Parliamentary Standing Committee on Public Works

REPORT

relating to the proposed

NAVY AMMUNITIONING FACILITY, TWOFOLD BAY, NSW

(Sixth Report of 2000)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
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The Parliament of the Commonwealth of Australia

Navy Ammunitioning Facility, Twofold Bay, NSW

Parliamentary Standing Committee on Public Works

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Membership of the Committee

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Members	**House of Representatives**	**Senate**
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	Mr Colin Hollis MP	Senator Alan Ferguson
	Mr Peter Lindsay MP	Senator Shayne Murphy
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Extract from the Votes and Proceedings of the House of Representatives

No. 73 dated Monday, 11 October 1999

13 PUBLIC WORKS—PARLIAMENTARY STANDING COMMITTEE—REFERENCE OF WORK—NAVY AMMUNITIONING FACILITY, TWOFOLD BAY, NSW

Mr Slipper (Parliamentary Secretary to the Minister for Finance and Administration), pursuant to notice, moved—That, in accordance with the provisions of the *Public Works Committee Act 1969*, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Navy Ammunitioning Facility, Twofold Bay, NSW.

Question—put and passed.

1. On 11 October 1999, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposed Navy ammunitioning facility, Twofold Bay, NSW.

THE REFERENCE

2. The terms of the reference were as follows:

> The Department of Defence proposes to construct a Navy ammunitioning facility at Twofold Bay near Eden, New South Wales, to support ammunitioning and de-ammunitioning of ships of the Royal Australian Navy. The proposed ammunitioning facility will provide for the Royal Australian Navy's long-term east coast ammunitioning requirements following the closure of the current arrangements in Sydney Harbour at the end of 1999. The current facilities at Homebush will close to make way for the Sydney 2000 Olympics.
>
> The Commonwealth-owned port at Point Wilson, Victoria will be used for interim ammunitioning of Royal Australian Navy ships until permanent arrangements are in place. Point Wilson would not be suitable for ammunitioning Navy ships in the longer term due to the additional steaming time and associated cost to the Royal Australian Navy and the requirement to upgrade the Point Wilson infrastructure. Point Wilson is nearing the end of its economic life and would require considerable upgrade to extend its life for 30 years. The cost of upgrading Point Wilson would be greater than the cost of the proposed facility at Twofold Bay.
>
> The Department of Defence has investigated numerous locations on the east coast to find a site that is operationally and technically feasible and environmentally suitable. More recently, detailed technical investigations have been conducted at Twofold Bay, including wind-wave studies, seismic and bathometric survey, geotechnical testing, road transport survey, explosive ordnance

risk management, bushfire risk study and preliminary flora and fauna assessment. The detailed investigations have indicated that the Twofold Bay site is operationally suitable and technically feasible. A detailed environmental assessment is currently under way.

Public exhibition of the environmental impact statement is scheduled for November-December this year and formal environmental clearance is expected early in the year 2000. Environmental field studies have been completed and the results have been utilised in the concept design of the proposed facility. Specialist assessments indicate that the proposed facility can be constructed and operated so as to have minimal adverse environmental impact.

The wharf at Twofold Bay will be used by the Royal Australian Navy for between 45 and 70 days per year and will be available for commercial use the rest of the time. State and local government have indicated strong support for the proposal as commercial use of the wharf is expected to create employment opportunities in the Eden area.

The main components of the facility are a wharf and jetty and a land based depot. The New South Wales government is planning to develop an area adjacent to the jetty head for commercial stockpiles of timber products and other compatible industries, should the proposal proceed.

The estimated outturn cost is $40 million. Subject to Parliamentary and environmental approval, construction will start in the middle of next year and be completed by December in the year 2001.[1]

THE COMMITTEE'S INVESTIGATION

3. The Committee received a submission from the Department of Defence (Defence) and took evidence from Defence representatives at a public hearing held in Eden on 2 March 2000. Prior to the public hearing, the Committee inspected the site of the proposed development.

4. The Committee also received written submissions and took evidence from the following organisations and individuals:

- Bega Valley Shire Council;
- Bombala Council;

[1] Commonwealth Parliamentary Debates, House of Representatives, 11 October 1999, p. 11244

- Eden Foundation;
- Environment Network;
- Captain Richard Jolly;
- Mr Gary Nairn MP (Federal Member for Eden-Monaro);
- Ms Susan Norman;
- Paddlers for Peace; and
- Mr Peter Webb MLA (State Member for Monaro).

5. Written submissions were also received from:

- Environment Australia;
- State Forests of New South Wales;
- Shoalhaven City Council;
- New South Wales Waterways Authority;
- Environment Protection Authority New South Wales;
- ADI Limited
- Ms Jenny Spinks;
- Mr Peter Herd;
- Ms Yula Leevers;
- M. Watson;
- NSW Department of Land and Water Conservation; and
- NSW National Parks and Wildlife Service.

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

BACKGROUND

Sydney ammunition pipeline

7. The Navy's East Coast Fleet Base is located at Garden Island in Sydney Harbour. The Fleet needs to be 'topped up' with ammunition after exercises and explosive ordnance needs to be totally unloaded and reloaded when ships enter or return from a maintenance period.

8. The explosive ordnance for the Fleet has been supplied from Kingswood Armament Depot, located at the Orchard Hills Defence establishment, 60 kilometres west of Garden Island. Semi-trailers would carry the explosive

ordnance by road to Newington Armament Depot, approximately 20 kilometres west of Garden Island, before loading onto barges for transportation along the Parramatta River to Sydney Harbour. The explosive ordnance was then loaded onto warships at ammunitioning buoys adjacent to the Fleet Base at Garden Island. These arrangements had not met the North Atlantic Treaty Organisation (NATO) safety principles and had operated under a ministerial waiver[2].

Point Wilson East Coast Armament Complex

9. Defence has been investigating and planning for an alternative ammunitioning facility for a number of years. In April 1994, a decision was announced to site a new East Coast Armament Complex at Point Wilson, near Geelong. The Point Wilson complex was intended serve two functions. First, to provide an ammunitioning and de-ammunitioning capability for the East Coast Fleet. Secondly, to continue Point Wilson's role as the primary point of entry for imports of explosive ordnance by commercial ships[3].

10. On 3 December 1997 the proposal was referred to the Committee. The Committee conducted an extensive investigation of the proposal and reported to Parliament on 30 June 1998. The Committee's report recommended, among other things, that Defence investigate deep-water facilities closer to Sydney than Point Wilson for a Navy ammunitioning facility. Twofold Bay was suggested as a site that should be further investigated[4].

11. Defence accepted this recommendation and conducted a preliminary study on the feasibility of constructing a Navy ammunitioning facility at Twofold Bay. This study addressed operational, cost, technical and environmental factors. Following this study, in February 1999, the Minister for Defence approved development of a detailed proposal for referral to Parliament.

THE NEED

12. The ammunitioning arrangements for the Navy's East Coast Fleet utilising the Kingswood Depot and the transportation of explosive ordnance by semi-trailers and barges ceased in December 1999. A key site in these arrangements, Newington Armament Depot, was sold to the Olympic Coordination Authority in March 1996, with a lease to Defence until December 1999[5].

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[2] Department of Defence, *Statement of Evidence*, p. 1.

[3] Ibid., pp. 3-4.

[4] Joint Standing Committee on Public Works, East Coast Armament Complex Point Wilson, Vic., p. 24.

[5] *Statement of evidence*, p. 1.

13. Point Wilson is being used for interim ammunitioning of Royal Australian Navy (RAN) east coast ships until the establishment of permanent facilities. Point Wilson is not seen as a viable permanent site, mainly due to the long steaming time associated in travelling from Point Wilson to the Fleet Base in Sydney Harbour and the Navy's East Australia Exercise Area. The Exercise Area stretches from just north of Twofold Bay to Sydney Harbour.[6]

14. The Navy therefore needs to establish a new ammunitioning facility that has the capacity to concurrently store up to three explosive ordnance outfits for major Fleet vessels and cater to all current surface and submarine classes. The facility must also have the flexibility to accommodate new ship classes and replacement explosive ordnance types with minimal modification[7].

15. Investigations have indicated that Twofold Bay is operationally preferable to Point Wilson as an ammunitioning / de-ammunitioning facility, and is technically and environmentally suitable. There is no existing wharf in Twofold Bay that would meet the Navy's operational requirements and the bay is generally too exposed to enable ammunitioning operations using barges[8]. To overcome these difficulties a wharf, jetty and land-based depot will need to be constructed, linked by a purpose built road.

Committee's Conclusion

16. The Sydney Ammunition Pipeline has closed. The Navy therefore needs a permanent ammunitioning facility.

THE PROPOSAL

Scope of the work[9]

17. The proposal involves the construction of:

- a 200 metre by 30 metre multi-purpose wharf;
- a dredged berth to 10.5 metres below Chart Datum;
- a dual-lane, 7 metre wide 580 metre jetty between the wharf and the shore;

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[6] *Statement of Evidence*, p. 1; *Transcript*, 2 March 2000, p. 64.

[7] *Statement of Evidence*, pp. 8-9.

[8] Ibid., pp. 6 and 11.

[9] Ibid., pp. 10 and 20.

- a dual-lane, 7 metre wide access road between the shore and the existing sealed road, and the upgrading of approxately1.5 kilometres of Hut Forest Road to provide sealed, dual lane access to the land-based depot; and
- a land-based storage facility consisting of six explosive storehouses; a transit facility; four truck parking bays; an administration building; and a non-explosive storehouse and workshop.

The sites[10]

18. Twofold Bay is located on the south coast of NSW, has an approximate area of 3,100 hectares and a maximum depth of some 27 metres. The proposed Navy ammunitioning facility will be located in the vicinity of Munganno Point, East Boyd Bay and Fisheries Beach. East Boyd Bay has a depth ranging from 1 metre to over 9 metres.

19. The main access to the area is via the Princes Highway, a State highway managed by the NSW Roads and Traffic Authority. Edrom Road links the Princes Highway with the Harris Daishowa (Australia) Pty Ltd woodchip facility. Other roads in the area are unsealed forest roads used for logging and fire management, or access roads to private property.

20. The land-based depot facilities will be located on Hut Forest Road, south of Edrom Road. The layout of the facility will follow Hut Forest Road, with a transit facility, truck parking bays and storehouses positioned along the road at the required separation distances. An administration building and non-explosives storehouse and workshop will be located outside the explosives zone near the intersection with Edrom Road.

21. Land for the wharf and jetty would be leased from the NSW Government either through the Waterways Authority or the Department of Land and Water Conservation. The land-based depot area would be leased or transferred freehold from NSW State Forests.

22. Native Title issues are currently being addressed. Defence has established with the State government, who are the current landowners, that there is no known native title claims on either the Crown land or the Crown seabed. The New South Wales Land Council has started a process to identify the interested parties. Based on legal advice obtained by Defence, an Indigenous Land Use Agreement will be negotiated.

[10] Ibid., pp. 3, 20-21, 34-35; *Transcript*, pp. 64 and 76.

PLANNING

Explosives storage and handling principles

23. In the 1970s, the United Nations (UN) recommended changes to procedures for the classification and transportation of a wide range of dangerous goods, including explosives. These UN recommendations have been adopted internationally. As a consequence, NATO countries developed explosives storage and handling principles to take account of the requirements of the UN system. The principles have been tested by large-scale trials, some of which were conducted in Australia, and are constantly under review. These storage and handling procedures, and the UN system, form the basis of current Department of Defence explosives safety procedures[11].

24. An aspect of the NATO principles is the development of safeguarding arcs that delineate areas where construction or public access should be controlled. The radii of these arcs are linked to the quantity of explosives that is being handled at any one time.

Net Explosive Quantity

25. The safeguarding arcs based on the wharf are founded on a 30 tonne Net Explosive Quantity (NEQ)[12].

26. The Committee questioned Defence about the specific NEQ that would handled at the facility. Defence confirmed that HMAS *Success* has the largest NEQ with a capacity of about 28.5 tonnes. There are two other ships that can carry 26 tonne NEQ. Both of these ships are to be withdrawn from service towards the end of next year. The remaining ships in the Fleet carry about 12 tonne NEQ. The Committee was advised that Navy did not envisage building any ships in the next 25 years that would carry a greater NEQ than HMAS *Success*[13].

27. Defence advised that in a contingency situation, the NEQ of HMAS *Success* might increase to 50 or 100 tonne NEQ, with the additional ammunition carried as deck cargo. If HMAS *Success* was, for example, carrying 50 tonnes NEQ, the green arc would be moved out additional 100 metres and Navy would seek a public risk waiver[14].

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[11] *Statement of Evidence*, p. 7.

[12] Ibid., p. 7.

[13] *Transcript*, p. 65.

[14] Ibid., p. 187.

Safeguarding arcs

28. For the proposed works, there are two sets of three safeguarding arcs. One set of three is based on the wharf and the other set of three is based on the land-based storage facility.

29. The arcs based on the wharf are[15]:

- a green arc, with a radius of 460 metres, which defines the minimum distance from the wharf within which public access should be restricted during ammunitioning operations;
- a yellow arc, with a radius of 690 metres, which defines the minimum distance within which inhabited buildings, general community amenities or major traffic routes should not be sited; and
- a purple arc, with a radius of 1380m, defines the minimum distance that major community amenities or large public buildings should not be sited.

30. The set of arcs around the land-based depot has similar radii.

31. The proposed location of the wharf ensures that public recreation areas, including Fisheries Beach, generally fall outside a radius of 460 metres (the 30 tonne NEQ green arc) from the wharf.

32. There are currently only two sites in the vicinity of the wharf and jetty that might be inhabited. Harris Daishowa (Aust) Ltd operate a woodchip mill on Munganno Point. Edrom Lodge is owned by NSW State Forests and is currently used to accommodate groups of people. Edrom Lodge and the Harris Daishowa canteen and administration centre are outside a radius of 690 metres (the 30 tonne NEQ yellow arc) from the wharf. No large public buildings or major community amenities are located within a radius of 1380 metres (the 30 tonne NEQ purple arc) from the wharf[16].

33. Pages B-4 and B-5 of Appendix B illustrate the NATO planning arcs for the facility sites.

Effect of explosion within arcs

34. To give some examples of what the planning arcs indicate, Defence outlined to the Committee the result of an explosion at the critical mass. It is estimated that within the green arc, unprotected dwellings would suffer damage such to repair them would cost 10 per cent of the value of the building. Within the yellow arc, unprotected buildings would suffer damage

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[15] *Statement of Evidence,* p. 7.

[16] *Statement of Evidence,* p. 14; *Transcript,* pp. 66-67, 72.

such that to repair them would be 5 per cent of the value of the building. In neither of these arcs do Defence permit inhabited buildings.

35. Within the purple arc, that is Edrom Lodge and the Harris Daishowa facility, perhaps 50 per cent of windows would be broken but there would be very little other damage. Defence would not seek to alter the current use of Edrom Lodge, with the major impact on that building from a Defence perspective being the visual impact[17].

Planning implications of arcs

36. The NATO planning guidelines require that the land-based depot be surrounded by a development buffer zone. This circular zone is based on a radius of 1220 metres from the facility and encloses an area of approximately 700 hectares. A suitable parcel of land will be purchased or leased from State Forests to protect against future developments that may adversely affect Defence's operations[18].

37. The Masterplan for the Twofold Bay Navy ammunitioning facility will ensure that Defence's operational requirements are taken into account in future land use proposals for the surrounding area. Development planning controls will be negotiated with the local planning authority to provide Defence with some control over the development of major community amenities or large public buildings within a 1380 metre radius of the wharf[19].

38. Defence will also negotiate agreements with Harris Daishowa and Edrom Lodge (NSW State Forests) to safeguard against incompatible development of these sites (as these fall between the 690m and 1380m safeguarding arcs). Defence consulted Harris Daishowa about future developments on their site who indicated that they had no plans for developments that would be incompatible with the NATO planning arcs. As Defence prefers to control all of the arcs, if Harris Daishowa was to sell their freehold Defence would seek to ensure its interests were protected[20].

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[17] *Transcript*, p. 186.

[18] *Statement of Evidence*, p. 23.

[19] Ibid., pp. 36-37.

[20] *Statement of Evidence*, p. 37; *Transcript*, p. 76.

DESIGN

Design standards[21]

39. Where appropriate, the design of the new facility will conform to the relevant sections of:

- Building Code of Australia (BCA);
- relevant current Australian Standards and Codes;
- Occupational Health and Safety Act 1991;
- Defence Manual of Fire Protection Engineering (MFPE);
- Defence Protective Security Manual (SECMAN);
- Defence Facilities Communications Cabling Standard;
- Environmental Protection Act and Regulations;
- Defence Explosives Safety Manual (OPSMAN 3);
- RAN Explosive Ordnance Safety Manual (ABR 862);
- Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives;
- Workplace Health and Safety Act and Regulations;
- Guidelines for Buildings Within Bushfire Prone Areas;
- NSW Code of Practice for the Construction Industry; and
- Relevant Australian Standards and Guidelines for marine structures.

Design principles[22]

40. The general principles to be adopted with the design of the proposed facilities will incorporate the following considerations:

- provision of cost effective and utilitarian facilities of energy efficient design suitable for the climate conditions;
- adoption where possible of conventional construction techniques and materials;
- utilisation of durable materials that combine long life with minimum maintenance;

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[21] *Statement of Evidence,* pp. 23-24.

[22] Ibid., p. 24.

- recognition of limitations of land availability, security requirements, functional relationships to existing facilities and operational determinants; and
- recognition of occupational health and safety aspects impacting on the well being of personnel using the facilities.

Design features[23]

41. Designs will incorporate the following general features:

- the wharf will accommodate both the Defence and NSW Waterways Authority operating requirements;
- the explosive storehouses will be positioned at the internal safety distances appropriate to allow three ships outfits of explosive ordnance to be accommodated;
- the depot buildings will be designed in accordance with the guidelines for buildings within bushfire prone areas. The levels of fire protection specified are above BCA requirements and have been determined by a risk assessment and risk management approach to fire protection; and
- all power supply, electrical and mechanical equipment will include an assessment of energy use applying life cycle costing techniques and power demand analysis.

42. The Committee questioned Defence on the provision of lightning protection and it was confirmed that lightning protection would be incorporated as part of the standard design to fit into the storehouses and other areas[24].

WHARF AND DREDGED BERTH

Description and functions[25]

43. The Navy will use the wharf for between 45 and 70 days per year, with the wharf available for commercial use when not required by the Navy. The proposed wharf will be 200 metres long by 30 metres wide. These dimensions serve five functions:

- to enable the berthing and mooring of the largest vessel, HMAS *Success* at a length of 157 metres, without the need for independent mooring dolphins. The wharf will also accommodate commercial vessels of

[23] Ibid., pp. 25-26.

[24] *Transcript*, p. 69.

[25] *Statement of Evidence*, pp. 2, 11 and 14.

nominal 20,000 Dead Weight Tonnes (DWT) with a length of approximately 180 metres;

- to allow for a dedicated truck turning area at one end of the wharf and unrestricted access to the full length of all vessels for ammunitioning activities;
- to provide margins along each side of the wharf for wharf infrastructure and services;
- to deliver an adequate working area to handle the explosive ordnance using forklifts and mobile cranes; and
- to provide a dedicated lane for the withdrawal of equipment and personnel in emergency situations.

The Committee questioned Defence on the need for such a large structure out in the harbour. Defence maintained that as well as the practical advantage of enabling semi-trailers to turn at the end of the wharf, the dimensions of the wharf increases the safety of loading and unloading ammunition[26].

Siting considerations

44. The wharf will be used to securely berth RAN ships to enable safe transfer of ammunition and missiles between trucks and the RAN vessels using mobile cranes. Defence considered five different wharf options. The proposed wharf location was determined by construction, operational, environmental and safeguarding considerations[27].

45. The wharf will be sited to minimise the impact of wind and wave action on ammunitioning operations. For the safe operation of ammunitioning equipment and handling of explosive ordnance, the wind has to be less than 25 knots when loading MK41 missiles and less than 30 knots when using mobile cranes. Ship movement must be less than 50 centimetres for commercial use and HMAS *Success*, less than 30 centimetres for the majority of explosive ordnance operations and less than 15 centimetres when handling MK41 missiles[28].

Structure[29]

46. All areas of the wharf deck will be designed for a mobile crane with out-riggers, forklifts, and fully laden semi-trailer loading. The wharf structure—

[26] *Transcript*, p. 74.

[27] *Statement of Evidence*, pp. 12-14.

[28] Ibid., p. 9.

[29] Ibid., p. 15

piles and deck—will be designed for combinations of the above vehicles with vessel berthing and mooring loads, temperature effects as well as wind, wave and earthquake loading.

47. The wharf will be a conventional steel-piled structure with a cast-in-situ reinforced concrete deck. The structure will be designed for a 50-year life and will incorporate cathodic protection to steel piles and the use of high-strength marine-grade concrete in the deck. Pneumatic fendering will be provided on one side of the wharf. Commercial vessels of 20,000 DWT may require additional fendering.

Services

48. The wharf will be supplied with power and equipped with ship engineering service connection points via a duct along the edge of the wharf. Connections will be provided for communications, potable water supply and waste water removal from berthed vessels. Garbage removal and pump-out of the wharf waste-water tank will be undertaken by commercial waste disposal contractors on an as needed basis. Water supply to the wharf will be provided via storage tanks located onshore and water mains running out along the jetty. The wharf will be equipped with immediate response first aid and fire-fighting facilities[30].

49. An amenity facility will be provided on the wharf to accommodate up to 15 workers involved in the ammunitioning operations.

Dredged berth

50. The approach basin will be dredged to -10.5m Chart Datum (that is, 10.5 metres below the lowest water level). This depth provides 2 metres clearance under HMAS *Success*. The facility will have the capacity to accommodate commercial vessels up to 20,000 DWT with a draft of approximately 9.6 metres. Navigation beacons will be installed around the dredged basin and wharf approaches[31].

51. An agreement would be arranged with the NSW Waterways Authority or a commercial operator to manage the wharf facilities on behalf of Defence[32].

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[30] Ibid., p. 15.

[31] Ibid., p. 14.

[32] Ibid., p. 37.

JETTY AND ACCESS ROAD

Description and functions

52. The jetty will extend approximately 580 metres from the northern end of the wharf to meet the access road on the eastern side of East Boyd Bay. The jetty will be approximately 7 metres wide, enabling two-way traffic. It will be designed to accommodate transit of all vehicles required on the wharf, but will not be required to support high loads from mobile crane pads or loaded forklift truck wheels. A parking area adjacent to the amenities building is proposed for storage of vehicles not involved in ammunitioning activities[33].

53. Three options were considered for the siting of the jetty, two options were considered for the design of the jetty and three options were considered for the route of the access road. Defence considered all these alternatives and determined the best combination was the construction of an open, steel-piled structure with a pre-stressed concrete roadway leaving the shore near Munganno Point[34].

54. The 1.3 kilometre, 7-metre wide access road between Edrom Road and the jetty is located partly on Harris Daishowa property and partly on Edrom Lodge property. It will be a dual-lane sealed road. The road will be designed for all vehicles utilising the wharf, including construction equipment, and a design speed of 60 kilometres per hour[35].

55. The Committee asked Defence to justify the reasons given for the width of the jetty. Defence advised that the 7-metre width of the jetty enable safety vehicles to access the wharf at all times, even in the event of a vehicle breakdown. Defence representatives estimated that the majority of the cost of the jetty is providing the piling structure. A single 4.5-metre lane would cost approximately $1 million less than the proposed 7-metre wide jetty. The Navy considered this a justified expenditure when it is recognised that the safety of up to 250 sailors and additional wharf workers is involved[36].

Services

56. Lighting and fire fighting services will be provided along the jetty. Fire hydrants will be spaced at approximately 50 metre centres. A services rack

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[33] Ibid., p. 17.

[34] Ibid., pp. 16-17.

[35] Ibid., p. 17.

[36] *Transcript*, p. 74.

will be attached to the side of the jetty and will carry conduits delivering power, communications and potable water to the wharf[37].

LAND-BASED DEPOT

Description and functions[38]

57. The land-based depot facility will provide for explosive ordnance handling, examination and short-term storage for up to three major Fleet vessels. Defence or the Commercial Support Program service provider will manage the depot.

58. The land-based depot is divided into two zones: explosive and non-explosive. Within the explosive zone are six explosive storehouses, a transit facility and four truck parking bays. Beyond the NATO minimum safeguarding planning distance from the explosive zone will be an administration building as well as a non-explosive storehouse and workshop. The depot will be accessed by a sealed two-lane road.

59. The depot will provide the capacity to 'top-up' vessels with ammunition expended during exercises, as well as the complete de-ammunitioning of vessels prior to entering a maintenance period, storage of explosive ordnance for up to three months and subsequent re-ammunitioning. The facility will cater for up to 47 operations per year and have the capacity to fully ammunition / de-ammunition HMAS *Success* within one day or two different major combatants on successive days.

Explosive storehouses

60. Six explosives storehouses are proposed as part of the land-based depot. A number of explosives storehouses are required to allow storage of the maximum quantity of explosive ordnance in accordance with compatibility groups as described in Defence guidelines. Construction will be conventional portal frame buildings of warehouse standard with concrete slab floors. Each of the storehouses will be traversed and separated in accordance with safety requirements. Clear height within the storehouses would be 4.5 metres. Floor areas ranging from 20 square metres to 600 square metres are proposed for the explosives storehouses[39].

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[37] *Statement of Evidence*, p. 17.

[38] Ibid., pp. 18, 37 and 82.

[39] Ibid., pp. 18 and 21.

Transit facility

61. A transit facility will be built to enable the inspection, sorting and packing of explosive ordnance prior to storage or transport on public roads. This facility will also be a portal frame construction of approximately 30 metres x 40 metres. Clear height within the building would be 4.5 metres. Three vehicular entrance doors will be provided at each end[40].

Truck parking bays

62. Licensed truck parking bays will also be provided for staging of pre-loaded trucks prior to their call up to the wharf during ammunitioning operations. Landed explosive ordnance will also be staged at the truck parking bays prior to processing through the transit facility during de-ammunitioning. Four truck holding bays are proposed. Each bay will be a concrete hardstand area approximately 20 metre x 20 metre with capacity to store four loaded trailers. Access to each bay will be by bitumen sealed road from the main access road. Truck parking bays will be traversed and separated by 100 metres in accordance with safety requirements[41].

Administration building

63. The administration building will be located outside the explosives zone, near the intersection with Edrom Road. It is proposed to be a single storey building with masonry walls, concrete slab floor and insulated roof. Work areas and the lunch / recreation room will be air-conditioned; amenity areas will be mechanically ventilated. The building is proposed to accommodate the administrative services of the ammunitioning facility, including management, clerical and technical areas. Offices, lunch / recreation room, first aid facilities, toilets, showers and lockers are proposed along with facilities for people with disabilities. Car parking will be provided[42].

Non-explosive storehouse and workshop

64. The non-explosives storehouse and workshop are also proposed to be outside the explosives area. The storehouse will house a general storage area, office and toilet facilities. The workshop will feature a drive-through service and unloading area. The equipment that handles the explosive ordnance will be maintained in the workshop[43].

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[40] Ibid., pp. 18 and 21.

[41] Ibid., pp. 18 and 21.

[42] Ibid., p. 21.

[43] Ibid., p. 21.

Services[44]

65. Potable water supply to the facility is proposed to be by storage tanks collecting rainwater from roofed areas. 200 kilolitre tanks and pumping systems at the non-explosives area, transit facility and storehouses will provide storage for domestic supply and a reserve for fire fighting. Fire hydrants and hose reels will be provided in the non-explosives zone and tanker-filling points will be provided throughout the facility. Waste-water will be managed using an on-site treatment and land disposal system.

66. Power supply to the facility will be via an extension of the 11kV line near Edrom Road to a transformer to be installed at the facility. A high voltage main and low voltage distribution cabling will be installed underground within the explosives area in accordance with safety requirements.

67. Telecommunications will be provided by connecting telephone lines into the existing fibre optic cable along Edrom Road. Connecting lines are proposed to run underground. The existing fibre optic infrastructure has capacity for at least 10 telephone / fax lines to be provided to the facility.

68. Drainage of the site will remain undisturbed wherever possible. The proposed site drainage for developed areas involves grass-lined swale drains along roadways and culverts under roads and earth mounding. Kerbs, channels and underground drainage is proposed for the non-explosives zone. Pollution control devices are proposed in areas where workshop activities will occur. Sedimentation traps will be used to limit erosion in areas disturbed by the construction.

Bushfire protection

69. Bushfire protection of the facility is based on a series of zones radiating out from the facility. The first zone consists of 25 metre to 50 metre cleared areas surrounding all buildings and roadways. The second zone extends around 100 metres from the cleared area and will be thinned of all undergrowth and trees to a minimum stem spacing of 30 metres. The third zone consists of a further 25 metre firebreak that will surround the second zone and provide an easement for fire fighting vehicles to use. Beyond the outer firebreak, a fourth zone has been nominated as a fuel reduced zone. This area will be periodically control burned to further reduce the fire risk to the facility[45].

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[44] Ibid., pp. 21-22.

[45] Ibid., p. 23 and Figure 5.

Security[46]

70. Provision of security measures will be commensurate with the threat, risk management of the threat and the requirements of the Defence Protective Security Manual (SECMAN 4). It will include installation of an electronic security monitoring system that will incorporate fixed intruder alarms in the explosive storehouses and portable microwave or infrared sensors for explosive storage hardstand areas, all of which feed back to a monitoring station at the security control point on site. Security lighting will be provided around all facilities.

71. The Committee noted that the cost of the security system was substantial and queried whether the system needed to be portable at the hardstand areas. Defence representatives recognised that a zone system may work and stated that the details of the security system would be addressed in the design stage[47].

72. Physical security will include on-site security personnel as required with back-up from either State police or a contracted security company. In relation to response time, security procedures require periodic risk / threat assessment and response time capabilities are matched to the assessed risk and threat, which includes the nature and sensitivity of the items stored. A threat assessment will be conducted as part of the detailed design process to confirm the security requirements.

73. A security fence will be provided around the explosives-zone facilities. Buildings within the non-explosives zone will be enclosed within a security fence incorporating an external gate to Edrom Road and an access gate into the explosives zone. Post and wire fences will restrict access on Hut Forest Road and warning signs will advise of the restricted area.

Committee's Recommendation

74. Defence should investigate security system options that ensure the safety of the storage areas and provide value for money.

[46] Ibid., pp. 22-23.

[47] *Transcript*, pp. 75-77.

TRANSPORTATION OF ORDNANCE

Route

75. Explosive ordnance will be transported by road between Kingswood Armament Depot or other long-term storage facilities and the land-based depot at Twofold Bay. A transport route survey indicated that the Hume Highway to the Picton turn-off then along the Princes Highway to Eden would be the most suitable route, although suitable alternative routes were identified for further examination[48].

76. At the hearing the Committee was advised that the Princes Highway, while it may be more direct, also travels along the coast and hence through most of the towns[49]. A number of witnesses commented that the Hume, Federal, Monaro and Snowy Mountains Highways and Imlay Road provided a suitable alternative to the Princes Highway. This alternative route may require the upgrading of a culvert and the sealing of a short stretch of gravel road[50]. Bega Valley Shire Council supported the upgrading of Imlay Road so as to improve access to the wharf for B-double transport[51].

77. Defence stated that they were in principle very happy to consider the alternative route, noting that the licensing organisation within Defence found both acceptable. The Committee considered that the NSW Government should pay for the upgrading as it is a State road[52]

Committee's Recommendation

78. If the Imlay Road route is chosen as the preferred route to transport ordnance, Defence should not contribute to the cost of the upgrading of the Imlay Road.

Traffic

79. At the hearing Ms Norman raised the issue of increased traffic along Edrom Road due to the facility, commenting that there can be considerable holiday traffic and the logging traffic along Edrom Road exceeds 22 trucks an hour[53].

[48] *Statement of Evidence*; p. 32; *Transcript*; pp. 66-67.

[49] *Transcript*, p. 15.

[50] Ibid., pp. 7 and 15.

[51] Ibid., p. 133.

[52] Ibid., pp. 74-75.

[53] Ibid., pp. 166 and 170.

Defence advised the Committee that a normal ammunitioning process would require two trucks from Sydney, two to three times a fortnight. A major ammunitioning process would require seven to ten trucks from Sydney once a month. Movements between the depot and wharf would be 17 light trucks and 9 trucks in and out per day[54].

THE LOCATION OF TWOFOLD BAY

80. The Environment Network argued at the hearing that Twofold Bay was not an appropriate place to site the Navy ammunitioning facility[55]. This comment was based partly on arguments contained in a 1994 paper prepared by Professor Desmond Ball at the Australian National University Strategic and Defence Studies Centre at a time when Defence was considering a joint ammunitioning and ammunition importation facility. This paper argued that the facility should be located on the central Queensland coast for a range of reasons[56].

81. The Committee firstly commented that the Professor Ball paper was in response to a combined import/ammunitioning facility and costing $290 million in 1994 prices. The Twofold Bay proposal was considerably different, being for an ammunitioning and storage facility only and costing $40 million[57].

82. The Committee secondly sought the views of Defence representatives and other witnesses on the suitability of Twofold Bay for a Navy ammunitioning facility. The responses cover three key areas: the strategic direction of Defence; the economic benefits for Navy arising from the location; and the characteristics of Twofold Bay.

Strategic direction[58]

83. The Committee noted that a White Paper would be released this year, possibly impacting upon the need for the facility. Navy responded to the uncertainty associated with the release of the White Paper with the statement that it is the planned intention as far as one is aware to train in the East Coast Fleet exercise area off Jervis Bay area.

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[54] Ibid., p. 186.

[55] Ibid., p. 110.

[56] Ball, Desmond, *Working Paper No. 280—The East Coast Armaments Complex (ECAC) Location Project: Strategic and Defence Aspects*, Strategic and Defence Studies Centre—Australian National University, Canberra, 1994.

[57] *Transcript*, p. 111.

[58] Ibid., pp. 65, 67 and 186.

84. Defence advised the Committee that Jervis Bay is Navy's primary naval gunfire support range and primary missile range. Half of the Navy's fleet is based in Sydney Harbour and all those based in Sydney exercise in the Jervis Bay area. Twofold Bay provides a location for ammunitioning those ships exercising in this area, as well as a proximate location for the de-ammunitioning of ships before scheduled maintenance at Sydney. Ammunition can easily be transported elsewhere, for example to Darwin, if required.

Economic benefits[59]

85. The Committee questioned Defence on the operational savings associated with locating the facility at Twofold Bay. Defence advised that as long as half the fleet is based in Sydney Harbour, Twofold Bay provides a location proximate to both the exercise area and the Fleet Base. If the ammunitioning facility were to be based on the Central Queensland coast, it would take two days travel each way consuming 50 tonnes of fuel at approximately $500 per tonne. Travelling past Eden to Port Wilson and back consumes 100 tonnes of fuel. Defence considers that this proposal delivers an ammunitioning facility at a lower construction cost and operational cost than the previous Point Wilson proposal.

Twofold Bay

86. Witnesses drew attention to the fact that the Harris Daishowa operation has been running successfully for many years and that the bay itself provides a good, safe deepwater berth. It is an open port close to deep water with no narrow channels to be navigated. The Committee was advised that there would be few days that waves may cause ammunitioning difficulties[60].

87. Defence also commented that Defence had considered Port Kembla as a possible location for the ammunitioning facility, but the wharf is near a populated area. Locating the facility at Port Kembla would mean a return to the problems associated with the previous ammunitioning arrangements in Sydney, requiring that ammunitioning operations would need to operate under a public risk waiver. The proposed site at Twofold Bay presents no difficulties with respect to the NATO planning arcs as there is nothing in the proposed area that is contrary to these planning principles[61].

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[59] Ibid., pp. 64-65 and 68.

[60] Ibid., pp. 14, 157 and 179.

[61] Ibid., p. 68.

Committee's Conclusion

88. Twofold Bay is an appropriate location to site the ammunitioning facility due to the natural advantages of a deep bay with a site away from population centres. It also delivers economic benefits to the Navy due to the close proximity to the Fleet base at Sydney Harbour and the Navy exercise area.

ENVIRONMENTAL STATUTORY PROCEDURES

89. Following the Committee's 1998 report, Defence conducted preliminary environmental assessments of the Twofold Bay site. The assessments included desktop studies of available environmental reports on studies conducted for the previous State Government proposal for a multi purpose wharf, the EIS for Boydtown Boat Harbour and Marine Development and the EIS for Evaluating Mussel Aquaculture in Twofold Bay. Defence also commissioned a preliminary desktop study of cultural heritage issues and a detailed field study of flora, fauna and marine mammals in late 1998. The preliminary assessments did not identify any significant environmental issues that would preclude the proposal proceeding[62].

90. The results of the first phase of environmental field investigations were used to refine facility site options and to determine where additional investigations were warranted. Similarly, results of engineering investigations have been made available to the environmental team to work towards identifying appropriate environmental controls that could be pursued[63].

Notice of Intention

91. In March 1999, based on the results of the preliminary assessments, a Notice of Intention was prepared and submitted to Environment Australia in accordance with the Commonwealth *Environment Protection (Impact of Proposals) Act 1974*[64].

Guidelines for preparation of EIS

92. The Minister for the Environment and Heritage directed the preparation and submission of an Environmental Impact Statement (EIS). The Minister also directed that Defence satisfy the NSW *Environmental Planning and Assessment*

[62] *Statement of Evidence*, p. 28.

[63] Ibid., p. 29.

[64] Ibid., p. 28; *Twofold Bay Multipurpose Wharf and Naval Munitions Storage Facility Draft Environmental Impact Statement*, Woodward-Clyde, St Leonards, November 1999, para. 2.2.1.

Act 1979. The Commonwealth Department of Environment and Heritage and the NSW Department of Urban Affairs and Planning issued a single set of guidelines for an EIS on 13 July 1999. A single EIS was prepared to meet the requirements of both Commonwealth and State legislation[65].

Environmental Impact Statement

93. Defence and the NSW Waterways Authority jointly commissioned an environmental consultant to conduct the environmental assessments and prepare the EIS in accordance with the guidelines. The draft EIS was released for public exhibition from 8 November to 17 December 1999, with copies deposited in many libraries and available for purchase in both Sydney and Bega[66]. The Supplement to the EIS was lodged 1 March 2000[67].

94. The Committee noted that the conclusion to the EIS considered that the construction and operation of the proposal is justified on the basis of environmental acceptability, taking into account biophysical, socio cultural and economic considerations, and is in accordance with the principles of ecologically sustainable development[68].

95. The Committee questioned Defence about the cost and thoroughness of the EIS process. Defence advised that the EIS and supplement cost in the order of $700,000 and their belief was that the EIS and supplement addressed every aspect of the proposal. The Supplement clarified some issues and also involved some additional work. These additional studies indicated that the level of impact assumed by the EIS was slightly higher than what is likely to occur[69].

96. The Committee also questioned the Environment Network about whether that organisation thought the EIS covered all the areas that it should have[70]. The Environment Network took the question on notice and later provided some information on sightings of the Weedy Seadragon, a protected species. The Environment Network suggested that a species-specific habitat management plan be developed[71].

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[65] *Statement of Evidence*, p. 28; *EIS*, paras 2.2.1 and 2.2.2.

[66] *Twofold Bay Multipurpose Wharf and Naval Munitions Storage Facility—Supplement to the Draft Environmental Impact Statement*, Woodward-Clyde, St Leonards, March 2000, paras. 1.2 and 6.1.3.

[67] *Transcript*, p. 68.

[68] Ibid., pp. 17 and 67.

[69] Ibid., pp. 67-68 and 78.

[70] Ibid., p. 115.

[71] Letter from Environment Network to Committee dated 6 April 2000, p. 2.

ENVIRONMENTAL ISSUES

97. The statutory processes noted above deal comprehensively with the environmental issues associated with the construction of the ammunitioning facility. The Committee did, however, did consider some environmental issues raised during the Committee's investigation.

Impact on flora and fauna

98. The Committee asked if anything had been found that would prevent the facility from going ahead at the proposed location[72]. Mr England a consultant with Defence, responded to this question, stating in relation to threatened species of flora and fauna:

> The advice I gave the Committee before was that we had looked at the potential for threatened species to occur in the area. Our assessment was based on the potential for those species if the habitat was available for them. It was not whether or not we caught them. We recognised that there are some species on the threatened species lists, both the Commonwealth and state government lists, which are likely to occur in the area. The eight-part test we referred to previously deals with all those species. There are 3 flora …species. There were 13 fauna species. That included the southern brown bandicoot. The assessment under each of those tests was that there would be no significant impact on that species, its viability or its survival as a species as a result of this proposal[73].

99. Captain Jolly also commented that Navy vessels carry little or no ballast water, thereby reducing the concern for environmental damage through the release of ballast water. Captain Jolly advised the Committee that the chip boats for the Harris Daishowa facility would carry on average 30 million litres of ballast water, considerably dominating the 200 thousand litres that Navy vessels may pump out[74].

Environmental management

100. Defence advised the Committee that the development and implementation of a range of environmental management strategies and environmental input into the final design and siting process will ensure that potential adverse impacts are minimised or ameliorated[75]. Specific environmental

[72] *Transcript*, p. 69.

[73] Ibid., p. 189.

[74] Ibid., p. 157.

[75] Ibid., p. 64.

management objectives, strategies and tasks will be specified in the Construction Environmental Management Plan that follows the EIS process. An Operational Environmental Management Plan will detail the environmental obligations after construction is completed[76].

101. The Eden Foundation stressed the importance that the Foundation placed upon the Environmental Management Plan. The Foundation saw this Plan as a means of providing information to the community on the condition of the environment and an ongoing opportunity for rectification if that was needed. The Foundation suggested that the Navy should schedule a public meeting in Eden every two or three years to report to the community[77].

Committee's Recommendation

102. Navy should strongly consider holding a public meeting in Eden every two years to report to the community on the state of the environment surrounding the facility. This meeting should be advertised widely throughout the community.

Dredging of turning basin

103. The Committee questioned Defence on the quantum of dredged material, the cost of the dredging, the frequency of dredging and the planned location of depositing the dredged material[78].

104. Defence advised that about 55,000 cubic metres of material is planned to be removed from the turning basin, to a maximum depth of one and a half metres at the landward end of the turning basin. Geotechnical investigation involving sample bore holes confirmed that the sediments in the turning basin are dredgeable sediments. The material, which is mostly fine sand with some fine sediments, does not contain heavy metals. The dredging will require approval from the Environment Protection Authority and the State government[79].

105. The cost of the initial dredging was estimated to be about 3 to 4 per cent of the project, or around $750,000 and take approximately two weeks. There was no evidence to suggest that something unexpected may crop up to increase the cost of the dredging, such as the need to blast rock. When the

[76] *Statement of Evidence*, p. 34.

[77] Ibid., pp. 182-183.

[78] Ibid., pp. 68-69.

[79] Ibid., pp. 68-69 and 72.

Committee sought further justification for the dredging, Navy advised that it is important to balance the cost of the dredging against the cost of a damaged Navy propeller. The cost of propellers is in the order of $4 to $5 million[80].

106. Defence advised the Committee that there were three options for where the dredged material would be dumped. These were: within Twofold Bay; one nautical mile from the mouth of Twofold Bay into about 50 metres of water; and on land. It appeared feasible that the material could be dumped at sea[81]. The Committee later questioned Captain Jolly who confirmed that dumping such material at sea was common practice[82].

107. On the frequency of dredging, Defence advised that there would be an initial dredging of 55,000 cubic metres and then infrequent maintenance dredging. Any maintenance dredging would be expected to cost less than the initial dredging. Appendix C of the EIS Supplement estimated that maintenance dredging would occur in the order of 5 to 10 years[83]. Defence also advised that Harris Daishowa have been in that area for 30-odd years and had not undertaken maintenance dredging[84].

108. The Environment Network was asked by the Committee what impact the dredging may have on endangered species[85]. The Environment Network noted that the flooding of the Kiah River could affect the turning basin[86]. Defence responded to this by advising that the Supplement to the EIS addressed this issue. On the basis of modelling the Towamba River, it would need to be an extreme flood to have any impact on the turning basin[87].

109. Following a question by the Committee on the impact of the dredging on endangered species, the Environment Network undertook to provide further information to the Committee[88]. The Environment Network subsequently provided the information previously noted on numbers of Weedy Seadragons sighted in the wharf vicinity and drew attention to the NSW Fisheries comments in the EIS Supplement[89].

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[80] Ibid., pp. 68-72.

[81] Ibid., p. 69.

[82] Ibid., p. 158.

[83] Ibid., pp. 69-70.

[84] Ibid., p. 190.

[85] Ibid., p. 116.

[86] Ibid., p. 116.

[87] Ibid., p. 190.

[88] Ibid., p. 116.

[89] Letter from Environment Network to Committee dated 6 April 2000, p. 2.

Noise

110. Ms Norman advised the Committee that noise generated by the traffic travelling to and from the facility, as well as the Navy and commercial operation of the wharf, could be a problem for the area[90]. Ms Norman noted the nearby Fisheries Beach recreational camping ground would be affected and that the EIS described the level of noise as at sleep disturbance level for Edrom Lodge[91]. Ms Norman informed the Committee that even living three kilometres away, it is possible to hear the Harris Daishowa chip mill, especially if the wind is in the right direction[92].

111. Defence's advice to the Committee in relation to traffic has been noted above. Defence also advised the Committee that the EIS found it was the operation of the commercial facility that could give rise to sleep disturbance if there were not adequate controls in place. One of the controls that were recommended was the preparation of a noise control plan that would form part of any on-going environmental management plan. Defence informed the Committee that the Navy anticipates operating only during the daytime and is unlikely to generate much noise[93].

Visual impact

112. The Committee questioned Defence about the visual impact that the facility would have in the area[94]. Defence acknowledged that the visual impact of the wharf and jetty is probably the one thing that cannot be very readily accommodated by design and siting principles. However, Defence considers that the visual impact from the point of view of looking from Eden is relatively insignificant compared with the impact of the Harris Daishowa installation that is already established on Munganno Point. From the point of view of Edrom Lodge, Defence believes that the siting of the facility, the design of the facility and the actual operation of the facility, which will not be intense, can ameliorate concerns[95].

113. The land-based depot will be within re-growth State forest and will not be visible from Edrom Road. As such, it will not present a visual impact to users of the road[96].

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[90] *Transcript*, pp. 166 and 169.

[91] Ibid., p. 169.

[92] Ibid., p. 167.

[93] Ibid., p. 186 and 190.

[94] Ibid., p. 65.

[95] Ibid., p. 65

[96] *Statement of Evidence*, p. 33.

Committee's Conclusion

114. The environmental study conducted in relation to this project has been extensive. Provided all recommendations set out in Appendix C are implemented, the impact on the environment will be minimal.

Committee's Recommendation

115. When moving the expediency motion for the work to proceed, the Minister should provide a guarantee to the House that all recommendations set out in Appendix C will be implemented.

HAZARDS AND RISKS

Operating principles[97]

116. The ammunitioning facility will be constructed and operated in accordance with the NATO principles as required under Defence policy. The provisions of the NATO Safety Principles for the handling of explosive ordnance are inherently conservative and, in effect, offer a higher level of protection to people and buildings than State regulations.

117. A risk assessment of the Twofold Bay proposal was conducted by Defence's environmental consultant, in accordance with the NSW Department of Urban Affairs and Planning guidelines, as part of the EIS for this proposal. The results of this assessment conclusively demonstrate that the risks associated with the proposal for Twofold Bay are acceptable in terms of NATO and NSW State guideline requirements for such developments.

Military target

118. The Committee asked Defence to address an issued raised by witnesses about whether the facility would make Eden a military target[98]. Commodore Cox stated that he thought the chances of the facility becoming a military target were remote. This was because the Navy would not be keeping the ammunition at the site any longer than necessary and that it was a long way to travel assuming that most attacks on Australia would come across the northern sea-air gap[99].

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[97] Ibid., pp. 32-33.

[98] *Transcript*, p. 66.

[99] Ibid., p. 66.

Accidental explosion of ammunition

119. The Committee also questioned Defence about the potential for ammunition to explode due to bushfire or truck accident[100]. The Navy advised that the ammunition is likely to melt and not explode. While the material may make the fire a 'memorable event', all Navy ammunition requires three things to happen before it will detonate. Ammunition needs fusing, an electrical impulse and a time mechanical movement before it will explode. It also needs velocity. Navy noted that ammunitioning operations had been taking place in Sydney Harbour for 82 years with no known accident and ammunition is much safer today[101].

Depleted uranium ammunition

120. On questioning by the Committee on whether the Navy used weapons made with depleted uranium, the Navy responded by stating that the Navy has no ammunition with depleted uranium[102].

Nuclear powered or nuclear-armed ships

121. The Committee also sought clarification from Defence on whether the wharf would be available to nuclear powered or nuclear-armed foreign ships[103]. The Navy stated that Eden is not a nuclear warship capable port. Nuclear ports and nuclear visits are subject to a committee of review and stringent processes, and Navy had no knowledge of any plan to give Eden that capability. Navy advised the New Zealand Navy may use the ammunitioning facility, but they have ships of similar Net Explosive Quantity to the Australian ships[104].

Bushfire

122. The Committee considered at some length the risk of bushfire in relation to the land-based depot. Ms Norman had questioned the methodology adopted in the EIS study, arguing that the EIS should have taken into account the fuel loads in the surrounding forest[105].

123. Defence advised the Committee that State Forests would continue to manage the forest within the NATO planning purple arc, including continuing to

[100] Ibid., pp. 187 and 190.

[101] Ibid., pp. 187 and 191.

[102] Ibid., p. 66.

[103] Ibid., p. 66.

[104] Ibid., pp. 66 and 68.

[105] Ibid., pp 166 and 169.

control the regrowth. Defence would manage the area within the fences surrounding the explosive and non-explosive areas[106].

124. A consultant to Defence, Mr England, also outlined to the Committee the methodology of calculating risk of fire in the EIS. This involved the consideration of a number of factors, including slope, aspect, vegetation type, the likely fuel loadings and the weather. The EIS found that 90 per cent of the land within one kilometre of the depot fell into a low to medium risk category.

125. Mr England advised that the Supplement to the EIS, in Section 12, deals with how the radiant heat calculation was derived. The Supplement calculated that radiant heat at a distance of greater than 100 metres would not be of a sufficient magnitude to cause the munitions to become affected by that heat—the proposal for the depot site is to have a 120-metre break[107].

HERITAGE

126. A number of archaeological sites have been identified in the Bilgalera Point and Munganno Point areas. These include Aboriginal middens and other artefacts and items such as ceramic and glass pieces and bricks indicating historical European use of the area. The two main historical features of the area are Davidson Whaling Station and Edrom Lodge. Investigations have identified two additional whaling station sites on the Edrom Lodge foreshore that were previously unregistered. The extent and integrity of these latter sites is yet to be fully quantified[108].

127. Maritime archaeology investigations have concluded that no known shipwrecks lie within the proposed footprint of the wharf. Careful siting of the access road to the jetty and onshore facilities will avoid direct impact on archaeological and heritage sites. Other management strategies may include excavation, recording and removal of artefacts from the area[109].

128. The Committee asked Defence if they had satisfied all indigenous cultural concerns in regard to the project[110]. Defence responded that they believed they had, advising that the local Aboriginal Land Council had been involved from the beginning. The local Land Council had been consulted in the development of the field survey design and members of that Council

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[106] Ibid., p. 187.

[107] Ibid., p. 188.

[108] *Statement of Evidence*, p. 34.

[109] Ibid., p. 34.

[110] *Transcript*, p. 68.

participated in the fieldwork that was undertaken. A copy of the report went to the Council[111].

129. Defence informed the Committee that in Appendix B of the EIS Supplement, a letter dated 3 December 1999 from the Chairperson of the Eden Local Aboriginal Land Council was provided. This letter stated that the Council had been contacted through the process and that the Council supported the findings of the Cultural Heritage Assessment[112].

LOCAL IMPACT

Employment

130. Defence advised the Committee that the contract strategy Defence plan to adopt for this proposal would encourage participation of local contractors. Defence would brief local contractors on the project and these contractors would be encouraged to tender for the works. Defence believe that sub-dividing the work for the land-based depot facility into smaller commercial contract packages would enable local contractors to tender for individual work packages. However, Defence believe that the wharf and jetty work does not lend itself to separation into smaller packages and would be let competitively as a single Design and Construct package[113].

131. The Committee asked Defence what was the expected employment potential both during the construction phase and as a result of the completed project[114]. With respect to employment during the construction phase, Defence advised the Committee that approximately 70 people would be employed on the project. This number would fluctuate quite dramatically depending upon what works are being undertaken[115].

132. As the operation of the wharf may be included as part of the wider Commercial Support Program, Defence were unable to confirm to the Committee exact numbers of people that will be employed at the facility for Defence purposes. It was estimated that about 12 people would be needed to run the facility, six being full-time and six part-time[116]. Defence estimated that there were five or six people employed at Point Wilson[117].

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[111] Ibid., p. 68.

[112] Ibid., p. 68; *EIS Supplement*, Appendix B.

[113] *Statement of Evidence*, p. 27.

[114] *Transcript*, p. 70.

[115] Ibid., p. 70.

[116] Ibid., pp. 70-71.

[117] Ibid., p. 78.

133. The Committee expressed an interest in establishing why the workforce would be approximately that size when the Newington Depot in Sydney employed considerably more. Subsequent advice to the Committee from Defence confirmed that approximately 150 personnel worked at Newington until December 1996 when all explosive ordnance had been removed from the site. About 20 people remained from this time until the Depot was closed in December 1999. Defence noted that the Depot performed more functions than ammunition distribution, and many of these additional functions were contracted out, absorbed into other depots or ceased on the closure of the Depot[118].

Provision of equipment, services and supplies

134. In addition to employment, the Committee sought to establish what the existence of the wharf at Twofold Bay would bring to the region once the Navy was ammunitioning at the wharf. A number of witnesses put forward some ideas, including:

- spending by sailors in town if ammunitioning takes place over two days, or if ships visit Eden over weekends such as ANZAC Day or Australia Day. It maybe possible that American destroyers without nuclear weapons may also visit[119];
- provisions such as milk, bread, newspapers and other necessary items[120];
- depending on the wharf manager, possibly the hire of mobile cranes every time a ship was loaded or unloaded[121];
- Harbourmaster services probably for the first few visits and tug services in and out of the Bay[122];
- navy ship repair (noting that some repairs have already been undertaken on Navy ships without the facility)[123]; and
- possibly business for local airlines[124].

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[118] Letter to Committee from Defence dated 30 March 2000, pp. 1-2.

[119] *Transcript*, p. 73.

[120] Ibid., p. 80.

[121] Ibid., p. 71.

[122] Ibid., p. 80.

[123] Ibid., p. 158.

[124] Ibid., p. 158.

Access to the wharf and jetty

135. The Committee questioned Defence a number of times about the availability of the wharf and jetty for people such as recreational fishermen. As the management of the wharf had not been determined at the time of the hearing, details regarding access to the wharf was an issue that still had to be determined. However, Defence confirmed that Navy would have no problem with fishermen accessing the wharf and jetty when Navy was not using the facility[125]. Commodore Cox stated:

> As far as the Navy is concerned, if we are there and not ammunitioning, fishermen are most welcome[126].

136. Defence advised that stationary boats within the green arc would be asked to move on while ammunitioning, but it was fine for boats to transit through the area. To advise of the access limitations around the wharf during ammunitioning, the Port Authority would issue advice to fishermen in the usual manner. In addition, smaller boats are carried on Navy ships that could be lowered to warn the public in the area[127].

COMMERCIAL OPERATIONS OF THE WHARF

Wharf availability

137. The Committee questioned Defence on what basis the wharf would be made available to commercial users. Defence responded in three parts. First, there was some uncertainty surrounding the commercial operations of the wharf due to the Commercial Support Tender process. The transportation of ordnance, the loading and unloading of munitions and the management of the facility at Twofold Bay would be included in a Commercial Support Program contract if a tender were successful. Secondly, there would be at least 18 months from commencement of construction to have arrangements completed[128].

138. The third part of Defence's response was to note that there had been negotiations with NSW and correspondence between the Minister and the Premier with respect to usage of the wharf. Defence advised the Committee

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[125] Ibid, pp. 72-73 and 190.

[126] Ibid., p. 190.

[127] Ibid., p. 72.

[128] Ibid., p. 71.

that Defence has agreed in principle to a sharing arrangement that will be later encapsulated in a formal document[129].

139. Defence advised the Committee that they would seek to ensure that the Navy's ammunitioning requirements would take priority over other activities. The Navy believed that this could occur without undue disruption to any commercial interest for two reasons. First, planning for ammunitioning starts about 6 to 8 weeks beforehand. Second, the Navy stops work or stops going to sea from around 15 December until after Australia Day, so it is unlikely that Navy would be ammunitioning during the busy holiday season[130].

140. The Bega Valley Shire Council advised the Committee that the major issue for them was the viability of the commercial use of the wharf. Council would seek to have both the wharf and the commercial infrastructure completed as close together as possible. The Council also commented that Defence was proposing on taking the main viable site on Twofold Bay, which if it were not multi-purpose, would require the upgrading of Snug Cove[131].

141. The Committee asked if the design of the wharf, providing access to vessels of up to 20,000 Dead Weight Tonnes (DWT), would limit the use of the wharf by commercial vessels. Defence responded that it might, but draught and depth of keels determined access to the wharf. A *MariTrade* study on the wharf considered that vessels of up to 20,000 would be the most likely to use the wharf. It is possible that the wharf could accommodate vessels up to 27,000 DWT, and it is possible that the capability of the wharf could be expanded but may require further dredging[132].

Commercial utilisation

142. Defence advised the Committee that Section 5 of the Environmental Impact Statement addressed demand for the wharf. The Committee also sought information from witnesses at the hearing on products that might be exported from the wharf and any flow on effects that might occur if viable products are found.

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[129] Ibid., pp. 77 and 185.

[130] Ibid., pp. 77 and 187.

[131] Ibid., pp. 133-134.

[132] Ibid., p. 73.

143. Products that were put forward as possibilities to be transported from the wharf include[133]:

- spring water;
- agricultural products;
- value-added horticulture;
- beef;
- live sheep;
- wool;
- fish products produced at the old Heinz-Watties cannery;
- hardwood and softwood; and
- treated pine products.

144. The Committee asked Defence if the NSW State government had proposals for the wharf. Defence noted that there were no definite proposals, but substantial resources were identified that may make use of the wharf. *MariTrade*, through the NSW Department of State and Regional Development, conducted a study in 1995 and revisited the proposal as part of the EIS process. The 1995 study identified a potential wharf usage of one day per fortnight, with the main product being timber[134].

145. The October 1999 *MariTrade* study was provided to the Committee after the hearing. The object of this study was to identify and quantify the potential cargoes that could use the wharf. This study found that the timber would be the base cargo, with enough resource available to fully utilise the wharf outside of the Navy's requirements. Other potential export cargoes identified were fish products and spring water[135].

146. Witnesses advised the Committee that if viable export products could be found, then jobs such as haulage, forklift driving, welding and tree harvesting would be generated. The wharf may also be utilised by tourist ventures or oil and gas exploration boats. The wharf was also seen to deliver less tangible benefits such as new people, new culture, new ideas, providing

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[133] Ibid., pp. 14, 157, 175 and 189.

[134] Ibid., p. 70 and 138.

[135] *Proposed construction and Operation of a Wharf at Twofold Bay: Survey of potential cargoes and implication for demand and supply of commercial shipping services*, Final Report, *MariTrade*, Sydney, October 1999, pp. 1 and 3.

a general 'kick-start' to the region and acting as a general stabilising influence[136].

147. Several witnesses expressed the view to the Committee that it was a 'chicken-and-egg' situation—once the wharf was operational, businesses would develop to capitalise on its potential. People understood that the wharf would not provide many jobs in the short to medium term, but over a period of 15 to 20 years it is anticipated that industries will arise to take advantage of the wharf and industrial land.

148. Witnesses advised the Committee that the NSW State government had committed $5 million to assist with developing the commercial side of the wharf, and the Commonwealth government had provided $3.6 million to the region in the way of the Eden Regional Adjustment Package[137]. Both Mr Nairn and the Eden Foundation drew the Committee's attention to the fact that in submissions to the local advisory committee determining who was to receive grants, some had based their proposal on the exporting capability of the multipurpose wharf[138].

149. The Environment Network challenged the claims that a commercial wharf was economically viable. The Environment Network noted that a study done by the Public Works Department of NSW, completed in 1976, found that a commercial wharf was not economically viable. This was due to the decline of coastal shipping and very small quantities of cargo[139].

150. The Environment Network also argued that there would be no export possible of softwood as the international market is glutted. This statement was supported by reference to the decline in the stock market price of companies dealing in softwood[140]. After the hearing, the Environment Network provided to the Committee information noting the decline in the share prices of Cater Holt Harvey and Fletcher Challenge Forests[141].

CONSULTATION AND COMMUNITY SUPPORT

151. The Committee sought to establish the level of satisfaction with the consultation by Defence and the support by the local community for the project. Most of the witnessed informed the Committee that Defence had

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[136] *Transcript*, pp. 6, 14, 175 and 182.

[137] Ibid., pp. 6, 14-15 and 134.

[138] Ibid., pp. 6 and 182.

[139] Ibid., pp. 110 and 117.

[140] Ibid., pp. 117-118.

[141] Letter from Environment Network to Committee dated 6 April 2000, p. 3.

consulted widely and advertised meetings sufficiently[142]. The Environment Network argued that Defence has held all public meetings in Eden, and the early meetings were poorly advertised[143]. Defence acknowledged that the early meetings were not advertised more broadly than in the local area[144].

152. Defence outlined to the Committee the consultation that had taken place in developing the proposal. The consultation commenced with the Committee hearing in Eden in April 1998. The Minister for Defence chaired a later meeting and the EIS process continued the consultation[145]. Responses by Defence to submissions to the Committee's investigation stated that there were five public briefings in Eden from April 1998, not counting the Committee's or the Minister's meeting.

153. Defence advised the Committee that if the project were to proceed, consultation would continue between Defence and the local community[146].

154. The following authorities were consulted by Defence in relation to the proposal and will be further consulted during the project delivery[147]:

- Environment Australia;
- Eden and NSW Aboriginal Land Councils;
- Bega Valley Shire Council;
- NSW Waterways Authority;
- NSW Department of Urban Affairs and Planning;
- NSW Department of Lands and Water Conservation;
- NSW Environment Protection Authority;
- NSW National Parks and Wildlife;
- NSW State Forests;
- NSW Fisheries;
- NSW Roads and Traffic Authority; and
- NSW Premier's Office.

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[142] *Transcript*, pp. 15-16, 159 and 183.

[143] Ibid., p. 114.

[144] Ibid., p. 185.

[145] Ibid., p. 185

[146] Ibid., p. 191.

[147] *Statement of Evidence*, p. 35.

155. With respect to the support for the project in the community, most witnesses before the Committee indicated that there was majority support for the project. This support was not based solely on Eden, but the whole region[148]. According to the Bega Valley Shire Council, there is almost a unanimous view amongst all groups for further commercial wharf facilities at Eden as long as they are put in an environmentally responsible way[149].

156. In contradiction to other witnesses, the Environment Network argued that the community was quite divided on the project, with overt and covert intimidation operating to keep people from speaking out[150].

PROJECT DELIVERY

157. The proposed wharf/jetty works are to be delivered under a Design-and-Construct form of contract. The proposed land-based depot works are to be delivered under several contracts, using a combination of Design-and-Construct, and head contracts[151].

COST AND TIMETABLE

158. The estimated cost at September 1999 prices of this project is $40 million. This includes design costs, construction costs, other professional fees and charges, furniture and fittings, materials handling equipment and a contingency, but does not include the works required for the commercial storage area[152].

159. Subject to Parliamentary approval, the works are scheduled for commencement in mid to late 2000, with a target for all works to be substantially complete and accessible early 2002[153].

160. The Committee questioned Defence about the rigour of the cost estimate for the project. The Committee was advised that Defence were well protected from a cost over-run, with considerations such as environmental constraints on the construction timetable and unfavourable seabed geology taken into account in estimating the cost of the project[154].

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[148] *Transcript*, pp. 7, 65, 133 and 183.

[149] Ibid., p. 135.

[150] Ibid., pp. 110-111.

[151] *Statement of Evidence*, p. 38.

[152] Ibid., p. 38.

[153] *Transcript*, p. 17.

[154] Ibid., p. 77.

161. The Committee also inquired into the money that Defence had spent in enabling the facilities at Point Wilson to be utilised as the interim ammunitioning facility. The response was that there had been six packages of work undertaken at Point Wilson for approximately $2 million dollars[155]. Subsequent advice from Defence confirmed that $2,060,012 has been allocated to the six packages of work at Point Wilson, including professional fees and a contingency[156].

162. Defence also advised the Committee that the importation of explosive ordnance was being considered as part of the Commercial Support Program (CSP). Defence was unable to provide information to the Committee on the likely cost to Defence of this function being undertaken by a successful tenderer. However, Defence stated to the Committee that if the CSP were to increase costs, then Defence would not go down that path[157].

Committee's Recommendation

163. The Committee recommends that the proposed Navy ammunitioning facility, Twofold Bay, NSW, proceed at an estimated cost of $40 million.

[155] Ibid., p. 78.

[156] Letter from Defence to Committee dated 30 March 2000, p. 1 and Attachment.

[157] *Transcript*, pp. 79 and 185.

CONCLUSIONS AND RECOMMENDATIONS

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

1. **The Sydney Ammunition Pipeline has closed. The Navy therefore needs a permanent ammunitioning facility. (Paragraph 16)**
2. **Defence should investigate security system options that ensure the safety of the storage areas and provide value for money. (Paragraph 74)**
3. **If the Imlay Road route is chosen as the preferred route to transport ordnance, Defence should not contribute to the cost of the upgrading of the Imlay Road. (Paragraph 78)**
4. **Twofold Bay is an appropriate location to site the ammunitioning facility due to the natural advantages of a deep bay with a site away from population centres. It also delivers economic benefits to the Navy due to the close proximity to the Fleet base at Sydney Harbour and the Navy exercise area. (Paragraph 88)**
5. **Navy should strongly consider holding a public meeting in Eden every two years to report to the community on the state of the environment surrounding the facility. This meeting should be advertised widely throughout the community. (Paragraph 102)**
6. **The environmental study conducted in relation to this project has been extensive. Provided all recommendations set out in Appendix C are implemented, the impact on the environment will be minimal. (Paragraph 114)**
7. **When moving the expediency motion for the work to proceed, the Minister should provide a guarantee to the House that all recommendations set out in Appendix C will be implemented. (Paragraph 115)**
8. **The Committee recommends that the proposed Navy ammunitioning facility, Twofold Bay, NSW, proceed at an estimated cost of $40 million. (Paragraph 163)**

Hon. Judi Moylan MP

Chair

22 June 2000

A

Appendix A—Witnesses

AVEYARD, Mr John Mark, Chairman, Eden Foundation

BARRY, Mr Garrett John, Director, Building and Planning Services, Bega Valley Shire Council

BEAUMONT, Ms Rosemary Jane, President, Environment Network Inc.

CHARTER, Mr Neil, Marketing Manager, Bombala Council

COX, Commodore Timothy Harvey, Director General, Maritime Development, Department of Defence

ENGLAND, Mr Michael John, Principal, Environment Planning, AGC Woodward-Clyde

FERRARIS, Mr Diego Felice, Project Director, Department of Defence

JOLLY, Captain Richard James

KELLY, Brigadier Garry Ross, Director General, Project Delivery, Department of Defence

KENNY, Mr Andrew James, Economic Development Manager, Bega Valley Shire Council

NAIRN, Mr Gary MP, Federal Member for Eden-Monaro

NORMAN, Ms Susan Jean

PITTY, Mr Hugh Warwick McRae, Co-Founder and Spokesperson, Paddlers for Peace

WEBB, Mr Peter William MLA, State Member for Monaro

YOUNG, Mr Steven Bruce, Project Manager, Gutteridge Haskins and Davey Pty Ltd

B

Appendix B—Associated Drawings

C

Appendix C—Environment Assessment Report

The Hon John Moore MP
Minister for Defence
Parliament House
CANBERRA ACT 2000

Dear Minister

I am writing in regard to the environmental impact assessment of the proposal by the Department of Defence and the NSW Waterways Authority to construct and operate a multi-purpose wharf and naval ammunitioning facility at Twofold Bay, near Eden, NSW.

As you are aware, the proposal has been examined at the level of an Environmental Impact Statement under the *Environment Protection (Impact of Proposals) Act 1974* (Cth) and the NSW *Environmental Planning and Assessment Act 1979* and the environmental assesment of it has been a joint one with close cooperation between my Department and the NSW Department of Urban Affairs and Planning (DUAP).

The assessment process under the Commonwealth Act has now concluded and I consider that matters affecting the environment to a significant extent have been fully examined and taken into account as far as practicable. In particular, there are no environmental reasons, including on safety, hazard or risk grounds, to prevent construction of the proposed facility at Twofold Bay.

I have made a number of recommendations to apply to the proposal in accordance with paragraph 9.3.1 of the Administrative Procedures under the Commonwealth Act. A copy of the recommendations is attached. These have been provided to the NSW Minister for Urban Affairs and Planning, the Hon Andrew Refshauge MP, for actioning.

A copy of my Department's environment assessment report is also attached for your information. I understand that DUAP will advise the NSW Minister separately on the proposal once its consultation with relevant State agencies has been completed and that the report accompanying that advice will be complementary to that of my Department.

Yours sincerely

Robert Hill

PROPOSAL BY THE DEPARTMENT OF DEFENCE TO CONSTRUCT AND OPERATE A MULTI-PURPOSE WHARF AND NAVAL AMMUNITIONING FACILITY AT TWOFOLD BAY, NSW.

ADVICE AND RECOMMENDATIONS UNDER PARAGRAPH 9.3.1 OF THE ADMINISTRATIVE PROCEDURES UNDER THE *ENVIRONMENT PROTECTION (IMPACT OF PROPOSALS) ACT 1974*

It is recommended that the above proposal be implemented in accordance with the following conditions.

Proponent commitments and undertakings

1. The construction and operation of the proposal must be consistent with the undertakings and commitments provided in the *Twofold Bay Multi Purpose Wharf and Naval Munitions Storage Facility Environment Impact Statement* (Draft EIS (November 1999) and Supplementary EIS (March 2000)) and as summarised in Section 23 of the Supplementary EIS. If there is conflict between the undertakings and the recommendations below, the recommendations will take precedence.

Coastal

2. The proponent must establish a program for monitoring of susceptible shorelines, as part of the Operational Environmental Management Plan (OEMP), to verify predictions of no significant changes to coastal processes as a result of the dredged turning basin. This should include photogrammetric analysis undertaken on, at least, a quarterly basis in the first year of operation, followed by annual analysis.

3. The OEMP must included provision for monitoring of potential changes to selected marine assemblages in the Bilgalera Point to Brierly Point shoreline area, to assist in documenting and recording potential changes to coastal processes in this area. This will require baseline surveys to be undertaken, prior to construction, to ensure suitable statistical power for comparison. The design of the study, and reporting requirements, must be to the satisfaction of Environment Australia and the NSW Department of Urban Affairs and Planning.

Dredging

4. Further calibration and refinement of the hydrodynamic model for the current regime of Twofold Bay, and to assist in predictions of the area of effect from dredging

operations, is required. In particular, the model scenarios presented in the SEIS should be re-run, following calibration of the model, to confirm the predictions made. Further analysis is also required of the expected area of effect from dredging, taking into account any revised sediment characteristics determined from ongoing geotechnical sampling to the full dredge depth. The investigations must be completed to the satisfaction of Environment Australia and the Department of Urban Affairs and Planning (DUAP), prior to construction commencing.

5. Dredging operations should occur during the autumn / winter period to avoid the peak migratory / breeding period for Southern Right Whales and Humpback Whales. Approval must be sought from Environment Australia and DUAP if dredging is proposed outside this period.

6 The following mitigation measures should be specified as part of any dredging contract for a trailing suction hopper dredge.

- Use of suitable modern and specialised dredge equipment to minimise turbidity, including the use of a bottom keel hopper overflow discharge;
- Dredging runs should generally conform to a pattern such that dredging commences from the point nearest the shoreline (when the hopper is empty) and proceeds away from the shore as the hopper fills and the draft of the vessel increases (to reduce the effects of propeller wash and to ensure that hopper overflow takes place furthest from the shoreline); and
- Limited hopper overflows (100 per cent overflow by volume) only should be allowed if there is a significant risk to seagrass beds or other inshore environments, as detected by monitoring.

7. Silt curtains should be installed around dredging operations and associated activities in the event of a cutter suction dredge or grab dredge being used. All activities and works associated with dredging operation must be inspected on a regular basis to ensure that pollution of waters outside the boundaries of the silt curtain does not occur.

8. A monitoring program, to ensure that dredging does not result in adverse impacts to sensitive marine communities, must be implemented as part of the CEMP. Monitoring must be frequent and sensitive enough to rapidly detect changes so that dredging practices can be changed, if required. The program should be developed to the satisfaction of Environment Australia and relevant State agencies. In particular, the following requirements must be addressed.

- Establishment of ambient water quality parameters including turbidity, light penetration and chemical indicators at selected sites within and outside the expected 'area of effect', including potentially sensitive receptor sites such as the two *Posidonia* beds at Fisheries Beach and nearby aquaculture sites.

- Continuous monitoring of water quality parameters during dredging to confirm EIS predictions and allow for changes to dredging practices if required.

9. In the event that monitoring indicates that impacts at sensitive marine habitats are unacceptable, a hierarchy of measures which will need to be considered will be:

- no hopper overflow;
- dredging to take place at the greatest distance from the shoreline, or in such a pattern, to mitigate the effects of currents or adverse winds; and
- the use of silt curtains to protect point habitats, such as the *Posidonia* beds.

Fisheries and aquaculture

10. The monitoring program for the aquatic environment, as part of the construction and operational EMPs, must incorporate monitoring to detect the introduction and colonisation of areas by introduced aquatic species.

Marine access

11. Defence must implement an education campaign, prior to operation of the wharf, to explain the safeguarding system at the multi-purpose wharf to regular users of Twofold Bay. This should include clear delineation of the Green Safeguarding Zone on relevant mapping, and development and explanation of procedures to ensure advance notice of restrictions.

12. The display (or not) of International Code Flag B (Bravo) at the yardarm of a Naval vessel alongside at the wharf will constitute sufficient evidence to small craft of ammunitioning operations taking place (or not).

13. Defence must provide an exemption to the restriction on small craft anchoring within the Green Safeguarding Zone during munitioning operations if any such vessel is seeking shelter from adverse weather conditions and the Master of that vessel declares that its safety would be endangered by the refusal of permission to so anchor. Such exemption / permission should be obtainable by radio or other communication with port or Naval authorities or the Harbour Master and, if such a declaration has been made, should not be refused. Notification of the availability of such exemption should be publicised in relevant nautical publications (sailing directions, pilots etc.) and, if practicable, form an annotation on relevant charts.

Other marine issues

14. A ballast water management plan must be developed as part of the multi-purpose wharf OEMP prior to operations commencing. This plan must be prepared in

consultation with the Australian Quarantine and Inspection Service and relevant State agencies, and should include regular sampling of ships' hulls and ballast water of ships using the wharf, as well as annual visual inspections in the wharf area.

15. An oil spill contingency plan must be developed as part of the multi-purpose wharf OEMP prior to operations commencing. The plan must be prepared in consultation with relevant State authorities and detail response measures in the event of small miscellaneous spills at the wharf and a large spill incident. The following elements should also be addressed in the plan:

- information on potential oil spill trajectories and shoreline impact times for varying weather conditions;
- detailed maps of priority areas for protection (for example, intertidal seagrass habitat, important roost sites, estuarine areas, recreational beaches and aquaculture sites);
- deployment of equipment to protect priority areas;
- integration with the existing Port of Eden Plan;
- clear lines of responsibility and reporting;
- inventory of equipment to deal with control and clean-up (including materials held at the wharf for immediate clean-up of minor spills);
- strategies, actions and responsibilities for any clean-up; and
- a regular training and exercise regime.

16. A whale management plan, particularly addressing management measures to avoid impact on Southern Right Whales and Humpback Whales visiting Twofold Bay, must be prepared as part of the multi-purpose wharf construction and operational EMPs prior to construction commencing. The plan must be prepared to the satisfaction of Environment Australia and the NSW National Parks and Wildlife Service. The plan should include a description of movement tracks and key areas used by whales in relation to the development and proposed shipping movements, key habitat needs of adult whales and juveniles in Twofold Bay, and proposed monitoring and mitigation requirements to reduce risks to whales.

17. Monitoring programs aimed at detecting any impacts from construction and operational activities on seagrass and soft bottom benthos, commercial fishing species, biota of sub-tidal and intertidal rocky reefs and Fisheries Creek and Towamba River aquatic habitats and entrances must be prepared as part of the multi-purpose wharf construction and operational EMPs (see also Recommendation 8). The design and methodologies must be approved by Environment Australia and relevant State agencies. Initial baseline sampling for quantitative surveys must commence as soon as possible, to ensure that adequate baseline data is available for statistical comparison

prior to construction commencing. Monitoring of seagrasses should include non-destructive survey of *Posidonia* in East Boyd Bay by habitat mapping, and both mapping and quantitative survey techniques, such as measures of productivity, for areas of Zosteraceae potentially affected by dredging and operational impacts, such as shading from the jetty.

Landforms and soils

18. The proponent shall incorporate in its CEMP, proposed management measures to deal with vegetation clearing, soil excavation and stockpiling in terms of appropriate erosion and sediment controls.

19. The CEMP shall also incorporate procedures to be put in place to manage acid sulfate soils should they be encountered during construction.

Terrestrial flora and fauna

20. Prior to construction, an additional survey shall be undertaken to determine the presence of *Caledenia tessellata, Cyrptostylis hunteriana* and *Phebalium ralstonii* within areas likely to be directly affected by the construction of the development. Should the species be identified, the proponent shall prepare a management plan, in consultation with Environment Australia and the NSW National Parks and Wildlife Service, outlining proposed measures to minimise construction and operational impacts, or if unavoidable salvage / relocation procedures. Destruction, damage, salvage or relocation will require a permit under the *Endangered Species Protection Act 1992* (Cth) and the *Threatened Species Conservation Act 1995* (NSW).

21. Prior to construction, an additional targeted survey shall be undertaken of the identified habitat for the Giant Burrowing Frog (Figures 2.2 and 2.3 of Appendix F of the DEIS). The survey shall be conducted during the optimum breeding season. Should the species be identified, the proponent shall prepare a management plan for the species, outlining proposed mitigation measures to be employed during the construction and operation of the development to prevent significant effects on the species.

Noise and vibration

22. The proponent shall incorporate within the CEMP a Construction Noise Management Plan, prepared in consultation with the NSW Environment Protection Authority (EPA), which addresses the following issues.

- Compliance standards;

- Community consultation;
- A complaints handling and monitoring system;
- Site contact person;
- Noise mitigation measures;
- The design / orientation of the proposed mitigation measures demonstrating best practice;
- Construction times;
- Contingency measures; and
- Monitoring.

23. The proponent shall incorporate within the OEMP an operational Noise Management Plan, prepared in consultation with the NSW EPA, which addresses the following issues.
    - Complaints monitoring;
    - Community liaison;
    - Identification of noise sources;
    - Identifying and implementing engineering and operational methods of noise control;
    - Program to review any new technologies / practices to reduce noise over time;
    - Longer-term strategies; and
    - Monitoring the effectiveness of the above measures with the effected community.

Air quality

24. The proponent shall prepare a dust management plan for incorporation into the CEMP, in consultation with the NSW EPA. The plan shall outline management and mitigation measures to be employed during construction of the development to minimise air emissions associated with earthworks, vegetation clearing and construction.

Visual impacts

25. The proponent must take all available measures to minimise visual impacts of the proposal, including minimal disturbance to vegetation, screening from public areas and minimisation of light spill, as indicated in the proponent's construction and operational EMPs.

Cultural heritage

26. The proponent must ensure that the alignment of the jetty approach road avoids historic sites H2 and PAD2 to the greatest degree possible. Land affected by the alignment selected must be subject to further archaeological assessment, including sub-surface testing, by suitably qualified personnel. Should *in situ* conservation be warranted, according to a threshold test established by the NSW National Parks and Wildlife Service in consultation with the NSW Heritage Office, Environment Australia and the NSW Department of Urban Affairs and Planning (DUAP), the road's alignment must avoid the identified site(s). Should *in situ* conservation not be warranted according to the same criteria, then archaeological salvage must be conducted to the satisfaction of the same authorities.

27. Any disturbance activities in the area around PAD 2, H2 and H5 must be monitored for sites and relics and such monitoring should involve the Eden Local Aboriginal Land Council (ELALC). Should any significant Aboriginal artefacts be discovered in the course of construction works, the proponent must contact ELALC immediately.

28. Archaeological monitoring of construction works, the nature of which would be determined by the results of the aforementioned archaeological assessment, must be undertaken to the satisfaction of the NSW National Parks and Wildlife Service, in consultation with the NSW Heritage Office, Environment Australia and DUAP.

29. If test pitting or monitoring reveals the presence of any Aboriginal relics, then work in that area shall stop and a consent to destroy, under s.90 of the *National Parks and Wildlife Act 1974*, shall be applied for from the NSW National Parks and Wildlife Service.

Traffic

30. The following road improvements, as described in the EIS, must be undertaken.

    - Upgrading of Hut Forest Road to a design speed of 60 km / hr with minimum width of 6.5 m and 1.0 m shoulders.
    - Construction of a Type 'B' intersection at the Junction of Hut Forest Road and Edrom Road.
    - Upgrading and extension of Edrom Lodge Road to a design speed of 60 km / hr with a minimum sealed width of 6.5 m and 1.0 m road shoulders.
    - Relocation and construction of a Type 'B' intersection at the junction of Edrom Road and Edrom Lodge Road at a location 200 m north of the present intersection to improve sight distance.

31. The proponent should enter into negotiations with State Forests of NSW to determine appropriate contributions towards future maintenance of Edrom Road.

Hazards and risks

32. Defence should give consideration to acquiring land out to the Purple Safeguarding Line for the Depot, as opposed to a leasing arrangement, to ensure safeguarding requirements for the 50-year life of the facility.

33. Pre-Construction Studies

At least one month prior to the commencement of construction (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as agreed by Environment Australia and the Department of Urban Affairs and Planning (DUAP), Defence must prepare and submit for approval the studies set out below. Construction, other than of preliminary works, may not commence until approval has been given by DUAP.

(a) *Fire Safety Study*

This study shall cover all aspects detailed in DUAP's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the NSW Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The Plan must also detail arrangements and procedures to ensure that adequate water for fire fighting purposes is available at the Depot, including for external and internal sprinkler systems and filling of tankers during a fire emergency. The study shall also be submitted for approval to the NSW Fire Brigades.

(b) *Hazard and Operability Study*

This study must be chaired by an independent qualified person approved by DUAP. The study shall be carried out in accordance with DUAP's Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'.

(c*) Final Hazard Analysis*

A final hazard analysis must be prepared in accordance with DUAP's Hazardous Industry Planning Advisory Paper No. 6, 'Guidelines for Hazard Analysis'.

(d) *Construction Safety Study*

A Construction Safety Study must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety Study Guidelines'.

34. Pre-commissioning Studies

No later than two months prior to the commencement of commissioning, or within such further period as Environment Australia and DUAP may agree, Defence must prepare and submit for approval the studies below. Commissioning may not commence until approval has been given by DUAP.

(a) *Transport of Hazardous Materials*

This report must address arrangements covering the transport of hazardous materials including details of routes to be used for the movement of vehicles carrying hazardous materials to or from the proposed development. The study shall be carried out in accordance with DUAP's draft 'Route Selection' guidelines. Suitable routes identified in the study shall be used except where departures are necessary for local deliveries or emergencies.

(b) *Emergency Plan*

A comprehensive emergency plan and detailed emergency procedures for the proposed development is required. This plan shall include detailed procedures for the safety of all people outside of the development who may be at risk from the development. The plan shall be in accordance with DUAP's Hazardous Industry Planning Advisory Paper No. 1, 'Industry Emergency Planning Guidelines'. The Plan must also demonstrably meet the requirements of the 'Royal Australian Navy Explosive Ordnance Safety Manual' (ABR 862), as relevant.

(c) *Safety Management System*

A document setting out a comprehensive safety management system, covering all operations on-site and associated transport activities involving hazardous materials, is required. The document must clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to procedures. Records shall be kept on-site and shall be available for inspection by DUAP upon request. The Safety Management System must be developed in accordance with DUAP's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

35. Defence must also implement a 'risk information program' to provide interested parties with an opportunity to consider hazard and risk concerns associated with the facility, including the transport of explosive ordnance. Elements of this program should include community meetings, site inspections, and a point of contact with the public.

36. Twelve months after the commencement of operations, or within such further period as Environment Australia and DUAP may agree, Defence must carry out a comprehensive hazard audit of the proposal and within one month of the audit submit a report to the Departments. The audit shall be carried out at Defence's expense by a duly qualified independent person or team approved by DUAP prior to commencement of the audit. Further audits shall be carried out every three years, or as determined by DUAP, and a report of each audit shall within a month of the audit be submitted to the Departments. Hazard audits shall be carried out in accordance with DUAP's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines'.

Waste management and energy

37. Prior to commencement of operations, the proponent must demonstrate to the satisfaction of The Australian Quarantine Inspection Service and the NSW Department of Urban Affairs and Planning that appropriate arrangements have been put in place for the disposal of quarantine wastes.

Environmental management plans

38. The proponent must prepare a construction EMP and operational EMP, to the satisfaction of Environment Australia and the Department of Urban Affairs and Planning, prior to construction and operations commencing respectively. The EMPs must address all commitments and undertakings made by the proponent for environmental management, and as summarised at Section 23 of the Supplementary EIS. In addition, recommendations 2, 3, 8, 10, 14 – 19 and 22 – 25 must be specifically addressed in the EMPs.

Changes to the proposal

39. Changes to the proposal which may result in additional adverse environmental impacts, whether as a result of design, construction , operation or unexpected circumstances, must be referred to Environment Australia and the Department of Urban Affairs and Planning for consideration under relevant Commonwealth and State legislation.

Compliance with commitments and recommendations

40. The Department of Defence must report to Environment Australia on measures taken, or to be taken, to implement the above recommendations, including the proponent commitments and undertakings referred to at Recommendation 1. This is to be done by way of an initial report prior to construction commencing, and thereafter at six-monthly intervals until all recommendations have been addressed to the satisfaction of Environment Australia.