

Submission No. 01

(Largs North)

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Date: 2/11/2010



**PROPOSED DEVELOPMENT AND CONSTRUCTION OF
HOUSING FOR DEFENCE
AT LARGS NORTH, PORT ADELAIDE
(BAYRIVER)**

Statement of Evidence
To the
Parliamentary Standing Committee
On Public Works



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Proposed development and Construction of Housing for Defence at Largs North, Port Adelaide (Bayriver)

Need for Works

Identified Need

1. There are currently about 740 Defence members with dependents who reside in the greater Adelaide area including the Adelaide hills. The majority of these personnel work at RAAF Base Edinburgh, at Woodside Army Barracks or in CBD locations such as Keswick Barracks.
2. This number of Defence personnel in Adelaide will grow as a result of the relocation of the Seventh Battalion, Royal Australian Regiment (7RAR) from Darwin to Adelaide and also because of increased numbers of Royal Australian Navy personnel expected to be posted to the Air Warfare Destroyer (AWD) project. The current Defence Housing Forecast anticipates a requirement to house up to 1,300 members and their families by 2013/14, and this number will increase further when Navy finalises its numbers for the AWD project.
3. DHA currently manages about 850 dwellings in and around Adelaide and has a large construction program underway, mainly in the northern suburbs of Adelaide proximate to RAAF Base Edinburgh where 7RAR will be located. By June 2014, the portfolio is expected to number more than 1,100 dwellings including those that will accommodate 7RAR families starting in 2011. Private rental accommodation will be used to supplement the DHA portfolio with members housed this way receiving their subsidy in the form of Rent Allowance (RA). The desired level of RA is 15% of the total housing requirement
4. In addition to the absolute increase in its Adelaide portfolio to accommodate 7RAR and an expanded Navy presence, DHA must cope with the 'churn' created by leased houses reaching end of lease and needing to be replaced. While every effort is made to extend leases on suitable houses¹, there remains

¹ In 2006, Defence introduced its New Housing Classification Policy that increased the minimum standard for Defence housing. Some of DHA's portfolio does not comply with the new minimum standard. Leases on these dwellings cannot be renewed, adding to the 'churn'.

a substantial number that need to be replaced by new constructions, additional leases and direct purchases. Land supply for new constructions in the right locations at reasonable prices is thus a prerequisite to a balanced housing supply pipeline. This is the context for the Bayriver development.

5. The proposed Bayriver development at Largs North in Port Adelaide will add to locational diversity and will assist DHA to meet the Defence requirement for some housing to be in higher rent bands to meet the needs of different rank groups in the Australian Defence Force (ADF). The proposed additional houses will also help DHA to maintain RA in Adelaide at the desired level of 15%.
6. Options considered for meeting the need
6. The acquisition of 'broadacre' sites like Bayriver followed by development and construction is DHA's preferred delivery method because of the economies of scale associated with bulk procurement of new constructions, the surety of supply associated with larger development pipelines, and the higher development margins associated with wholesale rather than retail land purchase. This delivery method is even more attractive when the land involved is well-located for Defence families, such as in this proposal.
7. Other options for Defence housing include construction on-base where opportunity presents, the purchase of developed land where available followed by construction, the purchase of suitable established houses, and the direct leasing of suitable housing where possible.
8. There is only limited opportunity in the Adelaide area to construct housing on-base. Additionally, Defence prefers that ADF family housing be provided off-base within the broader community. DHA then depends upon a combination of new construction on developed land (mostly 'greenfield' land in the Northern suburbs), purchase of suitable housing where economically viable and direct leasing wherever possible. In the Adelaide market these alternatives have not been able to keep pace with the Defence housing requirement and the churn created by the need to replace existing houses at end of lease.
9. Bayriver is located in a part of Adelaide that is growing and where there are few 'broadacre' development opportunities. DHA is fortunate to have been invited to

acquire the development rights for this site, which will provide an important benefit to Defence families.

Historical background

10. The Largs North site is owned by the Land Management Corporation of South Australia (LMC). Originally Meyer Oval, the site has been historically vacant. A sulphuric acid manufacturing plant operated on the adjacent Snowden's Beach land (to the east) and tailings and other waste products were deposited across the eastern portion of the site (Supplementary Item 4).
11. In the early 1990s, the property was ear-marked for the now defunct Multi-function Polis (MFP) initiative. Although zoned MFP, the site is surrounded by residential development to the north, south and west. In 2009 the site was identified for affordable housing to be delivered through Housing SA and funded from the Nation Building – Economic Stimulus Plan (NB-ESP). A development approval was fast-tracked by the LMC as a 'Crown development'.
12. However, Housing SA withdrew its support from the initiative because of the difficulty in achieving expenditure within NB-ESP timeframes. Because it is precluded under legislation from selling the land as is, the LMC invited DHA to develop the land on its behalf. Having already expressed interest in a take out from the development, DHA accepted the LMC invitation.

Heritage impact

13. The site is not noted as being an item of heritage significance by the Local Council, and does not appear on State or Federal Heritage Registers.

Environmental impact

14. The site contains no flora or fauna of environmental significance. Originally low lying mudflats, the area was reclaimed in the 1930s using dredging material from the Port Adelaide River. A sulphuric acid plant that operated on the adjacent Snowden's Beach used the eastern part of the site to spread waste from its tailings dam². The western part of the site was developed for recreational purposes in the 1950s and was used for this purpose through until the 1980s (Meyer Oval).

² According to a report prepared for the Land Management Corporation, fill disposed onto the site from the sulphuric acid plant, and the nearby ICI plant, included contaminating materials.

15. At the instigation of the Land Management Corporation of South Australia, 52,000 m³ of impacted fill material was removed from the eastern part of the site in 2004 and backfilled with clean imported fill. Small amounts of contaminated fill associated with easements on the northern and southern boundaries remain in-situ. The southern easement is associated with a sewer main that will be replaced with a new main in the adjacent road reserve. The Land Management Corporation will remove the existing sewer and fully remediate the land. The northern easement is for a high pressure gas mains pipeline. The Environmental Management Plan prescribes appropriate actions to manage this area of contamination including removal of impacted fill over the easement at the start of development or covering the easement with permanent paving material. The site will then be fully remediated.
16. Extensive groundwater investigations have been undertaken by various consultants over the period 1994-2007. These investigations have been supported by groundwater monitoring events from approximately 20 groundwater monitoring wells disposed around the site. While residual contamination remains in groundwater following soil remediation works, a statutory environmental audit determined that groundwater impacts had been cleaned up to the extent practicable and that residual contamination did not present any risk to human health.³

Key legislation

17. The following key legislation is relevant to this project:
 - a. *Environmental Protection and Biodiversity Conservation Act 1999*;
 - b. *Defence Housing Australia Act 1987*; and
 - c. *Building and Construction Industry Improvement Act 2005*.

Impacts on local communities

18. The local community has been briefed on the proposed development and welcomed the positive economic and social impact. At a public forum held on 12 July 2010, concerns were raised about the potential noise impact of the rail

³ Dr Wayne Drew, an Environmental Auditor (Contaminated Land) was appointed pursuant to the Environment Protection Act 1970 (SA) to conduct a Statutory Environmental Audit. He reported on 18 December 2008... 'Overall the site is considered suitable for the proposed land use, ie. residential...subject to certain conditions'. Those conditions are elaborated in his report and relate principally to restrictions on ground water use and ongoing groundwater monitoring.

freight line on the eastern side of the site. Measures to address these concerns are identified under Acoustics on page 11.

Consultation with stakeholders

19. DHA's development of the Bayriver site will be in accordance with the Development Approval (DA) sought by the Land Management Corporation of South Australia (LMC) as owner of the site. In preparation of the DA, the LMC consulted extensively with the City of Port Adelaide Enfield through its Special Projects Group, and the Urban Projects Coordination Group. The DA has been on public exhibition and a representative community forum has been briefed.
20. In addition to the City of Port Adelaide Enfield, organisations consulted in relation to the Bayriver DA include: Department of Transport, Energy and Infrastructure; Environment Protection Authority South Australia, and SA Water. Since acquiring the development rights, DHA has consulted with: Chief of Navy; Director of Relocations and Housing, Department of Defence (see Supplementary Item 5); National Convenor, Defence Families Australia; Commanding Officer, Seventh Battalion, Royal Australian Regiment (see Supplementary Item 6); and Base Commander, RAAF Base Edinburgh.

Purpose of Works

Project location

21. Bayriver is an 8.8 hectare property on the eastern side of the narrow Lefevre Peninsular that separates Port Adelaide from the adjacent Gulf St Vincent. It is 18 kilometres from the centre of Adelaide and 4 kilometres from the vibrant commercial precinct of Port Adelaide. The Australian Submarine Corporation facilities at Osborne are 2 kilometres distant and RAAF Base Edinburgh is 25 kilometres away. Within walking distance on the western side of the peninsular is a continuous stretch of fine, white sand beaches.
22. The property consists of the former 'Meyer Oval Reserve' on Strathfield Terrace in the Adelaide suburb of Largs North. It is bound by Strathfield Terrace to the north, Wandilla Street to the south and Mersey Road (unmade) to the east. It adjoins the Marten Retirement Village positioned immediately to the west. The majority of adjoining development comprises a variety of older detached and semi-detached brick dwellings of modest size and standard, developed by the SA Housing Trust in the 1960s and 1970s. Small pockets of more recent infill redevelopment have occurred to the south-west. Many are now in private ownership.
23. Bayriver lies within a 1 kilometre radius of most local facilities including convenience shopping, schools and public transport. The Port River and Largs North Marina are positioned just to the east. The major commercial/retail facilities for the area are contained within the commercial centre of Port Adelaide which lies approximately 4 kilometres further to the south via Victoria Road with alternate facilities provided along Semaphore Road at Semaphore which lies a similar distance to the south-west.

Project objectives

24. The key objectives for this project are to:
 - d. develop the site for residential housing;
 - e. construct 35 houses for Defence families; and
 - f. sell surplus lots to the general public including for affordable housing.

Project description and scope of works

25. The proposal is for DHA to develop the Bayriver site for residential construction in accordance with a Development Approval (DA) lodged with the Development Assessment Commission of South Australia by the Land Management Corporation of South Australia (LMC). If approved, the site will yield 112 standard lots and 11 medium density lots. The proposal also includes the construction by DHA of detached homes on 35 of the 112 standard lots. The construction of dwellings on the balance of the standard lots and on the medium density lots is not part of the proposal. A copy of the subdivision plan is at Supplementary Item 7.

Details and reasons for site selection

26. DHA was offered development rights for Bayriver after Housing SA withdrew its support for a proposal to develop the site for affordable housing under the Nation Building – Economic Stimulus Plan. DHA has worked closely with the LMC in connection with the land required to support a large construction program for 7RAR and the replacement of dwellings with expiring leases and had previously expressed interest in acquiring lots from Bayriver. While the majority of 7RAR housing is in the northern suburbs of Adelaide, Bayriver will provide an attractive alternative, especially in the higher rent bands that Defence requires. Bayriver is also very close to the Osborne facilities of the Australian Submarine Corporation where up to 100 personnel from the Royal Australian Navy may eventually work on the Air Warfare Destroyer and submarine projects.
27. Under its agreement with the LMC, DHA will develop the Bayriver site. In exchange for the right to develop and sell the 123 lots, DHA will pay LMC a development rights fee that includes the lots to be purchased by DHA. Ownership of lots in the development remains with the LMC until transferred to DHA (for lots that it purchases) or until sold to third parties. Under the agreement with the LMC, 15% of the lots must be sold as affordable housing. The agreement with the LMC also includes a revenue share arrangement for revenue above an agreed threshold.

Public transport

28. The area is moderately well served by public transport (bus and rail). There are four bus stops within a 400 to 500m walking distance of the Bayriver site. A bus route to/from the city services these stops every 30 minutes Monday to Friday and every 60 minutes at other times. The Draper Street train station on the Outer Harbour to City line is located within 800m walking distance of Bayriver. It is serviced every 30 minutes Monday to Friday and every 60 minutes at other times.

Local road and traffic concerns

29. The Bayriver street layout has been planned in accordance with the Port Adelaide Enfield Council Development Plan. The street layout:
- Promotes Strathfield Terrace as the primary access road (three access points) with limited access off Wandilla Street to the south;
 - Provides street lengths of less than 200m except for the local road running parallel to Wandilla Street; and
 - Provides street widths of 7m in road reserves of 15m width, as appropriate for expected traffic volumes of 2000 to 3000 vehicles per day.
30. The Port Adelaide Enfield Development Plan prescribes a minimum of two on-site car parking spaces for detached, semi-detached and 'row-dwellings' of up to 3 bedrooms and one covered car parking space for group dwellings and residential flats. The Bayriver development will meet these minimum requirements. Furthermore, the development will comply with Council requirements in respect of visitor parking using a combination of on-site and street parking.

Zoning, local approvals and land acquisition

31. The Development Application (DA) responds to the specific requirements of this classification but seeks a residential zoning outcome consistent with surrounding residential development. The DA is framed accordingly. The DA acknowledges the presence of industrial sites to the north and east and provides for an open space buffer along the eastern boundary pending clarification of the future use of these areas.

32. DHA is not acquiring the Bayriver land which will remain in LMC ownership until lots are sold, including those that will be acquired by DHA. Instead, DHA is acquiring development rights including the right to retain the proceeds of sale of the 123 lots that will result from the development subject to a profit-sharing arrangement above an agreed threshold.

Planning and design concepts

33. The subdivision plan (Supplementary Item 7) incorporates a variety of medium and higher density 'standard lots' ranging between 189 and 571 m². The plan also identifies a number of 'super lots' as being retained for the development of higher density semi-detached dwellings or for the establishment of multiple terraces. These lots have site areas ranging from 960 to 2582 m² with individual allotment configuration and orientation varying through the site.
34. DHA expects that designs tendered for its dwellings will be contemporary using a mix of different external materials and finishes with a view to diversity in the DHA housing in the Bayriver estate. Typical DHA housing typologies are at Supplementary Item 8.
35. The Bayriver development is to provide 15% of dwelling outcomes to meet 'affordable housing' requirements including high needs housing that will be owned by the Affordable Housing Trust. As an indicative outcome, it is expected that a total of 18 affordable housing solutions will be disposed across the development; six will be standard lots with the balance to be in the larger unit or super lot (terraces) sites.

Structural design and civil works

36. All design and construction works carried out as part of this project will comply with or exceed Local Government, State and Federal Government controls and requirements, and all housing works will meet the requirements of the Building Code of Australia.
37. Civil works will be certified by the Port Adelaide Enfield City Council. All building construction requiring certification will be undertaken by approved Private Certifiers and all contractors used for civil works and construction of houses will be accredited by the Federal Safety Commission.

Utilities, stormwater, soils and flood control

38. High voltage power supplies and appropriate gas and telecommunications infrastructure are available at site boundaries. Sewerage and potable water facilities are also available on or at the boundaries of the site.
39. The Bayriver development will not seek to harvest stormwater. The relative volume of stormwater run-off generated on the site and the technical difficulties associated with groundwater quality combine to make harvesting of stormwater not viable. However, it is a general requirement under South Australian legislation that new construction housing incorporate a minimum 1000L water tank for harvesting rain water from 50% of the available roof area. The DHA dwellings will comply with this requirement.
40. The site was originally in an area of low lying mudflats that were reclaimed using dredge material from the Port Adelaide River. In the period of the 1950s-70s, the eastern two thirds of the site was covered with contaminated fill material from nearby industrial sites. This area was subsequently remediated to the extent practicable with 52000 m³ of contaminated soil being removed and replaced with 'clean' fill. Some contaminated fill will remain on an easement on the northern boundary of the site associated with a high pressure gas mains pipeline. This contaminated fill is expressly dealt with in the environmental audit and management plan and subject to management in accordance with the EMP, does not constitute a risk to use of the site for residential purposes.
41. The site is not prone to flooding under normal climatic conditions. The DA acknowledges that development controls imposed by Port Adelaide Enfield Council require a land elevation of 2.4m above the Australian Height Datum (AHD). The DA proposes that the majority of building lots will meet this criterion without committing to this height datum across the whole site, based on the minimum elevations required to meet stormwater flooding requirements.

Electrical services, fire protection and home security

42. Houses constructed for DHA will conform to Australian standards and the Building Code of Australia. Combined security / insect screens will be fitted to all external doors, including sliding doors, and security screens will be fitted to all opening windows in accordance with Defence requirements.

Acoustics

43. The eastern boundary of the site is proximate to a freight rail line, with a light industry zone some distance further to the East. The site is separated from the rail line by a road reserve of at least 60 metres width to provide an acoustic buffer. In addition, in the detailed design phase, DHA will seek options for a dirt mound to be built along the line of the Mersey Road to the East of the site, and an acoustic attenuation wall along the eastern boundary of the site. The former is subject to Government approvals. The acoustic wall option will be constructed if the mound is not approved.

Landscaping

44. The DHA Performance and Design Requirements (Supplementary Item 9) will deliver private outdoor spaces for individual lots that either meet or exceed the space requirements of the Port Adelaide Enfield Development Plan. Landscaping of these spaces will be in accordance with the DHA Specification using native plant species appropriate to the Adelaide climate.

Water and energy conservation measures

45. Reduction of demand on the potable mains supply by DHA houses will be achieved through a combination of water efficient shower heads, flow regulators to basins and sinks, and dual-flush toilet cisterns. As noted earlier, it is also a requirement under South Australian legislation that new construction housing incorporate a minimum 1000L water tank for harvesting rain water from 50% of the available roof area. The DHA dwellings will comply with this requirement.
46. DHA constructed dwellings will comply with DHA's Performance and Design Requirements (see Supplementary Item 9). In particular, these dwellings must achieve a minimum six-star Energy Efficiency Rating (EER) as certified by an independent accredited assessor, using NatHERS or other equivalent method.

Demolition and disposal of existing structures

47. There are no existing structures on the site.

Zone planning

48. The Port Adelaide Enfield City Plan 2010-2016 provides five goals to guide the development of the city as follows:

- A strong and sustainable local economy;
- A vibrant and attractive City, well planned and accessible, with safe and healthy places to live, work and play; ,
- Natural and urban environments: clean air, soil, water and biodiversity;
- A healthy and connected community that supports and values people, culture and place; and
- Committed and accountable governance.

49. The LMC Development Approval (DA) application for Bayriver reflects the above goals. The development of 123 lots and construction of dwellings and the families who will occupy them will contribute to an expanding local economy. The site has been remediated and declared safe for residential purposes and will provide for open spaces for recreation and community use. Pedestrian and cycle traffic will be encouraged. The DA requires a high standard of building design with variety in dwelling type, and many directly addressing the open space to encourage safety and security.

Provisions for people with disabilities

50. In accordance with Defence policy, Defence families with special needs will be taken care of by either modifying existing homes, or by renting properties that are already modified or that can be modified to meet the particular requirements of the family. This approach reflects the reality that the number of houses needing to be modified is few in number. For example, in the Adelaide portfolio of some 800 dwellings, 18 (less than 3%) have been modified to accommodate families with special needs.

51. For this project, DHA will meet the Silver Level of the Government's Livable Housing Design Guidelines⁴ on the 35 dwellings to be constructed by DHA. Under the Guideline, the Silver Level will provide for:
- g. a safe and continuous pathway from the street and/or parking area to the entrance of the dwelling;
 - h. at least one level entrance to the dwelling;
 - i. comfortable and unimpeded movement within the dwelling;
 - j. a step free shower recess; and
 - k. shower, bath and toilet walls to be reinforced to provide fixing surface for the safe installation of grab rails.

Community facilities, childcare and schooling

52. The Bayriver site is well served by nearby social infrastructure. The major commercial/retail facilities for the area are at Port Adelaide/Semaphore which is approximately 4km to the south of Bayriver via Victoria Road. The Adelaide CBD is only 18km away.
53. The proposed development includes an open space buffer along the eastern boundary and a modest central reserve or open space, the detailed design of which will be undertaken in conjunction with the Port Adelaide Enfield Council. The preliminary concept makes provision for a mix of play areas including an active 'kick-about' space, playground and passive spaces (See Supplementary Item 7).
54. The Bayriver area has sufficient places in child-care centres, primary and secondary schools to accommodate this development. In particular, there are four child care centres on the peninsular to the north of Bayriver and several more in the vicinity of Port Adelaide and Semaphore to the south. The Ocean View College is a public school (K-12) located less than 2km from Bayriver and a K-7 Catholic primary school (Our Lady of the Visitation) is less than 1km away on Victoria Road.

⁴ The Livable Housing Design Guidelines are published by the Department of Families, Housing, Community Services and Indigenous Affairs at <http://www.fahcsia.gov.au/sa/housing/pubs/housing/Pages/LivableHousingDesignGuidelines.aspx>

Occupational health and safety measures

55. Development and construction for DHA-led projects of this magnitude are governed by the requirements of the Federal Safety Commissioner (FSC). Industrial safety will be enhanced with all contractors required to be accredited by the FSC.

Cost-effectiveness and public value

Outline of project costs

56. The estimated overall project cost is \$38.2 million including GST and the cost of land. The cost of the project will be met from DHA equity and debt funding and will be recovered through sale of individual lots and the sale of DHA constructed housing through its Sale and Lease Back program.

Details of project delivery system

57. The civil and infrastructure works for the site will be put to a public tender and tenderers will be required to meet DHA's code and performance requirements. The tenderers will be required to provide a fixed price lump sum tender for the works.
58. Construction packages for DHA dwellings will be contracted on a fixed price lump sum basis to a select panel of builders who will have been successful in addressing the selection criteria from a publicly advertised open call for expressions of interest. The successful construction tenderer will be required to comply with the DHA Performance and Design Requirements (Supplementary Item 9), and with architectural guidelines aimed at delivering homes that are sympathetic to the general character of the area.

Construction schedule

59. Subject to Parliamentary approval by February 2011, the significant milestones to achieve completion of the project by December 2012 are:

| Date | Milestone |
|------------------------------|-------------------------------|
| February 2011 | PWC Approval |
| April 2011 | Commence Civil Construction |
| October 2011 | Complete Civil Construction |
| November 2011 | Commence Housing Construction |
| January 2012 to October 2013 | Settle Land Sales |
| December 2012 | Complete Housing Construction |

Public value

60. This proposal will contribute 'public value' by adding to the stock of housing used to meet Defence obligations to members of the Australian Defence Force and their families, enhancing key objectives for retention of personnel. More broadly, Bayriver will bring to the South Australian housing market additional developed lots including a proportion ear-marked for affordable housing initiatives.

Revenue

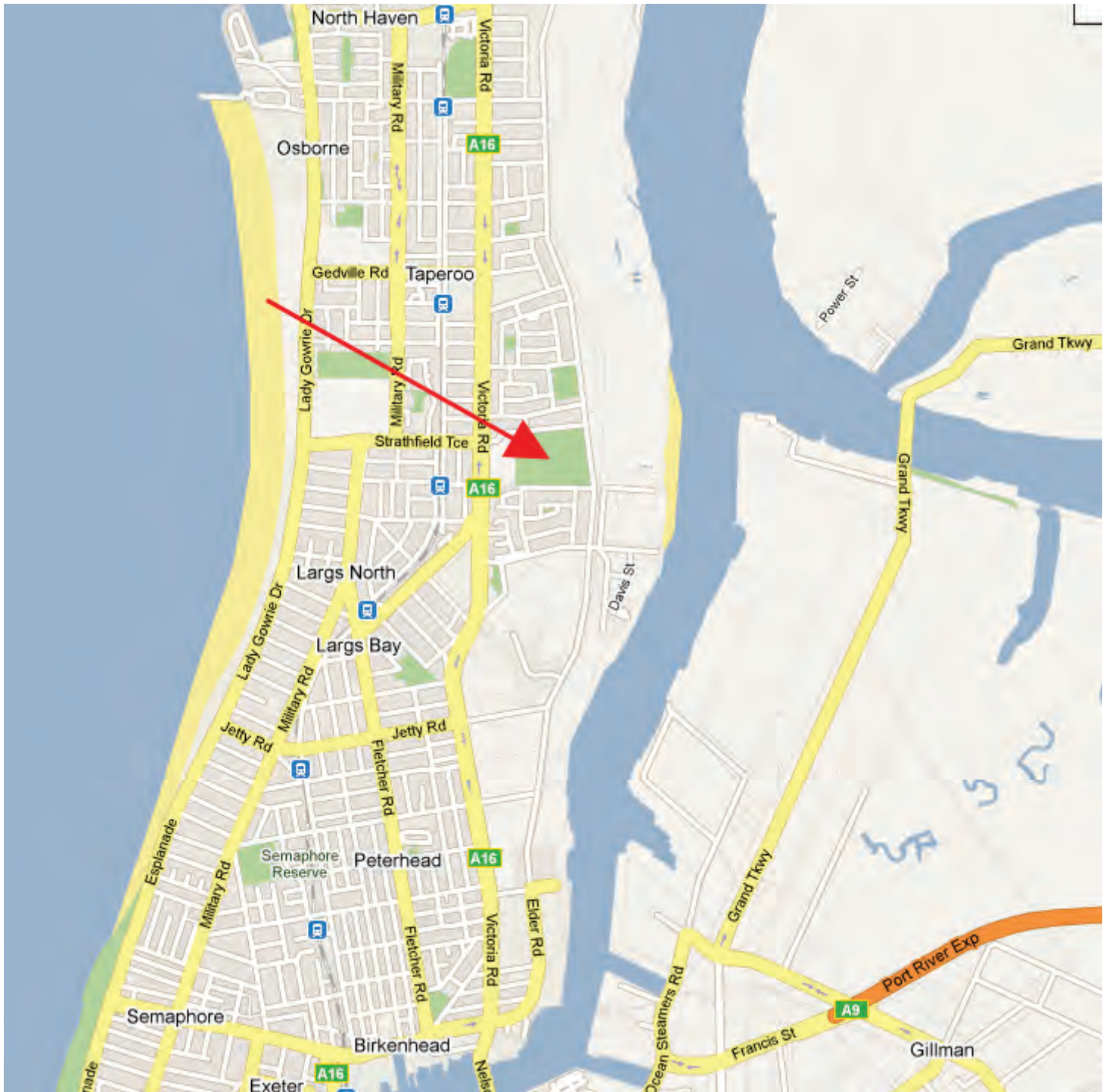
61. Details of the financial aspects of the project are included in a separate commercial in confidence briefing to the PWC (Submission 1.1).

Supplementary information

- Item 1 Site location map
- Item 2 Satellite image of site
- Item 3 Aerial image of site
- Item 4 Site and immediate surrounds
- Item 5 Letter from Director Relocations & Housing
- Item 6 Letter from the 7th Battalion
- Item 7 Sub-division plan
- Item 8 Typical housing typologies
- Item 9 Design and construction specifications for DHA residences

Supplementary item 1

Site location map



Supplementary item 2

Satellite image of site



Supplementary item 3

Aerial view of site



Supplementary item 4

Site and immediate surrounds



- Meyer Oval Remediation Project Area
- Snowden's Beach Remediation Project Area
- Former Drainage Channel
- E** Site Areas

Reference: Resource and Environmental Management, *Final Report, Meyer Oval*



Supplementary item 5

Letter from the Director Relocations & Housing



Australian Government
Department of Defence
Defence Support Group

Minute

Director Relocation & Housing
Personnel Support Services
Campbell Park Offices (CP3-7-035)

DRH/OUT/2010/157

Bryan Slattery
National Capital Portfolio Manager
Defence Housing Australia
26 Brisbane Street
BARTON ACT 2600

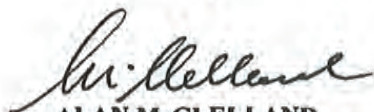
LARGS NORTH, SOUTH AUSTRALIA – DEFENCE HOUSING AUSTRALIA

Thank you for making available DHA staff in South Australia to accompany me during my visit to the Largs North, Adelaide, on 26 May 2010. While I understand there are concerns about the amount of heavy industry in the area, I am satisfied the housing site offers benefits to Australian Defence Force (ADF) members posted to the area.

The proposed estate will fit in well with other recent developments in the area. The site is well located for members posted to the Australian Submarine Corporation and RAAF Base Edinburgh. I was reassured that contamination of the ground in the area has been remediated and this work was independently supervised and audited.

I am pleased to support DHA plans to develop the proposed site for Defence housing for ADF members. My point of contact for this matter is Guy Taylor (telephone 6266 4183) or email: guy.taylor@defence.gov.au.

Yours sincerely,



ALAN McCLELLAND
Director Relocations and Housing

27 May 2010

Supplementary item 6

Letter from the 7th Battalion



7th Battalion
 The Royal Australian Regiment
 Binh Ba Lines
 Robertson Barracks
 PALMERSTON NT 0832

Mr Peter Howman
 Chief Operating Officer
 Defence Housing Australia
 26 Brisbane Avenue
 BARTON ACT 2600

Dear Mr Howman,

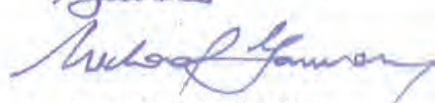
LARGS NORTH DEVELOPMENT - ADELAIDE

Thank you for the opportunity to comment upon the Largs North development. As the Commanding Officer of the 7th Battalion I am satisfied that DHA is catering for our requirements, on gross figures your staff are well ahead of our growth into Adelaide. I am however, very supportive of the proposal for Largs North.

Housing is a critical issue for the 7th Battalion Group in the Adelaide area. The high proportion married quarters in the outer northern suburbs is a limitation for service couples who would otherwise choose to live closer to the city either in married quarters or in private rental accommodation. The latter situation is undesirable as it requires service members and their families to occupy temporary accommodation while they search for suitable housing. Members may also be required to change rental accommodation during their posting tenure. This can be at considerable additional cost to Defence.

Largs North will provide easy access to the CBD for spouses in professional employment, and will provide a great lifestyle choice for those who do not consider proximity to Edinburgh as their highest priority. The proposed site has easy access to community facilities such as schools, shops and public transport. I do not consider the distance to Edinburgh to be prohibitive to the 7th Battalion Group members, rather, I consider it to be a proposal that will provide balance to the overall geographic mix and greater choice for members.

I am informed that DHA propose to construct 30 Rent Band 2 and five Rent Band 3 Service Residences. The Largs North development will complement the proposed Elizabeth North site which will be mainly Rent Band 1 residences. I am confident that the accommodation DHA proposes to construct will be very popular with Army families. It will greatly assist Defence meeting its obligations to provide community standard housing for Defence families.

Regards


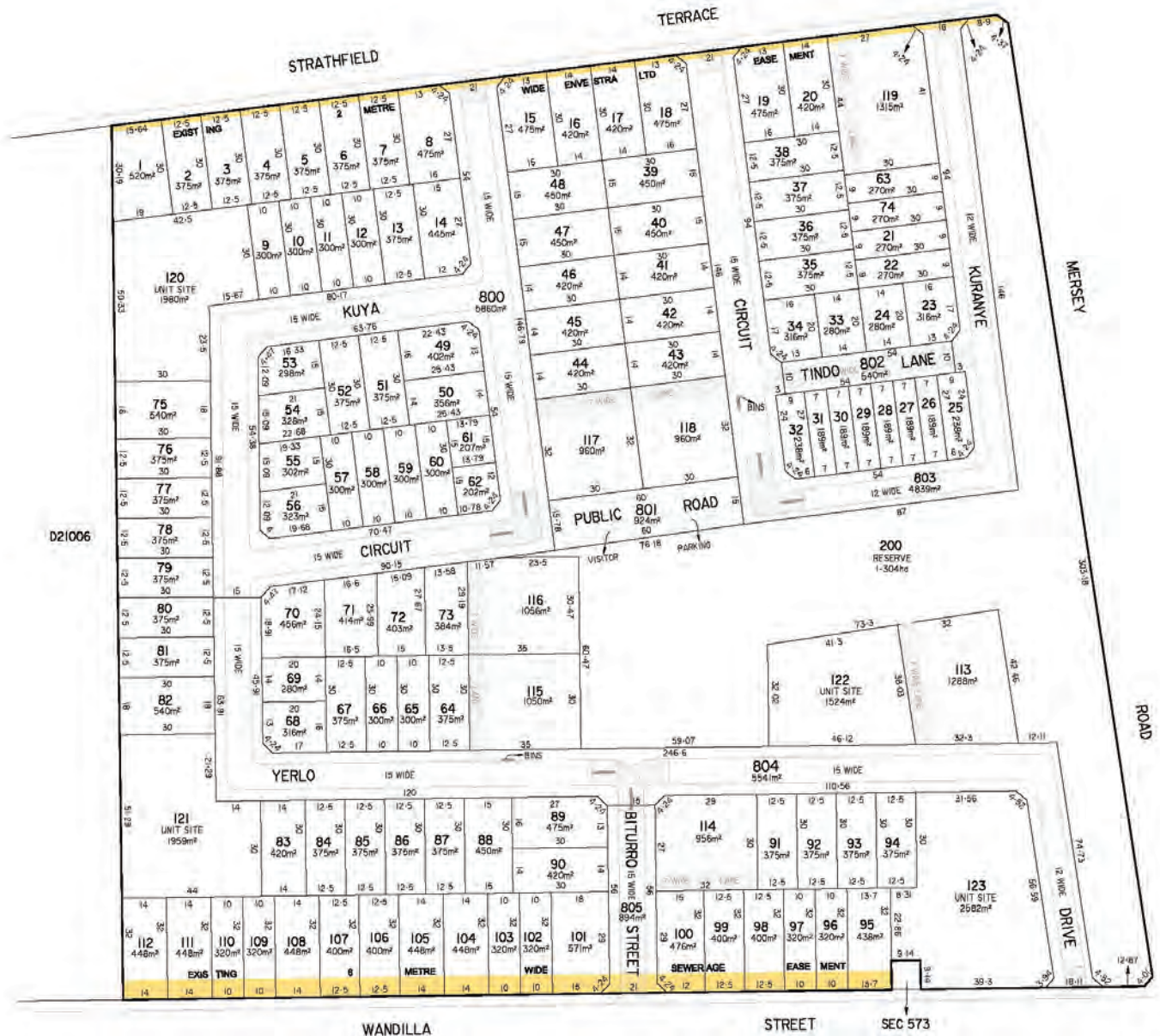
M.E. GARRAWAY
 Lieutenant Colonel
 Commanding Officer

24 May 2010

(08) 8935 3254

Supplementary item 7

Sub-division plan



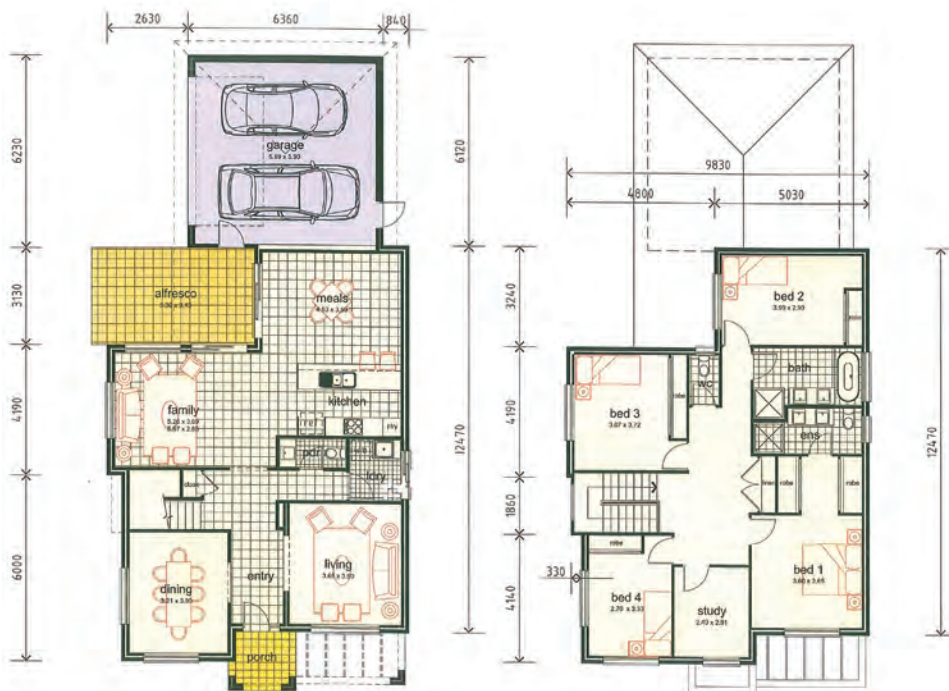
Supplementary item 8

Housing typologies



front elevation no balcony

front elevation no balcony



side elevation no balcony



front elevation no balcony

Supplementary item 9

Performance and design requirements



DESIGN AND CONSTRUCTION SPECIFICATION FOR DHA RESIDENCES

Version 3.3 Aug 2009

Introduction

This document contains the guidelines and requirements for construction of houses in standard (low) and medium density developments. This document does not address project specific requirements, which are addressed in Tender documentation.

Design and construction specification for DHA residences

| VERSION | RELEASE DATE | NOTES |
|-------------|---------------|--|
| Version 1.1 | October 2007 | Original |
| Version 2 | January 2009 | Corrections and revisions |
| Version 2.1 | February 2009 | Amended for clarification page 21 Garage and Storage |
| Version 2.2 | February 2009 | Amended for clarification (various clauses) |
| Version 3.0 | April 2009 | General review all clauses |
| Version 3.1 | April 2009 | Re-added regional requirement Darwin, Tindal and Alice Spring eaves increased to 900 mm |
| Version 3.2 | June 2009 | General revision following review of version 3 within DHA and by builders |
| Version 3.3 | Aug 2009 | Reorganise content, revise document name (Document was "Performance & design requirements for construction of DHA residences"), content also modified. |

Approvals

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|---|--|
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Design and construction specification for DHA residences
1000 PRELIMINARIES
1010 DEFINITIONS - ROOMS, AREAS, SPACES

The definitions of rooms, spaces or areas are listed in the chart below. Requirements that vary by regional location are noted; refer to section on mandatory regional requirements.

| BEDROOMS | |
|----------------|---|
| Bedroom 1 | largest bedroom |
| Other Bedrooms | bedrooms numbered 2, 3, etc. |
| LIVING AREAS | |
| Kitchen | separate room, can be open plan with Dining or with Meals |
| Meals | open plan area adjacent to Kitchen |
| Family | separate from Dining and Lounge rooms, can be open plan with Meals |
| Dining | separate room, can be open plan together with Kitchen and Lounge |
| Lounge | separate room, can be open plan with Dining |
| Entry | entry space from front door not opening directly into living areas |
| Hallway | internal access and circulation space |
| Study | separate room or alcove |
| Rumpus (Games) | separate room, in addition to other living areas |
| WET AREAS | |
| Bathroom | separate room with bath and separate shower recess, hand wash basin in vanity unit, close to bedrooms |
| Ensuite | separate room directly accessible from Bedroom 1 |
| Powder Room | separate room with a toilet and wash basin provided in two storey houses |
| Toilet | separate room for toilet only, adjacent to bathroom |
| Laundry | space for washing machine, tub, dryer and cupboard |
| STORAGE | |
| Garage | fully enclosed secure area for car parking |
| Carport | under cover area for car parking, may be secured, may be partially enclosed |
| Shed | waterproof, lockable, located in secured Fenced Yard |
| Storage | secure area within Garage where a Garage is included, or secured area adjacent to Carport where a Carport is included |

Design and construction specification for DHA residences

| OUTDOORS | |
|----------------------------|--|
| Front Yard | area facing the address or side street(s), with main pedestrian and vehicular entries and driveway with plant beds (garden) |
| Covered Outdoor Area (COA) | paved area accessible from daytime living areas, behind fences |
| Fenced Yard | contiguous area secured behind fences and gates, with COA, location for utilities, with plant beds (garden), but excludes services, and Shed (where provided). |

1020 STANDARDS

The Contractors must comply with all applicable national, state or local requirements. All design and construction activities must comply with, but are not limited to, the requirements of:

- o Building Code of Australia (BCA) and the Deemed to Satisfy provisions;
- o Australian Standards (AS and ASNZ) relevant to the work;
- o State or Territory, Local Authority and Statutory Requirements;
- o House Building Certification Fund, owners and Contractors contributions;
- o National code of practice for the Construction Industry;
- o Building and Construction Industry Improvement Act 2005
- o Utility companies – power, water, gas, telecommunications; and
- o Specific estate design guidelines, encumbrances and covenants.

All houses must achieve a minimum 5 star Energy Efficiency Rating (HER) as certified by an independent accredited assessor, using AccuRate (NatHERS replacement) or other equivalent method (e.g. state systems such as BERS Pro), or where permitted, BCA Deemed-to-Satisfy Provisions.

1030 HOUSE LAYOUT

Rooms, spaces and areas must be oriented and connected to allow their most functional and efficient use. The spatial arrangement of rooms and their fit-out must also ensure ease of furniture removal, particularly for large items (beds) in double storey houses.

1040 MINIMUM SIZES - ROOMS, AREAS AND SPACES

The rooms, areas and spaces or their components that have mandatory minimum

Design and construction specification for DHA residences

sizes are listed in the following tables.

All dimensions in this section are measured internal plate to plate unless otherwise stated.

1041 MANDATORY REQUIREMENTS LOW DENSITY

| NAME | REQUIREMENT(S) | MIN DIMENSION (mm) | MIN AREA (m ²) |
|---------------------------------|---|----------------------------|----------------------------|
| BEDROOMS | | | |
| Bedroom 1 | must fit a queen size bed & side tables (area is exclusive of BIR or WIR) | none stated | 15 |
| Wardrobe Bedroom 1 | hanging depth hanging length (refer Appendix 1 for details) | 700 3000 | none stated |
| Other Bedrooms | must fit single bed & side table (area is exclusive of BIR) | none stated | 9 |
| Wardrobe Other Bedrooms | hanging depth hanging length (refer Appendix 1 for details) | 600 1500 | N/A |
| LIVING | | | |
| Kitchen | refrigerator space clear of all obstructions e.g. skirtings | W 1000 H 2000 | Not stated |
| Dining | Must fit a table and seating for at least 6 people | none stated | none stated |
| Lounge | Must enable seating for at least 5 people plus entertainment unit and coffee table | none stated | none stated |
| Study | Must fit a (computer) desk, chair and bookshelf | none stated | none stated |
| STORAGE | | | |
| Garage single | 1 car space | D 6000 | 21 |
| Garage double | 2 car space inclusive of Storage Distance from wall to wall Distance from wall to engaged pier Depth | W 6000 W 5890 D 6000 | 36 |
| Carport single (Darwin only) | 1 car space | D 6000 | 21 |

Design and construction specification for DHA residences

| | | | |
|----------------------------|---|-------------|-------------|
| Storage | -function obvious. | none stated | 9 |
| OUTDOORS | | | |
| Fenced Yard | measured from house wall to boundary line, excludes sheds and services nominated locations in Sydney | 2000 | 35 |
| | | 2000 | 25 |
| Covered Outdoor Area (COA) | must fit table and chairs for 4 to 6 people plus BBQ. -in locations south of Tropic of Capricorn -in locations north of Tropic of Capricorn | none stated | 15 |
| | | | 20 |
| Driveway | Minimum area to enable safe access to the garage door(s) and must accommodate 1 (one) car parked on the driveway within the block. | none stated | none stated |

1042 MANDATORY REQUIREMENTS MEDIUM DENSITY

Requirements for low density apply, with the following changes:

| NAME | REQUIREMENT(S) | MIN DIMENSION (mm) | MIN AREA (m2) |
|--------------------------------|--|--------------------|---------------|
| OUTDOORS medium density | | | |
| Covered Outdoor Area (COA) | Must fit table and chairs for 4 people plus BBQ | Not stated | 10 |
| STORAGE medium density | | | |
| Utility Cupboard(s) | Replaces Coat cupboard and has multiple uses (coats, brooms) | W 800 | Not stated |
| Storage near car accommodation | Shed or fully secured, waterproof area with lighting and lockable gate | Not stated | 9 |

1043 MANDATORY REQUIREMENTS ON MILITARY BASES

Requirements for low density apply, with the following changes:

Design and construction specification for DHA residences

| NAME | REQUIREMENT(S) | MIN DIMENSION (mm) | MIN AREA (m ²) |
|-------------------------------|--|--------------------|----------------------------|
| LIVING | | | |
| Lounge | Lounge must enable seating for at least 5 people plus entertainment unit and coffee table. | Not stated | Not stated |
| Dining | Dining must fit a table and seating for at least 6 people | Not stated | 6 |
| Lounge/ Dining combined | Combined room must fit lounge furniture and dining furniture as detailed above | Not stated | 21 |
| Meals | Meals must fit a table and seating for at least 6 people | Not stated | 5.7 (but not >15) |
| Study | Must fit a (computer) desk, chair, cabinet and bookshelf | none stated | none stated |
| Family | Family room must fit lounge seating for four people and television contained in a medium sized wall unit | Not stated | 11 |
| Family/Meals combined | Combined room must fit Meals furniture and Family furniture as detailed above | Not stated | 15 |

Notes to this table:

Add 1m² to minimum area requirements for each entrance into a room.

Add 1m² to minimum area requirements to any room with wall mounted heaters.

2000 DESIGN GUIDELINES

In this section, design guidelines are set out. Design guidelines are items that are preferred by DHA, but not obligatory.

2010 HOUSE LAYOUT

South of Tropic of Capricorn

- o main daytime living areas oriented towards the north to allow maximum sunshine penetration in winter and summer shade. [COA] should not compromise the sunshine into indoor living areas;

Design and construction specification for DHA residences

- western walls are shaded and west facing windows are avoided or shaded; and
- Fenced Yard receives sun and or shade as necessary for optimum use throughout the year.

North of Tropic of Capricorn

- minimise sun into interiors and onto house walls with eaves, awnings, covered outdoor area and plants;
- maximise natural cross ventilation with design and placement of windows;
- ensure landscape treatments promote breezes into the house; and
- Fenced Yard to receive shade as necessary for optimum use throughout the year.

COA design and materials should ensure:

- sunlight (light and heat) is not obscured from interiors;
- design / ventilation prevents heat build up under roofing;
- lighting is adequate for cooking and dining.

Internal spaces should take advantage of any views and vistas. The landscape should enhance any existing views and create outlooks from each daytime living room.

2020 HOUSE ORIENTATION

Placement of the house on the site should consider:

- the most efficient and functional use of the site for provision of required internal and external spaces;
- suit the local climate, and property microclimate;
- minimise earthworks (cut and fill) and avoiding cut to export soil; and
- minimise the need for active heating and cooling systems;
- harmony with existing street and locality setbacks;
- front entry forward of the garage wherever possible;
- visual privacy to indoor spaces, COA and Fenced Yard;
- solar access internally and to outdoor living areas, with overshadowing of or by neighbouring development avoided where possible; and
- plant root zones with sufficient space for trees in each block.

2030 FENCED YARD

Fencing should provide visual privacy and does not adversely impact solar access

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to adjacent properties. The visual impact of fences should be minimised with plants in beds beside fences.

If services are located externally they should be collocated and placed to minimise sound and visual impact to the household and neighbours.

2040 STREETScape

Individual house frontage and garden design should meet the following general requirements:

- contemporary in style -not have faux, 'add-on' or 'period' features;
- keep with the architectural expression in the locality;
- building scale and mass suitable to the street and neighbourhood;
- letterbox should suit the house, and where possible conceal services;
- landscape setting to be dominant over the pavements or the garage; and
- trees to give shade and character.

Multiple house construction within a street should have variation in:

- built form
- exterior façade
- textures, colours and materials used.

Variation of the street facade may be achieved through expressed structures, feature windows, shading elements, front verandahs and entry porches.

2050 LANDSCAPE

The landscape design should meet the following general requirements:

- compliment the architectural style of the house;
- enhance the front entry area;
- contribute to the streetscape;
- low water use plants for regions south of Tropic of Capricorn;
- integrate with existing neighbouring properties;
- ensure clear lines of sight from the house entry to the street;
- reduce overlooking into adjoining properties;
- screen fences with plants;
- screen utility areas;
- provide trees to give shade; and
- allow winter sun in southern climates to children's play/lawn area.

Design and construction specification for DHA residences

2060 SUSTAINABILITY

Contractors are encouraged to adopt as many principles of sustainable design as possible. Some methods in building in an energy efficient house are:

Heating/Cooling

All elements of the design and construction (layout, orientation, interiors and landscape) should be integrated and suited to the site to minimise the need for active heating and cooling.

Insulation

Insulation to wall and ceiling cavities and slab or sub-floor spaces along with draught exclusion.

Thermal mass

In cool climate regions, select areas of floor and wall surfaces can act as thermal 'banks' to provide thermal stability and in cooler localities can absorb and re-radiate solar energy in the cooler months. The placement of windows and shading devices as well as the selection of interior materials and finishes can be designed to enable this effect.

Shade

The eaves overhang can be constructed to admit winter sun into the house while excluding summer sun. Pergolas or trees can reduce heat gain in summer but permit light all year round.

Ventilation

Maximise cross ventilation to ensure breezes flow through the house by locating operable windows to capture prevailing breezes. This is particularly important in the tropical regions.

Light

Maximise natural day light into the house and minimise the use of artificial lighting during the day by location and size of windows. Use low wattage light fittings.

Water

Sustainable use of water means reducing the use of potable water and facilitating water to soak into the ground (gardens and lawns) wherever possible.

3000 TRADES SECTION

All preliminary tasks, such as site works and provision of temporary power or water, are to be undertaken without additional costs to DHA. The Contractor is expected to be familiar with the site physical conditions and subsurface conditions.

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Temporary fences must include the adjacent public land (verges) except where they have been developed (paths and landscape works) or they are required for public access. The work site is to be securely locked at all times when workers are not present. All activity and all materials storage must be within the fenced area.

3010 SITE CONSTRUCTION**3011 GROUNDWORKS**

The Contractor must not disturb or damage any land outside the block boundaries. Healthy existing trees on the block that have been retained as part of the estate development should be retained wherever possible.

Excess earthworks are to be avoided. The Contractor is expected to strip and stockpile, for later re-use, the existing site topsoil as part of the site works and remove vegetation from the topsoil prior to both earthworks and prior to re-use.

Following execution of site works, access to the site for all construction works is restricted to the location of the driveway, unless otherwise agreed by DHA and local authorities.

3012 FOOTINGS

Contractor must design all required footings, nominate type. The depth and extent of all site works must be sufficient to prepare the house and driveway 'platform' to suit the site's geotechnical conditions and consequent design.

3013 FLOORS

Contractor to nominate type.

3014 DETAILED EXCAVATION (CUT AND FILL)

The levels of the house and adjacent landscape surfaces must be designed to ensure that water drains away from house sufficient to avoid flooding in storm events.

The Contractor must complete the following earthworks as part of the Lump Sum:

- o all clearing and grubbing of the site;
- o all bulk earthworks required to achieve benching levels including landscape surface levels (allowing for topsoil refilling); and

Design and construction specification for DHA residences

- all detailed excavation associated with retaining walls and to achieve the nominated fall requirements.

All contaminants, debris and rubble to be removed prior to site shaping and other works. Contractor's rubble and debris must not be buried or covered over on the site.

All external spaces and surfaces must meet the following different gradients (slopes):

- Fenced Yard 1:6 maximum to 1:50 minimum;
- Garage finished floor level (FFL) slopes from back to front (street) with a fall of 1:100;
- driveways 1:6 maximum;
- plant (garden) beds 1:4 maximum to 1:100 minimum;
- pavements (pedestrian): 1:6 maximum (short runs only) to 1:100 minimum with crossfall of 1:33 maximum.

Sloping blocks must be terraced with retaining walls and associated steps.

Shaping to be undertaken prior to other exterior and landscape works, with placement of SW systems and retaining walls/steps. Leftover spoil must be disposed by the Contractor at their cost.

3015 STORMWATER

The treatment of stormwater within the block must be designed to suit the climate, soils and local Authority requirements. Stormwater system must have grated pits, soakage drains or other piped systems to ensure no flooding of house. All systems elements, i.e. soakage drains, grated pits and pipes must be adequately sized for purpose and local conditions.

Where it is required by local authorities, all roofs must have gutters that are connected to the stormwater system and/or to water tanks.

No sumps to be installed within gardens. Covered Outdoor Area design and materials must be integrated with SW drainage.

3015 (A) DRAINAGE

Surface flows must be diverted away from the house and off paved areas onto garden beds and lawn areas. Excess stormwater runoff must not be directed onto

Design and construction specification for DHA residences

adjoining properties. On site temporary (i.e. two hours) ponding of rain is acceptable where it is a deliberate detention area with suitable disposal of overflow stormwater.

A grated drain connected to the stormwater system must be installed at the garage opening where the driveway slopes towards the garage.

Retaining walls to have suitably placed agricultural drains behind walls with geotextile fabric to back of wall.

3015 (B) IRRIGATION

Irrigation systems will be installed only in locations where nominated in regional requirements or to meet estate covenants.

3016 ROOFING & ROOF PLUMBING**3016 (A) FASCIAS & GUTTERS**

Sheet colour bonded metal, colour to coordinate with, or match, roof and or walls

3016 (B) DOWNPIPES

Sheet colour bonded metal or PVC, colour to coordinate with, or match, roof and or walls. COA roof plumbing must be connected to storm water.

3017 DRIVEWAYS

Driveways must be impermeable pavements constructed from unit pavers or reinforced, uncoloured concrete, unless otherwise required in specific estate covenants or local Authority regulations.

The driveway must stop at the property boundary so that any installed public footpath is continuous and not cut by the driveway. Vehicle access over the verge to the kerb crossing, if installed as part of the scope of work, is to match the driveway and any local Authority requirements.

3018 PAVEMENTS

Impermeable pavement surfaces with subsurface preparation and base course as required for:

- o Minimum 800 wide pedestrian access linking front entry to driveway and letterbox; and
- o access from the laundry to the clothesline (a path to the clothes line as a continuous pavement with no steps).

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Use of permeable pavements is preferred wherever practical in any other areas where necessary. No mowing strip or pedestrian pavements around the house perimeter are required.

The path to a rotary hoist clothes line must be a minimum 800mm width and extend past the post. Wall attached clothes lines and extended clothes lines must have pavement underneath the lines and the pavement must extend 600 mm past the side furthest from the wall and the side adjacent to the path. Clothes line to have minimum 1 metre clearance to any obstruction.

3019 FENCING & GATES

Fenced Yard must meet the following requirements, unless other requirements are nominated in estate covenants or local Authority requirements:

- minimum one pedestrian (single), gate may be increased to double gate where specified by estate guidelines;
- all gates constructed to swing open to a minimum of 90 degrees;
- gates must not obstruct services;
- no side boundary fence forward of the wing fences, or the front building line;
- wing fences and gates located behind meter boxes;
- completed height 1.8m maximum (1.5m minimum) when measured from the adjacent finished ground levels; and
- base of the fence clear of ground surfaces, including mulch materials, for its entire extent, with a bottom gap no greater than 50mm.

Fences and gates must be designed with materials as per local conditions and practices. If timber is used, it must be durable and treated. Metal components must be galvanised or zinc and or powder coated e.g. steel posts, bracket fittings and nails. Posts and stays must have concrete footings designed to suit site specific conditions and functional requirements.

Fences and gates must be designed and constructed to last at least 15 years.

3020 CONCRETE WORKS

3021 CONCRETE SLAB FINISH

Brickwork must extend to ground level with no slab edge shown.

Design and construction specification for DHA residences**3022 TERMITE TREATMENT**

A physical barrier system in addition to BCA requirements, compliant with relevant Australian standards. Liquid chemical treatments prohibited unless mandated by local Authority. Top-up systems not required, unless mandated by Local Authorities.

3023 UTILITIES

Concrete pads must be placed under the hot water system, water tanks, air conditioners and other externally located utilities.

3024 COVERED OUTDOOR AREA

Design and materials integrated with house, SW drainage and impermeable pavements. **Refer to regional requirements for where COA must be placed under the house roofline.** Where COA not under the house roofline, provide an impermeable roof. Finished surface pavement is impermeable with 1:100 slope away from the house (minimum standard is in-situ concrete with light broom finish).

3030 MASONRY

3031 RETAINING WALLS

Retaining walls must be included as part of the works where necessary to ensure outdoor spaces are functional and meet the gradient requirements detailed elsewhere. Retaining walls to be designed to AS 4678 - Earth Retaining Structures. Retaining wall materials must be robust masonry.

Retaining walls must have steps incorporated except when the upper area is not a children's play area and the wall is a crescent shape to allow access via the sides. The maximum is 5 risers per flight. Walls over 1.0m height must be certified by structural engineers and are to have integrated child safety barriers or handrails. Nominate location, construction details and top and bottom levels of walls and slopes. The use of natural stone (rocks) to form retaining walls is permitted. The materials must be finished in a colour to match the walls of the house or in an earth or vegetation colour.

The materials and construction must last at least 20 years.

Design and construction specification for DHA residences

3040 CONSTRUCTION SYSTEMS

3041 WALL FRAMING AND FACADES

Contractor to nominate wall framing system .

Some regions specify ceiling heights, refer to regional requirements.

Garage exterior construction must be same materials as house; fully enclosed and secured. Garage interior construction may be either timber stud walls or engaged piers. Carport (where specified) must be attached to house.. Carport materials same as house.

Any façades must be consistent within the street but having diversity between each house.

3042 ROOF TRUSSES

Contractor to nominate type.

3043 ROOFS

Sheet colour bonded metal or tile.

3044 EAVES

Eaves minimum plate to fascia width of 450mm, or to meet local Authority and estate requirements. Materials, finishes and colour to coordinate with walls.

Some regions specify greater fascia widths, refer to regional requirements.

3045 THERMAL INSULATION

Insulating sheet materials and or batts as required to meet statutory energy and fire rating requirements.

3046 WATERPROOFING/ WET SEALING

Waterproofing required in all wet areas, in accordance with BCA. An accredited waterproofing contractor must be used.

There must be a minimum 7 year warranty on products and workmanship.

3050 JOINERY

3051 (A) KITCHEN

Maximise storage and bench space, include cupboards overhead and under bench,

Design and construction specification for DHA residences

- 3 x cutlery drawer, no bulkhead to overhead cupboards required.
- Separate pantry (cupboard) in or immediately adjacent to kitchen.
- Bench tops: minimum standard laminate with edges pencil round or post formed.
- Cupboard doors and drawers: minimum standard laminate with rigid thermoplastic (ABS) 1-2mm edge.
- Cavities required for dishwasher, microwave (over bench), refrigerator (vented).

3051 (B) VANITIES

- Bathroom vanity unit: minimum 900 mm length, with hand basin and storage cupboards underneath, all constructed of high moisture resistant sheeting/materials. Vanity unit with integrated basin is acceptable.
- Ensuite: All inclusions as for Bathroom EXCEPT no bath, vanity nominal 900mm length.

3051 (C) WARDROBES
Bedroom 1

- Wardrobe built-in (BIR) with sliding doors or walk-in (WIR) with either swing or sliding doors. Dimensions: hanging depth 700mm (plate to plate), hanging length 3000mm min, maximise full height hanging. Include shelf over head, plus minimum 2 x 4 shelves located in wardrobe. Refer to diagram in Appendix 1 for details.

Other bedrooms

- Wardrobe built-in (BIR) with sliding doors, hanging depth 600 (plate to plate), hanging length 1500 min. maximise full height hanging. Include shelf over head, plus minimum 1 x 4 shelves located in wardrobe. Refer to diagram in Appendix 1 for details.

3051 (D) CUPBOARDS & MISC JOINERY

- Linen cupboard must have a minimum of four shelves. Minimum width 1500 mm.
- Coat cupboard must have a hanging rail, plus shelf over rail. Minimum width 700, minimum depth 600 mm.
- Utility cupboard (where required) must have a high shelf. Minimum width 800mm.
- Broom cupboard is to be located in Laundry, with high internal shelf. Minimum width 600mm. A dryer support board also to be provided in Laundry, W 800mm x H 800mm x D 19mm, high moisture resistant board sheeting screw fixed to wall, painted to match wall.

3060 DOORS & WINDOWS

3061 (A) DOORS

Internal: Swing doors, hollow core. Sliding doors: internal cavity sliders with jump proof roller track.

External: Solid core for all doors. Weather seal to bottom of doors only.

Door between garage and house is a solid core door. Door between garage and Fenced Yard is a weatherproof door. Where door from house to Fenced Yard is glazed, External sliding doors must be powder coated aluminium frame.

3061 (B) DOOR SECURITY

All doors leading from the house to the outside must have combined security / insect screens. Sliding doors must have powder coated aluminium frames fitted with interior expanded mesh.

3061 (C) DOOR HARDWARE

Solid core doors fitted with double cylinder deadlocks, all keyed alike.

Door between House and Garage fitted with double cylinder deadlock, keyed to solid core doors.

Security screen doors fitted with door closers, all locks keyed alike. No requirement for door closer on sliding doors.

Glass sliding doors, fitted with latch and double cylinder deadlock, all locks keyed alike.

Passage sets to all internal doors (no ceramic or sharp pointed handles).

Privacy sets to bathroom, toilet, powder room and Bedroom 1.

All doors with stops or hold open devices.

All hardware must have a minimum 5 year warranty.

3061 (D) ROLLER AND PANEL LIFT DOORS

Roller or panel lift doors must be powder coated sheet metal colour coordinated with and visually recessive to house, walls, and roof. Access to street: Minimum requirement is single roller door (not automated). If double roller door or panel lift doors are used, automate and provide two handsets.

3061 (E) WINDOWS/GLAZING

Windows fixed and opening must have powder coated aluminium frames. All

Design and construction specification for DHA residences

opening windows must have insect screens to match security screens where security screens fitted.

Above Tropic of Capricorn, windows can be louvre style with built in insect screen and security bars, a proportion of powder coated aluminium louvres can be considered in lieu of glazing for privacy. Glazing above Tropic of Capricorn to meet WERS 2 stars cooling rating.

Obscure glazing minimum to all laundries, front door side panels, ensuite and bathroom. Where obscure glazing is used then window coverings are not required except in the ensuite and bathroom. No glazing for garage or garage door to Fenced Yard, unless security screens fitted as well.

3061 (F) WINDOW FURNISHINGS

All external glazing (except side windows to front door) to have blinds in light, neutral colours for privacy and light control, mounted internal to window reveals where possible. Maximum light block for bedrooms.

Wet areas: slim line (mini) Venetians, fixed at base.

All other areas must have Vertical blinds, polyester, rated at 100% block out, child safe chords and chainless bottom, with weights sewn into each blade.

3061 (G) WINDOW SECURITY

All opening windows to have either:

- security screens with powder coated aluminium frames with interior expanded aluminium mesh, or
- window locks (all keyed alike). Where evaporative cooling is installed, windows should be lockable in an open position.

Refer to regional requirements as to which option applies.

3070 APPLIED FINISHES

All external materials and finishes must be durable, robust and well constructed and not requiring regular maintenance such as painting. Interior design schemes must be with materials and finishes that are robust to ensure reduced costs over the whole lifecycle of the house.

3071 PLASTERING

Affix plaster board internally to stud wall and ceiling batten system and or single

Design and construction specification for DHA residences

skin masonry as per manufacturer's specification, then sealed by paint systems. For all internal wet areas the minimum is water resistant plasterboard with paint systems.

Install plasterboard sheeting on all stud walls within garage.

3072 EXTERNAL RENDER

Patch coat and top coat with mineral/polymer based system applied as per manufacturers recommendation with texture finish minimum of 1.5mm thick, then sealed with paint system.

3073 CERAMIC TILING

Ceramic Tiles - non porous, non slip with coloured sealant as necessary to joints with kickboards and skirtings + metal join strips to adjoining surfaces if levels are not flush.

Skirtings:

- o Bathroom & ensuite: skirting 150mm
- o Baths 600 mm above the top of the bath.
- o Shower recess: 2000mm minimum.
- o Toilet: skirting 150mm minimum.
- o Laundry: skirting 150mm and over tub 450mm minimum.

Laundry, Bathroom, graded to floor waste with grate to meet BCA requirements

3073 (A) NORTH OF TROPIC CAPRICORN

Ceramic floor tiles to all bedrooms, living areas, and wet areas.

3073 (B) SOUTH OF TROPIC CAPRICORN

Ceramic floor tiles to all areas except bedrooms and separated Dining, Lounge, and COA.

3073 (C) SPLASHBACKS

Kitchen splashback (from bench to underside of over head cupboards), either ceramic or glass tiles or stainless steel.

Bathroom, Ensuite, and Powder Room splashbacks must meet mirror.

Design and construction specification for DHA residences**3074 PAINTING****3074 (A) INTERNAL**

The pallet of interior colours, materials and finishes should be contemporary and timeless in style with an emphasis on neutral tones to accommodate the furnishings of tenants. Coloured paints must be prepared by the manufacturer from a recognised colour pallet, and as per the colour schedule approved for the contract. Excessive use of grey tones should be avoided. No mixing of colours on-site.

Paint system is primer/undercoat plus 2 coats. Coats to be applied as per manufacturer's directions to achieve recommended dry film thickness. If paints are applied by spraying, the top coat must be rolled.

Ceilings – white, flat.

Walls – wash and wear low sheen.

Trims & architraves – gloss or semi gloss.

Doors – gloss or semi gloss to all vertical surfaces; top & base to be primer plus minimum one coat.

Wet areas (including their ceilings) – wash and wear semi gloss.

3074 (B) EXTERNAL

External high quality domestic systems fit for purpose, with primer/undercoat plus 2 coats.

Walls – matt or low sheen; doors and trim – gloss.

3075 CARPET AND UNDERLAY

Carpet only installed South of Tropic Capricorn to all areas not tiled. Carpets must be a minimum four star rating (residential) as set out the Australian Carpet Classification System (ACCS). Underlay to be minimum 7.5mm thick for rubber, 9mm thick for foam.

Carpet and underlay must have a minimum 5 year warranty.

3080 SPECIALTIES

3081 WHITE GOODS

Cooktop – 4x positions, mandatory gas where gas is reticulated.

Overhead range hood with exhaust fan and light that is directly externally vented.

Design and construction specification for DHA residences

Electric oven: 600mm width with minimum 55 L capacity. Must, as a minimum, have timer and fan forced cooking mode.

Appliances must have a minimum 2 year warranty, access to spare parts and warranty service is crucial.

3082 TOILETS

Toilets required for Toilet, Ensuite and Powder Room (when Powder Room is specified). Dual flush 6/3 litre cisterns.

All toilets must have a minimum 2 year warranty.

3083 SHOWER

Separate recess min. 900 x 900mm. Screen frame chrome / powder coated metal, with pivot door.

3084 TAPWARE

Kitchen: Stainless steel sink 1080 nominal length, one and half bowls, single side drainer, plug, single flick mixer tap.

Cold water connection to dishwasher, include capped perforations to carcass panel to facilitate service connections.

Laundry: Swivel spout, separate hot and cold water taps outlets to wash tub and separate connections for washing machine. Wash tub in a cabinet, 70 L (45L in medium density) capacity, washing machine by-pass drain, and plug.

Shower: Contractor to nominate tapware; no sharp edges.

Bathroom: Bath min. 1500mm long. contractor to nominate tapware.

When Powder Room specified: Provide hand basin with plug, (vanity unit with integrated basin is acceptable).

Contractor to nominate other tapware not detailed. All tapware must be minimum 3 star WELS rating with a minimum 2 year warranty.

3085 MISC SANITARY FITTINGS

Bathroom & Ensuite towel rail(s): Double rail, chrome or powder coated metal, min. 900mm length (to fit 2 large towels).

Towel ring for Ensuite, and Powder Room (when Powder Room specified).
Materials: chrome or powder coated metal.

Soap holder/recess for Bath and Shower.

Toilet roll holder for every toilet installed. Materials: Chrome or powder coated metal to match bathroom fittings. Plugs required for all sinks.

Design and construction specification for DHA residences**3086 MIRRORS**

Bath & Ensuite mirror: Placed above vanity, sized to be full width of vanity and height aligned with top of shower screen.

Bedroom 1 mirror: Minimum width 400mm x height 1200mm.

When Power Room is specified, place mirror over hand basin.

3087 CLOTHESLINE

The clothes line should not be visible from the street and must be near as practicable to the laundry door. The clothes line should receive sunlight for most of the day in temperate climates, and be shielded from the sun in tropical climates.

Clothesline must have minimum 33 lineal metres of unobstructed hanging length, Contractor to nominate type of line (rotary hoist preferred where space allows).

3088 LETTER BOX

The letterbox must be directly accessible on pavements from the front door and or driveway. Australia Post approved type and position of letter box (located on the street address side of the house and just inside property boundary), sturdy construction and have large metal number(s) fixed to street face. As a minimum, must have provision for a padlock.

3089 STORAGE SHED (WHEN PROVIDED)

A storage shed must be provided when storage is not provided in the Garage or Carport. Storage shed must be powder coated sheet metal, waterproof, with access door that has provision for a lock, located within Fenced Yard. The shed must be fixed down to a rebated concrete slab or footings to local requirements.

3090 MECHANICAL SERVICES

3091 HOT WATER SYSTEMS

Natural gas should be used where reticulated. Install one of the following:

Instantaneous gas system sized for house (locations with reticulated gas);

Gas –min storage 135L (locations with reticulated gas);

Gas/solar hybrid- min storage 180L (locations with reticulated gas);

Solar –min storage 300L with electric booster (locations without reticulated gas);

Solar – heat pump, min storage 250L.

3092 HEATING

The requirements for active (powered) heating vary around Australia.

Refer to regional requirements as to which option applies.

Where heating is specified and rooms and specific rooms are not nominated, all Bedrooms, Living Areas, Wet Areas (except the Laundry) are to be heated.

Where placement of the units and the enclosure is in a constructed housing or within wing walls, the location of units and the enclosure must be marked on the house plans to be submitted to council. If mechanical units are located within the roof space, the Contractor must provide a suitable platform/walkway and a light for ease of maintenance.

All units must comply with noise level restrictions applicable in the jurisdiction.

All systems must be a minimum 5 star energy rating. All products and systems must be selected to be robust, with minimum 5 year warranties, and have maintenance service (call out) available in that location.

3093 COOLING

Refer to regional requirements for cooling systems applicable.

Systems serving bedrooms must have a minimum five star rating for cooling. Reverse systems dedicated to shared rooms must be a minimum of five stars for cooling except where such units are not commercially available, and then a minimum energy rating of four stars for cooling applies (there is no relaxation of the requirement on the overall house energy rating as a result). All units must comply with noise level restrictions applicable in the jurisdiction.

Warranty to be a minimum of three years on parts.

3094 WATER TANKS

Water Tanks are not a mandatory item. If nominated in the house configuration, supply and install as a minimum:

- 5000 litre plastic tank with colour to match house;
- first flush diverter, stopcock fitted to tank base and upturned; and
- pump, with pump guard

Catchment to be a minimum of 35% of roof area.

Design and construction specification for DHA residences**3095 HOSECOCKS**

Install 2 wall mounted taps (hosecocks), with 1 per yard area.

3100 ELECTRICAL SERVICES

Provide all electrical works necessary with installation by certified installer.

3101 POWER

General purpose outlets (GPO) to be installed as listed below:

Living: Kitchen x2 plus 1 in either the kitchen island bench or kitchen return, dining x1, lounge x2, hall x1, study x1, meals x1, rumpus x2, family x2;

Bedrooms: Bedroom 1 x2, other bedrooms x2;

Wet Areas: Bathroom x1, Ensuite x1, Laundry x1, Powder room x1.

Cavities with power points for dishwasher, microwave (over bench), refrigerator (vented);

External: COA 'weather proof' x1, Garage or Carport x 1.

For any rooms not listed, install a minimum of one GPO per room.

All GPOs to be double, except appliances hardwired or requiring a dedicated GPO, including refrigerator, dishwasher, microwave, air conditioning, hall, HWS, garage door motors, water tanks, reticulation units and heating units.

3102 EXTERNAL LIGHTING

Lights suitable for external use (e.g. bunker style), with all components and switches, eaves or soffit mounted to provide adequate light levels to following minimum areas: 1x front door, 1x laundry door, 1X clothes line area. COA to have fluorescent lights.

3103 INTERNAL LIGHTING

All fixtures, fittings, levels of illumination and colour rendering to be fit for purpose for the size and function(s) of the room. Lights must be provided with batten holders and shades. Provide two-way switching where appropriate (hallways and living areas). Use only down lights (2 off) where ceiling fans to be installed (to avoid strobe effect).

3104 VENTILATION

Install 1x exhaust fan for both Bathroom and Ensuite. All exhaust fans separately

Design and construction specification for DHA residences

switched from lights unless required by BCA.

Refer regional requirements for when ceiling fans are included.

All ceiling fans to have variable speed control. Where COA requires a circulation fan, the ceiling and mounting height is to be min. 2700mm.

3105 TV SYSTEMS

Television: Minimum 2 outlets provided adjacent to GPOs in Lounge and Family, located to suit indicative furniture layout.

TV aerial (antennae): Installed and located to achieve good quality reception for all free air TV stations to suit both analogue and digital reception (gutter mounted aerials not permitted).

3106 TELEPHONE SYSTEMS

Contractor to connect telephone and pay all fees associated with connection, and minimum 2 phone outlets, provided adjacent to GPOs in Kitchen and Bedroom 1,

3107 SMOKE DETECTORS

Installed to meet Australian standards.

3110 SOFT LANDSCAPING

3111 GENERAL

The landscape design documents must be prepared by a qualified landscape contractor. The Contractor must allow for the production of the landscape documents as part of the Lump Sum. The construction of the landscape works must be undertaken to meet industry standards by a qualified landscape contractor.

The only earthworks to be undertaken as soft landscaping is the shaping and cultivation associated with plant beds and grass.

3112 GROUND PREPARATION

Prior to undertaking any landscape works the block must be appropriately prepared for the intended surface treatments and plants. Where there is insufficient quality or quantity of stockpiled site topsoil, areas must have imported topsoil blended to make up quantities required. Prior to placement of soil additives or topsoil, all weeds must be sprayed or removed and the ground must then be

Design and construction specification for DHA residences

ripped and cultivated to achieve de-compaction to the depths to enable plant growth.

3113 GRASS PREPARATION

Remove or kill weeds and grasses on site prior to cultivation. Areas to be grassed to be ripped to minimum 150mm depth and rock picked.

Topsoil for grass - minimum 100mm depth, comprised of stockpiled site topsoil spread to 50mm depth if available, plus imported topsoil

Final shaping and cultivating to minimum 100mm depth with addition of soil additives prior to turfing, seeding or stolon sprigging.

3114 GRASS

Grassed areas to be turfed. Turf not mandatory outside the property boundaries. Nominate species and cultivar and provide certification for supply source.

Grass – species and cultivar plus method (turf, seed, stolons) to be nominated and provide certification for supply source.

All lawn grass species must suited to the climatic area. Summer active grass must be planted in summer; winter active grass must be planted in winter. Supply should be weed free. Area within property boundaries must be fully established on completion of the 4 weeks establishment period.

3115 PLANTS

Preparation: Areas to be planted to be ripped to minimum 150mm depth and rock picked. Stockpiled site topsoil or imported topsoil to be respread to minimum 300mm depth.

Plants must be resistant, native to the area, suitable for the soil type and climate, hardened off, of good form consistent with species or variety, free from disease and insect pests, with healthy roots and shoots and no evidence of having been restricted or damaged.

Plants that have a short life, less than 10 years, must be avoided or minimised. Climbing plants must not be planted against walls and fences. Plant beds must not be placed against house walls.

Spacing of plants must achieve a 'semi-mature look', ie fully covered plant beds, after five years growth and 'established look' after 15 years growth. Plants that

guidelines must be used.

Planting includes excavation of plant holes, placement of soil additives, staking and tying as required and construction of watering basins as part of backfilling.

3116 TOPSOIL

Remove or kill weeds and grasses prior to respreading of stockpiled site topsoil to areas to be grassed and or planted. Certification of imported topsoils is required for supply source and composition. Fertilisers - type and quantity of soil additives are to suit site specific conditions and plants proposed, Nominate specific products such as fertilisers, composts plus additives such as water absorbing crystals, soil wetters and minerals.

3117 EDGE STRIPS

Edge strips must be installed between lawn and plant beds, and between lawn and gravel pavements. All edge strips must be constructed to finish flush with surrounding surfaces and where adjacent to grass, must serve as a mowing edge and inhibitor of grass crossing into adjacent areas.

Edge strips – timber 50mm width x 75mm depth and or masonry (in-situ concrete or unit pavers on a mortar bed) 75mm width x 100mm depth. Edge strips to be constructed to finish flush with surrounding surfaces.

3118 MULCH

All areas, except for lawns and pavements, must be mulched plant beds. Mulch must be placed as the finished surface treatment to all garden beds. Organic mulch products must be a weed free product. Inorganic mulches, such as washed gravel or pebbles may be used.

Mulched areas to be minimum 75mm thickness for wood based system, minimum 50 mm for gravel or pebble based system. Supply should be weed free, and provide certification as to type, supply source, composition.

will commence for plants and lawn. The Contractor must undertake all work during this Period to ensure the plants and lawn's healthy and continued growth.

This work may include, but is not limited to: replacement of dead/dying plants or lawn, topdressing, weeding, staking, pruning/ tying, mowing, fertilising and watering, all activities as relevant to the season. The Contractor must supply and apply at their cost adequate water to plants and lawns during the Period. All local water restrictions apply.

The Period continues for duration of four (4) weeks. If more than 20% of either the plants or the lawn is replaced within the first two (2) weeks of the Period, the Period will extend. The Period will extend until:

- 80% of either the plants or the lawn areas have been in place for four (4) weeks; and
- any replaced items have been in place for two (2) weeks.

No additional payment is due for any costs incurred by the Contractor for the extension of the Period.

4000 PRACTICAL COMPLETION

At the Practical Completion inspection, the Contractor must have:

- the house and site cleaned (inside and out) to a standard sufficient for tenants to move in;
- all temporary fencing removed;
- any damage of public and/or private land/or property adjacent to the site repaired;
- any verge restoration (if required) completed;
- telephone connected and working; and
- all services including electricity, gas, water, sewer connected, approved and tested ready for occupation.

As part of the requirements for Practical Completion, the Contractor must provide to DHA the following documents and items:

- A 'folder' (to stay in the house) with appliance (or fittings) manuals and the house telephone number;
- Two (2) complete sets of keys each on three (3) separate key rings that have labels for purpose plus the address (lot and house number):
 - Key ring 1 all external doors including security screens
 - Key ring 2 all windows
 - Key ring 3 garage, letterbox (and any others); and
- Certificates and plans:
 - Occupancy Certificate from relevant body or approved Private Certifier
 - Building Certificate from relevant body or approved Private Certifier
 - AccuRate (or equal) certificate
 - Termite treatment warranty and certificate
 - Truss manufacturer certificate
 - Structural Design compliance and inspections, incl. retaining walls if required
 - Plumbing and Gas certificate
 - Electrical certificate
 - Waterproofing certificate
 - "As constructed" version of plans for site, house, electrical, landscape
 - "As constructed" house survey (house outline and block boundaries)
 - Glazing certificate
 - Insulation certificate (not applicable for Darwin)
 - Clean fill certificate

All requisite appliance guarantees / warranties (paper or electronic), must be filled in and nominating Defence Housing Australia as the beneficiary and must be dated as per day of installation (not purchase date).

Documents must be supplied in the handover folder and clearly labelled.

Upon Practical Completion certification, the telephone, electricity and gas accounts

Design and construction specification for DHA residences

must be terminated by the Contractor to allow connection by the tenant.

5000 DEFECTS LIABILITY

Within the Defects Liability Period, DHA will advise the Contractor of defects as they arise.

Defects affecting health, safety or security must be rectified within 24 hours and all other defects must be rectified within 10 business days.

6000 REGIONAL REQUIREMENTS
6010 SOUTH AUSTRALIA

| ITEM | REQUIREMENT |
|-----------------------|--|
| Adelaide | |
| Heating | RC gas ducted heating (minimum two zones). Ducted heating and ducted evaporative cooling may be provided as an equivalent alternative. For Bathrooms and ensuites, heating to be other than infrared lamps embedded within ceiling fans. |
| Cooling | Minimum ducted evaporative cooling. RC split system air conditioning may be provided as an equivalent alternative. |
| Security | Locks to all opening windows. |
| Adelaide Hills | |
| Heating and Cooling | Reverse cycle split system Bedroom 1 and living rooms plus ceiling fans to bedrooms and other living rooms. For Bathrooms and ensuites, heating to be supplemented via infrared lamps embedded within ceiling fans. |
| Security | Locks to all opening windows. |

6020 VICTORIA AND TASMANIA

| ITEM | REQUIREMENT |
|--|---|
| Melbourne, Sale, Frankston, Queenscliff | |
| Heating | Ducted heating. RC split system air conditioning may be provided as an equivalent alternative. For Bathrooms and ensuites, heating to be supplemented via infrared lamps embedded within ceiling fans. |
| Cooling | Ceiling fans to bedrooms and living rooms. Ducted evaporative |

Design and construction specification for DHA residences

| | |
|---------------------|---|
| | cooling may be substituted in place of ceiling fans to all bedrooms and living areas. |
| Security | Locks to all opening windows. |
| Puckapunyal | |
| Heating | Ducted heating. RC split system air conditioning may be provided as an equivalent alternative. For Bathrooms and ensuites, heating to be supplemented via infrared lamps embedded within ceiling fans. |
| Cooling | Ducted evaporative cooling. RC split system air conditioning may be provided as an equivalent alternative |
| Security | Locks to all opening windows. |
| Tasmania | |
| Heating and Cooling | Minimum reverse cycle split system to living rooms plus panel heating to bedrooms. |
| Security | Locks to all opening windows. |

6030 ACT

| ITEM | REQUIREMENT |
|----------------------------------|---|
| Canberra & Queanbeyan | |
| Heating | Ducted heating. RC split system air conditioning may be provided as an equivalent alternative. For Bathrooms and ensuites, heating to be supplemented via infrared lamps embedded within ceiling fans. |
| Cooling | Minimum ducted evaporative cooling. RC split system air conditioning may be provided as an equivalent alternative. |
| Security | Security screens to all opening windows. |

6040 NSW

| ITEM | REQUIREMENT |
|--------------------------------|---|
| Armidale & Tamworth | |
| Heating | Ducted heating. RC split system air conditioning may be provided as an equivalent alternative. For Bathrooms and ensuites, heating to be supplemented via infrared lamps embedded within ceiling fans. |
| Cooling | Minimum ducted evaporative cooling. RC split system air |

Design and construction specification for DHA residences

| | |
|------------------------------------|---|
| | conditioning may be provided as an equivalent alternative. |
| Security | Security screens to all opening windows. |
| Hunter & Northern NSW | |
| Heating/Cooling | Reverse cycle split system Bedroom 1 and living room plus ceiling fans to bedrooms and other living rooms. |
| Security | Security screens to all opening windows. |
| Nowra | |
| Heating | 1x relocatable 25mj gas heater with bayonet connections to living rooms (incl. associated GPO). |
| Cooling | Ceiling fans to bedrooms and living rooms. |
| Security | Locks to all opening windows. |
| Riverina | |
| Heating | Ducted heating. RC split system air conditioning may be provided as an equivalent alternative. For Bathrooms and ensuites, heating to be supplemented via infrared lamps embedded within ceiling fans. |
| Cooling | Minimum ducted evaporative cooling. RC split system air conditioning may be provided as an equivalent alternative. |
| Security | Locks to all opening windows. |
| Sydney & Blue Mountains | |
| Heating/Cooling | Reverse cycle split system Bedroom 1 and living rooms plus ceiling fans to bedrooms and living rooms. |
| Security | Security screens to all opening windows. |

6050 SOUTH EAST QUEENSLAND

| ITEM | REQUIREMENT |
|-------------------------------|---|
| Brisbane & Ipswich | |
| Heating/Cooling | Reverse cycle split system Bedroom 1 and living rooms plus ceiling fans to bedrooms and living rooms. |
| Security | Security screens to all opening windows. |
| Toowoomba | |
| Heating/Cooling | Reverse cycle split system Bedroom 1 and living rooms plus ceiling fans to bedrooms and living rooms. |
| Security | Locks to all opening windows. |

Design and construction specification for DHA residences

6060 NORTH QUEENSLAND

| ITEM | REQUIREMENT |
|---|--|
| Townsville, Rockhampton & Cairns | |
| Ceilings | Internal ceiling height must be a minimum 2700mm. |
| Drainage | All down pipes to be directly connected to the stormwater system. |
| Cooling | Refrigerated air conditioning (central or split system) plus ceiling fans to bedrooms and living rooms. |
| Security | Security screens to all opening windows. |
| COA | COA to be placed under roofline. Circulation fan required. |
| Eaves (Soffit) | Eaves width minimum 900mm, plus to meet DHA shade expectations plus local Authority and estate requirements, with materials, finishes and colour to coordinate with walls. |

6070 WESTERN AUSTRALIA

| ITEM | REQUIREMENT |
|---------------------------------|--|
| Perth & Geraldton | |
| Heating | 1x relocatable 25mj gas heater with bayonet connections to living rooms (incl. associated GPO). |
| Cooling | Minimum ducted evaporative cooling. RC split system air conditioning may be provided as an equivalent alternative. |
| Security | Supply and fix security screens to all opening windows. |
| Karratha & NW Region | |
| Ceilings | Internal ceiling height must be a minimum 2700mm. |
| Cooling | Refrigerated air conditioning (central or split system) plus ceiling fans to all bedrooms and living rooms. |
| Security | Security screens to all opening windows. |
| COA | COA to be placed under roofline. Circulation fan required. |
| Eaves (Soffit) | Eaves width minimum 900mm, plus to meet DHA shade expectations plus local Authority and estate requirements, with materials, finishes and colour to coordinate with walls. |

6080 NORTHERN TERRITORY

| ITEM | REQUIREMENT |
|---------------|---|
| Darwin | |
| Ceilings | Internal ceiling height must be a minimum 2700mm. |

Design and construction specification for DHA residences

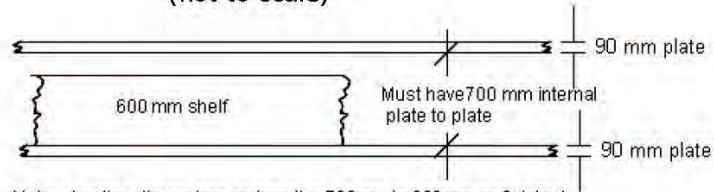
| | |
|--|--|
| Drainage | Roof guttering over entry ways, with associated SW management. Any down pipes to be fitted with 2 x 45 degree elbows at the bottom to ensure SW is discharged with minimum 75mm clearance between elbow and surface of gully pits |
| Cooling | Refrigerated air conditioning (central or split system) plus ceiling fans to bedrooms and living rooms. |
| COA | COA to be placed under roofline. Circulation fan required. |
| Security | Security screens to all opening windows. |
| Eaves (Soffit) | Eaves width minimum 900mm, plus to meet DHA shade expectations plus local Authority and estate requirements, with materials, finishes and colour to coordinate with walls. |
| Carport and Storage OR Garage | Either carport with secured storage shed or a garage- provided that the garage sufficient ventilation to ensure temperature inside is not greater than ambient external temperature; with natural light including secure storage area. |
| Katherine | |
| Ceilings | Internal ceiling height must be a minimum 2700mm. |
| Drainage | Roof guttering over entry ways, with associated downpipes. All down pipes to be fitted with 2 x 45 degree elbows at the bottom to ensure SW is discharged with minimum 75mm clearance between elbow and surface of gravel filled soakage pits. |
| Cooling | Refrigerated air conditioning (central or split system) plus ceiling fans to all bedrooms and living rooms. |
| COA | COA to be placed under roofline. Circulation fan required. |
| Security | Security screens to all opening windows. |
| Eaves (Soffit) | Eaves width minimum 900mm, plus to meet DHA shade expectations plus local Authority and estate requirements, with materials, finishes and colour to coordinate with walls. |
| Tindal requirements as for Katherine except | |
| Security | Insect screens to all opening windows. |
| Alice Springs | |
| Cooling | RC split system air conditioning Bedroom 1 and living plus ceiling fans to all bedrooms and living rooms. |
| Security | Security screens to all opening windows. |
| Eaves (Soffit) | Eaves width minimum 900mm, plus to meet DHA shade expectations plus local Authority and estate requirements, with materials, finishes and colour to coordinate with walls. |

Design and construction specification for DHA residences

APPENDIX 1 WARDROBE DETAILS

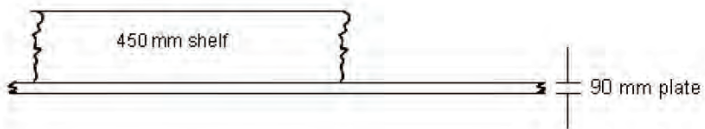
(not to scale)

Bedroom 1
Built in wardrobe
plan view

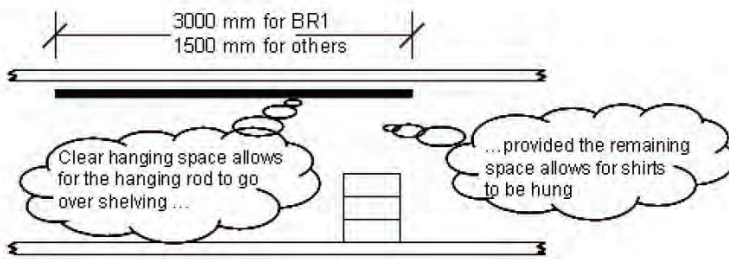


Note: sheeting dimensions reduce the 700mm to 680mm as finished

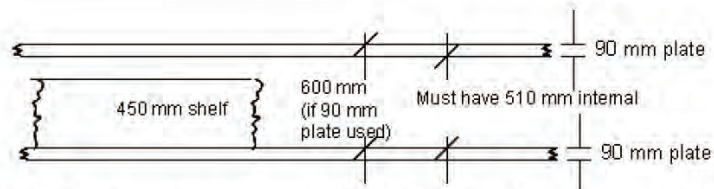
Bedroom 1
Walk in wardrobe
plan view



Bedroom
wardrobe
elevation



Bedroom 2,3,4
Built in wardrobe
plan view



Note: sheeting dimensions reduce the 510mm to 490mm as finished