide to the Geometric Design of Rural Roads</i> .	NTG	Section 17.1	Section 3.19.2
	No information is given on the anticipated increase in traffic along the Victoria Highway over the term of the construction and operation phases of the project and the road safety implications.	NLC	Section 17.1	Section 3.19.2
Airspace use and restrictions	Many Aboriginal people regularly use light aircraft to travel between say Timber Creek and Port Keats. Airspace restrictions over BFTA would significantly impact on both travel time and cost resulting from deviation around the area.	NLC	Section 17.2	Section 3.19.3
<b>Waste Management</b>				<b>Section 3.20</b>
Effluent disposal	More information is required relating to on-site effluent disposal, specifically, site selection and system design and management need further consideration.	NTG	Section 18.1	Section 3.20.1
POL and other chemicals	Management strategies for chemicals such as herbicides for weed control should be included in the EMP.	NLC	Section 18.1.4 Section 21.6 Section 21.11 Section 21.12 Section 21.13	Section 3.20.2

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
	Monitoring should include comprehensive inventories of inputs and outputs to storage facilities such that any leaks can be rapidly detected.	NLC	Section 18.1.4 Section 21.12	Section 3.20.2
<b>Explosives and Hazardous Material Management</b>				<b>Section 3.21</b>
Rehabilitation and unexploded ordnance eradication	Further information is required on what rehabilitative actions would be taken to ensure the area is restored to its pre-use state when it no longer required as a training area. Little detail has been provided to specify responsibility for cost and conduct of rehabilitation, particularly in respect of the eradication of unexploded ordnance to enable the area to be put to alternative uses in the future.	NTG	Section 18.2	Section 3.21.1
Storage of explosives and hazardous materials	It is suggested that minimal storage of fuel occur outside the immediate operational training requirements and that BFTA security maintain an awareness of the potential for theft and that security measures are put in place.	NTG	Section 18.1.4	Section 3.21.2
	There is no overseeing authority or monitoring body envisaged for the safe passage and storage of explosives and hazardous materials. Current emergency services provision at Timber Creek is inadequate to deal with major accidents involving hazardous materials.	NLC	Section 16.6.4 Section 18.1.4	Section 3.21.2
	Information on issues including the siting of storage facilities, quantities, safety distances, mixing of groups, annual inspections and security need to be addressed and incorporated into the EMP.	NT	Section 21.13 Section 21.15	Section 3.21.2
Purpose of warning signs	It is not clear whether proposed signs along HEIA boundaries are meant to warn soldiers or civilians.	NTG	Section 18.2	Section 3.21.3
<b>Cumulative Environmental Impacts</b>				<b>Section 3.22</b>
Framework for assessment and performance indicators	The framework for the discussion on cumulative impacts should include: sources of cumulative environmental change, pathways or processes of accumulation, and the types of cumulative effects.	EA	Section 19	Section 3.22.1
	The Sub-Plans of the EMP contain performance indicators that are unlikely to act as effective early warning signals that corrective action is required and the point at which the cumulative impact becomes evident through monitoring may come too late to bring about recovery. Performance indicators need to be supplemented with ecological thresholds to ensure that the environmental capacity of Bradshaw Station for military training is not exceeded. It is not apparent from the EIS that a process exists for determining ecological thresholds that would act as early warning signals to implement corrective action to protect the significant environmental attributes of the property – this should be corrected.	EA	Section 21	Section 3.22.1
Conservation values of the Angalarri Valley	The loss of conservation values in the Lower Ord River associated with modification of black soil plains by the Ord River Irrigation Area extensions would place a far higher premium on conservation of the Angalarri Valley.	NTG	Section 19	Section 3.22.2

ISSUES	COMMENTS	RESPONDENT	DRAFT EIS SECTION REFERENCE	SUPPLEMENT SECTION REFERENCE
<b>Consultation</b>	Community consultation process	TWS	Section 1.7	<b>Section 3.23</b> Section 3.23.1
		NLC	Section 1.7 Section 15	Section 3.23.1
Consultation during EIS preparation		NLC	Section 1.7.2	Section 3.23.2
		NLC	Vol 2A – Section 2	Section 3.23.2
		NLC	Vol 2A – Section 2	Section 3.23.2

## 3 RESPONSE TO ISSUES AND COMMENTS

### 3.1 EIS PROCESS

#### 3.1.1 Environmental assessment for bridge over Victoria River

***The construction of the bridge over the Victoria River should not have commenced outside of the EIS as it is a breach of the spirit and intent of the process and acts to foreclose infrastructure siting options that may have been feasible and precludes community consultation. (TWS)***

***The reason for separate environmental assessment of the bridge over the Victoria River is unclear. (NLC)***

In order to meet Defence requirements to commence training during the 1999 dry season, the commencement of infrastructure development prior to finalisation of the EIS process was essential. This was supported by both the Northern Territory and Commonwealth Governments, subject to adequate environmental procedures to control environmental impacts being prepared prior to commencement of construction work. Environmental Guidelines for Construction Activities (Volume 2A of the Draft EIS) were prepared to meet this requirement.

In addition to infrastructure development on Bradshaw Station, the environmental assessment and construction of the access road from Timber Creek and bridge over the Victoria River outside of the EIS process was supported by both the Northern Territory and Commonwealth Governments to enable the provision of an efficient and safe access onto the property for infrastructure development. Defence contracted the NT Department of Transport and Works (DTW) to undertake site identification and geotechnical assessment for the bridge, preparation of a Notice of Intent (NoI) under the Northern Territory *Environmental Assessment Act* and the Commonwealth *Environment Protection (Impact of Proposals) Act 1974* and design and delivery of the bridge. The bridge would remain a Northern Territory Government asset and would be maintained by DTW, regardless of the use of Bradshaw Station.

The preparation of a NoI for road and bridge construction is standard practice within the Northern Territory and further formal environmental assessment in the form of a PER or EIS is generally not required. The NoI for the proposed bridge and access road included an evaluation of six alternative routes and detailed proposed environmental safeguards and monitoring for construction. Preparation of the NoI included consultation with relevant Northern Territory Government agencies and, in particular, the Department of Lands, Planning and Environment (DLPE), the Parks and Wildlife Commission of the Northern Territory (PWCNT) and the Aboriginal Areas Protection Authority (AAPA). The NoI has been finalised by the Northern Territory and Commonwealth Governments.

#### 3.1.2 Timeframe for development and EIS process

***There is no timeline specified for the development and the EIS process. (NLC)***

The timeframe for the development of Bradshaw Field Training Area (BFTA) was stated in Section 3.5 of the Draft EIS. The preliminary program for the project is:

Construction Commences	March 1998
Phase 1 Construction (Provision of Access and Range Control)	Complete by October 1998
Phase 2 Construction (Provision for Unit Level Training)	Complete by March 1999

Phase 3 Construction (Provision for Formation Level Training)  
Construction Project Complete

Complete by December 2000  
December 2000

Limited training on BFTA is planned to commence at the start of the 1999 dry season, subject to the outcome of Native Title negotiations. While there is no specific timeframe established, the use of BFTA as a military training area is a long term proposition.

The timeframe for the EIS process is in accordance with the provisions of the Northern Territory *Environmental Assessment Act* and the Commonwealth *Environment Protection (Impact of Proposals) Act 1974*.

## **3.2 INFORMATION MANAGEMENT**

### **3.2.1 Environmental Management and Geographic Information Systems**

***Further information should be provided on the Geographic Information System. (NTG)***

***Further information should be provided on the Environmental Management Information System, particularly the use of these systems to develop Environmental Certificates of Compliance and for the ongoing maintenance of BFTA. (NTG)***

Defence is investigating a computer system that provides a strategic level of management for all training areas. The system currently identified is an Environmental Management Information System (EMIS). The system (which is currently in use in Canada) is still under consideration by Defence, however, Defence does intend to provide a coordinated strategic management framework for training areas. The use of GIS type databases is the first step in this process. Defence anticipates that the EMIS will provide the ability to enhance prediction modelling of resource management issues above that currently provided by a GIS database system.

The key tool to be used for planning and management of the training area is a Geographic Information System (GIS). The GIS established for BFTA is an ArcView/ArcInfo database able to store, manipulate and interrogate graphic, textual and numeric data. Its most important attribute is the ability to layer data in various forms. Current scientific knowledge gathered during the desktop study completed in 1996 and the baseline surveys completed during 1996 and 1997 for the preparation of the Draft EIS is captured on the GIS, together with all known cadastral and infrastructure data for Bradshaw Station and surrounding region.

In terms of management of BFTA, the GIS would be utilised by Defence environmental and range control staff to store and manipulate data directly related to on-ground use of the training area as the basis for decision making. Resource attribute data such as climate, terrain, soils, erosion, vegetation, fauna, weeds, feral animals, water quality, fire, sacred sites and archaeological places and objects would be accessed as layers to plan monitoring programs, decide on rotation, rest or rehabilitation programs and modify training regimes as required. An example of the role of the GIS in management would be the establishment of monitoring programs for Aboriginal archaeological places and objects. A number of sites have been identified during field surveys that have varied management and monitoring requirements. The GIS would be used to establish layers of sites with specific needs in terms of identification of management zones and specific monitoring and reporting requirements. The monitoring requirements would also be placed on the GIS and would include photographs, diagrams, site notes, monitoring task schedules and monitoring task checklists.



The GIS would also be used to plan training exercises on BFTA. An outline of the planning process and the role of the GIS is as follows:

- > training unit identifies training need – unit, size, type, duration, areas required for the activity, numbers of vehicles, aircraft, watercraft and personnel involved, weapons and ammunition type and numbers to be deployed, field works required, facilities required, communications and administrative support requirements and training outcomes
- > training unit prepares draft plan for training exercise incorporating Range Standing Order (RSO) and Standing Operating Procedure (SOP) requirements and Range Danger Area Safety Traces (stored as layers on the GIS)
- > training unit submits draft training exercise plan to environmental staff
- > environmental and range control staff discuss draft plan with training unit utilising GIS data layers
- > a review of the training exercise is undertaken against existing or forecast range bookings and the coordination of access and range safety requirements
- > a review of the training exercise is undertaken against weather, fire and terrain influences
- > training exercise is modified to accommodate environmental or management issues, such as vegetation, fauna, sacred sites, sensitive habitats, heritage, wilderness
- > a review is undertaken against temporary land or infrastructure management closures or activities
- > specific exercise environmental issues are identified in an Environmental Certificate of Compliance (ECC) prepared by environmental staff and approved by Delegate
- > ECC is issued to training unit commander as an attachment to the training exercise plan
- > ECC, RSO and SOP form the basis on which training unit is allowed to use BFTA
- > environmental and range control staff monitor progress of training exercise following ECC, RSO and SOP
- > training exercise can be modified during conduct utilising the ECC, RSO and SOP
- > ECC can be used for post-exercise check of specific site issues and to facilitate a monitoring program specific to the exercise
- > the outcomes from the training exercise and ECC can be recorded on the GIS for future planning and use of BFTA
- > ECC utilised as a guide by on-site range control staff or contractors to conduct site-specific rehabilitation activities

The ECC is signed and acknowledged by the senior training unit commander and the RSO and SOP are enforceable under military law. Military personnel can be charged under the *Defence Force Act* for infringing RSO or SOP.

### **3.3 ENVIRONMENTAL MANAGEMENT**

#### **3.3.1 Monitoring programs**

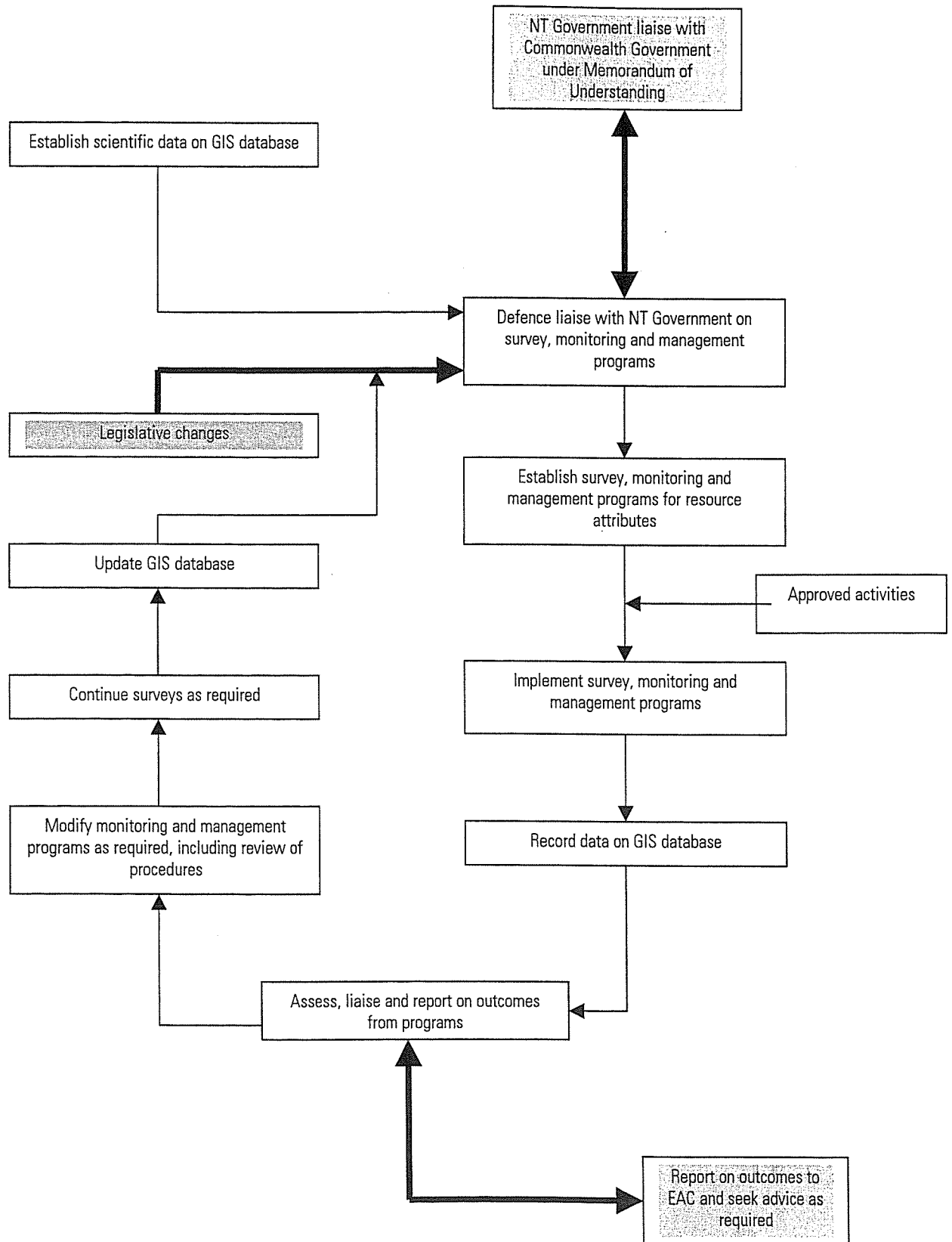
***The Draft EIS provides insufficient detail on monitoring programs and the monitoring tasks listed in the EMP provide little practical guidance or reference to appropriate standards or procedures. More detailed information on monitoring programs for BFTA is required. (NTG)***

***There is a need to develop monitoring programs that describe the ecological character of the area to provide early warning of potential adverse impacts. Permanent monitoring sites must be established and a scientific approach to monitoring taken. Specific detail of the monitoring requirements should be provided. (NLC)***

One of the agreed outcomes of the Draft EIS process from the Planning Workshop held in August 1996 and attended by representatives of the Northern Territory and Commonwealth Governments, was the preparation of a strategic EMP based on the findings of baseline environmental studies. The strategic

EMP contained in the Draft EIS provides a framework for environmental management and provides for specific additional survey, monitoring and management programs over the life of BFTA. These specific programs would be developed and implemented and the outcomes incorporated in the GIS database, following the process shown overleaf.

## Monitoring, management and review process



This process of specific program development has already begun, with meetings held with DLPE, DPIF and PWCNT to establish additional survey objectives and monitoring program principles. Such meetings would continue with relevant government agencies to address all resource management issues that require additional survey or specific monitoring programs.

Reflecting its strategic function, the EMP provides monitoring principles, without detailing specific monitoring programs. Specific monitoring programs will be established on the basis of the following guidelines:

- > common reference sites and areas from baseline surveys for confirmation of inherent status
- > a linkage to sites to aid in the identification of inherent risk from use over time
- > continuity of monitoring methodology
- > establishment of performance indicators, including ecological thresholds, as appropriate
- > modification of practices as required to maintain habitats

Monitoring programs would adopt a combination of the following methods as appropriate:

- > permanent, control, treatment and disturbed sites
- > satellite imagery and photo points
- > point source, site, plots and linear methods to suit need
- > use of the GIS to combine and manipulate textual, graphic and numeric attributes

Defence will consult with relevant government agencies such as DLPE, DPIF, PWCNT, THS and AAPA to establish monitoring programs and confirm appropriate methodologies for resource management issues such as soils, vegetation, fauna, weeds, feral animals, fire, biting insects, sacred sites and archaeological places and objects. The monitoring programs would be linked to relevant additional surveys (refer Section 3.3.7) and the proposed PWCNT research proposals (refer Section 3.8.5).

To ensure ongoing liaison between the Northern Territory and Commonwealth Governments on the development and management of BFTA and compliance with Commonwealth legislative and policy requirements, a Memorandum of Understanding (MOU) between the Northern Territory and Commonwealth Governments is proposed to be established. The MOU will require the Northern Territory Government to liaise with the Commonwealth Government (specifically Environment Australia) on proposed environmental management, survey and monitoring programs. The Northern Territory Government will maintain its role as lead agency and initial point of contact for Defence.

***Little information is provided on reporting requirements and the NLC suggests that monitoring reports be provided to the Environmental Advisory Committee. (NLC)***

The composition, role and responsibilities of EAC are outlined in Section 3.3.8 of the Supplement.

One of the responsibilities of the Environmental Advisory Committee (EAC) associated with BFTA will be to advise on the effectiveness of implemented management plans and practices. The Defence Environmental Officer utilises EAC as an advisory body, either through verbal or written reporting mechanisms.

Monitoring reports, along with other reports associated with the management of BFTA would be made available to EAC and submitted to EAC by the Defence Environmental Officer as required.

It should also be noted that Defence environmental staff utilises government and other professional advisers as required.

### 3.3.2 Delineation and management of conservation areas

***The delineation of areas of conservation value and appropriate management of these areas has not been adequately provided. (NTG)***

Areas of conservation value within Bradshaw Station have been recognised and delineated as management zones wherever possible on the basis of current knowledge within the Draft EIS. These areas include:

- > vegetation habitats of conservation significance, namely *Melaleuca minutifolia* low woodland and *Xerochloa* grassland
- > sensitive habitats, including sandstone habitats, monsoon forests, riparian habitats and coastal habitats
- > core fauna habitats, including rocky habitats, streams and riparian habitats associated with rocky hills and grasslands with swamps
- > sensitive areas, including the original collecting site of the Angalarri Grunter and an area near Mount Thymanan in which the Gouldian Finch has been previously recorded

The strategic framework for management of these areas of conservation value, and any further areas of conservation significance that may be identified in additional field surveys, is established within the Draft EIS and the relevant Sub-Plans of the EMP. The management principles established for these areas include:

- > delineation of management zones
- > restricted training use and disturbance
- > active management, including fire management, weed and feral animal control
- > monitoring of changes associated with Defence use

The establishment of a Memorandum of Understanding between Defence and PWCNT for cooperative management (refer Section 3.3.3) will assist in developing appropriate management regimes for these areas. The proposed PWCNT research proposals also focus on a number of these habitats and, in particular, vegetation habitats of conservation significance, sensitive habitats and core fauna habitats.

### 3.3.3 Cooperative management arrangements

***The potential for a cooperative management arrangement through a Memorandum of Understanding between the Parks and Wildlife Commission of the Northern Territory and the Department of Defence is not recognised. (NTG)***

Defence is currently negotiating a Memorandum of Understanding (MOU) with PWCNT that recognises cooperative management arrangements for BFTA. The MOU recognises the status of BFTA within a regional perspective and, in particular, aspects of BFTA which require specific management and conservation actions. The MOU also recognises that PWCNT is able to provide expert advice to Defence on request and undertake research proposals on behalf of Defence to assist in the management of BFTA.

### 3.3.4 Commitment to the integrity of the landscape

***Statements such as "...measures such as non-targeting of significant landscape features..., and resting or rehabilitation of training areas, would ensure long term modifications to the landscape would not result" provides no commitment to the continued integrity of the landscape. (NLC)***

Sound environmental management performance by Defence, particularly land management, is important to Defence's military readiness as it ensures the continued availability of training areas and maintenance of environmental characteristics that contribute to their training value. In addition, Defence acknowledges its important role in conserving many of Australia's unique environmental values. These values range from endangered fauna and flora, diverse landscapes and heritage places, through to air and water resources.

In relation to BFTA, Defence's management of the training area would, as it has for many of its training areas, develop an integrated management regime for sustained military use and the conservation of the important environmental values of the area.

Defence complies with all relevant Commonwealth environmental legislation and follows Commonwealth environmental policies and guidelines. Defence has a "good neighbour" policy of meeting the intent or spirit of State or Territory environmental legislation and regulations where appropriate Commonwealth policies and environmental legislation do not exist. Where there are no relevant government environmental standards, Defence would develop its own based on best practice principles. As an agency of the Commonwealth Government, Defence is also required to manage its sites in a manner consistent with international agreements made and obligations undertaken by the Commonwealth on the environment.

The Draft EIS and EMP provide the strategic framework on which BFTA would be managed, both in terms of infrastructure development and conduct of training over the life of the training area.

Specific to the statements from the Draft EIS quoted by the NLC, Defence reiterates its commitment to adopting appropriate management measures, as stated in Section 10.2 of the Draft EIS, including non targeting of significant landscape features such as mesas and permanent watercourses (by using the GIS and Range Danger Area Safety Traces) and resting and rehabilitation of disturbed areas, to ensure that long term modifications to the landscape do not result.

### 3.3.5 Need for a regional environmental plan

***BFTA requires a regional environmental plan to manage construction and operational activities during the life of BFTA. The regional environmental plan should identify and map the environmental and heritage constraints so that construction and operational activities can be planned around these constraints. (EA)***

The "regional environmental plan" referred to is the EMP, which establishes a strategic framework for the long term environmental management of BFTA. The need for a regional approach to environmental management, such as fire management, weed and feral animal control, is recognised by Defence and would be facilitated through the cooperative management arrangement with PWCNT, the EAC, liaison with adjoining landholders and consultation and cooperation with NT Government agencies on regional environmental management programs.

The environmental and heritage attributes of Bradshaw Station have been identified through the baseline environmental studies and recorded on the GIS. This information has been used to refine the preliminary siting of infrastructure and range development and would be used in the planning and

approval process for training exercises and any additional future infrastructure requirements (refer Section 3.2.1). Additional field surveys planned by Defence will enhance current knowledge of environmental and heritage attributes and would be used to update and complement existing information.

### **3.3.6 Environmental Management Plan**

#### ***The EMP should conform to ISO 14000 standards. (NLC)***

Defence is currently investigating the application of ISO 14000 standards to management and operation of all Defence training areas. To apply ISO 14000 standards to BFTA at this stage would be premature. The Draft EIS and EMP do however recognise current legislation, standards and guidelines that would be applied to construction on BFTA and the management and operation of BFTA.

#### ***The Department of Defence Environmental Policy should be included. (NLC)***

Defence's Environmental Policy is outlined in Section 1.5.5 of the Draft EIS. Defence Instructions and other relevant documents relating to environmental protection and management are outlined in Section 1.5.6 of the Draft EIS.

#### ***The Department of Defence protocol for documenting and handling complaints should be included. (NLC)***

Defence protocol for documenting and handling complaints associated with BFTA would be as follows:

- > establishment and management of an "Incident Log Book" by the Range Control Officer to record incidents and complaints
- > investigation of complaints and reporting of the findings and any required actions to the EAC
- > consideration of the complaint investigation findings in the planning and approval process for future training exercises

This protocol is established in the relevant Sub-Plans of the EMP.

#### ***Performance indicators for many of the sub-plans should include "no complaints". (NLC)***

A performance indicator of "no complaints" is appropriate and specified for the Dust, Noise and Vibration Management Sub-Plan and the Social and Community Sub-Plan of the EMP.

#### ***A more appropriate procedure for auditing and reporting would be for annual internal audits and five yearly independent audits. The results should be reported to the Environmental Advisory Committee. (NLC)***

The proposed auditing and reporting procedures are considered appropriate and adequate. As stated in the EMP, Defence would arrange to conduct a compliance audit within three years of EMP approval and five yearly thereafter to ensure that environmental requirements are being met.

The Defence Local Controlling Authority may also arrange additional independent audits for major training activities. Audits would be reported to the Defence Local Controlling Authority and the EAC for corrective action as required.

The Defence Environmental Officer also conducts annual internal reviews on EMP Sub-Plan performance, with annual reporting.

### 3.3.7 Baseline surveys

***Baseline surveys have occurred over a short period of time and represent only a snapshot of the environmental attributes of Bradshaw Station. Where areas have not been surveyed, the existence of an Environmental Management Plan is not sufficient to protect these areas. Information needs to be obtained for management plans to be effective. Baseline surveys need to be carried out to provide information so that the performance indicators can be identified and ecological thresholds established as early warning signals of environmental degradation. (EA)***

***Further surveying and monitoring of both flora and fauna are required to give a more complete indication of the existing natural history of Bradshaw Station. Additional field surveys must be completed before construction of new ring roads and camps and before full scale training exercises commence. (EA)***

***Watersheds where construction and operational activities would occur should be comprehensively surveyed for environmental and heritage constraints before activities commence. (EA)***

The core function of the Draft EIS was to provide a basis on which BFTA could be managed, both in terms of large scale resource management as well as specific site or area management where required. Included in the Draft EIS was a strategic EMP based on the results of baseline environmental studies.

The scope of baseline surveys were planned in consultation with both Northern Territory and Commonwealth Government representatives. A Planning Workshop was held in August 1996 which identified key issues required to be addressed in the Draft EIS and provided the initial direction for the Draft EIS and, in particular, the aim, scope and methodology of baseline field surveys. The workshop also confirmed that the Draft EIS should include a strategic EMP.

The workshop acknowledged the scale of the property and the need to prioritise and target surveys to provide broad baseline results that could be utilised to assess the proposal as a whole, as well as identify specific survey requirements associated with infrastructure development. The timing for surveys was determined on the basis of obtaining cost effective access for gathering as much scientific knowledge as possible as effectively as possible.

It is common practice to utilise the dry season to conduct resource field surveys. In doing so, it is recognised that some additional data may need to be gathered during the "shoulders" of the wet season or during the wet season to broaden the database.

The following process was used to determine the priorities and targets for baseline surveys:

- > desktop study for property and regional data
- > discussions with government agencies on priorities
- > identification of military requirements in terms of infrastructure and training through a Provisional Range Siting Board (refer Section 3.4.2)
- > targeting infrastructure sites and priority training areas for surveys
- > conduct of surveys and modification of survey targets following preliminary results obtained
- > completion of surveys and reporting for Draft EIS
- > inclusion of survey results as undertakings in Draft EIS and EMP
- > utilisation of baseline surveys to identify additional survey needs and develop specific monitoring programs



Examples of where modifications have been made to the siting of infrastructure on the basis of preliminary baseline studies include:

- > placement of the North Angalarri Road centreline and the TFMA away from Whirlwind Plain
- > placement of the second camp and airstrip away from the Koolendong Valley
- > shape of the Angalarri HEIA
- > placement and shape of the Yambarran HEIA

The essential areas for infrastructure are now established, supported by the findings of the Draft EIS. Final siting of infrastructure would be confirmed on the basis of the survey results and engineering requirements.

Section 9(1) of the *Australian Heritage Commission Act* states "All Departments and all authorities of the Commonwealth shall give to the Commission such assistance in the carrying out of its functions as is reasonably practical", while Section 9(2) states that "All Departments and all authorities of the Commonwealth shall comply with all reasonable requests for information made to them by the Commission in the performance of its functions." These requirements are reflected in the *Defence Instruction (General) ADMIN 40-1 Environment and Heritage Protection* and Defence will comply with all reasonable requests for assistance and information. The Act does not appear to reflect EA's implied Defence "responsibilities" and "obligations" under the Act to conduct surveys over the entire property. Due to cost, the areas surveyed are those areas likely to be impacted by military activities.

Criticism has been directed at elements of survey methodology and interpretation of data, particularly in respect to shoulder and wet season surveys, bat species, the Nabarlek and the validity of sensitivity zones formulated as part of the archaeological assessment. As indicated previously, in establishing the various field survey consultancies and the terms of reference for those consultancies, Defence worked closely with relevant departments and agencies of the Northern Territory Government. This was consistent with the agreed outcome of the Planning Workshop attended by Commonwealth and Northern Territory Government representatives that the Northern Territory Government would be the lead agency in the joint EIS assessment process. Any criticism of methodology or interpretation to a certain degree reflect on the competencies of the Northern Territory Government departments and agencies involved and is a matter which Defence feels should be addressed at an appropriate intergovernment forum.

The need for additional surveys will be determined in consultation with relevant government agencies following the process for survey, monitoring and management program development and implementation outlined in Section 3.3.1. The decision on additional surveys would be based on the following considerations:

- > need to infill current survey areas to confirm and compare inherent status
- > need to survey previously unsurveyed areas based on training and management need
- > confirmation of common survey reference sites and areas
- > continuity of survey methodology
- > linkage of survey sites to aid in monitoring protocols
- > utilisation of the GIS
- > accumulation of knowledge over time

This process has begun with meetings held with DLPE, DPIF and PWCNT to establish additional survey objectives.

The conduct of additional surveys would incorporate the use of the following methodologies as appropriate:

- > permanent, control, treatment and disturbed sites
- > satellite imagery and photo points
- > point source, site, plots and linear methods to suit need
- > the GIS to combine and manipulate textual, graphic and numeric attributes

Defence will consult with relevant government agencies such as DLPE, DPIF, PWCNT, THS and AAPA to establish the need for, priorities and scope of additional surveys, as well as to confirm appropriate methodology based on previous survey results and monitoring requirements.

The establishment of any additional surveys would be linked to results from previous surveys and the proposed PWCNT research proposals (refer Section 3.8.5).

To ensure ongoing liaison between the Northern Territory and Commonwealth Governments on the development and management of BFTA and compliance with Commonwealth legislative and policy requirements, a Memorandum of Understanding (MOU) between the Northern Territory and Commonwealth Governments is proposed to be established. The MOU will require the Northern Territory Government to liaise with the Commonwealth Government (specifically Environment Australia) on proposed environmental management, survey and monitoring programs. The Northern Territory Government will maintain its role as lead agency and initial point of contact for Defence.

### **3.3.8 Role and composition of Environmental Advisory Committee**

***The roles and responsibilities of the Committee should be outlined. The Committee should be the main body to which environmental monitoring data and other environmental results are presented and should provide recommendations as to appropriate actions arising. (NLC)***

As with similar environmental advisory committees established for Defence training areas, the role and responsibilities of EAC will be to provide advice on environmental issues relating to the management of BFTA. It is an advisory body to the Local Controlling Authority (or Delegate). Implicit in its responsibilities is the fulfilment of auditing responsibilities and the facilitation of consultation with neighbouring land managers and authorities.

The EAC provides the strategic direction for management of BFTA and the implementation of the EMP. It should be noted that the Defence Environmental Officer and staff fulfil day to day environmental management responsibilities. The Defence Environmental Officer is a key member of EAC.

The proposed Terms of Reference for EAC are as follows:

- > preparation of advice on the environmental management of BFTA
- > preparation of advice on environmental management matters arising from use and development of BFTA
- > provision of advice on the implementation of plans, such as the EMP, and survey, management and monitoring programs

Defence will provide funding for the operation of EAC, including the cost of preparing an annual report on the activities of EAC to the Local Controlling Authority.

It is envisaged that EAC will meet every six months, with a view to progressing to a meeting every twelve months, although meetings may be convened at shorter intervals as required. Agenda items,

minutes of meetings and reports of EAC activities will receive wide distribution, as these will be the primary means for discussion and dissemination of its activities.

Defence will provide a proposed Environmental Activities Plan and an annual Training Forecast six to eight weeks prior to scheduled EAC meetings. This will facilitate internal consultation with member organisations prior to meetings.

The proposed composition of EAC is outlined in Section 3.4.6 of the Draft EIS. Discussion on possible additional members follows.

Government departments and other groups will be requested to nominate an EAC member, but have the option of inviting other persons on a needs basis should particular expertise in specific areas of EAC interest be required. Where appropriate, members of EAC may be required to liaise with and represent other agencies with a common interest, such as conservation groups, local government authorities and adjoining landowners.

Supporting EAC, the Director of Heritage and Environment within the Defence Estate Organisation plays a critical role in terms of policy guidance and the interface between Defence, the Commonwealth and Northern Territory Governments.

All planned activities, whether they be training activities within a designated training sector, the construction of temporary or permanent infrastructure, the development of new training sectors, or research activities, will be subject to rigorous review within the provisions of the EMP and Commonwealth and Northern Territory legislation. In compliance with its proposed Terms of Reference, EAC plays a significant role in the review of planned activities and in the development and operation of BFTA.

***Recommend that a person nominated by the Environment Centre of the Northern Territory fill a position on the Committee to provide significant and independent expertise in biodiversity conservation. (TWS)***

Due to the proposed composition of EAC (which includes government professional representatives), Defence does not believe that the addition of a representative from the Environment Centre of the Northern Territory is warranted.

***Beneficial to include an Aboriginal representative on the Committee. (EA)***

***Committee should include representatives of the Native Title holders and adjacent Aboriginal land trusts. Meetings should be held more than twice a year. (NLC)***

Defence is considering the request to include an Aboriginal representative on EAC. The NLC and AAPA will be consulted further on this matter.

***The Biodiversity Group should be invited to contribute a scientific representative to both the Steering Committee implementing the Environmental Guidelines for Construction Activities and the Environmental Advisory Committee. (EA)***

Defence will consult with EA on the provision of a position on EAC for an EA representative.

The Steering Committee proposed for construction on BFTA is designed to manage day to day construction issues on the training area. Defence considers the inclusion of an EA representative on the Steering Committee is unwarranted considering the management framework already proposed and

the standard nature of the work, namely roads, airstrips, a bridge and buildings. Construction progress reports will be presented to EAC meetings for information and discussion.

### **3.4 PROPOSAL**

#### **3.4.1 Selection and use of Bradshaw Station as a field training area**

***Concerned about the use of Bradshaw Station as a field training area and doubt the Army's ability to protect culturally and environmentally sensitive sites. (Mr Gary Brooker)***

Defence's management of BFTA would, as it has for many of its training areas, develop an integrated management regime for sustained military use and the conservation of the important environmental values of the area.

This management regime would include protection and management of sensitive areas, such as flora, fauna, sacred sites and archaeological places and objects. Currently degraded areas would also be subject to management attention, including issues such as erosion control, weeds and feral animal control.

The Draft EIS and EMP provide the strategic framework for the environmental management of BFTA, both in terms of infrastructure development and conduct of training over the life of the training area.

***Where no information has been gathered for a proposed training area, this area should be zoned as a constraint to training. As information is gathered, the constraints can be refined to allow the various forms of training. This particularly applies to the Western Hills Sector. (EA)***

***The Biodiversity Group recommends that no exercises or other activities be conducted in areas that have not been subjected to an adequate survey, such as the littoral zone. (EA)***

Defence commissioned a range of baseline environmental studies to assist in the environmental assessment of the project and the long term management of the property as a military training area. This included an initial desktop study to compile existing information held by Commonwealth and Northern Territory Government agencies and identify data gaps. Specialist studies were then carried out to establish initial baseline environmental information.

Given the size of Bradshaw Station and the time and cost required for comprehensive field surveys of the entire property, the baseline studies targeted areas of high priority in terms of proposed military use to determine essential environmental parameters, with the understanding that the need for additional surveys would be identified from the initial baseline results. These priority areas include areas proposed for infrastructure development, the proposed Yambarran, Wombungi and Angalarri HEIA and the proposed Western and Eastern Manoeuvre Areas, which would be the focus of major field firing and manoeuvre training.

The current level of scientific information has enabled Defence to determine initial levels of appropriate and sustainable training for each of the nine training sectors established. These nine sectors and current proposed level of training are as follows:

- > Western Hills Sector – for use as a non explosive field firing and dismounted training area
- > Koolendong Sector – for use as a field firing and manoeuvre training area
- > Lalngang Sector – for use as a field firing and manoeuvre training area
- > Yambarran Sector – contains an HEIA and is a field firing and manoeuvre training area

- > Little Fitzmaurice Sector – for use as a field firing and manoeuvre training area
- > Fitzmaurice Sector – for use as a field firing and dismounted training area
- > Angalarri Sector – contains an HEIA and is a field firing and manoeuvre training area
- > Ikymbon Sector – contains a HEIA and is a field firing and manoeuvre training area
- > Mount Thymanan Sector – contains an HEIA and is a field firing and manoeuvre training area

The current level of training proposed within each of these training sectors reflects the current priorities for training and scientific knowledge of environmental attributes. For example, the Western Hills and Fitzmaurice Sectors are lower priorities for training, hence the lesser focus on gathering environmental knowledge for these areas. The proposed level of training within these sectors has therefore been restricted to field firing and dismounted training, a level considered sustainable based on current knowledge. Any future changes to the proposed level of training within these sectors would be subject to additional field surveys, where considered necessary and where extrapolation of current knowledge about representative habitats is considered inadequate, to ensure that the level of training is appropriate and sustainable.

### 3.4.2 Training area infrastructure

***The siting of the proposed camp on the Yambarran Plateau and proposed Yambarran HEIA is inadequately justified and inconsistent with the findings of the baseline environmental studies. (NTG)***

The need for and provisional siting of initial infrastructure on BFTA was established through a Provisional Range Siting Board (RSB) held in November 1996. The role of the RSB is of importance. It is a formally convened Board whose task is to investigate and submit recommendations on range design or development and associated matters. Its President is normally a senior fighting arms officer and the Board members will include experienced officers from those fighting arms that will use the training area. An engineer officer is always a member of the Board. In the case of BFTA, the Board was directed to site camps, airstrips, support facilities, impact areas and road corridors. The Board's recommendations on development have been accepted by the Convening Authority as preliminary for use as a basis for planning, to be reviewed and confirmed against any recommendations made from the EIS process. A Confirmatory RSB will be convened at the completion of the EIS process.

A RSB is complemented by a Range Safety Board, convened to determine overall safety requirements for the operation of the range.

The RSB considered the basic infrastructure required to support sustained training and environmental management to ensure that the baseline environmental studies and EIS could focus on priority areas. The siting selection process considered a range of siting options and selected the most prudent and feasible option based on operational training and range management requirements, engineering factors and available environmental knowledge at the time. This process recognised the need for baseline environmental studies targeting proposed infrastructure sites to confirm the appropriateness of the provisional sites selected or to highlight where modifications may need to be made or where specific measures may need to be adopted to protect sensitive areas.

An example of the site selection process undertaken is the siting of the North Angalarri Road Corridor. Three options were considered for the provisional siting of this road corridor, as follows:

- > Option 1 followed the base of the Yambarran Plateau escarpment. This option was considered viable in terms of construction, with adequate sources of construction material and water and possibly the least number of creek and gully crossings. In operational terms, it was considered a good alignment, minimising areas alienated from training use. Training units could travel north along the road to their designated training sectors and deploy to the east to conduct training

activities. However, this option was considered unacceptable because of its proximity to significant cultural sites along the escarpment and because of the reduction in options for wet season training (due to flooding of Whirlwind Plain). This corridor also reduced the level of management access to the Angalarri Plain during the wet season.

- > Option 2 closely followed existing station tracks through the centre of the Angalarri Plain. From an operational perspective, this was not an attractive option, with the road cutting the available armoured vehicle manoeuvre area in half and thus restricting training options. Also, in terms of construction, the soil types require the importation of significant quantities of road base, surfacing material and construction water over substantial haul distances. Environmentally, this alignment is undesirable due to the complicated drainage pattern through this part of the Angalarri Plain.
- > Option 3, the proposed corridor, was considered the most prudent and feasible option. In terms of construction, it is on higher and firmer ground, thus reducing the engineering problems associated with latent ground conditions. Preliminary investigations also indicated a good availability of water and road material. Operationally, it alienates a lesser area from training use, while in terms of environmental considerations, it avoids sites or areas of environmental sensitivity.

Following selection of Option 3 as the most prudent and feasible option, the RSB then refined the corridor alignment considering issues such as geology, land units, soil characteristics, drainage patterns and associated vegetation and current knowledge on archaeological places and objects and sacred sites. This led to the current 1km wide road corridor within which a road alignment will be surveyed.

A similar process was adopted for the other infrastructure sites, including the other road corridors, camps and airstrips and HEIA.

Already, on the basis of the preliminary baseline environmental studies, modification of the siting of some infrastructure has been made. These include:

- > placement of the North Angalarri Road Corridor centreline and the TFMA away from Whirlwind Plain
- > placement of the second camp and airstrip away from the Koolendong Valley
- > shape of the Angalarri HEIA
- > placement and shape of the Yambarran HEIA

Following completion of the EIS process, it is intended that a Confirmatory RSB be convened to consider the recommendations from the environmental assessment process and the need for modifications to the proposal.

A similar RSB process would be adopted for the identification and siting of future additional infrastructure as required.

As noted, baseline studies were required to target areas of high priority in terms of proposed military use, including the proposed siting of infrastructure and HEIA. These studies included an assessment of soils, vegetation, fauna, heritage and sacred sites. The findings of these studies did not suggest that the proposed siting of the camp east of the Koolendong Valley or the Yambarran HEIA were inappropriate, provided appropriate measures for the protection and management of sensitive areas, such as riparian habitats and core fauna habitats, are implemented, both during the construction and operational phases.

***The Draft EIS suffers because of a lack of adequate and detailed diagrams and information detailing the location and design of the proposed infrastructure and development. (NLC)***

The format of an EIS restricts the type and amount of information that can be presented, particularly the scale of spatial information. In terms of proposed infrastructure, examples of typical Defence infrastructure constructed on other training areas were provided in the absence of detailed infrastructure design for BFTA at this stage. Infrastructure design by Defence for all of its training areas throughout Australia follows relevant Australian Standards, legislation and Commonwealth and/or State/Territory guidelines as appropriate.

Baseline environmental information as well as infrastructure and range development information has been recorded on the GIS for use in the planning and approval of future infrastructure requirements and training exercises and for the environmental management of BFTA.

***It is not specified that internal road construction details, including location of borrow pits, would be the relevant NT Government departments' responsibility. (NLC)***

All roads and infrastructure within Bradshaw Station would be owned and controlled by Defence. A contractor selected through an open tender process will complete design and construction.

Roads and borrow pits, as with all proposed infrastructure, would be designed and constructed in accordance with relevant legislation, standards and guidelines as appropriate, including the Department of Transport and Works *Roadworks Master Specification*. This includes the obtaining of all required approvals by the contractor from NT Government agencies.

***A clear description is required of how additional infrastructure would be developed and how the environmental impacts would be assessed and managed. (NTG)***

For the long term use of BFTA as a field training area, additional infrastructure may be required. This may include further airstrips, Scale A camps and constructed asset roads similar to those currently proposed and described in the Draft EIS.

The essential reasons for needing additional infrastructure would include:

- > to enhance training effectiveness (tactical use of asset roads, camps and airstrips)
- > administration of training exercises (logistic support on asset roads, air insertion to airstrips, logistic support storage at camps)
- > training control by environmental and range control staff (using asset roads, camps and airstrips)
- > environmental management (timely and effective access using asset roads)
- > safety (communications, road and air evacuation, fire management using asset roads)

The process used to identify, site and assess additional infrastructure requirements would be similar to the process followed for the identification and siting of initial infrastructure, as follows:

- > Training unit identifies need.
- > Environmental and range control staff identify need.
- > Validation of the requirement by higher authority and acceptance of the proposal by the Delegate, noting that EAC may have input into the validation and approval process.
- > Consult GIS on current scientific knowledge and historic training regimes.

- > Consideration of other options, with reference to environmental, operational and administrative influences, including discussions with relevant government authorities, a review of the proposal in light of Commonwealth and Northern Territory legislation and guidelines, consultation of the GIS database on current scientific and military knowledge, commissioning of additional studies or surveys as required and consultation as required with relevant government and private sector agencies. Such considerations may result in approval by the Delegate, the return of the proposal for further study or analysis, the raising of an NOI or further formal environmental assessment as directed.
- > Presentation of a recommended solution.
- > Convening of a Range Siting Board.
- > Delegate approval and the issue of an Environmental Certificate of Compliance.

In all cases, planning would be in accordance with the approved EMP, with guidance as required from EAC and the Heritage and Environment Section of the Defence Estate Organisation. Liaison with external agencies, whether government or private sector, would be undertaken as required.

### **3.4.3 Construction activities**

***The need to ensure that relevant operators' licences have been obtained should be included in the Personnel Induction and Safety Sub-Plan of the Environmental Guidelines for Construction Activities. (NTG)***

Construction contractors would be required to obtain all relevant licences under NT legislation. This requirement will be included in the Personnel Induction and Safety Sub-Plan of the Environmental Guidelines for Construction Activities.

***The requirement of the Personnel Induction and Safety Sub-Plan of the Environmental Guidelines for Construction Activities to locate infrastructure at least 1.6km from known mosquito breeding habitats is contrary to the recommendation of Territory Health Services that explosion craters and soil borrow pits within 4km of accommodation areas be filled or rendered free draining. (NTG)***

This issue has been clarified with the Medical Entomology Branch of Territory Health Services (THS). A minimum separation of 1.6km from large and uncontrollable natural mosquito breeding habitats and potential artificial breeding habitats such as explosion craters and soil borrow pits is recommended by THS. However, where practicable, separation distances of more than 1.6km are preferred. The greater control over the location and management of potential artificial breeding habitats may make larger separation distances potentially more attainable.

### **3.4.4 Amount of disturbance**

***There is no estimate of the area that would be significantly disturbed, including areas of vegetation clearance. (NLC)***

Vegetation clearance would be required for infrastructure development, including roads, camps and airfields. It is estimated that an area of some 500 hectares would require clearing for road development and other infrastructure. This represents less than 0.1% of the total area of Bradshaw Station. More importantly, final siting of infrastructure would ensure that potential adverse impact on sensitive habitats, such as riparian habitats and monsoon forests, are minimised.



Other areas of potential vegetation disturbance would include the training sectors which contain proposed HEIA and which would be used for mounted manoeuvre training. These areas are delineated and discussed within the Draft EIS. Vegetation in these areas would potentially suffer damage by firing of weapons and vehicle manoeuvres. However, training exercises would be planned to avoid or minimise vegetation disturbance, particularly to sensitive habitats and habitats of conservation significance. In addition, disturbed areas would be monitored and rested when appropriate to enable vegetation to recover before further disturbance occurs.

#### **3.4.5 Planning and approval of training activities**

***The EIS indicates that before an exercise plan is implemented, it is reviewed against specific environmental influences. Exercise plans may involve areas where environmental attributes have not been determined through baseline surveys and their sensitivity to military activities has not been assessed. It would therefore not be possible to review the plan against specific environmental influences. The planning and approval of training activities should correct this anomaly. (EA)***

The intent of the Draft EIS and EMP was to provide a strategic framework for the management of BFTA as a large scale resource and to provide essential survey data to assess environmental impacts and identify processes and methodologies for management and monitoring. On this basis, additional surveys, management actions and monitoring programs would be undertaken and modified over the life of BFTA.

The baseline studies provide a broad basis on which resource attributes have been identified. Land units, soils and vegetation are examples where such attributes have been mapped. The GIS can be used to layer these attributes during the training exercise planning process (refer Section 3.2.1).

At this stage, recognising the strategic focus of the Draft EIS and EMP, the emphasis has been on identifying processes for decision making, whether that be for additional surveys, management actions or monitoring programs. Training exercises would be planned against resource attributes, broad or specific, based on the training sector(s) under use and their management requirements. For example, broad monitoring programs could be implemented for soils, vegetation and fauna for the Angalarri Sector, as well as specific monitoring programs for a sensitive habitat, erosion, sacred sites or archaeological places and objects.

All proposed activities will be examined in accordance with the EMP, which includes reference to Defence guidelines and relevant legislation. Guidelines issued or developed relating to environment and heritage protection, including consideration of wild rivers and wilderness, are integral to the process. Where prudent and feasible, alternatives will be adopted or the activity will be modified to negate or reduce impacts. In all instances, activities must be approved by the appropriate Delegate and are the subject of a formal Environmental Certificate of Compliance (refer Section 3.2.1). Formal Post Activity Reports are raised and inspections are conducted to evaluate compliance with the issued authorisations and RSO and remedial actions implemented as required.

Defence's overall intent for establishing monitoring programs and for undertaking additional field surveys are outlined in Sections 3.3.1 and 3.3.7 of the Supplement respectively.

## **3.5 CLIMATE**

### **3.5.1 Cyclone awareness**

***Given the seasonal nature of cyclones, cyclone awareness briefings could be limited to those present at BFTA during the cyclone season. (NTG)***

All Defence installations within northern Australia have a Cyclone Plan. This plan forms part of SOP and includes the requirement for cyclone awareness briefings for personnel and the assigning of responsibilities in the event of a cyclone.

### **3.5.2 Automated weather stations**

***Automated weather stations linked to the EMIS would provide useful and up to date information for environmental management. (NTG)***

Defence is currently considering the number and location of automated weather stations required. Information from these weather stations would be recorded on the GIS to assist in management of the property.

## **3.6 GEOLOGY, LANDFORM AND SOILS**

### **3.6.1 Areas for wet season training**

***Criteria need to be developed to identify areas capable of being used for wet season exercises and appropriate management should be determined. (NTG)***

The majority of training would be undertaken throughout the dry season. The wet season coincides with the major unit posting cycle and block leave period. In addition, 1<sup>st</sup> Brigade has essential emergency and response tasks that require a minimum level of permanent staff, vehicles and equipment based in Darwin through the wet season. These factors, combined with the need to ensure value for training during the wet season, would mean that training would only be conducted for very specific wet season needs.

Should there be a need to conduct training during the wet season, the planning and approval of training exercises would consider training value, personnel safety and environmental factors associated with a wet environment. Indicators of trafficability recorded on the GIS, including topography, soils and native vegetation would be used in the planning process to identify areas capable of being used for wet season training. Strict conditions would be placed on wet season training, particularly on vehicle movements.

### **3.6.2 Soil monitoring program**

***Further information on the proposed soil monitoring program is required. (NTG)***

***Monitoring should include turbidity of surface waters in impacted areas. (NLC)***

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1 of the Supplement. This emphasises the strategic nature of the Draft EIS and EMP and the need for the development of more specific management and monitoring programs, including appropriate monitoring methods and performance indicators.

Discussions with DLPE have confirmed that the current baseline surveys of land systems and soils is adequate for a broad baseline on which future training and management can be implemented. Advice from DLPE emphasises the need to conduct infill surveys to provide a sound basis on which trafficability can be modelled and monitoring programs implemented. The essential criteria are soil characteristics and soil performance based-on the Draft EIS findings.

Defence will consult with DLPE to establish soil monitoring programs and confirm methodologies for soils and erosion monitoring programs. The monitoring programs would be linked with other monitoring programs where relevant, such as water quality and macroinvertebrate monitoring programs (refer Section 3.10.1) and the proposed PWCNT research proposals.

### **3.6.3 Acid sulphate soils**

***The EMP should detail measures for identifying, before excavation or large scale groundwater pumping, potential acid sulphate soils in areas where surface elevation is less than 5m above mean sea level. Measures for avoiding their exposure to air, or other means of minimising the release of acid, should also be included. (EA)***

The following response is based on further advice from the soils consultant.

Extensive areas of acid sulphate soils occur on floodplains in the Northern Territory. Notably, the floodplain of Magela Creek flowing into the East Alligator River in the Jabiluka mining lease area in Kakadu National Park has been studied in detail. This is an extensive floodplain in the seasonally wet tropics. Acid sulphate materials buried by alluvium in the upper reaches of Magela Creek are seasonally oxidised in the body of the floodplain and remain reduced in the lower reaches of the floodplain. The Magela Creek acid sulphate soils occur at 3 to 5m AHD elevation.

The geomorphic setting is different to the floodplain of the Victoria and Angalarri Rivers on Bradshaw Station. The coastal plains and floodplains are not as extensive. The Victoria River is incised through a rugged sandstone landscape. The Angalarri River system does not show the same evidence of estuarine deposition that is found on the Magela Plain. At the time of the soil survey, it was expected that potentially acid sulphate soils could be developing in the estuarine and deltaic plain and that they may also occur stranded at higher elevations as a result of previous sea level highs. Areas of clay plain at the lower, upper and lateral extents of the Angalarri River system as well as the estuarine and deltaic plain were surveyed. Soils in the stranded clay plains on the Angalarri River system were calcareous at depth and there was no indication of acid sulphate conditions occurring. Also, outcrops of underlying siltstone indicated that there was not a great depth of alluvium.

Soils that were surveyed on the estuarine and deltaic plain and gently sloping coastal plains did not have any of the visible or pH properties of acid sulphate soils within 1.5m of the surface. It is possible that potential acid sulphate soil conditions occur at greater depths. These would be associated with low sea levels in the past or burial under alluvial/colluvial sediments.

There was no evidence of acid sulphate materials occurring in the Koolendong Valley (Dinnabung land system). The lower reaches of the valley, entering the Fitzmaurice River, were uniformly sandy, with no evidence of estuarine muds associated with potentially acid sulphate materials.

Extensive mangrove habitats/facies and associated acid sulphate soil materials were not identified during the field survey work. There was no evidence that they had been extensive in the past.

On this basis, the assessment of acid sulphate soils provided within the Draft EIS is considered reasonable. This identified moderate to high risk of acid sulphate soils within Land Units 1a and 1c,

which comprise the tidal flats and swamps fringing estuarine flats in the western coastal areas of Bradshaw Station and along the lower reaches of the Victoria and Fitzmaurice Rivers.

These areas are not a high priority for military use and are unsuitable for RAN training due to physical constraints. However, should use of these areas be proposed in the future, potential acid sulphate soils would be identified and appropriate measures to avoid or minimise the release of acids would be implemented in consultation with DLPE and in accordance with land reclamation guidelines for coastal areas currently being drafted by DLPE.

#### **3.6.4 Vulnerability of watersheds to degradation**

***As approximately 300km of road are proposed, the traffic impact upon soil and the soil's regenerative capacity would be important parameters to assess a watershed's vulnerability to degradation. (EA)***

The potential soil constraints to military use for each land unit within Bradshaw Station was defined in the Draft EIS, including erosion risk, traffic impact and regenerative capacity. This information has been recorded on the GIS and would be used in the training exercise planning and approval process.

The Soils and Erosion Sub-Plan of the EMP provides the management framework to minimise soil loss and degradation and minimise sedimentation of waterways. As stated in Section 3.6.2, Defence will consult with DLPE to establish soil monitoring programs and confirm methodologies for soils and erosion monitoring programs. The monitoring programs would be linked with other monitoring programs where relevant, such as water quality and macroinvertebrate monitoring programs (refer Section 3.10.1) and the proposed PWCNT research proposals.

#### **3.6.5 Mapping of soil constraints**

***When assessing the vulnerability of land units to degradation, the "soil constraints to military training" would be the most useful parameter to have mapped. The EIS should map the soil constraints for land units based on the information contained in Table 5.2. (EA)***

All information gathered for the Draft EIS has been recorded on the GIS and would be used as required by the Project Manager for construction and the Defence Environmental Officer for future infrastructure and training exercise planning and approval.

## 3.7 VEGETATION

### 3.7.1 Limitations of baseline vegetation surveys

***The vegetation attributes of Bradshaw Station have not been adequately characterised as the baseline survey was conducted over a 2-week period during the dry season. The baseline survey should record the occurrence of floral species that appear during the "shoulders" of the wet season when training activities can be expected to occur. The baseline survey should also document the change in the vegetation during the dry and wet season as training activities could occur during this transition period. (EA)***

***It would be highly desirable to carry out a further plant survey either at the end of the wet season or early in the dry season to give a fuller picture of the existing vegetation. This should be undertaken before any final decision is made on the precise location of camps, roads and other military installations. (EA)***

Defence's overall intent for undertaking additional field surveys is outlined in Section 3.3.7 of the Supplement.

Discussions with DLPE and PWCNT have confirmed that the current baseline survey status for vegetation as a broad baseline on which future training and management can be implemented is adequate. Advice from PWCNT emphasised the need to further consider undertaking additional vegetation surveys in the following areas based on training priority, training need and environmental management requirements:

- > the northern half of the Koolendong Valley
- > the Yambarran Plateau, including the Yambarran HEIA
- > the Mount Thymanan area

These areas reflect a training and management priority and do not preclude additional surveys being undertaken in currently identified lower priority training sectors as and when required.

PWCNT also emphasised that site selection can be linked with other survey and monitoring requirements such as soils, fauna and fire where appropriate.

Defence will consult with DLPE and PWCNT to establish the need for, priorities and scope of additional vegetation surveys based on the above advice. The need for wet season shoulder and wet season surveys will also be discussed, particularly in terms of its importance for comparison of floristic cover between the wet and dry seasons in relation to climatic, construction and training impacts. Discussions would also confirm appropriate methodologies based on previous survey results and monitoring requirements.

The establishment of these additional surveys would be linked with other surveys where appropriate and the proposed PWCNT research proposals.

***Vegetation constraints for construction and operational activities should be mapped based on, but not limited to, the information contained in Table 6.4 and those species which have been marked in bold in Table 6.1. (EA)***

All information gathered for the Draft EIS has been recorded on the GIS and would be used as required by the Project Manager (for construction) and the Defence Environmental Officer (for future infrastructure and training exercise planning and approval).

The proposed PWCNT research proposal (refer Section 3.8.5) will further add to Defence's understanding of vegetation habitats of conservation significance such as *Melaleuca minutifolia* and *Xerochloa* grassland. The findings of this research will assist in refining management strategies for these habitats.

***Coastal habitats have not been surveyed for their vegetation attributes and should be regarded as a constraint to construction or operational activities. (EA)***

Coastal areas are not a high priority for military use and are unsuitable for RAN training due to physical constraints. However, should use of these areas be proposed in the future, vegetation surveys would be undertaken as required in consultation with PWCNT to ensure appropriate protection and management of sensitive or significant vegetation species and habitats.

### **3.7.2 Construction impacts**

***The Draft EIS does not adequately describe the impacts from construction upon the vegetation attributes of Bradshaw Station. "Short term effects are unavoidable during the construction of camps and airfields..." is not a satisfactory description of impacts. (EA)***

Defence reiterates the statement that short term effects on vegetation are unavoidable during the actual construction of camps, airfields and other infrastructure. It is estimated that an area of some 500 hectares would require clearing for road development and other infrastructure. This represents less than 0.1% of the total area of Bradshaw Station.

Final siting of infrastructure would ensure that vegetation impacts, particularly on sensitive habitats such as riparian habitats and monsoon forests, are minimised following the specific guidelines for final siting outlined in the Draft EIS (Section 6.2.1) and the management strategies contained in the Flora and Fauna Sub-Plan of the Environmental Guidelines for Construction Activities (Volume 2A).

### **3.7.3 *Melaleuca minutifolia* disturbance**

***The Vegetation Management Sub-Plan of the EMP calls on Defence to "Minimise disturbance in Melaleuca minutifolia low woodland...". It is not clear how this would be achieved if this vegetation type occupies large tracts of the Angalarri Plain as it appears on Figure 6.3. (EA)***

The vegetation baseline survey identified *Melaleuca minutifolia* in a number of training sectors. The distribution of this species has been recorded on the GIS and would be considered in the training exercise planning and approval process and in the establishment of specific monitoring programs.

The management of *Melaleuca minutifolia* may include a number of strategies available to environmental staff, such as avoidance, rotation, rest, use of fire, or activation of management zones for specific training exercises.

The proposed PWCNT research proposal (refer Section 3.8.5) will further add to Defence's understanding of *Melaleuca minutifolia* and associated grasslands of the Whirlwind and Angalarri Plains, particularly in providing options to refine management strategies.

### **3.7.4 Siting of infrastructure**

***Guidelines for the final siting of the following infrastructure to reduce impacts on vegetation should be described: Koolendong Road Corridor; Angalarri Loop and North Road Corridor; secondary roads; and TFMA and airfield. (EA)***

Specific guidelines for the final siting and construction of the camp and airstrip east of the Koolendong Valley, the Yambarran Loop Road and construction of asset roads (primary and secondary) were provided in the Draft EIS (Section 6.2.1) to reduce impacts on vegetation. This recognises that vegetation habitats sensitive to disturbance located nearby, such as riparian habitats and monsoon forest, need to be avoided and protected from construction activities.

Specific guidelines for the final siting and construction of other proposed infrastructure, such as the Koolendong Road Corridor, Angalarri Loop Road and North Road Corridor and TFMA and airstrip, to reduce impacts on vegetation were not put forward by the vegetation consultant. It has subsequently been confirmed that specific guidelines for the siting and construction of this proposed infrastructure are not considered by the vegetation consultant as being required given that sensitive vegetation habitats or habitats of conservation significance would not be affected.

Construction of the proposed infrastructure would be undertaken in accordance with the Environmental Guidelines for Construction Activities (Volume 2A).

***More intensive surveys of flora would appear necessary before construction of the TFMA. (EA)***

Vegetation survey sites were located in close proximity to the TFMA, with four survey sites within 1.5km. More importantly, these survey sites were located within habitat representative of that which occurs over the TFMA site. The vegetation consultant did not indicate a requirement for any additional surveys.

### **3.7.5 Consideration of annual species**

***Consideration should be given to annual species that may not be apparent at the time of the annual monitoring program. (NTG)***

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1 of the Supplement.

Defence recognises the need to consider annual species when establishing monitoring programs. The recommendation of the vegetation consultant was not intended to disregard annual species, but rather, to emphasise the need to establish an annual monitoring program effective in identifying performance indicators. The program would be established on an annual basis, but implemented throughout the year to account for seasonal variations. Defence will seek DLPE, PWCNT and DPIF advice on this issue.

### **3.7.6 Weeds and weed management**

***Consideration should be given to the spread of weeds within BFTA by military vehicles during exercises. (NTG)***

Current knowledge of areas of weed infestation within Bradshaw Station has been recorded on the GIS. This information would be used in the training exercise planning and approval process to ensure that vehicle and troop movements avoid known areas of infestation, such as along the Victoria River.

Weed management and monitoring will be undertaken in consultation with DPIF and adjoining landowners to ensure a cooperative regional approach. Weed management would focus on areas of high priority for military training, isolated outbreaks, areas strategically important for preventing further spread such as along waterways and around disturbed areas and areas infested with weeds of serious threat to conservation such as Parkinsonia.

Monitoring will be undertaken to ensure early detection of weed outbreaks (as stated in the Vegetation Management Sub-Plan). New information will be recorded on the GIS.

***Castor Oil Plant (Ricinus communis) is known to occur along the Victoria River in the vicinity of BFTA and should be included in management considerations. (NTG)***

Castor Oil Plant is a declared noxious weed that occurs along the bed and banks of waterways. This weed species was not recorded during the baseline surveys, however, given that it is known to occur in the vicinity of BFTA, this species would be included in management and monitoring strategies.

***Further information is required regarding policy for usage of the vehicle washdown facility. Weed seed should be disposed of by burning. (NTG)***

A vehicle wash facility is proposed at the TFMA to prevent the migration of weed and pest species as well as plant pathogens into or out of the area. All off road vehicles would be washed at this facility prior to leaving BFTA. Vehicles from Darwin would be washed at Robertson Barracks prior to departure. Defence is also investigating means to ensure interstate and intrastate vehicles also enter BFTA "clean", such as utilising vehicle inspection and wash down on route and by preventing off road travel while in transit.

Any weed seed would be captured, contained and disposed of at a designated solid waste landfill site, as stated in the Waste Management Sub-Plan of the EMP (refer Appendix A of Supplement).

***The weed list is not exhaustive. Noxious weed rating is not as exhaustive as environmental weed rating. It would be appropriate for an environmental weed rating to be used given that an objective of the development is to conserve natural resources. (NLC)***

Following discussions with DPIF, Defence is not aware of any environmental weed rating used as an alternative to the noxious weed classification system. Nevertheless, Defence recognises that more weed species than those recorded during the weed survey may occur within Bradshaw Station. These would need to be identified in consultation with DPIF and included in management considerations. It should be noted however, that Defence manages for all weed species on its training areas.

***It is simplistic to say that removal of cattle and other livestock infers that the result is always a positive movement in land condition. If there are introduced pasture species present on the floodplain, the quick removal of livestock could result in the proliferation of weed species. (NLC)***

Defence recognises that the removal of cattle has the potential to result in the proliferation of weed species. This problem can be best controlled through the implementation of appropriate weed and fire management as proposed by Defence.

In the longer term, the removal of cattle, together with the implementation of the proposed management practices by Defence, can be reasonably expected to result in improvements to the overall condition of the property.



### 3.7.7 Vegetation management and monitoring

***The management and monitoring recommendations of the vegetation consultant are strongly supported. Defence are urged to implement them in full as part of its commitment to the ecologically sustainable management of Bradshaw Station. (EA)***

The management and monitoring recommendations of the vegetation consultant as interpreted by Environment Australia and Defence's response on each recommendation are as follows:

- > *Where areas such as sandstone habitats, riparian habitats and monsoon forest have been identified as sensitive areas and any form of activity is contemplated, such activities should be restricted to activities that do not involve a fire risk.*

Acknowledged. Fire sensitive sandstone habitats, riparian habitats, monsoon forests and coastal habitats are recognised as being potentially ecologically sensitive. Appropriate management strategies for each of these habitats are outlined in the Draft EIS and EMP. Fire management for sensitive habitats is discussed further in Section 3.9.2.

- > *The most effective way to protect monsoon forests is to burn away from these areas early in the dry season.*

Acknowledged. Fire management comprising back burning from the margins of monsoon forest would be undertaken under appropriate weather conditions, including wet season or early dry season burns, to provide protection from late dry season wildfires.

- > *Degraded areas undergoing rehabilitation require protection from fire.*

Acknowledged. However, it should be noted that fire is an option available to be used to encourage perennial vegetation and suppress woody weeds.

- > *Research is required concerning the potential erosion effects of wet season burning.*

All active burning programs would be monitored. Wet season burning has been utilised successfully by Defence on other training areas as a means of reducing fuel loads by "cool" burns. Of most concern to Defence in terms of monitoring for erosion effects of burning programs would not necessarily be the wet season burns (given that the soil and vegetation are saturated), but rather, late dry season wildfires prior to the onset of heavy rain storms or monsoon conditions. Late dry season wildfires are of concern to all land managers who wish to maintain a soil base.

The proposed PWCNT research proposal on fire will assist Defence in refining its fire management practices in terms of objectives, timing and monitoring.

- > *There is a requirement for alternative access from the Yambarran camp to the Koolendong Valley to avoid sensitive riparian habitats.*

The actual road access from the Yambarran camp into the Koolendong Valley has not been finalised. Options for final route selection include following the current property track which accesses the valley through a break in the southern end of the spur line, or an alternative access through one of the other breaks in the spur line. The final selection of the route would be based on environmental considerations (such as geology, terrain, soils, drainage, waterlogging, vegetation, sacred sites, archaeological places and objects) and engineering requirements.

The asset road would be constructed to minimise its impact on the surrounding environment and to be sustainable under various training regimes and climatic conditions.

- > *Buffer zones are required around monsoon forests to ensure that ammunition does not fall within 500m of the forest edge.*

Defence would prefer not to establish prescriptive buffer or management zones for vegetation habitat management. Instead, Defence would prefer to establish management zones based on the specific needs of the area, such as fire protection, physical protection, or safety. It should be noted that Defence does use zones in its training areas to identify areas where rounds are directed not to fall.

The establishment of appropriate management zones for sensitive vegetation habitats will be discussed further with PWCNT.

- > *Permanent sites are required as part of the monitoring program for military activities.*

Acknowledged. Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1.

### **3.7.8 Rehabilitation of disturbed areas**

#### ***Appropriate native species should be used for rehabilitation of areas damaged by training.*** **(NTG)**

Defence is committed to the use of appropriate native species for long term rehabilitation of disturbed areas as much as possible to ensure that a natural environment is sustained. However, in some circumstances, where faster stabilisation and rehabilitation is required to prevent serious erosion, pasture species may be used in the short term. In this event, the selection of an appropriate pasture species would be undertaken in consultation with DPIF.

## 3.8 FAUNA

### 3.8.1 Core fauna habitats

***Further information is required as to how core fauna habitats in the Western Hills, Lalngang and Little Fitzmaurice training sectors would be conserved if training is to occur in them before they are surveyed. (NTG)***

***The Little Fitzmaurice River frontage, northern regions of the Yambarran Plateau and hills to the north east of the Angalarri Plain are all part of designated manoeuvre areas. These areas should be considered as having constraints on manoeuvres until surveys indicate the presence or absence of core fauna habitats. Following surveys, the constraints to using these areas can be refined. (EA)***

***The Western Hills, Lalngang and Little Fitzmaurice training sectors were not surveyed for core fauna habitats. It is recommended that these training sectors should be zoned as constraints to operational activities until surveys indicate the absence or presence of core fauna habitats. (EA)***

A core fauna habitat is a prime sanctuary for important species and may include representative groups of most taxa, high species diversity and abundance, high fidelity species (species restricted to single habitats), endemic species and refugia for species that are of conservation significance.

The baseline fauna survey identified three core fauna habitats within Bradshaw Station. These were:

- > rocky habitats, particularly rocky slopes and gullies with closed forest (monsoon forest)
- > streams and riparian habitats associated with rocky hills
- > grasslands with swamps

Representative examples of these three core fauna habitats were identified through the field surveys undertaken. By using the data layers on the GIS, similar core fauna habitats can be identified throughout Bradshaw Station without the need for further specific field surveys. Similar management strategies for these core fauna habitats would be adopted as outlined in the Draft EIS and EMP, including the use of management zones, restrictions on disturbance, active management of feral animals, weeds and fire and monitoring of species richness and abundance.

The fauna consultant has advised that two other habitats within Bradshaw Station, both located within the Western Hills Sector, may be identified as core fauna habitats through additional field surveys. These are the coastal flats and dissected sandstone habitats. Elsewhere in northern Australia, these habitats contain a high species richness of waders and endemic birds respectively and it is highly likely that distinctive species also occur.

As identified in the Draft EIS, the Western Hills Sector, including the coastal flats, is a low priority for military use. Should the Western Hills Sector be proposed for more intensive training than currently identified, the need for additional field surveys would be discussed with PWCNT. The dissected sandstone habitats can be identified on the GIS based on current knowledge and managed in a similar manner as rocky habitats.

Defence's overall intent for undertaking additional field surveys is outlined in Section 3.3.7 of the Supplement.

***Question as to what criteria would be used to determine the size of management zones surrounding core fauna habitats. (NTG)***

The size of management zones surrounding core fauna habitats would be determined in consultation with relevant Government agencies. A standard method that may be used is half the home range of an appropriate habitat-specific resident species that uses the area. Therefore, the size of management zones may vary for each core fauna habitat and the management zone boundary surrounding each core fauna habitat may also vary.

***Continued fauna, vegetation and water quality monitoring should be utilised to ensure that management strategies for use of water from Barramundi Waterhole and Mussel Hole Yard are effective. (NLC)***

Barramundi Waterhole and Mussel Hole Yard are both located within core fauna habitats. It is recognised in the Draft EIS that extensive use of water from these natural waterholes may lower water levels and cause a decrease in species richness and abundance. Specific management strategies and monitoring principles for core fauna habitats are established in the Draft EIS and the Fauna Management and Water Resources Sub-Plans of the EMP.

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1. Defence will consult with DLPE and PWCNT to establish monitoring programs for natural waterholes and core fauna habitats.

***Core fauna habitats should also be shown on Figure 7.1 for the other training sectors. Further, Figure 7.1 should be modified and enlarged to display identified core fauna habitats and their buffer zones. Core fauna habitats should be zoned as constraints to operational activities. (EA)***

The amount and scale of spatial information that could be presented was limited by the format of the Draft EIS document. Core fauna habitats and associated management zones within BFTA will be delineated on the GIS for planning and management requirements.

As stated in the Draft EIS, training activities, except transit, would be excluded from core fauna habitats and specific management strategies would be adopted to protect these habitats, including the use of management zones, active management of feral animals, weeds and fire and monitoring of species richness and abundance.

***It is noted that the EIS includes a recommendation that no training activities other than transit should occur in core fauna habitats. If such transit included access to tanks and tracked vehicles then it would appear that this exception has the potential to allow destruction in a designated area. (EA)***

Transit means utilising the road network. No off road manoeuvre training would occur within core fauna habitats.

***The core fauna habitats identified do not include waterholes within the Ikymbon training sector such as King Billabong. Defence management should provide for improvement of these areas as fauna and flora habitat. (EA)***

No core fauna habitats were identified within the Ikymbon Sector. Nevertheless, riparian habitats, including waterholes, are recognised as sensitive habitats that require the adoption of specific management strategies. These are outlined in the Draft EIS and EMP and include the delineation of

appropriate management zones within which vehicle and human disturbance should be minimised and active management of existing environmental degradation.

### **3.8.2 Sensitive areas**

***The two sensitive areas identified within the Mount Thymanan training sector should be regarded as areas that present a constraint to operational activities and should be mapped. (EA)***

The first recognised sensitive area is the original collecting site of the Angalarri Grunter (a rare fish with restricted distribution) within the proposed Wombungi HEIA. The species recorded as the Angalarri Grunter during the baseline fauna survey has subsequently been found to be the Butler's Grunter (*Syncomistes butleri*), a species that has a widespread distribution and is not considered rare. Nevertheless, the Angalarri Grunter has previously been recorded in the vicinity. The need for and scope of a further survey to confirm the presence or absence of the Angalarri Grunter and the need for specific management strategies will be discussed with PWCNT. In the interim, the management strategies for riparian habitats would be adopted, including the delineation of appropriate management zones within which vehicle and human disturbances would be minimised active management of existing environmental degradation. These management zones would be recorded on the GIS and used in the training exercise planning and approval process.

The second recognised sensitive area relates to the conservation of the Gouldian Finch, which has been previously recorded in the Angalarri HEIA, including breeding records near Mount Thymanan. As stated in the Draft EIS, until further field surveys confirm the presence or absence of the Gouldian Finch in this general area, restricted training activities would be undertaken. To provide coverage of previously recorded breeding areas and other suitable breeding habitat and watering points, an area of some 50km<sup>2</sup> extending south east from Mount Thymanan to the Ikymbon River would be recorded on the GIS and used in the training exercise planning and approval process.

The need for and scope of a survey for the Gouldian Finch will be discussed with PWCNT. Should the presence of breeding Gouldian Finches be confirmed, advice would be sought from PWCNT and the Gouldian Finch Recovery Team on an appropriate management plan to protect this species and its habitat.

### **3.8.3 Fauna surveys**

***Further surveys targeting both vertebrates and invertebrates should be carried out during the wet season and in previously unsurveyed areas of the property. (NTG)***

***The faunal attributes of Bradshaw Station have not been adequately characterised as the baseline survey was conducted during the dry season. Baseline surveys are required during the "shoulders" of the wet season when training activities can be expected to occur. (EA)***

***Faunal sampling should occur in the Yambarran and Wombungi HEIA to ascertain their faunal attributes. (EA)***

***The survey results strongly indicate that aquatic habitats have been inadequately surveyed. There is a need for comprehensive surveys in the "shoulders" of the wet season and constraint mapping for streams, springs and waterholes throughout BFTA, particularly those adjacent to, or in the watershed of, areas proposed for training activities. (EA)***

***More detailed baseline surveys of the freshwater aquatic fauna (macroinvertebrates and fishes) are required to establish distributional data for rare or restricted species and to provide baseline data to assess impacts of the development on freshwater systems. (NTG)***

Defence's overall intent for undertaking additional field surveys is outlined in Section 3.3.7.

Discussions with PWCNT have confirmed that the current baseline survey for fauna as a broad baseline on which future training and management can be implemented is adequate. Advice from PWCNT emphasised the need to further consider undertaking additional fauna surveys in the following areas based on training priority, training need and environmental management requirements:

- > the northern half of the Koolendong Valley
- > the Yambarran Plateau, including the Yambarran HEIA
- > on the Gouldian Finch in the vicinity of Mount Thymanan
- > on the Angalarri Grunter, including the Wombungi HEIA

These areas reflect a training and management priority and do not preclude additional surveys being undertaken in lower priority training sectors as and when the need dictates. PWCNT also emphasised that site selection can be linked with other survey and monitoring requirements such as soils, vegetation and fire where appropriate.

Defence will consult with PWCNT and DLPE to establish the need for, priorities and scope of additional specific fauna surveys, including the need for wet season surveys and aquatic habitat surveys. In relation to wet season surveys, advice from PWCNT is that wet season and wet season "shoulder" surveys are not likely to be required given that the majority of training would occur during the dry season. This will be discussed further with PWCNT during the planning for additional surveys and the PWCNT research proposals.

The undertaking of these additional surveys, where appropriate, would be linked with other surveys and the proposed PWCNT research proposals.

***Further baseline surveys during the 1997/98 wet season are suggested for inclusion in the final EIS. (NLC)***

The suggestion to undertake further baseline surveys in the 1997/98 wet season for inclusion in the final EIS has been overtaken by time.

***More intensive surveys should be conducted on the TFMA before construction. (EA)***

Fauna survey sites were located in close proximity to the TFMA, with two survey sites within 3.5km. More importantly, these survey sites were located within habitat representative of that which occurs over the TFMA site. The fauna consultant did not indicate a requirement for any additional surveys.

***It would be desirable for the proposed Angalarri Loop Road to join the North Angalarri Road Corridor on the west bank of the Angalarri River to remove the need for a road crossing and to minimise impacts on the fish *Scortum neilli*. (NTG)***

Figure 3.1 of the Draft EIS provided a Preliminary Infrastructure Plan. The road corridors shown are indicative only. Final siting would consider environmental and engineering factors identified during the baseline environmental studies and preparation of the Draft EIS. In relation to the proposed Angalarri Loop Road, it is probable that the road would be sited west of the main branch of the Angalarri River on higher ground, connecting with the North Angalarri Road Corridor further upstream.

***The ERAES survey produced only limited results during the dry season and its deficiencies were not corrected by the addition of the October 1997 survey. This was limited in both duration and geographical extent. Additional, more comprehensive surveys must be conducted to confirm or eliminate the presence of endangered or vulnerable wildlife species and to also include areas where there is a remote possibility of their use for future exercises or which may be indirectly affected by activity. (EA)***

The baseline fauna survey report identified additional species which were not recorded but which may occur on Bradshaw Station (Appendix 4). This included other endangered or vulnerable wildlife species not recorded during the surveys undertaken. These species were specifically targeted by the fauna consultant in fauna surveys (except bats) and were not found to be present. On this basis, there would appear to be no requirement for additional fauna surveys.

***An accurate inventory of wildlife species is required as the first stage in the development of an environmental management model that would play a key role in the region. Additional surveys are required for this purpose. (EA)***

Defence's overall intent for undertaking additional field surveys is outlined in Section 3.3.7. While an inventory approach may be suitable for smaller areas under development, it is not necessarily cost or time effective in developing a management regime for a proposal such as BFTA.

The emphasis of the Draft EIS and EMP has been on the decision making processes needed to establish management and monitoring regimes which can be applied across BFTA.

***It is not known why bats were excluded from the surveys conducted given that they would be at risk in an environment threatened by high explosive devices. (EA)***

In establishing the priorities for initial baseline surveys (refer Section 3.3.7), the need to study bats was identified as a low priority based on training need and potential impacts from training. Bats were therefore not targeted by the fauna surveys undertaken. However, despite this, 11 species of bats were recorded.

Bat roosting and breeding can be affected by three key activities – extensive clearing of vegetation, late dry season "hot" fires and disruption to breeding habitats (caves). Defence does not propose extensive clearing of native vegetation and has undertaken to implement a fire management program which reduces the risk of late dry season "hot" fires (except where required for management of specific habitats). Caves fall within a core fauna habitat (namely rocky habitats) and would be managed as part of that habitat.

Defence acknowledges advice from Environment Australia that an Action Plan for Australian Bats is nearing publication. Defence will provide assistance to EA to ensure that the recommendations of the Action Plan are implemented as far as practicable within BFTA.

***Populations of the rock wallaby known as the Nabarlek have previously been located near the Holdfast Reach section of the Victoria River, within the Western Hills training sector of BFTA. Two of the actions recommended for this species in the Action Plan for Australian Marsupials and Monotremes is the undertaking of a survey where decline has occurred (including the Victoria River District) and the management of fire at colony sites. These recommendations support the need for further surveys and emphasise the sensitivity of sandstone habitats. (EA)***

The Nabarlek has not been previously recorded on Bradshaw Station. However, there have been unconfirmed sightings. This species is not of conservation significance under the *Endangered Species*

*Protection Act 1992*, however, is listed as Near Threatened in *The 1996 Action Plan for Australian Marsupials and Monotremes* (Maxwell et al, 1996). The Action Plan states that the current threats to the Nabarlek are habitat change through altered fire regimes and feral cats and recommends the following actions:

- > examine ecology at one or more populations
- > monitor known populations
- > undertake surveys of sites where decline has occurred
- > manage fire at colony sites

Defence will provide assistance to EA to ensure that the recommendations of the Action Plan are implemented as far as practicable within BFTA. The proposed fire management strategies and feral animal control programs to be implemented by Defence, assisted by the proposed PWCNT research proposals on fire management and mammalian predators (refer Section 3.8.5) should assist in reducing potential threats to the Nabarlek.

***Surveys of the marine and littoral habitats of the Victoria and Fitzmaurice River mouths should be conducted to determine the possible presence of a number of species of marine turtles listed under the ESP Act. Dugongs may be present in the same areas as turtles as well as further up rivers on occasions. (EA)***

Defence's overall intent for undertaking additional field surveys is outlined in Section 3.3.7. Coastal areas are not a high priority for military use and are unsuitable for RAN training due to physical constraints. However, should use of these areas be proposed in the future, the need for fauna surveys would be discussed with PWCNT to ensure appropriate protection and management of fauna species of conservation significance, such as marine turtles and dugongs.

### **3.8.4 Role in the regional conservation network**

***Bradshaw Station has been identified as an important component of a regional conservation network. Conservation programs being undertaken in the surrounding areas and the role that BFTA can play to support them should be discussed. (EA)***

Defence recognises that effective environmental management of BFTA also requires a coordinated regional approach to management issues such as fire, weeds and feral animals. Defence's commitment to regional management and conservation programs is evidenced by the strategic EMP, the proposed Memorandum of Understanding with PWCNT for cooperative management of the property, the funding of PWCNT research proposals and the establishment of the EAC.

### **3.8.5 Research projects**

***If available, information should be provided on arrangements in train for research projects on fauna monitoring and feral animals (cats) funded by the Department of Defence and conducted by the PWCNT. (NTG)***

Defence is currently considering three research proposals from the PWCNT, which cover fire management, assessment of destocking and military activities on grasslands and associated habitat and mammalian predators.

Discussions have taken place with PWCNT on the proposals and Defence is currently considering them. It is likely that all three research proposals will be implemented, although the mammalian predator research proposal may require further discussion to confirm and refine its focus.



### 3.8.6 Spotted Grass Frog

***There is some doubt that the species identified as the Spotted Grass Frog (*Lymnodynastes tasmaniensis*) is indeed this species. (NTG)***

This species remains unconfirmed. The fauna consultant has sent live specimens to an expert at Adelaide University for genetic matching. This species was fairly abundant on Bradshaw Station, where it appeared to be restricted to grasslands and wooded habitats bordering the Victoria River. It is also understood that this species occurs in similar habitats within Keep River National Park.

### 3.8.7 Management and monitoring

***The management and monitoring recommendations of the fauna consultant are strongly supported and Defence is urged to implement them in full. (EA)***

The management and monitoring recommendations of the fauna consultant as interpreted by Environment Australia and Defence's response on each recommendation are as follows:

- > *No training activities should occur within identified core habitat areas.*

Three specific core fauna habitats are identified in the Draft EIS – rocky habitats, particularly rocky slopes and gullies with closed forest, streams and riparian habitats associated with rocky hills and grasslands with swamps. The Draft EIS states that training activities, except transit, would be excluded from core fauna habitats and specific management strategies would be adopted to protect these habitats, including the use of management zones, active management of feral animals, weeds and fire and monitoring of species richness and abundance.

- > *Activities be restricted in the vicinity of the collection site for the rare fish, the Angalarri Grunter.*

The Draft EIS states that minimal potentially disturbing training activities should be conducted in the vicinity of the original collecting site until further scientific information is obtained about the ecology of this species in order for an appropriate management plan to be developed. Defence's survey intent in relation to the Angalarri Grunter is outlined in Section 3.8.2.

- > *Sampling sites be established prior to the commencement of military exercises to provide benchmark data.*

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1. It is Defence's intent to consult with relevant government agencies to establish a monitoring program which would provide performance indicators appropriate for large scale resource management associated with planned training exercises.

- > *Specific monitoring be required for major field operations that have the potential to cause significant environmental damage.*

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1. It is Defence's intent to consult with relevant government agencies to establish a monitoring program which would provide performance indicators appropriate for large scale resource management associated with planned training exercises.

***The undertaking to establish permanent monitoring (sampling) sites in control and established areas does not appear to have been carried through to the EMP. (NTG)***

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1. The aim of the monitoring tasks outlined in the Fauna Management Sub-Plan of the EMP is to establish permanent, control, treatment and disturbed monitoring sites as appropriate.

***The EMP suggests that monitoring of fauna be carried out at the same sites and times as the fauna surveys. It is important to realise that seasonal aspects of fauna movement and not all habitats have been addressed. (NTG)***

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1. Defence's aim is to establish annual fauna monitoring programs, which are implemented throughout the year to take into account seasonal variations. Defence would seek PWCNT advice on this issue.

### **3.8.8 Gouldian Finch**

***If available, further information should be provided on the scope and timing of studies concerning the presence and distribution of the Gouldian Finch. (NTG)***

***It is strongly recommended that Defence prohibit training activities in the Mount Thymanan area until further field surveys can be conducted. Should the presence of breeding Gouldians be confirmed, Defence should seek advice from the PWCNT and the Gouldian Finch Recovery Team about an appropriate management policy. (EA)***

The Draft EIS states that, until further field surveys confirm the presence or absence of the Gouldian Finch in the general area of Mount Thymanan, restricted training activities would be undertaken. Defence's survey intent in relation to the Gouldian Finch is outlined in Section 3.8.2.

Should the presence of breeding Gouldian Finches be confirmed, Defence would seek further advice from PWCNT and the Gouldian Finch Recovery Team on an appropriate management plan to protect this species and its habitat.

### **3.8.9 Dingo control**

***Question raised as to whether the Department of Defence would be continuing a dingo control program. (NTG)***

Defence would not be undertaking a dingo control program on BFTA unless otherwise advised by PWCNT and unless as part of a regional program.

### **3.8.10 Wildlife corridor**

***The siting of the TFMA and bridge over the Victoria River in close proximity to the wildlife corridor between Gregory National Park and Bradshaw Station would exacerbate the lowering of value of the corridor beyond that already experienced from the Victoria Highway cutting the neck of this corridor. Recommend that the TFMA be sited away from this corridor. (TWS)***

A wildlife corridor, in its traditional form, can be defined as "...linear areas of vegetation...which contrasts in both vegetation structure and the form of land use with the surrounding land." (Saunders and Hobbs, 1991).

A wildlife corridor of such nature cannot be said to exist between Gregory National Park and Bradshaw Station. Further, the Victoria River provides a significant natural barrier to wildlife movement (except flight) between these two areas.

However, it could be expected that some movement of reptiles and larger mammals across the Victoria River may occur. The proposed siting of the TFMA, some 1.5km from the northern bank of the Victoria River (at its closest boundary), would not adversely impact on any such movement of wildlife.

### **3.9 FIRE**

#### **3.9.1 Priority areas for fire management**

***The Fire Management Sub-Plan does not appear to detail priority areas requiring active fire management. (NTG)***

The priorities for active fire management are outlined in the Draft EIS (Section 8) and include the following areas:

- > The eastern and north eastern boundaries, which should be burnt with follow up burns as necessary. This would provide protection from fires that may otherwise cross from neighbouring properties and would also protect neighbouring properties from fires that may originate within BFTA.
- > All HEIA, except where sensitive habitats occur, should be burnt to produce a mosaic pattern of burnt areas. Follow up burns may be necessary if burnt areas are considered to be too small to provide effective fire breaks and protection for personnel. Fire management for sensitive habitats is discussed further in Section 3.9.2.
- > Camp sites, the caretaker's residence and other key infrastructure, should be back burnt from fire breaks or other fuel-free areas. Fire breaks should be installed around infrastructure.
- > Fire sensitive habitats and species should be managed appropriately. Fire sensitive habitats include sandstone areas which may include many species that are obligate seeders, monsoon forest communities which are severely affected by fire and grassland communities which require a combination of early and late dry season burning to reduce fuel load and maintain vegetation structure by suppressing woody vegetation. Fire management for sensitive habitats is discussed further in Section 3.9.2.

These priority areas are incorporated in the Actions/Tasks section of the Fire Management Sub-Plan of the EMP (Section 21.5). More specific fire management practices would be developed in consultation with PWCNT through the proposed research proposal currently under consideration by Defence.

#### **3.9.2 Fire management for sensitive habitats**

***The fire management requirements for sandstone habitats, monsoon forests and grasslands all differ and should be clearly defined in the EMP. (NTG)***

The management requirements for fire sensitive sandstone habitats, monsoon forests and grassland communities are recognised in the Draft EIS (Sections 6 and 8).

Sandstone areas occur in the Western Hills, Yambarran, Koolendong and Mount Thymanan Sectors, associated with particular vegetation communities within which fire sensitive habitats may occur. Advice from the vegetation consultant is that these vegetation communities comprise the following:

*Western Hills Sector*

- > Acacia spp over hummock grasses
- > Corymbia phoenicea over hummock grasses
- > Eucalyptus tectifica over annual and perennial grasses
- > Eucalyptus miniata over hummock grasses
- > Eucalyptus tetradonta with mixed species
- > Corymbia latifolia over hummock grasses
- > Eucalyptus miniata and E tetradonta over annual and perennial grasses
- > Terminalia canescens, Erythrophleum chlorostachys over annual grasses

*Yambarran Sector*

- > Corymbia phoenicea over hummock grasses
- > Eucalyptus tectifica over annual and perennial grasses
- > Eucalyptus miniata over hummock grasses
- > Eucalyptus tetradonta with mixed species
- > Corymbia latifolia over hummock grasses
- > Eucalyptus miniata and E tetradonta over annual and perennial grasses
- > Terminalia canescens, Erythrophleum chlorostachys over annual grasses

*Koolendong Sector*

- > Corymbia phoenicea over hummock grasses
- > Eucalyptus tectifica over annual and perennial grasses
- > Eucalyptus miniata over hummock grasses
- > Eucalyptus tetradonta with mixed species
- > Corymbia latifolia over hummock grasses
- > Eucalyptus miniata and E tetradonta over annual and perennial grasses
- > Terminalia canescens, Erythrophleum chlorostachys over annual grasses

*Mount Thymanan Sector*

- > Eucalyptus tectifica over hummock grasses
- > Corymbia phoenicea over hummock grasses
- > Eucalyptus tectifica over annual and perennial grasses
- > Eucalyptus miniata over hummock grasses
- > Eucalyptus tetradonta with mixed species
- > Corymbia latifolia over hummock grasses
- > Eucalyptus miniata and E tetradonta over annual and perennial grasses
- > Terminalia canescens, Erythrophleum chlorostachys over annual grasses

Fire sensitive habitats may occur within these vegetation communities. Such habitats are fire sensitive because they contain obligate seeding species, such as Grevillea spp, Acacia spp, Hibbertia spp, Boronia spp, Jacksonia spp and Hibiscus spp. Obligate seeding species lack the capacity to resprout after fire and regenerate only from seed. Thus, fire regime, particularly fire frequency, can have a significant influence on the success of these species. If fires are too frequent, plants may be killed before reaching a reproductive age and contributing seed to the soil seedbank. On the other hand, some species require fire to stimulate germination, so fire exclusion may eventually lead to decline in these species.

The vegetation consultant has advised that fire sensitive habitats within these vegetation communities are most likely to be confined to fire protected areas such as areas with a low fuel load or within rock crevices. They are less likely to occur within those communities with annual grasses and perhaps even perennial grasses, because annual and perennial grasses usually produce a higher fuel load than hummock grasses and are therefore more susceptible to fire.

Additional vegetation surveys within sandstone areas are required where training activities that pose a significant risk of fire are proposed in order to identify where fire sensitive sandstone habitats occur. The need for additional vegetation surveys within the Yambarran Plateau and Mount Thymanan areas and the northern half of the Koolendong Valley has already been highlighted in Section 3.7.1 of the Supplement.

Appropriate management strategies for fire sensitive sandstone habitats would then be developed. Management options would include:

- > delineation of appropriate management zones on the GIS database
- > restriction of training to activities that do not pose a significant risk of fire on a rotational basis
- > a controlled burning program that establishes an appropriate fire frequency, including patchwork, rotation and resting

The scope of additional surveys, appropriate survey methodologies to target fire sensitive sandstone habitats and appropriate management strategies for these habitats, would be determined in consultation with PWCNT.

Monsoon forests require surrounding areas to be burnt early in the dry season to provide protection from late dry season wild fires. Similarly, grassland communities, such as Mosquito Flat, require early dry season burns for protection from late season fires, however, occasional late dry season hot fires are also required to suppress the density of woody vegetation.

These priority areas are incorporated in the Actions/Tasks section of the Fire Management Sub-Plan of the EMP (Section 21.5). More specific fire management practices would be developed in consultation with PWCNT through the proposed research proposal currently under consideration by Defence.

### **3.9.3 Coordination of fire management activities**

***Further information should be provided on the coordination of fire management activities. This should include a description of the role of the EMIS in fire management. (NTG)***

***Fire management must be taken on a cooperative regional basis in order to be effective, including the opportunity for traditional Aboriginal owners to be involved. With adequate representation of Aboriginal landowners, the Environmental Advisory Committee could be used to assist in effective fire management. (NLC)***

Defence recognise that effective fire management requires a coordinated regional approach. Fire management plans for BFTA would be developed in consultation with PWCNT and neighbours to ensure that fire control practices are consistent with regional fire management objectives.

The past five year fire history of Bradshaw Station has been recorded on the GIS to assist in fire management. This information will be updated by the recording of future fire events to further refine fire management practices and through the proposed PWCNT research proposal.

The role and composition of EAC is described in Section 3.3.8 of the Supplement.

### 3.9.4 Research projects

***If available, information should be provided on arrangements in train for research projects on fire monitoring funded by the Department of Defence and conducted by the PWCNT. (NTG)***

Defence is currently considering funding a research proposal from the Bushfires Council NT (BFC) of the PWCNT for monitoring and assessment of fire regimes and their effects on habitat for long term management of BFTA. The objectives of the study are:

- > to document the extent and seasonality of fires on Bradshaw Station over the past ten years using remote sensing techniques as the basis for ongoing satellite monitoring and assessment of the effects of fire regimes on different habitats
- > to establish permanent monitoring plots in critical management areas/habitats as a basis for assessing the effectiveness of prescribed fire management actions

The study is proposed to be undertaken over a three year period.

## 3.10 WATER RESOURCES

### 3.10.1 Monitoring

***Detail on monitoring activity in relation to surface and groundwater management is inadequate. (NTG)***

***More practical means of monitoring water sources where extraction is to occur and water quality should be specified. (NTG)***

***The performance indicators listed in the EMP have no linkage to any monitoring activities detailed elsewhere in the Draft EIS. (NTG)***

***Visible change is an unscientific and qualitative measure and a more appropriate measure should be provided. (NTG)***

Defence's overall intent for establishing specific monitoring programs is outlined in Section 3.3.1. This emphasises the strategic nature of the Draft EIS and EMP and the need for the development of more specific management and monitoring programs, including appropriate monitoring methods and performance indicators.

The development of appropriate monitoring programs in relation to surface and groundwater management would be undertaken in consultation with DLPE. Based on preliminary discussions with DLPE, aquatic monitoring sites would be established at strategic locations in permanent water bodies within BFTA. At these aquatic monitoring sites, both water quality and macroinvertebrates (number and health) would be monitored at appropriate intervals and/or after any training activity occurring in the vicinity of the creek or river. This is reflected in the Water Resources Sub-Plan (Section 21.6) of the EMP.

The selection of aquatic monitoring sites would recognise the specific monitoring methods required for groundwater, natural surface water and artificial surface water. Monitoring methods would comprise a combination of qualitative methods (such as visual inspection) and quantitative methods (such as macroinvertebrate sampling and water quality testing).

### **3.10.2 Baseline surveys**

***No baseline macroinvertebrate surveys following the AUSRIVAS protocols were conducted for the EIS. (NTG)***

Acknowledged. Discussions with DLPE have confirmed the need for baseline macroinvertebrate surveys following the AUSRIVAS protocols to enable monitoring of impacts of military use on river health (as discussed above). Defence will consult further with DLPE on the priorities and scope of baseline surveys, including aquatic monitoring site numbers and locations.

### **3.10.3 Precautions against fuel spills**

***Need to outline proposed precautions against spills from aircraft refuelling. (NTG)***

Fuels, oils and lubricants stored and handled within BFTA would consist of bulk fuels (tanks or bladders) and packaged fuels (drums), including aviation turbine fuel (kerosene) for helicopters and fixed wing aircraft.

Proposed precautions against spills and remediation actions in the event of a spill are outlined in the Petrol, Oil and Lubricants Sub-Plan (Section 21.12) and the Incidents Sub-Plan (Section 21.13) of the EMP. These include:

- > undertake induction and training of military personnel to ensure awareness of POL management responsibilities, including requirements in the event of a spill or emergency
- > ensure statutory requirements for the storage and handling of fuel and the remediation of areas affected by fuel spillage are met
- > provide impermeable bases and bunding for storage and handling points for bulk and packaged fuels
- > locate temporary storage and refuelling points well away from sensitive water bodies and other environmentally sensitive areas
- > provide fire protection facilities at fuel handling and storage locations and maintain specified safety distances
- > immediately notify accidental POL spills or events and devise a control clean up plan
- > provide absorption materials to collect minor spills and leakage
- > establish RSO for the management of incidents, including pollution of surface or ground water

### **3.10.4 Artificial watering points**

***The number and accessibility of artificial watering points to feral animals and native fauna should be minimised. (TWS)***

Current artificial watering points such as turkey nests would be maintained for construction and training requirements. The minimum number of additional artificial water points possible to meet the construction and training needs would be established as required. These would be selected from the potential water supply points identified in Section 3.2.8 of the Draft EIS.

### **3.10.5 Water requirements for construction**

***The EIS should state the expected volume of water that would be required for construction purposes from dams, bores and waterholes. (EA)***

Water supplies for construction would be sourced from current artificial watering points (turkey nests) supplemented by production water bores. The construction period is temporary and the quantities

required would not be large. As such, the impact on surface water and groundwater resources is not expected to be significant during construction. Defence will establish sustainable water levels in consultation with relevant government agencies.

Some pumping from Barramundi Waterhole may be required. This waterhole currently feeds cattle watering troughs on Mosquito Flats. Further investigation is proposed in consultation with DLPE to determine a safe water withdrawal level to ensure the habitat is maintained.

Water extraction would be undertaken in accordance with the Water Quality Sub-Plan of the Environmental Guidelines for Construction Activities (Volume 2A).

### **3.10.6 Damming or excavation of waterways**

***The Environmental Guidelines for Construction Activities refer to the damming or excavation of waterways. It is not known why there would be a need for the damming of any waterways when there appear to be an adequate number of tanks and earth dams. It is recommended that any proposed damming of waterways be subjected to rigorous environmental analysis. (EA)***

In the event that additional surface water extraction to that proposed in the Draft EIS is required through the damming of a waterway within BFTA, this would be undertaken in accordance with the relevant provisions of the *Water Act* and any other relevant legislation. Further, the Water Quality Sub-Plan of the Environmental Guidelines for Construction Activities (Volume 2A) requires the Project Manager to investigate impacts on waterways in the event of damming or excavation.

### **3.10.7 Use of chemicals and pesticides**

***Extreme caution must be exercised with the use of chemicals around waterways to avoid elimination of all forms of aquatic life that are dependent on that habitat. Such extreme caution must also be exercised in the use of pesticides in eradication programs for biting insects. (EA)***

Defence is committed to the protection of the quality of ground and surface waters within and adjacent to BFTA.

The potential for any contamination of waterways or receiving water bodies by hydrocarbons (fuels and oils) would be minimised by following relevant standards, the use of a designated and purpose designed POL facility for all large scale refuelling operations and appropriate precautions for temporary POL storage and handling such as ensuring no refuelling near waterholes, springs or watercourses.

There would be a requirement for the use of agricultural chemicals (herbicides and pesticides) for localised treatment of biting insect breeding areas, weeds and for maintaining clear fencelines. These would be applied in accordance with relevant legislation and application instructions.

Appropriate precautions and remediation actions for the storage and handling of fuels, oils and other chemicals are outlined in the Water Resources Sub-Plan (Section 21.6), the Petrol, Oil and Lubricant Sub-Plan (Section 21.12) and the Incidents Sub-Plan (Section 21.13) of the EMP.



### 3.10.8 Protection of sensitive wetlands

***The broad estuaries of the Victoria River, intertidal salt marshes, areas of riverine floodplain and scattered freshwater swamps along the Angalarri River are sensitive and should be protected. Two areas – Fitzmaurice River Middle Reaches and Victoria River Middle Reaches – are listed as Supplementary Sites in the Directory of Important Wetlands in Australia. (NLC)***

Acknowledged. The Fitzmaurice River Middle Reaches is listed as an “undisturbed scenic river” while the Victoria River Middle Reaches is listed as a “habitat for fishes not occurring elsewhere in the Northern Territory”.

Riverine use would be limited to use of LCM8 and LCH landing craft on the Victoria River to carry personnel, vehicles and equipment for landing at the designated landing craft hard. Such craft have travelled along the Victoria River in the past, undertaking training and navigation tasks.

Both the Victoria and Fitzmaurice Rivers are recognised as sensitive riparian habitats requiring protection from disturbance. Appropriate management strategies for these large watercourses are outlined in the Draft EIS and EMP, including the delineation of management zones within which vehicle and human disturbance would be minimised and active management of existing environmental degradation.

### 3.10.9 Springs and waterholes

***Every effort should be made to avoid further impact on springs given their environmental and often cultural importance. (NLC)***

***The floral and faunal attributes of springs should also be described so that impacts can be assessed. (EA)***

A number of springs occur at the base of the escarpment that forms the boundary between the Angalarri Plain and the Yambarran Plateau. These include Buffalo Spring, Sourbon Spring, Camballin Spring, Curran Spring and Widgeon Spring. Water from some of these springs has and continues to be extracted for stock.

The Draft EIS and relevant Sub-Plans of the EMP recognise the environmental significance and sensitivity of all riparian habitats (including springs) and specifies management and monitoring strategies appropriate for the protection of environmental values, including the delineation of management zones and active management of existing environmental degradation. Where such areas are also of cultural significance, management and monitoring strategies appropriate for the protection of cultural values would also be adopted as required under relevant legislation and as outlined in the Draft EIS and relevant Sub-Plans of the EMP.

Springs and associated management zones will be recorded on the GIS for use in the planning and approval process for training exercises. This would include the use of Range Danger Area Safety Traces to ensure the protection of these areas from weapon systems during field firing exercises.

***Detailed information should be provided on the flora and fauna attributes of Barramundi and Mussel Hole Yards so that possible construction impacts can be assessed. (EA)***

The Draft EIS recognises that Barramundi Waterhole and Mussel Hole Yard are located within core fauna habitats and also represent sensitive riparian habitats. The Draft EIS also recognises that extensive use of water from these natural waterholes for construction activities may lower water levels

and cause a decrease in species richness and abundance. Therefore, management and monitoring strategies are identified for adoption in the event of water extraction for construction.

Appropriate management and monitoring programs to minimise ecological change at these locations would be confirmed in consultation with DLPE and PWCNT should alternative water sources not be found in order.

### **3.11 VISUAL QUALITY**

#### **3.11.1 Visual assessment of communications towers**

***Further information is required regarding the approximate number and height of towers to be built on BFTA along with an assessment of whether these structures would be visible from the Victoria Highway or Timber Creek. (NTG)***

The siting of communications infrastructure on BFTA (such as aerials and towers) may be required at the Range Control facility, the TFMA and airstrip, at strategic locations along the asset road network, at the second camp and airstrip and at strategic locations on high topographic features such as the Yambarran Range or Mount Thymanan.

The Range Control facility, TFMA and airstrip would require communications infrastructure to provide an administrative and safety network for training activities on BFTA. The need for extensive above ground cable communications infrastructure would be reduced by the use of microwave or optic fibre cable to the TFMA precinct. The above ground communications infrastructure that is required would likely include towers or aerials up to 6m high supported on the ground by solar panel arrays. Given that the Range Control facility, TFMA and airstrip are to be positioned on the sandstone plateau between 1.5km to 6km from the plateau edge, it is highly unlikely that the communications infrastructure would be visible from the Victoria Highway or from the Timber Creek community.

Communications infrastructure at strategic locations along the road network and at the second camp and airstrip, are likely to comprise a solar panel array and single aerial to service a safety phone network. They would not be visible from the Victoria Highway or from the Timber Creek community.

The need for and siting of above ground communications infrastructure on high topographic features is still under consideration by Defence. Such facilities are likely to comprise a single tower or aerial similar to those used on remote communities and properties to service domestic communications needs. Their height would be dependent on the topography and coverage overlap requirements for the safety network. If sites were chosen on the southern edge of Yambarran Plateau, it is unlikely they would be visible from the Victoria Highway or from the Timber Creek community due to the distance and atmospheric effects such as heat or smoke haze.

The number and height of communications towers or aerials required on BFTA, particularly at the Range Control, TFMA and airstrip, has been reduced considerably by the operation of the current Telstra tower (some 30m high) on Newcastle Range which services the regional community. Defence will be renting space on the Telstra tower to provide the broad communication network for BFTA. The Telstra tower is visible from the Timber Creek community and the Victoria Highway.

## 3.12 WILDERNESS AND WILD RIVERS

### 3.12.1 Current NWI ratings

***Erroneous to suggest that NWI ratings do not take into account existing property tracks or the impact of cattle grazing. (TWS)***

***The NWI does reflect disturbance associated with past and current grazing regimes. (EA)***

***No evidence has been provided within the Draft EIS to support the statement that "It is therefore apparent that the current NWI ratings overstate the wilderness quality of many areas within the property.". This statement should be deleted. (EA)***

***Requests for detailed infrastructure and disturbance data from Defence and their consultants in order to update the NWI ratings for Bradshaw Station have been unproductive. (EA)***

***There is no indication that existing wilderness values for the property have been considered in the decision-making processes used to determine the siting of infrastructure and the locations for high impact training uses. (EA)***

***It is regrettable that Defence and/or their consultants did not provide WWRS staff with detailed information regarding existing infrastructure on the property and thereby guarantee the most accurate assessment of the impacts of proposed infrastructure on NWI ratings. (EA)***

Defence notes the comments on NWI ratings for Bradshaw Station and acknowledges that EA may not have had all available information on the past and present use of Bradshaw Station as a cattle station. This may have affected the accuracy of the assessment of current NWI ratings for parts of Bradshaw Station by EA. However, on the basis of advice from EA regarding the low weighting factors assigned to pastoral infrastructure (such as four wheel drive vehicle tracks), this additional information is unlikely to change the assessment of current NWI ratings for Bradshaw Station to any significant extent. Defence notes this in relation to its comment on overstatement of NWI ratings.

For clarification, the concentrations of pastoral infrastructure and past cattle grazing activity on Bradshaw Station are as follows:

- > The Angalarri and Ikymbon Plains comprise the majority of controlled pastoral infrastructure on the property from the northern boundary to the southern boundary. This includes broad acre fencing of paddocks, unformed four wheel drive vehicle tracks through the large paddocks and along the fencelines, water bores, dams and areas which show erosion scars due to the long history of cattle grazing.
- > The Koolendong Valley and Mosquito Flat have been used for cattle grazing also. Mosquito Flat is fenced and is used as a holding paddock during mustering and separation of young cattle from the herd. Water supply is via water troughs fed by springs and waterholes from within Lobby Creek and springs on the Yambarran Plateau.
- > The Koolendong Valley is used for cattle grazing, but has limited infrastructure in the way of fencing. It is simply cut across its narrowest part by a fence. An unformed four wheel drive vehicle track runs the full length of the valley and other minor tracks traverse the valley. The cattle utilise waterholes for water. Due to the limited nature of infrastructure in the Koolendong

Valley, cattle access and graze in the Western Hills, Lalngang Creek and Yambarran Plateau areas as scattered groups.

Defence will liaise with EA to refine the assessment of current NWI ratings for Bradshaw Station for inclusion on the GIS.

### **3.12.2 Impact on wilderness ratings**

***The upgrading of existing tracks to roads, with heavier and more frequent traffic, would have a significant effect on wilderness quality. (TWS)***

***Defence has ignored wilderness values when developing the EMP. No doubt this is because the planned infrastructure, particularly the planned road through the Koolendong Valley to the Fitzmaurice River cannot but severely impact on wilderness quality. (TWS)***

***The failure of the Draft EIS to discuss the impacts of the proposal on wilderness quality is a considerable oversight and significantly undermines the credibility of the entire assessment. (TWS)***

***The Wilderness Society recommends the following measures to mitigate the effects of infrastructure development on wilderness quality: that the proposed Koolendong Road terminate at the proposed Yambarran camp rather than continue north to the Fitzmaurice River; that the proposed North Angalarri Road terminate at a point no further north than Mount Thymanan; that the loop roads not be constructed; and that the western and northern areas of Bradshaw Station not be available for military training purposes but be actively managed solely for their nature and conservation values, including wilderness and wild rivers. (TWS)***

***There is inadequate discussion on the impacts of elements of the proposed infrastructure on wilderness values. In particular, there is a failure to appreciate that the NWI utilises a set of road classes, with different road types having different impacts on wilderness quality ratings. The impact on NWI wilderness quality of unformed station tracks is significantly less than that of formed, gravelled, two-laned, all-weather roads as planned by Defence. (EA)***

***WWRS staff were unable to provide the EIS consultants with an NWI impact assessment of the proposed operations on Bradshaw Station as requested information was not provided. On requesting such information, WWRS staff were informed that the impacts of operations would be minimal and, therefore, not worth considering. This approach has meant that the public is not being informed on wilderness impacts connected with Defence operations or on Defence's response to these impacts. (EA)***

***There is no mention of the management of wilderness values in the EMP, despite the EIS noting that impacts on wilderness values would be minimised through implementation of the provisions of the EMP. (EA)***

***There is inadequate discussion on the impacts of elements of the proposed operations on wilderness quality. The frequency, intensity and types of training activities should be discussed in terms of their individual impacts on wilderness quality. (EA)***

***The assertion that wilderness values would not be markedly reduced by Defence use of the property is incorrect given the impact assessment on proposed infrastructure prepared by***

***WWRS staff, the high impact nature of the planned training uses, and the lack of any direct consideration of wilderness values in the EMP. Further, there is no evidence to support the suggestion that wilderness values for some areas of the property would benefit from the management practices to be implemented. (EA)***

***There is no evidence that Defence is committed to minimising impacts on wilderness values. (EA)***

Defence notes the comments relating to the recognition of wilderness values in the siting of infrastructure, training use, environmental management and the EMP.

The Draft EIS and EMP address wild rivers and wilderness issues as resource attributes inseparable from other essential resource attributes such as vegetation, fauna and water quality. The management of these resource attributes is documented within specific sub-plans of the EMP. In the context of wilderness, it is important to note that the total area to be disturbed in the development of permanent infrastructure, including borrow pits and temporary construction camps, will be in the order of 500 hectares. This represents less than 0.1% of the total area of Bradshaw Station. The largest component of this disturbed area will be road infrastructure.

The planning process undertaken for the provisional siting of proposed infrastructure is discussed in Section 3.4.2 of the Supplement. Defence can only reiterate this effort in siting infrastructure in optimum locations in terms of operational training needs, construction, range management and environmental considerations.

The implications of the National Wilderness Inventory have been recognised in the preparation of the Draft EIS and EMP. As noted above, all proposals for ranges, manoeuvre corridors, impact areas and infrastructure are preliminary in nature, to be modified as required in the light of the outcomes of the EIS process prior to being approved for construction or use. The processes to be adopted for training exercise approvals and for the approval of further development are outlined in Sections 3.2.1 and 3.4.2 respectively of the Supplement. These processes require consideration of wilderness and wild rivers. While all efforts will be made to minimise impacts, it is not possible to totally avoid any impacts.

The development of a constructed road network that is designed and of gravel construction is preferred by Defence for a number of reasons, as follows:

- > efficient and controlled access for vehicles throughout BFTA
- > engineered to prevent uncontrolled side effects such as erosion and to minimise costly recurrent maintenance and repair
- > effective access for all environmental management requirements
- > effective Range Control access
- > effective emergency access such as for wild fire management
- > effective emergency evacuation for personnel or visitors

It should be recognised that use of the BFTA is periodic throughout the year, with training sectors being activated as required to suit training unit needs and based on environmental condition. There is no permanency in terms of using the TFMA or camps, apart from the establishment of a small number of caretakers. The infrastructure is also based on the minimum needed to support training and effective management of BFTA. Continued use of unformed property tracks not designed or constructed would be of particular concern to Defence. Such tracks have the potential to (and do) cause adverse impacts on the environment such as gully erosion and subsequent loss of habitat quality.

A track infrastructure such as currently exists will fail under light military usage and will not provide the amenity required for training exercise use, resupply, administration, safety, range and environmental management.

Heavy military usage simply means that failure will be accelerated and the resulting damage will be more extensive. The situation will quickly arise where a vehicle is bogged in the track (or a dust hole is created) and following vehicles will swing to the right or left to avoid the obstruction. This spreads and compounds the impact until the area is churned up and impassable. New tracks are then developed, again compounding the impact. These areas are then susceptible to uncontrollable wind and water erosion. Confining the majority of vehicles to properly formed and drained roads will reduce impacts significantly.

A major 1<sup>st</sup> Brigade exercise may require daily supply as follows:

- > diesel – 50 000L
- > aviation fuel – 50 000L
- > rations – 15T
- > ammunition – 20T
- > general stores – 10T
- > water

These supplies are delivered to and within the area by road train and further transhipped within the area by unit vehicles. It is not possible to attempt to move these tonnages on unformed tracks.

The proposed roads will have a 7m wide carriageway and some 4m either side for road shoulders and drainage, adding to a total of 15m. These roads would probably attract an access grade of "medium" and a structure grade of "major" under the National Wilderness Inventory wilderness quality assessment gradings.

To conclude, Defence's emphasis for use of BFTA is on sustainable management of habitat. Wilderness values have not been ignored, but factored into the assessment along with all the environmental issues (such as habitat management) and specific protection requirements for BFTA. The TFMA, camps and road network have been placed to optimise operational training and environmental management requirements.

In relation to the EMP, Defence reiterates that this document was prepared as a strategic document (refer Section 3.3.1) which provides the processes by which effective management of habitat can be achieved. If habitat is maintained, Defence contends that, to a significant degree, wilderness is also maintained. To not upgrade or to restrict the proposed infrastructure, particularly the road network, would reduce the effective use of BFTA as a manoeuvre and live firing training area, would have the potential to increase impacts on a smaller section of BFTA and reduce the overall effective management of BFTA. As the NWI weighting system for road classes as described in the *National Wilderness Inventory Handbook of Principles, Procedures and Usage* (AHC, 1993) rates unformed vehicle tracks less than formed and gravelled two lane all weather roads, then Defence can only acknowledge this as an unavoidable impact on wilderness.

### 3.12.3 Wild rivers

***There is no mention of the management of wild river values in the EMP, despite the EIS noting that impacts on wild river values would be minimised through implementation of the provisions of the EMP. (EA)***

***There is no indication that existing wild river values for the property have been considered in the decision-making processes used to determine the siting of infrastructure and the locations for high impact training uses. (EA)***

***There is no evidence that Defence is committed to minimising impacts on wild river values. (EA)***

***The construction of an excavated dam (Site 9) is proposed within an area that contains streams with high wild river value. The proposed dam could change the hydrological regime of the catchment and have an adverse impact on values. A more detailed discussion of the dam construction, including size and exact location is required to allow a full assessment of impacts. (EA)***

Defence notes the comments on management of wild rivers, the decision making process and Defence's commitment to minimising impacts on wild rivers. Defence generally disagrees with these comments.

The Draft EIS (Section 11.2) stated that the principles for management of wild rivers contained in the *Draft Conservation Guidelines for the Management of Wild River Values* would be adopted on BFTA. These guidelines identify a number of potential sources of impact on wild river values. Defence has considered each source of impact in its planning process and has attempted to define the impacts on river systems bounding and within BFTA and the management requirements for these river systems. The Victoria and Fitzmaurice Rivers form property boundaries and while Defence will manage military impacts, it must be accepted that management of these river systems is a regional task.

The sources of potential impact on wild river values identified within the guidelines with respect to the BFTA proposal are considered as follows:

#### **Grazing**

Grazing is noted as a significant source of impact. At the time of purchase, Bradshaw Station ran some 13 000 head of cattle (refer Section 1.3 of Draft EIS). After February 1999, there will be no grazing on Bradshaw Station (refer Section 1.4 of Draft EIS). The related impacts of grazing such as water contamination, trampling, soil compaction, erosion, spread of disease and vegetation change will also reduce at that time. Where possible, natural recovery will be allowed to occur, however, for areas where severe degradation has occurred, remedial action will be undertaken by Defence (refer Sections 5.3, 6.2 and 7.2 of Draft EIS and the Soils and Erosion, Vegetation Management and Fauna Management Sub-Plans of the EMP).

#### **Cultivation**

Cultivation activities on Bradshaw Station are minimal and will cease in 1999. These areas will be allowed to regenerate, including active rehabilitation where appropriate and control of weed species (refer Section 6.2 of the Draft EIS and the Vegetation Management Sub-Plan of the EMP).

#### **Clearing**

Clearing, except for the control of weed species, will not be undertaken in riparian areas. Management zones will be established along large watercourses, including along the Defence sides of the Victoria and Fitzmaurice Rivers and, with the exception of the landing craft hard and the Victoria River bridge, no

development and minimal vehicle and human disturbance (except at crossing points) would be undertaken within these zones (refer Section 6.2 of the Draft EIS and the Vegetation Management Sub-Plan of the EMP).

### **Irrigation**

Irrigation will not be undertaken, except for domestic landscaped areas around camps, the Range Control Facility and the TFMA (refer Section 3.2 of the Draft EIS). Options for reuse of treated sewage effluent for irrigation of landscaped areas are currently under investigation (refer Section 3.2.8 of the Draft EIS).

### **Flow regulation and water diversion**

Flow regulation and water diversion will not be undertaken except during the construction period where water for civil works will be required. At the conclusion of the construction period, most if not all of the diversions or dams constructed will be removed and the affected areas rehabilitated. Water diversion will in the most part be confined to increasing the capacity of existing water holes in feeder creeks (refer Sections 3.2.8 and 9.3 of the Draft EIS and the Water Resources Sub-Plan of the EMP). Any requirement for diversion or dam construction will comply where relevant with legislation such as the *Water Act*.

### **River management works**

Defence will not undertake river management works.

### **Mining and gravel, sand and soil extraction**

Mining and extractive mining will generally not be undertaken in riparian areas. A Reservation from Occupation initiated by Defence has effectively stopped mineral exploration and mining operations within BFTA (refer Section 16.4 of the Draft EIS) and all quarries and borrow pits opened for construction purposes will be closed and rehabilitated at the end of the construction period (refer Section 3.3.2 of the Draft EIS).

### **Roads and tracks**

Roads and tracks will cross watercourses, but they will be constructed and designed to minimise impacts. Road surfaces will be constructed as causeways to the same level as the watercourse bed. This means no culverts or structures creating dams or restricting flow. Apart from the Victoria River bridge, it is not envisaged that there will be any bridges constructed on the property (refer Section 3.2.2 of the Draft EIS).

### **Utilities development**

Utility development will be minimal. Power will be generated on site for the TFMA, Range Control Facility, the camp and airfield sites and caretaker facilities, not reticulated from outside government or commercial sources (refer Section 3.2.8 of the Draft EIS). Sewage treatment will also be integral to the TFMA and camp sites and will be installed in accordance with current NT requirements (refer Section 3.2.8 of the Draft EIS). Telecommunications will be provided by line of sight microwave connection rather than by cable connection (refer Section 3.2.8 of the Draft EIS). Water may be supplied from sites external to the camps and if this is the case care will be taken in route selection to minimise watercourse crossings. It is not envisaged that any supply pipe would exceed 100mm diameter and supply pipes will in the main be buried (refer Section 3.2.8 of the Draft EIS).

### **Urban settlement**

Settlement will be restricted to temporary occupation within the camps and to the Range Control Facility and caretaker facilities (refer Section 3.2 of the Draft EIS). It is not envisaged that these facilities will constitute any threat to wild river values, provided that the siting and servicing of these facilities comply with relevant legislation in respect to environmental issues (refer Sections 3.2.8 and 9.3.2 of the Draft EIS and the Water Resources Sub-Plan of the EMP).



### **Water based and associated recreation**

This will not be a threat generated by the military. Commercial and civilian recreational activities will have a far greater impact than military recreational activities and, being public waterways, military operations on Bradshaw Station will not impede a continuation of these activities on the Victoria and Fitzmaurice Rivers. Some commercial and recreational fishing could take place on the Angalarri River, which although within BFTA, is still for some distance a navigable tidal waterway (refer Section 16.5.2 of the Draft EIS). Defence will however advise users of the Angalarri River via signage following its duty of care responsibilities (refer Section 16.5.2 of the Draft EIS).

Access to Defence land will be prohibited, thus restricting impacts to non Defence areas. This does not represent any change to access conditions that have existed for many years. The lessee did not and does not accept trespass onto Bradshaw Station.

### **Introduced plant and animal species**

Introduced plant and animal species will, with Defence management, be reduced (refer Sections 6 and 7 of the Draft EIS and the Vegetation Management and Fauna Management Sub-Plans of the EMP). Defence is currently contributing to a NT Government feral animal control program and will continue to do so. Feral eradication will also be undertaken as an independent management responsibility. Facilities designed to help restrict the spread of noxious and exotic seeds and plants are planned for construction at the TFMA (refer Section 3.2.8 of the Draft EIS) and will be backed by control and eradication programs where appropriate. RSO and SOP will also address these issues.

### **Fisheries and aquaculture**

Such activities will not be undertaken by Defence, with the exception perhaps of some minor recreational fishing by staff working, as opposed to training, in the area. Again it is stressed that the Victoria and Fitzmaurice Rivers are not under Defence management and that the navigable stretches of the Angalarri River are accessible to the public.

### **Timber production and harvesting**

Defence will not undertake this activity.

### **Fire**

Fire is a critical range management issue and has been extensively addressed within the EIS and EMP (refer Section 9 of the Draft EIS and the Fire Management Sub-Plan of the EMP).

### **Research**

Research is recognised as an essential activity and will be ongoing throughout the life of BFTA. Research and surveys of areas of planned or potential impact have been undertaken and further research requirements have been identified. Defence will not, as a priority activity, undertake surveys of areas unlikely to be impacted because of the extent of the property and the associated prohibitive costs.

Joint research projects are under development with the NT Government that will increase the knowledge and understanding of the area (refer Sections 3.8.5 and 3.9.4 of the Supplement). Defence has publicly stated that it will consider any access requests for reasonable and externally funded research purposes and will provide support wherever possible and practical.

### **Cultural heritage and the conservation of biodiversity**

Heritage, vegetation and fauna survey work has been undertaken and the requirement for additional studies has been identified (refer Sections 6, 7 and 15 of the Draft EIS). Management strategies for these resource attributes have been formulated within the EMP (refer the Vegetation Management, Fauna Management, Aboriginal Heritage and European Heritage Sub-Plans of the EMP). Defence will, as a policy, support externally funded and reasonable research.

In summary, the sources of potential impact on wild river values as identified within the guidelines will be removed or reduced with the change from pastoral to military use of the property and the environmental management practices to be implemented by Defence.

The Draft EIS has a number of sections relating to management of drainage systems (rivers, waterholes, billabongs, springs) and associated habitats. Defence contends that through management of habitat, wild river values would be protected. Examples of habitat management practices that are reflected in the sub-plans of the EMP include:

- > the Information Sub-Plan establishes the use of a GIS database for management of all environmental attributes and use as a planning tool
- > the Soils and Erosion Sub-Plan establishes the delineation of management zones, management strategies including weed control, feral animal control, active rehabilitation of cleared and exposed areas and monitoring undertakings
- > the Vegetation Management Sub-Plan establishes the delineation of management zones, management strategies including fuel reduction burns, active weed control, feral animal control, rehabilitation of cleared and exposed areas and monitoring undertakings
- > the Fauna Management Sub-Plan records the avoidance of removal of riparian vegetation, establishment of management zones, feral animal control, rehabilitation of disturbed habitat and monitoring undertakings
- > the Fire Management Sub-Plan records the design of controlled patch burning practices, management of fire sensitive habitats and monitoring undertakings
- > the Water Resources Sub-Plan records the delineation of management zones for riparian areas, the prevention of erosion and sedimentation of waterways, spill contingency plans and monitoring undertakings
- > the Waste Management Sub-Plan refers to management of all wastes and monitoring undertakings
- > the Petrol, Oil and Lubricants Sub-Plan refers to management and monitoring undertakings

Defence contends that these management practices are a commitment to minimising impacts on wild river values. Defence has also undertaken to liaise with authorities to implement the sub-plans. Section 3.10.1 of the Supplement provides specific discussion on baseline water quality and macroinvertebrate surveys and monitoring programs.

The planning process undertaken for the siting of proposed infrastructure is discussed in Section 3.4.2 of the Supplement. Defence reiterates this effort in siting infrastructure in optimum locations in terms of operational training needs, construction, range management and environmental considerations.

## **3.13 NOISE AND VIBRATION**

### **3.13.1 Fauna impacts**

***Question as to whether there is any evidence to support the statement that animals would become accustomed to aerial and artillery bombardment. (NTG)***

Evidence from the operation and management of Defence training areas at Puckapunyal and Shoalwater Bay indicate that native and feral fauna adjust to live firing activities.

## 3.14 AIR QUALITY

### 3.14.1 Air quality impacts from detonation of weapon systems

***Further information is required on the likely impact to air quality from the detonation of high explosives, flares, pyrotechnics, phosphorous smoke bombs and any chemical agents likely to be used during training such as tear gas or defoliants. In particular, information is required on environmental toxicity and persistence and the likelihood of gases and smoke blowing outside the BFTA boundaries and causing nuisance. (NTG)***

BFTA would be managed following similar practices established at other training areas in terms of weapon systems and air quality impacts. Such management practices may include management zones around the perimeter of training areas, liaison with neighbours, establishment of an Incident Log Book and investigation of recorded incidents, designation of HEIA and a training exercise planning process that considers all relevant environmental factors (including smoke). Management practices specific to BFTA and in relation to fire, dust, noise, vibration, neighbours, incidents and personnel are outlined in the relevant sub-plans of the EMP.

Defence also has the health of its soldiers to consider during training exercises. To this end, strict occupational health and safety and training standards are followed in the use of any pyrotechnics, smoke, flares or explosives.

The School of Military Engineering's Nuclear, Biological and Chemical Warfare Wing, who have been using tear gas for training purposes over the past 30 years, have advised that no published material is available dealing with the effects of tear gas on vegetation. However, they have advised that tear gas is not deliquescent and is therefore unlikely to be absorbed by vegetation. Also, there have been no detrimental effects observed to vegetation around the gas chamber or its compound.

Weapon systems such as defoliants are not proposed for use on BFTA.

## 3.15 PROBLEM INSECTS AND PATHOGENS

### 3.15.1 Importation of disease organisms

***There is confusion on the issue of importation of disease organisms inside people's bodies and the importation of exotic insects and the interpretation of little risk of importation of exotic disease by military personnel is at odds with the Territory Health Services recommendation that there is an increased risk. (NTG)***

Defence acknowledges that there is an increased risk of importation of disease organisms by the presence of military personnel. Rigorous medical screening of foreign forces and interstate military personnel, together with disease surveillance, would be important in minimising this risk. THS guidelines for the diagnosing, notifying, testing and treating of communicable diseases would be followed.

In relation to importation of exotic insects, proper inspection and treatment of equipment from overseas (as required by quarantine laws) or from Queensland would be undertaken, particularly spare tyres or containers that can hold rain water.

## 3.16 HERITAGE AND SACRED SITES

### 3.16.1 Collation of recommendations

***The recommendations contained in Section 15 need to be collated into a single section. A tabular format is suggested. A similar table should be prepared for the historical heritage component by amending Table 15.4 to include recommendations. (NTG)***

The suggested tabular summaries of recommendations for prehistoric and historic sites are considered useful additions to the Draft EIS and are provided in Tables 3.1 and 3.2 respectively (over the page).

**Table 3.1 – Summary of recommendations for prehistoric sites on Bradshaw Field Training Area**

Issue	Low sensitivity	Moderate sensitivity	High sensitivity	Unknown	General
TFMA	No further action.	No further action.	No further action.	No further action.	No further action.
Camp and airstrip east of Koolendong Valley	No further action.	No further action.	No further action.	No further action.	No further action.
North Angalarri Road Corridor					Move centreline of road to avoid known sites. Undertake surveys for sites south of Ikymbon River.
Koolendong Road					Further assessment when road alignment finalised.
Other infrastructure	No further action.	Consult DLPE.	Consult DLPE.	Consult DLPE.	
Manoeuvre areas					Institution of training regime together with stringent penalties for infringement.
> casual vandalism					
> engineering	No further action.	Survey before earthworks.	Survey before earthworks.	Survey before earthworks.	
> live firing	No further action.	Establish heritage management zones.	Establish heritage management zones.	Establish heritage management zones.	
> vehicle manoeuvres	No further action.	Establish heritage management zones.	Establish heritage management zones.	Establish heritage management zones.	
HEIA					
> Wombungi	No further action.	Further surveys.	Further surveys.	Further surveys.	Review location of eastern border.
> Angalarri	No further action.	Further surveys. Establish heritage management zones.	Further surveys. Establish heritage management zones.	Further surveys. Establish heritage management zones.	
> Yambarran	No further action.	Further surveys. Establish heritage management zones.	Further surveys. Establish heritage management zones.	Further surveys. Establish heritage management zones.	Some further assessment and salvage where appropriate.

**Table 3.2 – Summary of recommendations for historic sites on Bradshaw Field Training Area**

Site name	Relationship to manoeuvre areas	Relationship to infrastructure sites	Recommendations
NAOU Hut Site	No relationship	No relationship	No action warranted at this time.
Gregory's Bar	Western Manoeuvre Area	No relationship	No action warranted at this time.
Koch and Arinsky murder site	Western Manoeuvre Area	No relationship	No action warranted at this time.
Price's Boab	Western Manoeuvre Area	No relationship	Signage.
Koolendong Waterhole Boabs	Western Manoeuvre Area	No relationship	Incorporate within a heritage precinct in which training activities involving live firing, vehicle manoeuvring and earthworks are prohibited.
Jiminjerry Waterhole Boabs	Western Manoeuvre Area	No relationship	Incorporate within a heritage precinct in which training activities involving live firing, vehicle manoeuvring and earthworks are prohibited.
Mussel Hole 1	Western Manoeuvre Area	No relationship	No action warranted at this time
Mussel Hole 10	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Cameron's Boab	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Fogarty Brothers Boab	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
'Mystery Ship' Boab	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Rod Quilt's Boab	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Bradshaws Tomb	Western Manoeuvre Area	Koolendong Road Corridor	Signage.
'Lady Ruth' Boab	Western Manoeuvre Area	No relationship	Signage.
Finlay's Grave Boab	Western Manoeuvre Area	No relationship	Signage.
Quilty and Underwoods Boab	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Mick Vandeleur's Boab	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Buffalo Springs homestead	Western Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Buffalo Spring 1	Eastern Manoeuvre Area	Koolendong Road Corridor	No action warranted at this time.
Bradshaw's Packhorse Cutting	Eastern Manoeuvre Area	No relationship	Signage.
Old Bradshaw Homestead	Eastern Manoeuvre Area	Koolendong Road Corridor	Incorporate within "Bradshaw Homestead"

Site name	Relationship to manoeuvre areas	Relationship to infrastructure sites	Recommendations
			heritage precinct in which training activities involving live firing, vehicle manoeuvring and earthworks are prohibited. Maintenance of existing firebreak. Assess relationship to proposed road centreline.
RJJ Boab	Eastern Manoeuvre Area	No relationship	Incorporate within "Bradshaw Homestead" heritage precinct.
Rollo Parry's Boab	Eastern Manoeuvre Area	Koolendong Road Corridor	Incorporate within "Bradshaw Homestead" heritage precinct. Assess relationship to proposed road centreline.
Rodney's Boab	Eastern Manoeuvre Area	No relationship	Incorporate within "Bradshaw Homestead" heritage precinct.
Old Bradshaw Station Landing	Eastern Manoeuvre Area	Koolendong Road Corridor	Incorporate within "Bradshaw Homestead" heritage precinct. Assess relationship to proposed road centreline.
Old Bradshaw Station 'Blacks Camp'	Eastern Manoeuvre Area	Koolendong Road Corridor	Incorporate within "Bradshaw Homestead" heritage precinct. Assess relationship to proposed road centreline.
Buffalo Spring 5	Eastern Manoeuvre Area	Koolendong Road Corridor	Incorporate within "Bradshaw Homestead" heritage precinct.
Savage's grave	Eastern Manoeuvre Area	Koolendong Road Corridor	Incorporate within "Bradshaw Homestead" heritage precinct. Assess relationship to proposed road centreline.
'New Bradshaw Station 'Black's Camp'	Eastern Manoeuvre Area	No relationship	Incorporate within "Bradshaw Homestead" heritage precinct.
Aboriginal stockmen's boabs	Eastern Manoeuvre Area	No relationship	Incorporate within "Bradshaw Homestead" heritage precinct.
Sourbon Spring 1	Eastern Manoeuvre Area	No relationship	No action warranted at this time.
Camballin Boab	Eastern Manoeuvre Area	No relationship	Signage.
Camballin Spring 2	Eastern Manoeuvre Area	No relationship	No action warranted at this time.
Angalarri River 1	Eastern Manoeuvre Area	No relationship	No action warranted at this time.
Larung Yard	Eastern Manoeuvre Area, Angalarri HEIA	No relationship	Incorporate within "Larung Yard" heritage precinct in which training activities involving live firing, vehicle manoeuvring and earthworks are prohibited. Creation of firebreak.

Site name	Relationship to manoeuvre areas	Relationship to infrastructure sites	Recommendations
Whites Boab	Eastern Manoeuvre Area, Angalarri HEIA	No relationship	Incorporate within "Larung Yard" heritage precinct.
McDougall's Boab	Eastern Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
'MQM' Boab	Eastern Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Frank Lewis' Boab	Eastern Manoeuvre Area	Koolendong Road Corridor	Signage. Assess relationship to proposed road centreline.
Mairanye outstation	Eastern Manoeuvre Area	No relationship	Maintain existing firebreaks. Signage. Prohibit vehicle manoeuvring on the site.
Mairanye 1	Eastern Manoeuvre Area	No relationship	Signage. Prohibit vehicle manoeuvring on the site.
KR Boab	Eastern Manoeuvre Area	No relationship	Signage.
Victoria River Crossing 3	Eastern Manoeuvre Area	No relationship	Signage. Prohibit vehicle manoeuvring on the site.



### **3.16.2 Priorities for training area use and archaeological surveys**

***Further information is required on the priorities for the use of training sectors and the archaeological surveys required before the nominated level of training intended for each training sector can be achieved. (NTG)***

The current nominated level of training use for each training sector is described in Section 3.4 of the Draft EIS. Defence acknowledges that the training sectors have varied levels of Aboriginal archaeological sensitivity (as identified through the baseline survey and documented on Figure 15.3 of the Draft EIS) which must be factored into planning for training exercises and establishing management regimes.

Defence is committed to undertaking additional surveys to ensure the levels of sensitivity are refined, allowing a more confident use of BFTA and the implementation of appropriate management strategies. The priorities for training sector use and hence the priorities for undertaking additional surveys are:

- > areas with medium to high sensitivity ratings in the Angalarri, Ikymbon, Mount Thymanan, Yambarran and Koolendong Sectors
- > "unknown" areas in the Yambarran, Little Fitzmaurice and Fitzmaurice Sectors to determine sensitivity levels
- > remaining "unknown" areas, namely the Lalngang Sector and Western Hills Sector

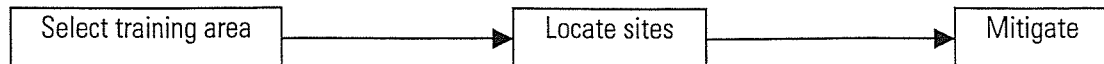
Defence will consult with the Heritage Conservation Branch of DLPE to prioritise and establish the additional archaeological survey requirements.

### **3.16.3 Training area planning process**

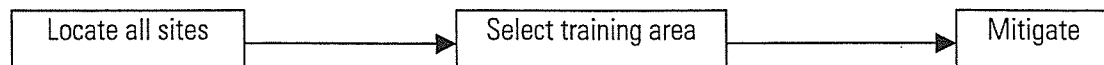
***The need to take into account baseline study results before selecting precise locations for activities rather than consider heritage values/sites at a later stage only in terms of mitigation is a major concern not adequately addressed in the EIS. (EA)***

Advice received by Defence from the archaeological consultant suggests that this comment reflects a misunderstanding of the training area selection and heritage site management process. The model which this comment is based on, together with the model adopted by Defence's consultant for this project, are depicted by the flow charts provided overleaf.

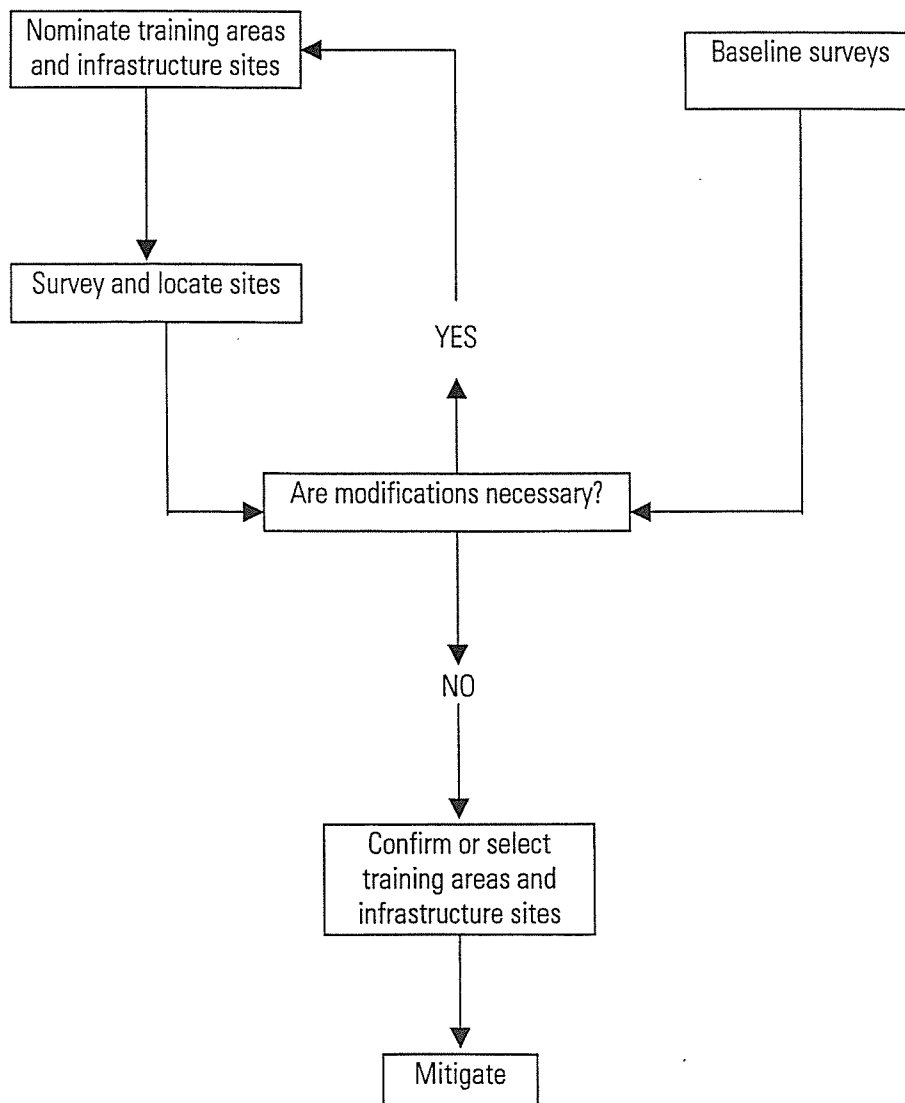
## Alternative models for training area selection and heritage site management



### A. Model EA comments indicate is in place



### B. Model EA comments indicate should be in place



### C. Model adopted by Defence consultant

This process recognises the need to consider the baseline studies in refining the level of training within training sectors and in the final siting of HEIA and infrastructure (also refer Section 3.4.2).

Examples of where modifications have been made to the siting of HEIA and infrastructure on the basis of preliminary baseline studies include:

- > placement of the North Angalarri Road centreline and the TFMA away from Whirlwind Plain
- > placement of the second camp and airstrip away from the Koolendong Valley
- > shape of the Angalarri HEIA
- > placement and shape of the Yambarran HEIA

It is considered that the model that has been developed provides a robust framework for the identification and management of cultural resources on Bradshaw Station and mitigation of potential impacts from military use.

### **3.16.4 Register of the National Estate listings**

***The EMP inadequately reflects the implications of future Register of the National Estate listings in terms of Defence's obligations under the AHC Act. The EMP needs to provide for these ongoing obligations in future BFTA heritage planning mechanisms. (EA)***

***The assumption that listing in the Register of the National Estate of large areas implies they receive "blanket protection" is unwarranted. Any significance assessment should identify what values are significant and management of these areas directed towards protecting the significant values. Protection of these values may be compatible with the use of large portions of a listed area for military training. (EA)***

***The EIS does not include an assessment of national estate values in heritage surveys (including the identification of cultural landscapes that may possess both natural and cultural values) along with an assessment of heritage values under NT legislation. (EA)***

Defence has fulfilled the requirements of the published guidelines for preparation of the Draft EIS.

The Draft EIS does consider, as separate items, all those places that have been nominated to the Register of the National Estate (RNE) on Bradshaw Station. This fulfils the requirements of Section 30 of the *Australian Heritage Commission Act*, which effectively requires that Commonwealth Ministers take steps to ensure places on the RNE are conserved. There is no reference to the need for attempting to predict and subsequently conserve future RNE listings in the *Australian Heritage Commission Act*. Defence contends that no development proponent would reasonably be expected to predict the future status of both recorded and unrecorded places with regard to the RNE.

Despite this, the Draft EIS and EMP has identified measures that would protect all cultural heritage on Bradshaw Station, whether recorded or not and whether entered onto any formal register or not. Any future change of status of one or more heritage places would be accommodated within the EMP.

While it is recognised that the values which are defined within the *Australian Heritage Commission Act* need to be taken into account in developing a conservation management program, it is not considered appropriate for the Draft EIS to undertake assessment of those values for the purpose of entry onto the RNE. It is submitted that this is the responsibility of the AHC and has not, to our knowledge, been a requirement of any previous EIS in the Northern Territory. The identification of large landscape areas for entry onto the RNE as cultural landscapes is similarly the responsibility of the AHC rather than the proponent. Notwithstanding, Defence is prepared to further review the issue of cultural heritage on Bradshaw Station and potential national estate values.

The assessment of the Koolendong Valley is problematic in that the significance criteria by which the place may be registered as a cultural landscape have yet to be specified by the AHC. Moreover, the values that might be suggested to occur in support of a cultural landscape listing in the Koolendong Valley are likely to be repeated in any landscape of similar size in the Top End. Further, the Northern Territory Heritage Advisory Council (HAC) has undertaken an assessment of the Koolendong Valley as a cultural landscape within the terms of the *Heritage Conservation Act* and has determined that it does not have values as a cultural landscape.

Nevertheless, Defence reiterates that its emphasis for management of BFTA as a training area is based on sustainable use and overall management of significant cultural and natural values following suitable management and monitoring programs. Included in the monitoring programs would be monitoring specific to the needs of certain sites or areas of significance, such as sacred sites, heritage places and objects, erosion, fire, vegetation, fauna, weeds, feral animals and water quality. Its management would include recognition of the valley as a whole and of specific sites or areas of significance. Therefore, the diverse range of natural and cultural values associated with the Koolendong Valley would be maintained, regardless of whether the area is termed a cultural landscape or not. Notwithstanding, Defence is prepared to further review the issue of cultural landscapes on Bradshaw Station.

### **3.16.5 Management of steeply dissected gorges and escarpments**

***It is recommended that steeply dissected gorges and scarps are excluded from all training activities except where an archaeological survey has demonstrated that no sites or sites of low significance only occur in those areas. (NTG)***

Defence acknowledges this recommendation and recognises the sensitivity of gorges and scarps. Such areas are not a high priority for training, however, may be required for limited dismounted training, such as survival training, in the future. No training would be undertaken in these areas before an archaeological survey has been carried out and appropriate heritage management zones delineated to protect sites of significance. Archaeological surveys would be carried out in consultation with DLPE.

### **3.16.6 Casual vandalism**

***Management and monitoring strategies proposed to ensure the protection of sites from casual vandalism need to be more clearly drafted to include a penalty provision for any individual who infringes Standing Orders and to underscore the fundamental importance of monitoring. (NTG)***

The management and monitoring strategies proposed in the Aboriginal Heritage Sub-Plan of the EMP have been amended to incorporate these suggested changes and are provided in Appendix A – Corrections to the Draft EIS.

### **3.16.7 Personnel induction and awareness**

***Briefings to personnel should place particular emphasis on the penalties for disturbance or damage to archaeological sites under the provisions of the Northern Territory Heritage Conservation Act 1991. (NT)***

Acknowledged. Induction briefings to personnel would emphasise the penalties for disturbance or damage to archaeological sites, sacred sites and historic sites under relevant legislation. This information would also be included in an Induction Booklet for BFTA containing information on the environmental, cultural and social values of the property.

***Briefings for personnel are not addressed and there should be some detailed explanation in the EIS of the type of information that would be conveyed regarding Aboriginal culture and sacred and archaeological sites and European cultural heritage sites. (NT)***

Briefings for personnel are provided for in the Information Management Sub-Plan of the EMP. Such briefings would cover, but may not be limited to, the following topics:

- > personnel discipline, command and control
- > range control and environmental management
- > personnel health and safety
- > emergency procedures
- > environmental issues, such as examples of sacred sites and Aboriginal archaeological places and objects and their importance, protection requirements and penalties associated with interference
- > training area management, such as use of training sectors, HEIA and management zones (eg safety, active rehabilitation, core fauna habitats, sensitive areas)
- > application of RSO and SOP and penalties associated with their infringement

***Experience with training groups at Timber Creek confirms a past lack of awareness of heritage sites on the part of the military. (NT)***

All Kangaroo Exercises and other training exercises not conducted on training areas are planned in advance and conducted by Defence with the aim of ensuring all environmental issues are considered by training units. This includes fulfilment of relevant legislative requirements, liaison with government agencies and preparation of orders accompanied by maps depicting sensitive areas such as sacred sites. For Kangaroo Exercises, an Environmental Awareness and Health Handbook is also prepared for soldiers. All exercises have an Exercise Control element, which monitor the training in the field and report on infringements under the exercise plan. If infringements are reported, they are acted upon.

***Defence personnel should undergo appropriate and accredited environmental and cross-cultural awareness training prior to undertaking exercises. This should include information on the penalties for disturbing Aboriginal sacred sites or archaeological sites under the relevant legislation. (NLC)***

Defence do not consider it practical for all Defence personnel, who number some 3000 persons in northern Australia and who follow a varied posting and training cycle, to undertake an accredited training program of this nature. However, Defence does offer accredited Aboriginal culture awareness courses through its overall personnel education course program.

Defence consider that a combination of the availability of the Aboriginal culture awareness course, the induction briefings, the implementation of the EMP and the implementation of RSO and SOP would provide soldiers with an adequate environmental and cultural awareness background and adequate knowledge of Aboriginal sacred sites, archaeological sites and environmentally sensitive areas within BFTA. Induction and training on BFTA would also include education on sites.

### 3.16.8 Monitoring program

***There is little specific direction provided about the form which monitoring would take. The monitoring program should: have the objective of ensuring that no change occurs to selected sites as a result of the use of BFTA; establish a set of baseline monitoring sites which would be recorded in detail; begin in 1998 with the detailed recording (establishment) of the monitoring sites; include a range of site types in a variety of locations; include the north east Angalarri rock shelters, Kirindjingin, Yambarran Plateau 7 and 8, Golla Golla 1, Mussel Hole 4, Bradshaw Homestead historic complex, Buffalo Spring 6, Larung Yard 1 and the hawk hunting hides south of the Ikymbon River; and be established in cooperation with the Department of Lands, Planning and Environment and must incorporate a qualified archaeologist with conservation experience. (NTG)***

Defence acknowledges the recommendations of the Northern Territory Government on monitoring. As discussed in Section 3.3.1, the EMP contained in the Draft EIS provides a framework for environmental management on which would be based specific additional survey, management and monitoring programs over the life of BFTA. Defence will consult with DLPE to establish appropriate monitoring programs for archaeological places and objects.

### 3.16.9 Scope of heritage surveys

***A map indicating areas where surveys have been undertaken should be provided to avoid duplication during future survey work. (NTG)***

Acknowledged. This information was unintentionally omitted from the Draft EIS but has been recorded on the GIS to avoid duplication of future survey work.

***A major concern not addressed in the EIS is the need for the heritage surveys to be as comprehensive as possible. (EA)***

The Draft EIS has undertaken the most comprehensive survey as possible within the constraints of time, cost and topography. This problem is particularly acute given the huge size of Bradshaw Station and the large areas proposed for manoeuvre areas.

Locations for proposed infrastructure development (such as roads, camps and airstrips) have been surveyed with high intensity. Of necessity, manoeuvre areas have been subjected to surveys of lesser intensity, at this stage.

It is relevant to repeat the objectives of the baseline study as expressed on Page 2 of the consultants report (Volume 2B): "Baseline studies typically identify the scientific significance and sensitivity of the archaeological sites found in different portions of a region and contain general recommendations about site protection. Information gained during such studies can also be used to develop cost effective strategies for subsequent phases of archaeological investigation."

The baseline study was not intended to represent a comprehensive or complete record of all cultural heritage on Bradshaw Station. It is one component of a staged program of cultural resource assessment and conservation. The EMP requires and the Department of Defence has made a commitment to undertake further archaeological surveys as necessary. These surveys would be conducted to:

- > improve the baseline understanding of heritage resources by refining, testing and expanding the predictive model to ensure that infrastructure development, such as the construction of roads, does not impact on cultural resources

- > to carry out further surveys in areas of moderate to high archaeological potential to increase knowledge of cultural resources in these potentially sensitive areas
- > to put in place a network of archaeological sites which are recorded in fine detail to provide benchmarks for the assessment of future impacts

In relation to the concerns raised specifically about surveys for historic sites, it must be pointed out that the Australian Heritage Commission previously funded a comprehensive historic heritage survey of Bradshaw Station. This survey by Darryl Lewis is reported in a document titled *The Boab Belt*. This study involved an extensive survey of every portion of Bradshaw Station known to contain historical sites. In addition, extensive coverage of Bradshaw Station in the past two years, in vehicles, on foot and in low altitude helicopter surveys, have failed to find any further historic sites. The archaeological consultant has advised that it is extremely unlikely that any further significant historic sites would be located on Bradshaw Station.

However, recent advice from EA claims that Darryl Lewis has knowledge of a number of significant historic sites that are not included in his study and that other areas not surveyed, such as the Yambarran Plateau escarpment, the Victoria River bank and the banks of the Angalarri River, have a potential to reveal historic sites. Defence will be contacting Darryl Lewis for information regarding sites and areas of which he has knowledge. Following receipt of this information, Defence will seek advice from DLPE on the need for an assessment of these sites and their significance and appropriate management strategies. Notwithstanding the significance of these sites, Defence reiterates its commitment to the management of all cultural heritage on Bradshaw Station, whether recorded or not and whether entered onto any formal register or not. This commitment, in relation to historic sites, is captured within the European Heritage Sub-Plan of the EMP (as amended), including procedures for determining management strategies for newly discovered sites.

In addition, EA has advised that Darryl Lewis is also aware of other indigenous sites in the Koolendong Valley that have not been identified by the baseline surveys. Defence will be contacting Darryl Lewis for information regarding these sites. As with historic sites, following receipt of this information, Defence will seek advice from DLPE on the need for an assessment of these sites and their significance and appropriate management strategies. Notwithstanding the significance of these sites, Defence reiterates its commitment to the management of all cultural heritage on Bradshaw Station, whether recorded or not and whether entered onto any formal register or not. This commitment, in relation to Aboriginal sites, is enshrined within the Aboriginal Heritage Sub-Plan of the EMP (as amended), including procedures for determining management strategies for newly discovered sites.

***The omission of the escarpment area from the archaeological survey emphasises the need for a detailed study of this feature. (NT)***

As discussed in Section 3.3.7, the scope of baseline surveys were planned in consultation with both NT and Commonwealth Government representatives and recognised the scale of the property and the need to prioritise and target surveys. As such, baseline surveys, including archaeological surveys, targeted infrastructure sites and priorities for training area use.

The escarpment areas are a low priority in terms of training area use as the Brigade is mechanised. Despite this, the baseline archaeological surveys included many areas of escarpment across Bradshaw Station, which resulted in the recording of numerous archaeological sites.

As discussed in Section 3.16.5, no training will be undertaken in these areas before an archaeological survey has been carried out for unsurveyed areas and appropriate heritage management zones delineated to protect sites of significance. Archaeological surveys would be carried out in consultation with DLPE.

***It is disappointing that the area of European heritage has not been dealt with in any detailed survey. (NT)***

***The survey is inadequate from an historic heritage perspective and the approach adopted is not systematic or scientific. (EA)***

These comments appear to be predicated on the assumption that large numbers of historic sites remain to be identified on Bradshaw Station and do not acknowledge the comprehensive survey of historic sites on Bradshaw Station carried out by Darryl Lewis and documented in his report *The Boab Belt*. Lewis' study involved an extensive review of documentary sources, including archival materials and oral history research. It also incorporated field surveys carried out over every part of Bradshaw Station known to have been associated with historic exploration, pastoral, transportation and military activities (with one exception – the North Australia Observer Unit (NAOU) Hut site). Therefore, in effect, a comprehensive survey of historic heritage has already been carried out.

The field data collected during the baseline surveys indicates strongly that Lewis' historic site survey was exhaustive. With the exception of some boab trees carved after 1960, no new historic sites were identified despite the fact that nearly 800 linear kilometres were inspected. The only previously unrecorded historic site identified during the survey was the NAOU Hut site, which Lewis mentioned in his report but was unable to access owing to its remote location. No additional historic sites were identified during the survey work carried out by DLPE despite the fact that some 43 prehistoric sites were identified.

Given the size of Bradshaw Station, it is possible that additional historic sites may be found in the future, however, current knowledge would indicate that it is extremely unlikely that any further significant historic sites would be located. Repetition of the comprehensive study already carried out by Lewis would therefore appear to be unwarranted.

However, as noted earlier, recent advice from EA claims that Darryl Lewis has knowledge of a number of significant historic sites that are not included in his study and that other areas not surveyed, such as the Yambarran Plateau escarpment, the Victoria River bank and the banks of the Angalarri River, have a potential to reveal historic sites. Defence will be contacting Darryl Lewis for information regarding sites and areas of which he has knowledge. Following receipt of this information, Defence will seek advice from DLPE on the need for an assessment of these sites and their significance and appropriate management strategies. Notwithstanding the significance of these sites, Defence reiterates its commitment to the management of all cultural heritage on Bradshaw Station, whether recorded or not and whether entered onto any formal register or not. This commitment, in relation to historic sites, is enshrined within the European Heritage Sub-Plan of the EMP (as amended), including procedures for determining management strategies for newly discovered sites.

### **3.16.10 Additional records**

***The Department of Lands, Planning and Environment undertook inspections of heritage sites on BFTA which found a further 43 sites not reported in the EIS. The data obtained generally supports the conclusions presented in the EIS. (NTG)***

Acknowledged. It is noted that DLPE did not collect its site data in a manner consistent with the methods used in the baseline study. This means that its data cannot be incorporated into the predictive model because it cannot be expressed in terms of site densities per linear kilometre. However, this additional site data will be recorded on the GIS for use in the planning and approval process for training exercises.



### 3.16.11 Assessment of Aboriginal archaeological sites

***The EIS provides inadequate consideration of Aboriginal archaeological sites. (EA)***

***The survey objectives and methods used to collect information about Aboriginal archaeological sites are seriously flawed. The problems with using landforms as a method of stratifying samples, the problems with the methods used to collect data, and the small sample sizes in some areas, indicate there are serious problems with the sensitivity model being proposed. Reliance on this model for management of archaeological resources is not recommended. The baseline studies should be repeated in a more systematic manner to allow for the development of a more reliable sensitivity zoning system. Recommended that a more rigorous scientific survey, and assessment of the significance, of archaeological expressions of past Aboriginal use of Bradshaw Station be undertaken before the EIS and EMP are approved. (EA)***

***Even if the sensitivity zoning model was adequate, there are still potential problems with the way in which it is being used. The best practice option uses sensitivity zoning to define areas with high sensitivity, which should not be impacted upon. Other areas are then subject to survey before use, so that any significant sites within these areas can be protected. (EA)***

The following response addresses the principal concerns with the survey methodology raised by EA and is based on advice received from the archaeological consultant.

#### **Survey unscientific as it does not undertake a random survey**

It is fair to say that there is a trade off between the desire to develop a tight statistical model of site distribution and cost efficiency. Random sampling would provide a highly representative statistical model, but practical experience over many years has shown that it has a number of shortcomings. These shortcomings are:

- > the time required to access random survey quadrants amounts to a large percentage of time (and resources) available for the entire survey program, a problem which is exacerbated in a place like Bradshaw Station due to its large size and the small proportion of the area which can be accessed by vehicle
- > the likelihood of missing sites in highly prospective areas such as along watercourses or in areas of geology suitable for prehistoric quarrying or rock shelter formation.

Purposive sampling has the capacity to focus on variation and the distribution of cultural resources within a sampling unit (say, an environmental zone) and more importantly, provides the opportunity to survey the greatest possible extent of a given area.

The comments by EA state the need for the Draft EIS heritage surveys to be "as comprehensive as possible". They also stress the need to specifically look at water sources as a possible focus area for site location. Both of these requirements can be best addressed by the use of a purposive sampling strategy rather than a random sampling strategy.

#### **Choice of sampling units**

Several previous studies in the region, including a recently complete PhD thesis, have demonstrated the effectiveness of a site distribution model based on land systems such as those used in the Draft EIS.

There is a demonstrable link between topography, vegetation communities and geological structure and the distribution of archaeological materials in the Ord River and Victoria River regions. The findings of

the baseline study confirm these relationships in their entirety. EA has not provided any data to suggest that an alternative scheme should be adopted.

#### **Different methods of data capture**

There were two different methods of data capture: vehicular surveys and surveys carried out on foot (this includes so called "helicopter quadrants" and "pedestrian survey").

EA states that these methods are incompatible but provide no data to support this notion. Table 3.3 provides the appropriate comparison between vehicular surveys and surveys on foot.

**Table 3.3 – Comparison of survey methods**

Survey method	Distance surveyed (km)	Number of sites	Mean site frequency (sites/km)
Vehicle	288	33	0.11
Foot	489	62	0.13

The recovery rates for the two surveys are virtually identical ( $X^2=0.06$ ,  $df=1$ ) and there is no basis for the comments by EA.

#### **Management zoning**

EA, in its comments, makes the following statement:

*More importantly, the objectives of the survey strategy confuse predictive models, which indicate where sites are located with significance...A classic example of the difference between predictive models and site significance is provided by the carved boab at the Koolendong Waterhole"*

This statement appears to misinterpret the approach taken during the baseline archaeological survey. The predictive model of site distribution (which contrasts the archaeological sensitivity of different zones) has been determined by comparing the density of archaeological material across different environmental units. By contrast, the significance of individual archaeological sites has been determined based on factors specific to each site, such as their state of preservation and research potential.

Sensitivity zoning provides an indication of areas in which further intensive archaeological survey work will be necessary prior to the development and use of BFTA. It also serves as a guide in planning infrastructure development and training activities on BFTA. This is because use of the predictive model can provide a general indication regarding the extent to which proposed land use practices are compatible with the management of significant archaeological resources. Sensitivity zoning is not intended to provide management strategies for individual sites. The approach adopted represents, in effect, a two tiered approach, with management strategies focused both at the level of landscapes and individual archaeological sites.

This can be clearly illustrated by using the "classic example" of the Koolendong Waterhole Boabs. The Koolendong Waterhole Boabs occur in an area of low archaeological sensitivity, as the density of archaeological sites across the floor of the Koolendong Valley is extremely low. As noted in the Draft EIS, "...individual examples of highly significant archaeological sites may occur within landscape zones of low sensitivity, but such examples will be rare and relatively isolated". This is the case with the Koolendong Waterhole Boabs.

The EA comment seems to suggest that, because the boabs are located in a zone of low archaeological sensitivity, no provision would be made for their protection and that "...management recommendations do not deal with this type of issue". These comments fail to acknowledge that management measures for the protection of the Koolendong Waterhole Boabs are proposed in the Draft EIS and the European

Heritage Sub-Plan of the EMP. The landscape zoning scheme put forward does not preclude the protection of individual sites of high significance within landscape zones of overall low sensitivity and recommendations in this respect are provided where appropriate. There is also nothing in the landscape zoning scheme that precludes places with other types of significance (such as sacred sites or places of environmental significance) within landscape zones of low archaeological sensitivity.

### **Management philosophy**

The approach advocated by EA in its comments appears to suggest a blanket ban on military use within all areas of high significance on Bradshaw Station and the requirement for comprehensive surveys of all proposed training areas.

It is not considered appropriate that future surveys be carried out with uniform intensity across the property. The most effective management strategies would entail focusing future survey work in areas known to be rich in archaeological resources, such as the Yambarran Range and applying a lower intensity of survey coverage in areas known to be largely devoid of archaeological materials, such as the Angalarri Plain.

***The surveys for old Aboriginal sites seem to have been done without the participation of the Jaminjung (Djamandjung) community. They should have been consulted about the significance of sites and how they want them managed. (EA)***

The concern raised about the need to consult Aboriginal traditional owners regarding their concerns about the conservation of archaeological sites suggests a misunderstanding about the legislative and administrative processes in place in the Northern Territory to empower Aboriginal people to protect sites of importance to them.

Aboriginal people within the Northern Territory have been empowered both in terms of land rights and a right to protect places of significance to them for much longer than elsewhere in Australia. The Commonwealth *Aboriginal Land Rights (Northern Territory) Act 1976* provides protection for all Aboriginal sacred sites in the Northern Territory. The *Northern Territory Aboriginal Sacred Sites Act* is enabling legislation that puts in place processes for the documentation, recording and registering of sacred sites. This Act also provides a mechanism by which developers can determine the nature of constraints (if any) posed by the presence of sacred sites in a particular location. Aboriginal custodians are intimately involved in these processes and are empowered to have their rights and their will exercised as against all other interests.

The critical point to note is that the definition of "sacred site" is a very broad one. It is not constrained to a limited rubric which can be found in the popular press and which is taken to mean those extremely important places where say, ancestral beings still dwell and/or at which the most important religious festivals and ceremonies are performed (cf Strehlow's pmara kutata in central Australia). Obviously these are included, but the definition in the Commonwealth *Aboriginal Land Rights (Northern Territory) Act 1976* is that "sacred site" means:

*... that is sacred to Aboriginals or is otherwise of significance according to Aboriginal tradition, and includes any land that, under a law of the Northern Territory, is declared to be sacred to Aboriginals or of significance according to Aboriginal tradition;...*

In practice, this means that any site associated with traditional Aboriginal culture, and this may extend in time up to the present day, as expressed by Aboriginal people, is protected. It is not uncommon for archaeological sites to fall into this category. Where this occurs, the *Heritage Conservation Act*, which protects prehistoric archaeological sites, contains specific clauses giving responsibility for these sites to Aboriginal people, as empowered through the Aboriginal Areas Protection Authority (AAPA).

What this means in the case of Bradshaw Station is that, following the assessment of the property by AAPA in conjunction with traditional owners, any and all sites which the traditional owners have an interest in, or wish to see protected, has been included in the documentation associated with the Authority Certificate.

***It is recommended that the archaeological data be recast in terms of land unit information provided in Figure 5.2 Land Units to generate a new, more refined predictive model for site distribution. (NTG)***

The validity of this recommendation is acknowledged, however, given the large number of land units defined, the current size of the database available for each land unit would be too small to enable a meaningful comparison to be made between land units at this time.

As more site data is collected through future archaeological surveys, the data would be recast in terms of the land unit information to refine the predictive model for site distribution.

### **3.16.12 Delineation of heritage management zones**

***Fences and signs delineating management zones around sacred sites and archaeological objects or places should include reflective material or some other means of making them visible at night. (NTG)***

The methods for delineating heritage management zones would be confirmed in consultation with DLPE and AAPA and would be suitable for both day and night operations.

### **3.16.13 Identification of new sites**

***The reporting of new sites would rely on the Environment Officer and would depend on specialised training to recognise and interpret new sites. The implications are that no new sites would be recorded unless further detailed studies, including the mapping of sites, are undertaken prior to BFTA becoming operational. (NT)***

The baseline study is not intended to represent a comprehensive or complete record of all cultural heritage on Bradshaw Station. It is one component of a staged program of cultural resource assessment and conservation. The EMP requires, and the Department of Defence has made a commitment to undertake, further archaeological surveys as necessary. These surveys would be conducted to:

- > improve the baseline understanding of heritage resources by refining, testing and expanding the predictive model to ensure that infrastructure development, such as the construction of roads, does not impact on cultural resources
- > to carry out further surveys in areas of moderate to high archaeological potential to increase knowledge of cultural resources in these potentially sensitive areas
- > to put in place a network of archaeological sites which are recorded in fine detail to provide benchmarks for the assessment of future impacts

In addition, the EMP establishes a process for identifying and reporting new sites and for consulting with relevant authorities to establish appropriate management strategies for new sites.

#### **3.16.14 Use of areas of low archaeological sensitivity**

***The use of areas of low archaeological sensitivity for engineering exercises requiring earthworks has serious implications as comparative analysis may confirm their significance in other areas. Alternatively, the destruction of other previously comparable sites would serve to enhance the significance of those of low archaeological sensitivity. (NT)***

Areas of low archaeological sensitivity generally contain low densities of archaeological sites and isolated artefacts. Those sites that do occur in these areas tend to be small, contain low densities of archaeological materials and are of low scientific significance. Therefore, there would seem to be no basis for the concerns expressed, as the likelihood of the destruction of any significant sites would be minimal.

#### **3.16.15 Risk to sites from incidents**

***The risk to sites associated with incidents such as ricochets, inadvertent releases of air weapons, overshoots, skip and unexploded ordnance, particularly beyond the HEIA boundaries, has not been addressed in the Draft EIS or EMP. (NT)***

Significant heritage sites would be protected by the delineation of heritage management zones within which training activities would be restricted. These heritage management zones would be recorded on the GIS for use in the planning and approval process for training exercises.

The use of HEIA and Range Danger Area (RDA) Safety Traces for live firing are described fully in the Draft EIS. RDA Safety Traces would be prepared for planned field firing exercises to ensure protection of heritage management zones. RDAs incorporate areas to cover human error and ricochets.

#### **3.16.16 Additional assessment for changes to proposal**

***Future variations to HEIA boundaries should be subject to detailed assessment of the areas identified for inclusion into the HEIA. (NT)***

Any future variations to current HEIA boundaries or establishment of new HEIA would be sited taking into consideration relevant legislation and scientific knowledge available at the time. This may include the need for additional heritage surveys.

#### **3.16.17 Cultural landscapes**

***The Koolendong Valley should be declared a cultural landscape containing a diverse range of Aboriginal, natural and cultural values to best protect individual sites. (NT)***

The Draft EIS reports eleven historic places nominated for inclusion on the Register of the National Estate, one of which is the Koolendong Valley. These places are recognised in the European Heritage Sub-Plan of the EMP for inspection and suitable protection and management measures. This represents an undertaking by Defence to manage these sites. Defence awaits advice concerning the outcomes of the assessment of these places by the AHC.

The Draft EIS reports ten historic places accepted by the Heritage Advisory Council (HAC) of the NT for consideration for inclusion on the Northern Territory Heritage Register. The Koolendong Valley nomination was not accepted. The places accepted by the HAC would also be managed according to the European Heritage Sub-Plan.

Since publication of the Draft EIS, Defence has been advised that three of the ten places have been recommended by the HAC for inclusion on the NT Heritage Register, namely the Koolendong Boab Trees, Old Bradshaw Homestead Precinct and Bradshaw's Packhorse Cutting. Defence will liaise with the HAC on appropriate specific monitoring and management programs for these three places.

The nomination of the Koolendong Valley as a cultural landscape highlights not only historic sites, but also a range of other values, including Aboriginal and natural values. However, in the absence of a statement of significance from AHC, it is premature to assess the impacts of military use of the area as a cultural landscape. Therefore, the assessment contained in the Draft EIS focused on the potential impacts of military use on specific places of cultural significance within the Koolendong Valley.

Nevertheless, Defence reiterates that its emphasis for management of BFTA as a training area is based on sustainable use and overall management of significant cultural and natural values following suitable management and monitoring programs. Included in the monitoring programs would be monitoring specific to the needs of certain sites or areas of significance, such as sacred sites, heritage places and objects, erosion, fire, vegetation, fauna, weeds, feral animals and water quality. Its management would include recognition of the valley as a whole and of specific sites or areas of significance. Therefore, the diverse range of natural and cultural values associated with the Koolendong Valley would be maintained, regardless of whether the area is termed a cultural landscape or not. Notwithstanding, Defence is prepared to further review the issue of cultural landscapes on Bradshaw Station.

### **3.16.18 Management strategies**

***The management strategies for Aboriginal sacred sites, historic and Aboriginal archaeological sites and historic places contained in the Executive Summary of the Draft EIS are "motherhood" statements which provide little detail on either the extent of mitigation or commitment to the continued integrity of sites. (NT)***

The Executive Summary was not intended to provide detail. The detail is provided within the main body of the Draft EIS and the relevant Sub-Plans of the EMP.

### **3.16.19 Aboriginal sacred sites**

***The map of sacred sites should not have been published in the Draft EIS as it gives the locations of Aboriginal sacred sites, which should remain confidential. (NLC)***

The sacred sites map was included in the Draft EIS to demonstrate the existence and broad distribution of sacred sites within Bradshaw Station. Its publication was discussed with AAPA during Draft EIS preparation. The map is based on site centroid data only and is presented at a scale of 1:500 000. The map does not show enough information to be able to locate individual sites.

Information on the nature, extent and sensitivity of identified sacred sites was not made available for the Draft EIS to ensure site confidentiality.

***The management of sacred sites should include the traditional Aboriginal owners and full consultation should take place, regardless of the robustness of the site according to AAPA. (NLC)***

An Authority Certificate for Bradshaw Station (except the Western Hills Sector) has been issued by AAPA in accordance with Section 22 of the *Northern Territory Aboriginal Sacred Sites Act*. Consultation with Aboriginal custodians, including the principal traditional Aboriginal owners, has been

undertaken by AAPA during the course of preparing the Authority Certificate to identify sites of Aboriginal cultural significance (sacred sites).

However, Defence is cognisant that further consultation is required with Aboriginal custodians of sacred sites to confirm appropriate management and monitoring programs for sacred sites on Bradshaw Station. Defence will consult with AAPA on the most appropriate mechanism for consultation.

***There should be some provisions to ensure sites not recorded by AAPA and which come to light in future be accorded the same status as recorded sites. The AAPA Authority Certificate should not be seen as the final word on sacred sites on Bradshaw Station. (NLC)***

Defence recognises that more sacred sites may be identified in the future through further consultation with Aboriginal groups. The Aboriginal Heritage Sub-Plan of the EMP establishes a process for identifying and reporting newly discovered sacred sites and for consulting with relevant authorities to establish appropriate management strategies for newly discovered sites.

### **3.16.20 Aboriginal association with Bradshaw Station**

***Aboriginal groups other than the Jaminjung (Djamandjung) also affiliate with Bradshaw Station and should not be excluded from consultations. (NLC)***

The Draft EIS noted that the principal Aboriginal people traditionally associated with Bradshaw Station belong to the Jaminjung (Djamandjung) language community. However, Defence recognises that there is other traditional Aboriginal owners, including the Nungali, Wardaman, Murrinhkura and Murrinhpatha groups. These groups would be included in further consultation regarding appropriate management and monitoring programs for sacred sites on Bradshaw Station.

### **3.16.21 Native title claims**

***The Draft EIS states that there is no native title claims current for Bradshaw Station. A claim was lodged on 12 November 1997 by the NLC. (NLC)***

A native title claim was lodged for Bradshaw Station as the Draft EIS was being printed. Defence was therefore not in a position to record the lodgement of the claim at the time of publication. Defence, the NLC and claimants have commenced discussions concerning the claim and its progress to a satisfactory conclusion for all parties.

### **3.16.22 Aboriginal land**

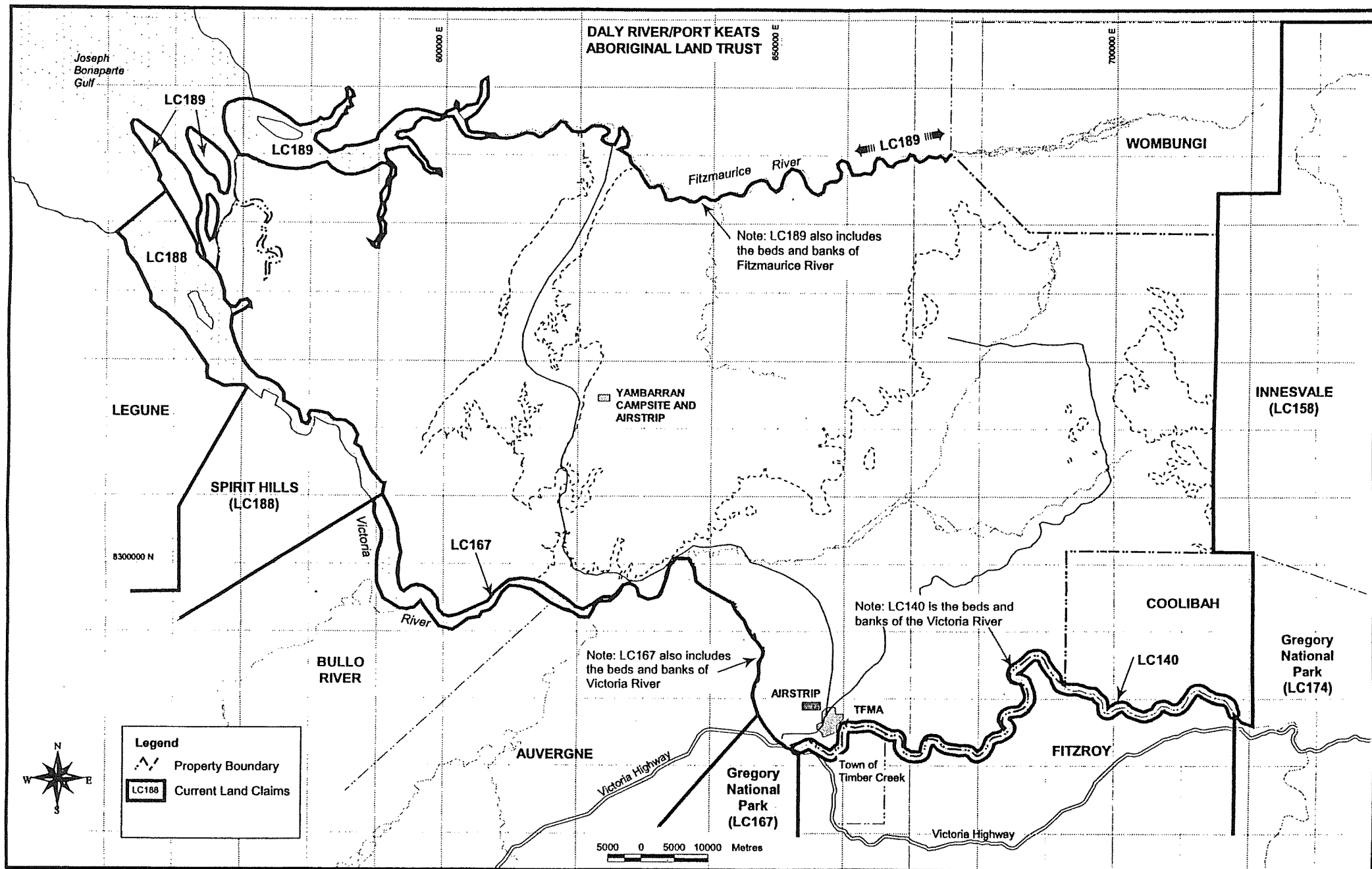
***Figure 15.6 does not make clear the extent of the land claim over the beds and banks of the Victoria River and should be amended accordingly. A written description of Land Claim 189 should be provided. (NLC)***

A revised Figure 15.6 from the Draft EIS is provided over. This includes a clearer representation of Land Claim 167 which includes the beds and banks of the Victoria River.

A written description of Land Claim 189 is as follows:

#### **Beds and banks of the Fitzmaurice River**

The beds and banks of the Fitzmaurice River from the mouth of the river to where the river meets the western boundary of Wombungi Station and including the islands located within the boundaries of the river.



**Connell Wagner**  
Bradshaw Field Training Area

**Figure 15.6 :  
ABORIGINAL LAND CLAIMS**



### **NT Portions 4171, 4172 and 4173**

All land within these NT Portions to low water mark.

#### **Land seaward of the mainland of the Northern Territory**

Land adjacent to, and seawards of, the low water mark of the seacoast of the mainland from, in the west, the point where the eastern most point of the mouth of the Victoria River meets the low water mark and to, in the east, the point on the western boundary of Daly River/Port Keats Aboriginal Land, just north of Chindi, including:

- > any islands, or part of an island, to low water mark
- > the bed of any bays or gulfs of the mainland or of an island, or part of any such bay or gulf
- > all sandbars, islands, islets, reefs, rocky areas and other formations

### **3.16.23 Constraints for construction and operational activities**

***The heritage attributes of Bradshaw Station should be mapped to identify constraints for construction and operational activities. Figure 15.3 does not contain any reference to the archaeological sensitivity of the north east of the Western Manoeuvre Area. Omission of information would be considered as a constraint to operational activities. (EA)***

The heritage attributes of Bradshaw Station as identified through the baseline studies, including Aboriginal sacred sites and archaeological sites, European heritage places and archaeological sensitivity zoning, are recorded on the GIS for use in the planning process for training exercises and for establishing management regimes.

Figure 15.3 in the Draft EIS provides archaeological sensitivity zoning for Bradshaw Station based on the results of the baseline archaeological survey. The north east of the Western Manoeuvre Area is zoned as "unknown", reflecting the fact that insufficient information is available at present to be able to predict the archaeological sensitivity of this area.

Defence is committed to undertaking additional archaeological surveys to ensure the levels of sensitivity are refined, allowing a more confident use of BFTA and the implementation of appropriate management strategies. The priorities for undertaking additional surveys are:

- > areas with medium to high sensitivity ratings in the Angalarri, Mount Thymanan, Ikymbon, Yambarran and Koolendong Sectors
- > "unknown" areas in the Yambarran, Little Fitzmaurice and Fitzmaurice Sectors to determine sensitivity levels

Defence will consult with the Heritage Conservation Branch of DLPE to prioritise and establish the additional archaeological survey requirements.

## **3.17 SOCIAL AND ECONOMIC FACTORS**

### **3.17.1 Mineral potential**

***The issue of mineral potential for the area has not been addressed. (NTG)***

This was not identified in the EIS guidelines as an issue to be addressed. However, the Draft EIS noted that there are no known economic mineral deposits or energy reserves within Bradshaw Station, with the majority of the property being declared a Reserve from Occupation under the *Mining Act 1982*.

### 3.17.2 Access and rights to potential economic resources

***The Department of Mines and Energy is concerned that, if and when the land becomes Commonwealth freehold, any minerals present revert to Commonwealth ownership and the Northern Territory loses access and rights to potential economic resources. (NTG)***

Defence reiterates the statement made in Section 1.4 of the Draft EIS. Defence anticipates that it will acquire a freehold title to Bradshaw Station. Pursuant to Section 21 of the *Crown Lands Act*, all estates in fee simple are "...subject to a reservation to the Crown of all minerals, mineral substances and ores in or on the land...". The Northern Territory Government will therefore still have control of the minerals found on Bradshaw Station (refer further Section 16.5.2 of Draft EIS).

### 3.17.3 Impacts of interstate ADF training

***ADF formations from southern bases attending major exercises at BFTA are likely to travel by road and are likely to contribute to the NT regional economy at a higher level than locally based units. They would also have the potential to affect traffic flows as well as businesses on the Stuart Highway south of Katherine. (NTG)***

Interstate ADF formations may also undertake training on BFTA on occasion for large joint exercises. Transport of personnel, vehicles and equipment may be by a combination of road and air. Road access would be from the south along the Stuart Highway via Katherine or from the west via Kununurra along the Victoria Highway. As with road movements between Darwin and BFTA, interstate ADF users would follow the standard road convoy procedures outlined in the Draft EIS to minimise traffic flow impacts and ensure the safety of other road users. Liaison by Defence with local Councils and police is normally conducted for deployment of large elements.

It is recognised that interstate ADF formations would also contribute to aspects of the Northern Territory economy, including expenditures incurred at stopover points during convoy movements. However, the major contributions to the Northern Territory economy would be from ADF elements based in the Northern Territory as reported in the Draft EIS.

### 3.17.4 Economic relationship between Bradshaw Station and Timber Creek

***There is no indication as to the current economic relationship between Bradshaw Station (operating as a cattle station) and Timber Creek and the impact of it ceasing operation as such. Closure of tour operations to Bradshaw Station may have had an impact on Timber Creek. (NTG)***

The current economic relationship between Bradshaw Station (operating as a cattle station) and Timber Creek comprises incidental purchases in the shop and/or pub by station workers, road train drivers and helicopter pilots and some purchases of fuels and oils. The impact of Bradshaw Station ceasing operations as a cattle station would be the loss of this expenditure. However, the expected contribution of construction and operation of BFTA to the Northern Territory economy (including Timber Creek) as reported in the Draft EIS (some \$562.31 million over the next 25 years) should far exceed current contributions.

The closure of tour operations on Bradshaw Station is required to ensure that Defence's responsibilities in terms of safety, duty of care and legislation can be met. However, the focus of tourism in the Victoria River Region is on Gregory National Park and Keep River National Park, which would not be affected. In addition, there may be potential for tour operations to be conducted within these National Parks or on surrounding properties with similar natural attributes. As such, the closure of tour

operations on Bradshaw Station is not likely to have any significant long term impact on Timber Creek or on regional tourism activity.

### **3.17.5 Current and planned property status**

***Department of Defence should ensure compliance with the provisions of the Native Title Act 1993 in relation to any development on the property in its current leasehold status and in the conversion of the property to freehold title, including the requirement to negotiate with Native Title holders and claimants. (NLC)***

Defence will ensure that the provisions of the *Native Title Act 1993* are fulfilled and complied with in respect of the conversion of the title to freehold and in respect of its proposed development plans for BFTA.

### **3.17.6 Regional tourism activity**

***If tours of Bradshaw Station were previously conducted and these tours would no longer be allowed then this is an adverse impact on tourism activity in the region. (NTG)***

The closure of tour operations on Bradshaw Station is required to ensure that Defence's responsibilities in terms of safety, duty of care and legislation can be met. However, the focus of tourism in the Victoria River Region is on Gregory National Park and Keep River National Park, which would not be affected. In addition, there may be potential for tour operations to be conducted within these National Parks or on surrounding properties with similar natural attributes. As such, the closure of tour operations on Bradshaw Station is not likely to have any significant long term impact on Timber Creek or on regional tourism activity.

### **3.17.7 Consultation with adjacent land holders**

***Unclear as to how the strategy to consult adjacent landholders would be enacted as the NLC is unaware of any consultation with the Daly River Aboriginal Land Trust to date. (NLC)***

The consultation program implemented for the project is discussed fully in Section 3.23.1 of the Supplement. No direct contact was made with members of the Daly River/Port Keats Aboriginal Land Trust, however, consultation was undertaken with the NLC, advisers to the Daly River/Port Keats Land Trust.

Since publication of the Draft EIS, Defence has conducted a briefing on the project to the Daly River/Port Keats Land Trust.

## **3.18 PUBLIC ACCESS, HEALTH AND SAFETY**

### **3.18.1 Access to the Angalarri River**

***The EIS contains contradictory statements on access to the Angalarri River upon conversion to freehold title. (NTG)***

The concerns raised about public access to the Angalarri River seem to indicate some confusion over the actual position, which was correctly stated in the Draft EIS. The following explanation is based on legal advice on this issue.

On conversion to freehold title, Defence would have the right to restrict access to BFTA by third parties. In addition to the general rights of Defence to restrict access to its land, the *Trespass Act 1987* defines "land occupied by the Commonwealth upon which is posted a notice in English to the effect that trespassing on the land is prohibited" as "prohibited land". Section 6 of the Act makes it an offence to trespass on "prohibited land".

In addition to these rights, Defence would have the right to control access to the airspace above land to such a height as is necessary for the ordinary or proper use and enjoyment of the land and structures upon it. In this manner, persons who "float" into BFTA using a boat will be trespassing on the airspace rights attached to the land, even where such persons do not leave the boat.

Defence would also own the bed and banks of waterways wholly within the freehold title, such as the Angalarri River. However, Defence would not own the water in the Angalarri River, nor does Defence have the exclusive rights to use or control the flow of water, as it is an offence to obstruct or interfere with a waterway or with the flow of a waterway. In this respect, Defence would be unable to restrict access of boats to the Angalarri River by constructing any structure, whether on land or in or below the water, which is capable of interfering with the flow of water.

In summary, as owner of a freehold title to Bradshaw Station, Defence:

- > could limit any "overland" access to the Angalarri River by restricting access to BFTA
- > could limit access to airspace above BFTA (including above the Angalarri River)
- > could limit access to the bed and banks of the Angalarri River
- > could not erect a barrier to prevent the entry of boats onto the Angalarri River

To ensure its responsibilities in terms of safety and duty of care are met, Defence intends to erect signs at the entrance of the Angalarri River warning entrants that trespassing on the land is prohibited, of the dangers associated with entering a Defence training area and that Defence takes no responsibility for injuries or losses sustained by the entrant whilst on BFTA.

In conclusion, Defence is not able to physically prevent entrance onto the Angalarri River (as described in the Draft EIS), but would ensure the public is aware of the dangers and safety issues associated with entering a Defence training area by erecting signs at the entrance of the Angalarri River.

### **3.18.2 Access to the Victoria and Fitzmaurice Rivers**

#### ***No comment is made on the need to control access to the Victoria and Fitzmaurice Rivers during training exercises. (NTG)***

Defence do not own or control access to the Victoria or Fitzmaurice Rivers, nor is there a need to do so during training exercises. There would be no impacts from field firing beyond the boundaries of BFTA. Range Danger Area Safety Traces would be used for field firing exercises to ensure the safety of Defence personnel within BFTA, no impact of firing beyond Defence property boundaries and protection of sensitive sites and areas (including riparian habitats along the Victoria and Fitzmaurice Rivers).

Proposed use of the Victoria River would be limited to riverine transport support to exercises using LCM8 and LCH landing craft to carry small numbers of personnel, vehicles and equipment for landing at the designated landing craft hard. However, due to the limited number of available landing craft (less than eight) and the small carrying capacity of these craft, support to exercises is expected to be limited to training small numbers of personnel in handling vehicles and equipment in logistics over the shore activities at the landing craft hard. While these riverine operations should not impact on other river users, Defence would consult with relevant local authorities prior to undertaking such training.

### 3.18.3 Aboriginal access

***Future access to BFTA by Aboriginal custodians and protocols for such access is of vital concern and native title negotiations would provide the best avenue for resolving this matter. (NLC)***

Section 46 and 47 of the *Aboriginal Sacred Sites Act 1989* outline the procedures which enable Aboriginal custodians rightful access to sacred sites. Defence recognises the importance of establishing appropriate agreements with representatives of the Aboriginal community which clarify procedures for access to sacred sites within BFTA. Aboriginal custodians of sacred sites would be identified through AAPA and consulted to establish an access agreement for sacred site management and visitation.

***There are significant areas of Aboriginal land adjacent to BFTA and therefore neighbours who require courteous treatment. Aboriginal people from these areas do not necessarily recognise arbitrary legal boundaries and may wish to access the area in accordance with their traditional rights. (NLC)***

Defence recognises that a number of neighbours of BFTA comprise Aboriginal land. The access principles outlined in the Draft EIS apply to all persons who wish to access BFTA.

In terms of justifying this position on access, Defence can only reiterate its legal and duty of care responsibilities in terms of the safety of all members of the public (including Aboriginal people) and users of the training area. Defence is also mindful of its responsibilities associated with ensuring only Aboriginal custodians can access sacred sites.

To ensure its responsibilities are fulfilled, Defence intends to adopt the following measures:

- > adhere to the access protocol for requests to enter BFTA
- > liaise with all neighbours on boundary delineation and management
- > ensure the access protocol caters for sacred sites
- > liaise with Aboriginal custodians of sacred sites
- > ensure BFTA is check fenced and signposted to fulfil safety and duty of care responsibilities

Defence cannot accept members of the public knowingly accessing BFTA without permission, as this would endanger their lives as well as the lives of those responsible for locating or rescuing them.

***A formal bureaucratic system may inhibit indigenous people with legitimate cultural interests from requesting access to the property. It may be more appropriate to develop a less formal interface for indigenous people. (EA)***

Defence policy for access on training areas follows a managed access approach based on identification of a need to access the area for a specific purpose. This approach is required to ensure public safety, for operational security reasons and to enable Defence to meet its responsibilities under heritage and sacred sites legislation in terms of who is able to access Aboriginal cultural sites.

Access requests are made by completion of a simple Access Request Form. An example of this form is provided overleaf. This system is not considered bureaucratic or inhibitive for Aboriginal people.

**BRADSHAW FIELD TRAINING AREA**

**ACCESS REQUEST**

The Department of Defence owns the Bradshaw property and has a responsibility for safety for all people on Bradshaw. See attached Safety Requirement Fact Sheet. Defence also has a responsibility to the lessee, Mr McBean to notify him of planned access by Defence, Government and sub-consultants.

Defence requires a minimum of 14 days advance notice before access is required (21 days for military training). This form must be filled out and lodged with MAJ Matt Sherriff.

All requests for access should be directed to MAJ Matt Sherriff, not Mr McBean.

Contact details area: MAJ Matt Sherriff (Range Officer)  
Ph. (08) 8983 3235  
Fax. (08) 8983 3239  
Mobile. 0417 895590  
Sat Ph. 0145 111984 (in the field)

NAME (LEADER): .....  
ORGANISATION: .....

REASON: .....  
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FIELD LOCATIONS: .....  
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NUMBER IN PARTY: .....

NUMBER OF VEHICLES: .....

NAMES IN PARTY: .....  
.....  
.....  
.....  
.....

PERIOD (D/M/Y ENTRY/EXIT): .....  
CONTACT DETAILS: PH..... FAX.....  
IN FIELD COMMS.....

APPROVED: ..... MAJ M Sherriff AM

***Concerned that access costs for Aboriginal people are "to be borne by the users". Aboriginal people should not be defined as public and the use of the access protocol described in Section 15.1.4 should be at no cost to the Aboriginal community. (NLC)***

All persons wishing to access BFTA would be required to follow the Defence access principles outlined in the Draft EIS, including responsibility for costs borne.

## **3.19 TRANSPORT**

### **3.19.1 Transport of tracked vehicles**

***Long hauls by tracked vehicles on National Highways are opposed due to the disruption caused to the general traffic and the potential risk of damage to the road pavement. (NTG)***

It is acknowledged that transportation of tracked vehicles by convoy over medium to long distances may cause disruption to traffic and damage to pavement. In the past, short distance travel by such vehicles on the public road network has been allowed under permit from DTW.

To minimise disruption to traffic and pavement damage, transport of tracked vehicles to BFTA would be by road train with possible short distance convoys near Darwin and Timber Creek for driver training.

### **3.19.2 Traffic impact assessment methodology**

***As training exercises are to be largely confined to the dry season, the maximum AADT should have been used as the base figure in the analysis. The assumptions on which the derived traffic volume is based are not clear and may be in error. The assessment of the impact would be more credible using a more realistic value for the expected increase in daily traffic volumes. (NTG)***

The AADT values were obtained from the Department of Transport and Works *Annual Traffic Report*, which presents the monthly traffic volumes, as well as the AADT (which represents the total annual traffic divided by 365 days).

It is estimated that formation type exercises would deploy up to 400 Type A and 700 Type B vehicles within 3 to 4 weeks total travel duration. This represents 2 200 total vehicle movements or on average 147 vehicles per day assuming a 5 day week. Movement of these vehicles would be spread out over the 3 to 4 week period however slight fluctuations up and down from the average would be expected. Vehicle movements of more than 200 vehicles per day would not be expected.

Training exercises would be conducted during the dry season, which corresponds to the peak traffic periods for the Stuart and Victoria Highways. Therefore, when assessing Level of Service, peak traffic movements should be taken into account. If a peak operation traffic of 200 vpd were adopted, the peak traffic levels on the Stuart Highway and Victoria Highway would be as follows:

Stuart Highway (20km north of Katherine River)	2,352 vpd (9.3% increase)
Victoria Highway (13km west of Katherine)	835 vpd (31.5% increase)

By reference to *Guide to Traffic Engineering Practice: Part 2 – Roadway Capacity* (NAASRA, 1988), the Stuart Highway has a Level of Service A / B which represents a relatively high level of comfort and convenience. The Victoria Highway is well within Level of Service A.

When analysing pavement life, a whole of life costing approach is necessary. The assessment that has been carried out determines the affect on the road system over a 20 year pavement life, which is a typical figure for pavement design. In this type of assessment, it is appropriate to use annual average figures for both existing and operational traffic.

***No figures are given for trips associated with joint exercises with foreign forces or concurrent exercises. (NTG)***

The frequency of training on BFTA by foreign or interstate forces is not precisely known. It is anticipated that use of BFTA by foreign or interstate forces would mainly occur as part of large scale joint exercises such as K92 (formation plus). It is not expected that both formation and formation plus exercises would be conducted during the same year.

The use of the training area by both foreign and interstate forces would require significant planning. Issues relating to traffic flow and road safety associated with transport of personnel, vehicles and equipment would need to be resolved as part of planning for these exercises, such as staging and stopovers along the route and liaison with relevant government agencies. Kangaroo series exercises have followed this procedure in the past.

***The analysis assumes free flow conditions and treats vehicles in a packet as single unrelated units. This approach does not reflect the actual situation. Consideration may need to be given to: the need for significant length of passing lanes strategically placed to accommodate passing from both directions; amending the standard spacing between vehicles in a packet to allow two or three vehicles at close spacing so that a passing manoeuvre clears more than one vehicle; encouraging packets to close up on approaching passing lanes and slowing down to allow the passage of following vehicles whilst on the passing lane; increasing the convoy speed limit to 100km/hr to coincide with the legal speed limit for large commercial vehicles; and utilising periods when non-commercial and tourist traffic volumes are low. (NTG)***

Defence convoy procedures have been developed to minimise impacts on traffic flows and improve road safety during deployment. The convoy planning process includes consideration of appropriate road movement control measures, such as those noted by this comment and inclusion of such measures in a Movement Order (MOVORD), an executive order for deploying elements and vehicle operators.

Defence will undertake further discussions with DTW on convoy procedures as part of ongoing consultation with DTW and the Northern Territory Police. This will be undertaken by Joint Movement Control Organisation (JMCO) – Darwin.

***The Draft EIS quotes NAASRA Guide to Traffic Engineering Practice Part 1 – Roadway Capacity as the primary reference. Further information is available in NAASRA Traffic Engineering Practice Part 2 – Roadway Capacity and AUSTROAD Rural Road Design – Guide to the Geometric Design of Rural Roads. (NTG)***

The assessment of traffic flows, safety and level of service are relatively complex and there are a number of references that need to be considered within a full scale assessment. However, for planning purposes, *Guide to Traffic Engineering Practice: Part 2 – Roadway Capacity* (NAASRA 1988) provides a good simplistic assessment of the Level of Service and was the principle reference document used for the traffic impact assessment in the Draft EIS. This assessment relates only to the peak hour traffic/AADT ratio and type of terrain. To provide a more precise assessment of the Level of Service, a detailed assessment of the Highway geometry, speeds and volumes would be required.



***No information is given on the anticipated increase in traffic along the Victoria Highway over the term of the construction and operation phases of the project and the road safety implications. (NLC)***

Information on the anticipated increase in traffic along the Victoria Highway for both the construction and operation phases has clearly been set out in Section 17 of the Draft EIS. During construction, the level of traffic has been estimated as being up to 10 vehicles per day. During exercises, an average level of traffic of 147 vehicles per day has been estimated. Fluctuations in this traffic level would occur, however, it is unlikely that the peak level of traffic during operation would exceed 200 vpd.

It is acknowledged that any increase in traffic would increase the potential for accidents to occur.

### **3.19.3 Airspace use and restrictions**

***Many Aboriginal people regularly use light aircraft to travel between say Timber Creek and Port Keats. Airspace restrictions over BFTA would significantly impact on both travel time and cost resulting from deviation around the area. (NLC)***

Current civilian and military airspace use over BFTA would be controlled via restricted airspace provisions for safety reasons. An airspace plan has been developed for BFTA and is being progressed through the relevant approval bodies prior to amendments being made to the aeronautical information publications (charts) and designated airspace handbook. The published charts would indicate a number of layered restricted airspace blocks that could be activated only during periods of field firing activity. Advance notification on airspace activity through Notice to Airmen and Mariners (NOTAM) and voice communication would be undertaken.

Restrictions on airspace use over BFTA would be infrequent and limited to specific airspace blocks.

## **3.20 WASTE MANAGEMENT**

### **3.20.1 Effluent disposal**

***More information is required relating to on-site effluent disposal, specifically site selection and system design and management need further consideration. (NTG)***

Sewage treatment and disposal options for the TFMA and camps are still under consideration by Defence and may include septic tanks, composting toilets, chemical or biological toilets, reverse osmosis and low temperature high vacuum distillation systems. Field ablution facilities for exercises would comprise a combination of chemical and pit toilets depending on the nature of the exercise.

All sanitation facilities would be designed, sited and constructed in accordance with the *Code of Practice for Small On-Site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent* produced by THS. Management and monitoring strategies for waste, including sewage treatment and disposal, are contained in the relevant Sub-Plans of the Environmental Guidelines for Construction Activities and the EMP.

### 3.20.2 POL and other chemicals

***Management strategies for chemicals such as herbicides for weed control should be included in the EMP. (NLC)***

Management strategies for chemicals are outlined in the Water Resources Sub-Plan and Incidents Sub-Plan of the EMP.

***Monitoring should include comprehensive inventories of inputs and outputs to storage facilities such that any leaks can be rapidly detected. (NLC)***

The Petrol, Oil and Lubricants Sub-Plan of the EMP details monitoring strategies for preventing and detecting spills and leakages. The suggested use of an inventory of inputs and outputs is acknowledged and would be considered in the formulation of specific monitoring programs.

## 3.21 EXPLOSIVES AND HAZARDOUS MATERIAL MANAGEMENT

### 3.21.1 Rehabilitation and unexploded ordnance eradication

***Further information is required on what rehabilitative actions would be taken to ensure the area is restored to its pre-use state when it is no longer required as a training area. Little detail has been provided to specify responsibility for cost and conduct of rehabilitation, particularly in respect of the eradication of unexploded ordnance to enable the area to be put to alternative uses in the future. (NTG)***

At this early stage of its development, Defence is not in a position to speculate on details on when and how BFTA could be closed and disposed. Defence can only reiterate that the Defence Instruction (General) LOG 10-2 would be fulfilled, including the conduct of UXO surveys to determine the nature and extent of contamination and the extent of hazard reduction programs (if any) required, by Defence prior to disposal of BFTA.

If (in the future) Defence were considering closing BFTA as a training area, Defence would consult with the Northern Territory Government over the process required for closure and disposal, including issues such as UXO.

### 3.21.2 Storage of explosives and hazardous materials

***It is suggested that minimal storage of fuel occur outside the immediate operational training requirements and that BFTA security maintain an awareness of the potential for theft and that security measures are put in place. (NTG)***

POL storage requirements are determined by training need and would not exceed operational training requirements. POL storage facilities would be constructed and managed in accordance with relevant legislation and Australian Standards as detailed in the Petrol, Oil and Lubricant Sub-Plan of the EMP.

Appropriate security measures for POL storage areas would be established to minimise the potential for theft. Defence would also maintain a policy that controls access to BFTA by unauthorised personnel. Security would be managed in accordance with the BFTA Security Sub-Plan of the EMP.

***There is no overseeing authority or monitoring body envisaged for the safe passage and storage of explosives and hazardous materials. Current emergency services provision at Timber Creek is inadequate to deal with major accidents involving hazardous materials. (NLC)***

The transport and storage of dangerous goods (including explosives and other hazardous materials) would conform to the requirements of the *Dangerous Goods Act 1981*. The Work Health Authority administers this Act.

***Information on issues including the siting of storage facilities, quantities, safety distances, mixing of groups, annual inspections and security need to be addressed and incorporated into the EMP. (NT)***

These issues are addressed and incorporated in the Petrol, Oil and Lubricant Sub-Plan, the Incidents Sub-Plan and the BFTA Security Sub-Plan of the EMP. Management strategies in relation to these issues include compliance with statutory requirements.

### **3.21.3 Purpose of warning signs**

***It is not clear whether proposed signs along HEIA boundaries are meant to warn soldiers or civilians. (NTG)***

Any signage on Defence training areas is applicable to, and designed to warn both soldiers and civilians.

## **3.22 CUMULATIVE ENVIRONMENTAL IMPACTS**

### **3.22.1 Framework for assessment and performance indicators**

***The framework for the discussion on cumulative impacts should include: sources of cumulative environmental change, pathways or processes of accumulation, and the types of cumulative impacts. (EA)***

***The Sub-Plans of the EMP contain performance indicators that are unlikely to act as effective early warning signals that corrective action is required and the point at which cumulative impact becomes evident through monitoring may come too late to bring about recovery. Performance indicators need to be supplemented with ecological thresholds to ensure that the environmental capacity of Bradshaw Station for military training is not exceeded. It is not apparent from the EIS that a process exists for determining ecological thresholds that would act as early warning signals to implement corrective action to protect the significant environmental attributes of the property – this should be corrected. (EA)***

Defence's overall intent for establishing specific monitoring programs is discussed in Section 3.3.1 of the Supplement. This emphasises that the EMP is a strategic document that identifies the processes for environmental management of BFTA. It was not intended at this stage to be able to document specific thresholds or performance indicators.

The emphasis for monitoring programs would be to monitor impacts on the resource base and record change over time. Defence will establish monitoring programs in consultation with relevant government agencies to ensure that appropriate monitoring methods and performance indicators are adopted. These would reflect the outcomes required and may include the establishment of ecological thresholds (where appropriate) or other indicators of change (both quantitative and qualitative).

Systematic monitoring and record keeping established by the monitoring programs would ensure that cumulative environmental changes (both positive and negative) are recorded over time, with management and training practices modified as required.

### **3.22.2 Conservation values of the Angalarri Valley**

***The loss of conservation values in the Lower Ord River associated with modification of black soil plains by the Ord River Irrigation Area extensions would place a far higher premium on conservation of the Angalarri Valley. (NTG)***

It is assumed that the conservation values of the Lower Ord River black soil plains will be assessed and placed in a regional context as part of formal environmental assessment of the proposal, such as undertaken for BFTA.

The Draft EIS acknowledges the need for Defence to manage BFTA as a sustainable training area. The Angalarri Plain has both conservation and degradation issues to be addressed and would be managed in accordance with the strategies outlined in the relevant sub-plans of the EMP. This would include a combination of the following:

- > active erosion control and rehabilitation of current scoured areas
- > active weed control
- > active feral animal control
- > rehabilitation of pastoral four wheel drive vehicle tracks
- > resting of areas
- > undertaking survey and monitoring programs
- > management of sensitive areas or core fauna habitats

## **3.23 CONSULTATION**

### **3.23.1 Community consultation process**

***No attempt was made to facilitate the input of national environment groups or the broad Australian community and specific notification of The Wilderness Society of the Draft EIS process. (TWS)***

In establishing the public consultation program for BFTA, Defence recognised that many issues would be involved with this project, including Aboriginal, environmental, social and political. Defence also recognised that it was critical for the long term presence of Defence in northern Australia, that positive relationships were established with diverse groups impacted by the proposed development at the outset and issues important to them identified and taken into account in planning.

The consultation strategy was designed to ensure that individuals, interest and industry groups and government representatives in the areas nearby Bradshaw Station and the majority of the Northern Territory wider community between Bradshaw Station and Darwin and Bradshaw Station and Kununurra, had the opportunity to be informed of, and to provide input into, the proposed development plans.

The communication challenge was to reach as many of these stakeholders as practicable within the region for two reasons:

- > they would directly experience impacts associated with development of BFTA

- > they would provide Defence with local and regional input on issues associated with the development of BFTA.

The program was also developed with the knowledge and confidence that individuals and interest groups have networks through which they would pass the provided information on. Examples here include briefing local community groups such as the Environment Centre, keeping a number of Aboriginal Associations with regional responsibilities informed and briefing the Timber Creek inner and outer community.

The consultation program was designed to reach, inform and gain input from all levels of the community, including Aboriginal groups and representatives, Government – both political and bureaucratic, local communities including Timber Creek, Katherine and Kununurra, industry and the media.

The program constantly provided mechanisms for a two way flow of information and input from the potentially impacted groups, interested public and specifically identified stakeholders. Its thoroughness was reflected in the number and content of responses received by Defence. Over 200 respondents were registered over a 12 month period.

In brief, the program comprised briefings to government, local councils, interest groups, stakeholders, radio interviews, television interviews, media articles, media kits, public meetings and public displays in the regional centres. The consultation was supported by a freecall phone hotline, production of newsletters and distribution of over 5000 newsletters along the main highways leading to BFTA. A local military representative was also nominated in the consultation program and was available for any queries or questions.

All respondents to the consultation program were placed on a mailing list and received an acknowledgment to their responses, as well as new newsletters as they were published to update on the process. All issues and responses were factored into the preparation of the Draft EIS. Issues identified by respondents, such as access, economic benefits, environmental sustainability, convoy impacts, unexploded ordnance and air space control, were continually considered by Defence throughout the planning process. Defence responses and expected impacts on planning were explained further in the newsletters and in meetings.

The wider community also had an opportunity to comment on the draft guidelines for the EIS, being published by government for public comment. Information was also distributed to the community mailing list.

***Very little consultation was undertaken with Aboriginal communities surrounding Bradshaw Station. It is recommended that the Department of Defence undertake an extensive consultation program for Aboriginal people in neighbouring communities, including distribution of a "plain English" version of the Draft EIS Executive Summary. (NLC)***

Defence made all practical efforts to ensure surrounding properties and communities were consulted through the public consultation program (as outlined above). In terms of the inner and outer Timber Creek community, Defence liaised closely with Aboriginal family groups within Timber Creek, and, following this, transported Aboriginal people from outer communities to the initial briefing. The offer remained throughout the public consultation program and Defence was confident that family contacts would advise of any further special consultation needs. The local Aboriginal Association was also on the mailing list (along with others throughout the region). Contact was made between this Association and the military representative on a needs basis. An example here was discussion on the potential training and employment opportunities generated by development and operation of BFTA. The Timber

Creek Community Government Council was also keen to provide input to the BFTA project, reflecting the diversified nature of the Council.

Defence will continue to consult with the wider community, particularly Aboriginal custodians of sacred sites on BFTA. EAC will also provide a mechanism for consultation and information dissemination with the inclusion of a position for the Timber Creek Community Government Council.

Defence is also considering the request to provide a position on EAC for an Aboriginal representative. The NLC and AAPA will be consulted further on this matter.

Since publication of the Draft EIS, Defence has conducted a briefing on the project to the Daly River/Port Keats Land Trust.

The request for a "plain English" version of the Draft EIS Executive Summary is difficult to fulfil at this stage of the process. Defence prepared the Draft EIS and Executive Summary using plain English as much as possible, given the need to ensure the EIS guidelines were fulfilled in terms of scientific and technical requirements. This request was not raised by any Aboriginal group or association during the consultation program.

### **3.23.2 Consultation during EIS preparation**

***The statement in Section 1.7.2 that "no additional issues were raised by these parties beyond those identified in the EIS guidelines." Is incorrect to the extent that it refers to the NLC. (NLC)***

***The statement in Volume 2A that the NLC "were satisfied that AAPA was covering what needed to be done" is misleading. This comment may have been made in relation to site identification but should not have been interpreted as meaning that the work of AAPA satisfied all areas of concern of the traditional Aboriginal owners of the area. (NLC)***

***Any comments made that the NLC was not "interested at this stage in meeting with Defence" reflect that the NLC had no instructions in relation to the development of BFTA at the time of consultation. The NLC now has instructions and seeks to commence negotiations with the Department of Defence. (NLC)***

Defence notes that NLC have raised additional issues subsequent to those made at the time of consultation. The Draft EIS is a reflection of consultation at that time of publication. It was not intended to indicate that the NLC did not raise issues, or were not interested in the proposal, or abrogating its responsibilities to AAPA.

Defence encouraged individuals or groups to raise new issues or emphasise other issues during the consultation program. The quoted response in Volume 2A was a response to consultation by Defence at that time and was not read as being the "final word".

Defence was confident that site anthropology would be satisfied through the relevant legislation as it applied to BFTA and which were identified in the Draft EIS guidelines. It should be remembered that the Draft EIS guidelines are prepared and issued by government after public input to the proponent and are the approved and formal means by which Defence are instructed to prepare a Draft EIS. The results from the public consultation program meant that Defence were well placed to receive the guidelines as many issues had already been raised by the public, including issues associated with sacred sites and Native Title which are reflected in the Draft EIS guidelines.

A Native Title claim was lodged for Bradshaw Station as the Draft EIS was being printed. Defence was therefore not in a position to record the lodgement of the claim at the time of publication. Defence, the NLC and claimants have commenced discussions concerning the Native Title claim and its progress to a satisfactory conclusion for all parties.





## 4 REFERENCES

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- Australian Heritage Commission (1993) *National Wilderness Inventory Handbook of Principles, Procedures and Usage*.
- AUSTROADS (1989) *Rural Road Design – Guide to the Geometric Design of Rural Roads*.
- Connell Wagner (1997) *Bradshaw Field Training Area Draft Environmental Impact Statement: Volume 1 – Draft Environmental Impact Statement and Environmental Management Plan*.
- Connell Wagner (1997) *Bradshaw Field Training Area Draft Environmental Impact Statement: Volume 2A – Specialist Reports*.
- Connell Wagner (1997) *Bradshaw Field Training Area Draft Environmental Impact Statement: Volume 2B – Specialist Reports*.
- Department of Transport and Works *Roadworks Master Specification*.
- Department of Transport and Works (1995) *Annual Traffic Report*
- Environment Australia (1997) *Conservation Guidelines for the Management of Wild River Values* (Draft).
- Lewis D (1996) *The Boab Belt* National Trust of Australia (NT)
- Maxwell S, Burbidge A and Morris K (1996) *The 1996 Action Plan for Australian Marsupials and Monotremes*.
- National Association of Australian State Road Authorities (1988) *Guide to Traffic Engineering Practice: Part 1 – Traffic Flow*.
- National Association of Australian State Road Authorities (1988) *Guide to Traffic Engineering Practice: Part 2 – Roadway Capacity*.
- Saunders D and Hobbs R (1991) *The Role of Corridors in Conservation: What Do We Know and Where Do We Go?* in Nature Conservation 2: The Role of Corridors.
- Territory Health Services (1996) *Code of Practice for Small On-Site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent*.

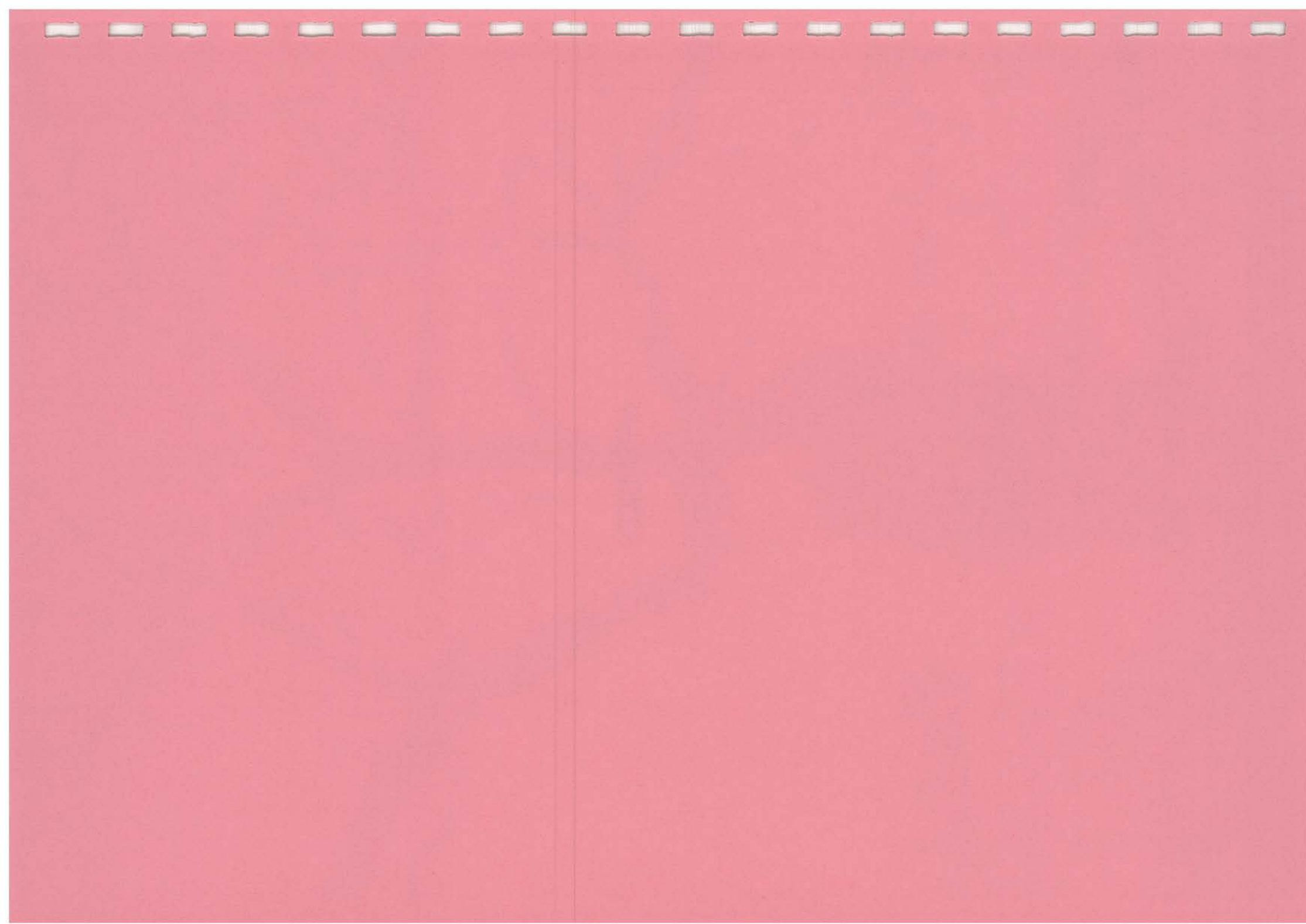






## APPENDICES





**Appendix A**  
**Corrections to Draft EIS**



Appendix A comprises corrections, minor issues, explanations and minor omissions to the Draft EIS as identified in formal submissions. These amendments relate to text, figures and tables and are presented in section order. The following abbreviations for respondents apply:

EA - Environment Australia  
NLC - Northern Land Council  
NT - National Trust  
NTG - Northern Territory Government  
DOD - Department of Defence

## **EXECUTIVE SUMMARY**

### **Corrigenda p.xxviii**

Replace "Australian World Heritage Group" with "Australian Heritage Commission" (EA)

### **Page xv third paragraph, last line**

Replace "10 500km<sup>2</sup>" with "8700km<sup>2</sup>" (NTG)

### **Page xxix fifth paragraph, last line**

Replace "lowered" with "layered" (DOD)

### **Page xxx first paragraph, second sentence**

Replace the whole second sentence with "Provided the proposed environmental management strategies for BFTA are effectively implemented, the cumulative impact of this project on the flora and fauna of the Victoria-Bonaparte Bioregion would not be expected to result in significant adverse impacts on the richness and abundance of flora and fauna species in the Bioregion." (DOD)

## **Section 1 INTRODUCTION**

### **Page 1-2 second paragraph, second sentence**

Replace "10 500km<sup>2</sup>" with "8700km<sup>2</sup>" (NTG)

### **Page 1-4 second paragraph, first sentence**

Replace "... aspects of the built, natural and cultural environment of national estate value." with "... natural and cultural environment places assessed to be of national estate value." (EA)

### **Native Title Act 1993**

Amend paragraph to read "This Act provides for the recognition and protection of native title and establishes a National Native Title Tribunal for the purpose of determining claims in relation to native title." (NLC)

### **Page 1-5 second paragraph**

Insert a paragraph after the first sentence of Section 1.5.4 that reads:

#### *"Aboriginal Land Act*

This Act provides for access to Aboriginal land, certain roads bordered by Aboriginal land and the seas adjacent to Aboriginal land." (NLC)

### Section 3 THE PROPOSAL

#### Plate 3.5 Landing Craft – Hard

Replace caption with "Landing Craft – Heavy" (DOD)

#### Page 3-6 Building Standards

Amend the first sentence to read "... *Building Code of Australia*, the *Building Act 1955* and other relevant Australian Standards." (NTG)

#### Page 3-13 Table 3.1

Replace Table 3.1 with the following (DOD):

Group	Personnel Numbers	Exercises per Year	Duration of Exercise (days)	Travel Duration
Section and Below	5-15	10-15	7	1 day
Platoon/Troop	30	60	10	1 day
Sub-unit	100-120	20-25	14	1 week
Unit	300-800	5-8	28	2 weeks
Formation	2000	1	42	3-4 weeks
Formation Plus	2000(+)	1 every 2-3 years	42	3-4 weeks

#### Page 3-18 River Transport

Third sentence, replace "... library craft hard." with "... landing craft hard." (DOD)

#### Page 3-20 Planning and Approval of Training Activities

Fourth dot point replace "fine" with "fire" (DOD)

### Section 5 GEOLOGY, LANDFORM AND SOILS

#### Figure 5.2 Bradshaw Field Training Area Land Unit

Common colours are assigned to a number of land units resulting in difficult interpretation. The GIS database provides better delineation of land units, both in terms of scale and colour. (NLC)

Land Unit 4a is in the legend of Figure 5.2 under the section "Rises - gently sloping to undulating" (NLC)

In Figure 5.2 the classification "low slopes" is interpreted as "slopes <5%" (NLC)

#### Page 5-18 last paragraph, first sentence

Replace "clacking" with "cracking" (DOD)

### Section 6 VEGETATION

#### Page 6-1 Survey Methodology

Vegetation sampling sites were not numbered on Figure 6.1 because it is impractical to include them on a figure with a scale to suit publication. The vegetation sampling sites are recorded on the GIS. (EA)

#### Page 6-5 Table 6.3

Second row, fourth column should read "Class B and C, whole of NT" (DLPE)

Seventh row amend incorrect spelling of "*sauveolens*" to "*suaveolens*" (NTG)



**Page 6-7            second paragraph, third sentence**

Replace "form" with "from" (DOD)

**Section 8            FIRE REGIME**

**Page 8-3            third paragraph, second sentence**

Amend sentence to read "These priority areas include..." (DOD)

**Section 9            WATER RESOURCES**

Potential water sources that may be used for construction and/or operation activities are identified on Figure 3.5. (EA)

**Page 9-5            second paragraph**

Replace with "Contractors would be required to ensure that latrines and ablution facilities are not located within 400m of water supply points or watercourses (both perennial and ephemeral) or where outflows and seepage could possibly pollute water supplies or impact on construction camp hygiene." (DOD)

**Erosion and Sedimentation**

Insert a fifth dot point that reads "maintain native riparian management zones and vegetative filter strips along stream boundaries to reduce sediment transport to streams" (NTG)

**Section 11          WILDERNESS AND WILD RIVERS**

**Page 11-1          Wilderness**

Amend second paragraph to read "... Environment Australia which defines wilderness as..." (EA)

Classes in Figure 11.1 have the following wilderness quality ratings:

Class 1 = NWI < 10

Class 2 = NWI 10

Class 3 = NWI 11

Class 4 = NWI 12 and 13

Class 5 = NWI 14 and above (NTG)

**Section 13          AIR QUALITY**

**Page 13-1          Construction Impacts and Management**

Second paragraph, last sentence should read "...as detailed in the Environmental Guidelines for Construction Activities (Volume 2A)." (DOD)

**Section 14          PROBLEM INSECTS AND PATHOGENS**

**Page 14-1          Mosquitoes**

First paragraph, third sentence should read "... in most areas during the wet and early dry season." (NTG)

Second paragraph, insert a second sentence that reads "Other potential causes of disease include the Bunya viruses, GanGan and Trubanaman, and a number of other arboviruses from other groups." (NTG)

Second paragraph, third sentence should read "... a potential vector of the first four viruses..." (NTG)

**Biting Midges**

Second paragraph, second sentence should read "Some species..." (NTG)

**Page 14-2      Yambarran Plateau**

First sentence should read "The eastern section of the Yambarran Plateau..." (NTG)

**Page 14-3      Water Storage**

First paragraph, last sentence, amend incorrect spelling of "*Ae. Aegypti*" to "*Ae. aegypti*" (NTG)

**Page 14-6      Exotic Arbovirus and Malaria Importation**

First paragraph, sixth sentence should read "Other exotic arboviruses can probably be carried..." (NTG)

*Flaviviruses*

First paragraph, first sentence should read "Murray Valley Encephalitis (MVE) caused an epidemic in south eastern Australia in 1950-51 with sporadic cases in 1956 and 1971. There was an Australia wide epidemic in 1974." (NTG)

Third paragraph, first sentence should read "... tested animals were infected with a flavivirus at Douglas Daly..." (NTG)

**Page 14-7      Scrub Typhus**

First paragraph, second sentence, amend incorrect spelling of "*tsutsugamashi*" to "*tsutsugamushi*" (NTG)

Second paragraph, first sentence should read "... has not been found in the Northern Territory." (NTG)

**Page 14-8      Conclusions**

First paragraph, third sentence should read "... but the potential vectors are present..." (NTG)

**Section 15      HERITAGE**

**Page 15-3      first dot point**

Replace "... proposed TFMA camp and airstrip on the Yambarran Plateau..." with "... proposed TFMA camp and airstrip on the southern Angalarri Plain..." (NTG)

**Page 15-10      second paragraph**

Replace "AWGH" with "Australian Heritage Commission" (EA)

**Page 15-15      Aboriginal Land**

Second paragraph, second sentence should read "This area is declared an open area under the *Aboriginal Land Rights (Northern Territory) Act 1976*..." (NLC)

**Section 16      SOCIAL AND ECONOMIC FACTORS**

**Page 16-7      Table 16.4**

Replace third column heading with "Exercises per Year" (DOD)

Replace fourth column heading with "Duration of Exercise (days)" (DOD)

**Section 21      ENVIRONMENTAL MANAGEMENT SUB-PLANS**

**Page 21-3      Soils and Erosion Sub-Plan**

**Issues**

Third dot point should read "... sheet and gully erosion" (NTG)

#### **Page 21-4      Actions/Tasks**

Amend first action/task to read "...no go areas and management zones, non targeting provisions and management of explosion craters (for erosion and mosquito breeding risk)" (DOD)

#### **Monitoring**

Amend fifth monitoring task to read "Report on the effectiveness of the Soils and Erosion Sub-Plan" (DOD)

#### **Page 21-6      Vegetation Management Sub-Plan**

##### **first paragraph, second sentence**

Replace whole sentence with "Three species recorded during the baseline study are currently listed as rare in the Victoria-Bonaparte Bioregion by the NT Herbarium." (EA)(NTG)

#### **Page 21-7      Actions/Tasks**

Insert a second action/task that reads "Include in RSO relevant actions associated with use of vehicle wash facilities by off-road vehicles training on BFTA" (DOD)

Amend tenth action/task to read "...where practicable using suitable species" (DOD)

Last action/task should read "... as per Fire Management Sub-Plan" (NTG)

#### **Monitoring**

Third monitoring task should read "... undertaken in the Fire Management Sub-Plan" (NTG)

#### **Performance Indicators**

Replace first dot point with "no loss or significant reduction in population of any rare or threatened species on BFTA." (EA)

#### **Relevant Contacts**

Insert a third dot point that reads "Department of Primary Industry and Fisheries" (NTG)

#### **Page 21-10      Fauna Management Sub-Plan**

##### **Actions/Tasks**

Sixth action/task should read "...as practicable (as outlined in the Soils and Erosion Sub-Plan and the Vegetation Management Sub-Plan)" (NTG)

##### **Monitoring**

Amend first monitoring task to read "...any habitat disturbance (utilising methods such as permanent control, treatment and disturbed sites and species numbers where appropriate) and recommend resting of areas and/or rehabilitation of disturbed sites." (DOD)

Add a sixth monitoring task that read "Record any adverse environmental incident relating to fauna in the Incident Log Book" (DOD)

##### **Performance Indicators**

Replace first dot point with "no loss or significant reduction in population of any rare or threatened species on BFTA." (EA)

## **Page 21-12      Fire Management Sub-Plan**

### **Actions/Tasks**

The intention to develop a cooperative fire management strategy is evident by action six. (NLC)

Replace ninth action/task with "Develop an appropriate fire management program for BFTA, with particular focus on priority areas including the eastern and north eastern property boundaries, HEIA, infrastructure sites and fire sensitive habitats and species" (DOD)

Amend tenth action/task to read "...such as fire sensitive sandstone habitats, monsoon forests and grassland communities through controlled burning" (DOD)

## **Page 21-13      Relevant Contacts**

Replace first dot point with "Northern Territory Police, Fire and Emergency Services" (NTG)

## **Page 21-14      Water Resources Sub-Plan**

### **Strategies**

Third dot point should read "... to be adequately sited and maintained..." (NTG)

## **Page 21-15      Actions/Tasks**

Amend first action/task to read "...water resources, such as non targeting provisions and management zones" (DOD)

Insert a third action/task that reads "Establish permanent aquatic monitoring sites (water quality and macroinvertebrates) on creeks and rivers across BFTA. Site selection and sampling methods will be established in consultation with DLPE and will focus on potential impact areas on BFTA" (NTG)

Fourth action/task should read "... contamination (refer Petrol, Oil and Lubricants Sub-Plan)" (NTG)

Amend fifth action/task to read "...water supply points and ensure water extraction is sustainable for the habitat, riparian vegetation is protected and turbidity is minimised" (DOD)

### **Monitoring**

Amend sixth monitoring task to read "Monitor water quality and macroinvertebrates at established aquatic monitoring sites at appropriate intervals and/or immediately after any training activity occurring in the vicinity of the creek or river. Note any significant changes..." (NTG)

### **Performance Indicators**

Insert a fourth dot point that reads "No change in water quality of creeks and rivers indicated by the results of the monitoring program, due to training activities on BFTA" (NTG)

Insert a fifth dot point that reads "No change in the quantity or health of macroinvertebrates as indicated by the results of the monitoring program, due to training activities on BFTA" (NTG)

## **Page 21-19      Aboriginal Heritage Sub-Plan**

### **Relevant Legislation**

Insert a fourth dot point that reads "*Australian Heritage Commission Act 1975* (Commonwealth)" (EA)

### **Strategies**

Replace first dot point with "All known sacred sites are protected in accordance with the provisions of the *Northern Territory Aboriginal Sacred Sites Act*." (EA) (NTG)

Second dot point should read "... archaeological places and objects are protected..." (NTG)

Replace third and fourth dot point with "No archaeological places or objects or any feature which may be such a place or object would be disturbed except with the express permission of the relevant authority following an assessment of the feature and its significance and implementation of an appropriate mitigation strategy" (NTG)

Fifth dot point should read "...new archaeological places and objects or sacred sites being discovered, training activities in the vicinity will be stopped until appropriate measures have been determined by an appropriately qualified expert in Aboriginal heritage management." (DOD) (EA)

#### **Page 21-20      Actions/Tasks**

Amend first action/task to read " sacred sites. RSO to state that vandalism of sites is an infringement under law and a chargeable offence." (NT)

Amend fourth action/task to read "... (and penalties detailed in the relevant Aboriginal heritage legislation associated with interference to sites, including casual vandalism)" (NT)

Amend seventh action/task to read "Develop and implement procedures..." (NTG)

Amend twelfth action/task to read " new archaeological sites or sacred sites being discovered..." (DOD)

Insert a fourteenth action/task that reads "Establish and implement a program of individual archaeology site monitoring in consultation with the Heritage Conservation Branch of DLPE – Environmental Officer" (NTG)

#### **Monitoring**

Amend second monitoring task to read "...those sites. Liaise with DLPE over monitoring results and procedures." (NT)

Insert a second monitoring task that reads "Monitor Aboriginal heritage sites (such as open sites and rock shelters) in consultation with the Heritage Conservation Branch of DLPE – Environmental Officer" (NTG)

#### **Page 21-21      Resource Implications**

Amend first dot point to read "Fences and signs (which are also reflective or similar for night manoeuvres)..." (NTG)

#### **Relevant Contacts**

Insert a third dot point that reads "Australian Heritage Commission". (EA)

#### **Page 21-22      European Heritage Sub-Plan**

The Environmental Guidelines for Construction Activities and the EMP are two separate documents for construction activities and operational activities respectively. Different strategies and protection measures for European heritage are required for these two phases of the development of BFTA. This may explain some of the differences between the European Heritage Sub-Plan in the EMP and the Aboriginal and European Heritage Sub-Plan of the Environmental Guidelines for Construction Activities. (EA)

#### **Objectives**

Second dot point replace "injury" with "physical disturbance or damage" (NTG)

## **Strategies**

Delete first dot point.

Insert a first dot point that reads "All registered European heritage sites are protected in accordance with the provisions of the *Heritage Conservation Act*." (EA)

Insert a second dot point that reads "No known European heritage sites or any feature resembling a European heritage site will be disturbed except with the express permission of the relevant authority following an assessment of the site and its significance and implementation of an appropriate mitigation strategy." (EA)

## **Actions/Tasks**

In the event of discovering new sites, action/task seven states "liaise with relevant authorities on the management strategies for newly discovered sites." (EA)

Reporting on the European Heritage Sub-Plan is dealt with in the monitoring actions/tasks. (EA)

Amend the eighth action/task to read "... (including penalties detailed in the relevant heritage legislation)." (NT)

Insert a ninth action/task that reads "Establish and implement a program of individual European heritage site monitoring in consultation with the Heritage Conservation Branch of DLPE and the AHC" (NLC)

## **Page 21-23      Monitoring**

Insert a second monitoring task that reads "Monitor procedures developed to protect European heritage sites to ensure they are adequate for the protection of those sites" (DOD)

## **Page 21-25      Social and Community Sub-Plan**

### **Actions/Tasks**

Amend fifth action/task to read "Undertake and continue liaison with the community and adjacent landholders via the Environmental Advisory Committee" (NLC)

## **Page 21-27      Waste Management Sub-Plan**

### **Actions/Tasks**

Amend first action/task to read "...waste management, including guidelines for use of the vehicle wash facility (ie when to wash and disposal of waste water and weed seed" (DOD)

Replace eighth action/task with "Follow Territory Health Services guidelines and codes of practice for design, siting, use and maintenance of on-site sewage and sullage systems" (DOD)

### **Monitoring**

Insert a first monitoring task that reads "Establish monitoring programs for the management of waste" (NLC)

### **Performance Indicators**

Insert a third dot point that reads "Waste recycling and reuse opportunities are utilised." (DOD)

## **Page 21-29      Petrol, Oil and Lubricants Sub-Plan**

### **Actions/Tasks**

Insert a sixth action/task that reads "Ensure minimal storage of POL occurs outside the immediate operational training requirements – Chief Engineer" (NTG)

### **Relevant Contacts**

Insert a third dot point that reads "Northern Territory Police, Fire and Emergency Services" (NTG)

## **Page 21-32      Incidents Sub-Plan**

### **Actions/Tasks**

Insert a point "e.      transportation of hazardous materials (including POL and munitions)" in the first action/task (NTG)

### **Monitoring**

Replace first monitoring task with "Report on the effectiveness of the Incidents Sub-Plan" (NTG)

### **Relevant Contacts**

Insert a sixth dot point that reads "Work Health Authority" (NTG)

## **Page 21-33      Personnel Safety Sub-Plan**

### **Relevant Legislation**

Amend first dot point to read "Commonwealth Employees (Occupational Health and Safety) Act 1996" (NTG)

Insert a fifth dot point that reads "Work Health Act 1986" (NTG)

Insert a sixth dot point that reads "Work Health (Occupational Health and Safety) Regulations" (NTG)

## **Appendix B      Section Reference for EIS Guidelines**

### **Environmental Management Plan**

fourth point, second column replace with "21.1-21.15" (NTG)

fifth point, second column replace with "21.1" (NTG)

sixth point, second column replace with "21.15" (NTG)

eighth point, second column replace with "21.2 - 21.15" (NTG)

ninth point, second column replace with "21.2" (NTG)

tenth point, second column replace with "21.3" (NTG)

eleventh point, second column replace with "21.5" (NTG)

twelfth point, second column replace with "21.3 & 21.4" (NTG)

thirteenth point, second column replace with "21.6" (NTG)

fourteenth point, second column replace with "21.8 & 21.9" (NTG)

fifteenth point, second column replace with "21.3" (NTG)

sixteenth point, second column replace with "21.4" (NTG)

seventeenth point, second column replace with "21.11, 21.12 & 21.13" (NTG)

eighteenth point, second column replace with "21.14" (NTG)

## **VOLUME 2A**

### **Section 1 ENVIRONMENTAL GUIDELINES FOR CONSTRUCTION ACTIVITIES**

#### **Page 6-1 Soils and Erosion Control Sub-Plan**

##### **Issues**

Amend third dot point to read "... sheet and gully erosion" (NTG)

##### **Page 6-2 Actions/Tasks**

Amend third action/task to read "...causeways, culverts, bridges...soil conditions, drainage and sensitive habitats" (DOD)

Insert a fourth action/task that reads "Undertake planning of permanent structures, camps and related operational areas to ensure siting on sound engineering end environmental parameters, such as accessibility, drainage, runoff and trafficability" (DOD)

#### **Page 7-2 Flora and Fauna Sub-Plan**

##### **Actions/Tasks**

Amend third action/task to read "...limits and conditions" (DOD)

#### **Page 8-2 Water Quality Sub-Plan**

##### **Actions/Tasks**

Amend third action/task to read "... (refer Incident and Event Management Sub-Plan)" (NTG)

Amend fourth action/task to read "...water supply points and ensure water extraction is sustainable for the habitat, riparian vegetation is protected and turbidity is minimised" (DOD)

Amend tenth action/task to read "Refer to Petrol, Oil, Lubricants Sub-Plan..." (NTG)

Insert a fourteenth action/task that reads "Design and maintain water storage facilities and infrastructure in accordance with Territory Health Services guidelines and codes of practice" (DOD)

#### **Page 10-1 Aboriginal and European Heritage Sub-Plan**

##### **Policy Commitment**

Amend first dot point to read "The heritage value of the site would be preserved to the maximum extent in accordance with relevant legislation." (EA)



## **Page 12-1      Waste Management Sub-Plan**

### **Relevant Legislation**

Insert a fourth point that reads "Dangerous Goods Act 1981" (NTG)

### **Actions/Tasks**

Insert third action/task that reads "Follow Territory Health Services guidelines and codes of practice for design, siting use and maintenance of on-site sewage and sullage systems" (DOD)

## **Page 12-2      Monitoring and Reporting**

Amend second monitoring task to read "...as per Water Quality Sub-Plan..." (NTG)

## **Page 13-2      Petrol, Oil, Lubricants Sub-Plan**

### **Monitoring and Reporting**

Amend fifth monitoring task to read "... as per Water Quality Sub-Plan..." (NTG)

## **Page 15-1      Personnel Induction and Safety Sub-Plan**

### **Relevant Legislation**

Insert a third point that reads "Work Health Act 1986" (NTG)

Insert a fourth point that reads "Dangerous Goods Act 1981" (NTG)

## **Page 15-2      Actions/Tasks – Biting Insects**

Insert a third action/task that reads "Construction and access near tidally influenced sites to follow *Construction Practices Near Tidal Areas in the Northern Territory – Guidelines to Prevent Mosquito Breeding*" (DOD)

## **Page 15-3      Relevant Contacts**

Insert a fifth dot point that reads "Work Health Authority" (NTG)

## **Section 6      VEGETATION SURVEY**

### **Page 12      Table 5**

second row, fourth column should read "Class B and C, whole of NT" (NTG)

seventh row amend incorrect spelling of "*sauveolens*" to "*suaveolens*" (NTG)

## **Section 7      FAUNA SURVEY**

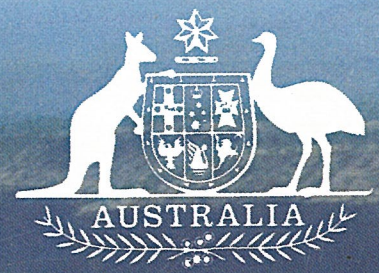
Move Appendix 3, 4, 5, 6 and 7 located after Appendix 6 of the Fauna Survey to Section 6 – Vegetation Survey (DOD)

## **Page 20      Regional Significance of Bradshaw Station**

Second sentence, replace "8,710km<sup>2</sup>" with "8700km<sup>2</sup>" (NTG)

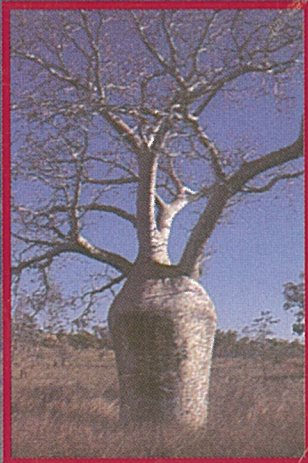






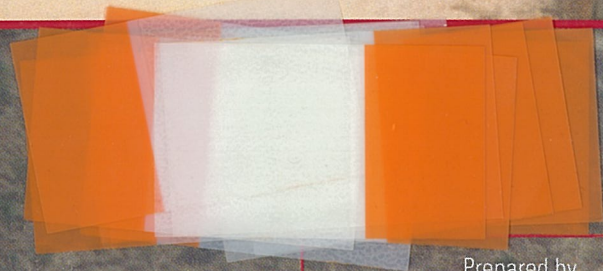
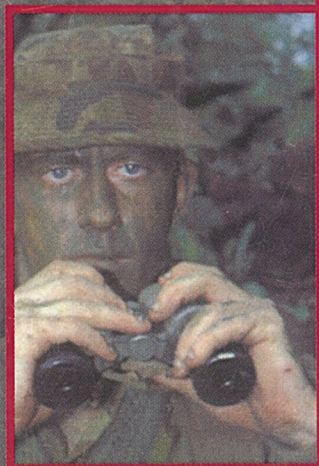
AUSTRALIA  
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OF DEFENCE

98/003



# BRADSHAW FIELD TRAINING AREA

Supplement to  
Draft Environmental Impact Statement



Prepared by

**Connell Wagner**