



Submission No. 1

al (Muirhead)

Date: 10/02/2011

PROPOSED DEVELOPMENT AND CONSTRUCTION OF STAGES 2 – 7

**HOUSING FOR DEFENCE
AT
MUIRHEAD, DARWIN**

Statement of Evidence
To the
Parliamentary Standing Committee
On Public Works



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Need for Works

Identified Need

- 1 Currently about 4500 Defence personnel reside in the Darwin area, of who about 1800 are Members With Dependents (MWD). To satisfy the MWD housing requirement, DHA manages 1816 dwellings in and around Darwin. Of this total, 729 houses are located on the Australian Defence Force (ADF) bases; Larrakeyah Barracks, RAAF Base Darwin and Defence Establishment Berrima (DEB). The remaining houses are located in the suburbs of Darwin.
- 2 In July 2007, Defence introduced its New Housing Classification Policy (NHCP) with a new (increased) minimum standard. A large number of houses in the Darwin area, both on and off base, do not meet this new standard. To replace or upgrade these houses, together with the replacement of houses for which leases will expire, DHA has programmed 467 constructions over the financial years 2010/11 to 2014/15.
- 3 The development of Stages 2 to 7 will provide 279¹ dwellings for ADF personnel in Muirhead and is an essential part of meeting the new constructions targets for the next 8 years.

Options Considered for Meeting the Need

- 4 In order to meet ADF operational and Defence housing requirements, DHA uses a variety of delivery methods, including on-base and off-base construction, direct purchase, and various leasing arrangements.
- 5 On-base housing has historically formed a high proportion of the Defence housing provided in Darwin. Most of this housing is now old and in need of replacement or refurbishment. Over the next eight years Defence will progressively replace most of this housing with off-base housing in suburbs such as Muirhead. This is part of a larger strategy to ensure that the future housing needs of the Australian Defence Force in Darwin are met.

¹ The actual number of ADF dwellings is limited by the MOU with the NT Government, outlined in paragraph 22. The total number of 279 would represent about 30 per cent of the total Muirhead constructions in stages 2 to 7.

- 6 With the increase of Defence personnel in Darwin over recent years, there has already been a move of accommodation off bases. DHA owns and leases houses across Darwin and Palmerston.
- 7 Direct purchase of dwellings is used to acquire stock, but such dwellings of the standard required by Defence are not available in the required locations and numbers.
- 8 The majority of DHA's leased properties have been acquired through the Sale and Leaseback (SLB) program. Other rental properties in Darwin to the standard required by Defence are in very short supply.

Historical Background

- 9 The Muirhead site was previously used as a World War II signalling station with a series of aerial structures radiating out from the former compound. In more recent times, the signalling station has been decommissioned and all structures have been removed or are no longer required. The site was purchased by DHA in two parcels, one in April 2006, the other in January 2010. An aerial photograph of the site is at Supplementary Item 2.

Heritage Impact

- 10 **Aboriginal Heritage.** The Aboriginal Area Protection Authority (AAPA) has advised that there are no registered or recorded sites within the project area. An AAPA Certificate has been issued for the development on the (normal) condition that, should human skeletal remains or artefacts be found, work must be suspended until authority to continue is issued by the AAPA. A copy of the AAPA certificate is at Supplementary Item 4.
- 11 **European Heritage.** As there are no facilities remaining on the site, there are no remnants of European use of the site that would be of heritage interest.

Environmental Impact

- 12 **Environment Assessment Act.** The Northern Territory Government Department of Natural Resources, Environment, The Arts and Sport (NRETAS) deemed the project does not require formal assessment under the Act. A copy of the Letter from NRETAS is at Supplementary Item 7.

- 13 *Environmental Protection and Biodiversity Conservation (EPBC) Act.*** The entire site has been referred to and is currently being assessed by the Department of Sustainability, Environment, Water Population and Communities (DSEWPC) for approval. Works on the site for all stages 1-7 will not commence until this process has been completed, expected in March 2011.
- 14 *Existing Vegetation.*** The site has been previously disturbed and there is not considered to be significant vegetation present on the property requiring retention.
- 15 *Waterways/wetlands.*** There are some significant ecosystems in the general vicinity to the subject land. These include the Casuarina Coastal Reserve to the west and the Buffalo Creek Management Area to the east. The effect of the development on these sites is being addressed under the EPBC Act. Neither is expected to be adversely affected by the development. However, the Buffalo Creek area is a known source of biting insects and a breeding ground for mosquitoes. Appropriate vector control measures have been designed to effectively mitigate impacts arising from residential development in proximity to these areas.
- 16 *Unexploded Ordinance.*** Mapping available on the Northern Territory Government (NTG) website does not annotate the Muirhead site as having unexploded ordinance (UXO). A site assessment undertaken by G-Tek in 2006 on behalf of the Department of Defence as part of the preparation of the site for sale, concludes that the likelihood of UXO being remnant on site is considered negligible. Accordingly, the Northern Territory Government has rezoned the site for residential use.

Key Legislation

- 17 The following key legislation is relevant to this project:**

9.1 Environmental Protection and Biodiversity Conservation Act 1999;

9.2 Defence Housing Australia Act 1987; and

9.3 Building and Construction Industry Improvement Act 2005

Impacts on Local Communities

- 18 *General.*** The addition of a maximum of 1033² dwellings in Stages 2 to 7 of the Muirhead development will have an effect on the local community of the northern suburbs of Darwin. In the longer term, any effect on schools and community facilities will need to be addressed by the Northern Territory Government, but it is expected to be accommodated by existing infrastructure. Any impacts on shopping areas will no doubt be taken up by the commercial enterprises involved.
- 19 *Traffic.*** Traffic effects of the whole development have been assessed by TTM Consulting. Upgrades to intersections will be required and are allowed for in costings. DHA is presently assisting Darwin City Council (DCC) to produce a Developer Contributions Plan for the upgrade of Lee Point Road to cater for the full Muirhead Development, as well as any future development of land to the North of the Muirhead site.
- 20 *Economic.*** The proposed project will have a positive economic effect during the development and construction period. Economic activity is generated by individuals and local businesses working directly on site as well as by individuals and businesses off-site providing goods and services to support the project. The construction of 279 DHA dwellings over an 8 year period is not expected to affect either the sale or rental markets for residential accommodation in the local area.

Consultation with Stakeholders

Planning Authorities.

- 21** Extensive consultation with the various development authorities and stakeholders has been undertaken regarding the overall Muirhead plan as part of the Rezoning and Stage 1 development application, including a Whole of NT Government Workshop in April 2008. It is considered that an optimal plan has been developed that addresses the various development issues associated with the site. These issues include biting insect restrictions, odour buffers, storm water management, acoustic and traffic management controls together with

² 1033 is the maximum dwelling yield in Stages 2 – 7. This figure is derived from 20% of lots being suitable for duplex subdivision.

market needs and requirements. Further refinement of each stage plan is planned prior to lodgement for development approval.

22 It should be noted that the project is being undertaken under the auspices of an MOU between the NTG and DHA that was executed on 28 October 2009. This MOU, which was a requirement by the Minister of Planning prior to consenting to the rezoning of the site for residential uses, delivers the following key outcomes to the parties:

- Not more than 30 per cent of total dwellings are to be constructed by DHA for service residences.
- 15 per cent of total dwellings are to be offered to the NTG for Affordable Housing and Community housing purposes.
- DHA will be offered not less than 15 per cent of serviced residential lots at all future NTG sponsored land releases.

23 Stage 1 of the Muirhead Project was approved by the Northern Territory Development Consent Authority (DCA) in July 2010.

24 Stage 1 of the Muirhead Development was approved by the Standing Committee on Public Works in July 2010.

Indigenous Community.

25 DHA has held informal meetings with the Larrakia Community regarding the development proposal and the potential to create a formal agreement to employ indigenous tradesmen and trainees on the site, similar to the successful agreement that was negotiated for the Lyons development.

General Community.

26 Community consultation was undertaken as part of the exhibition phase of the rezoning process, including notification in the local print media and the holding of a public meeting.

27 Additional to the normal State Government consultation processes, DHA conducted a public information forum over two days in April 2010. Significant outcomes from these sessions have been considered as part of this referral.

Defence.

- 28** The Director of Relocations and Housing, Department of Defence, Mr. Alan McClelland, has been briefed on the project and has written a letter of support (see Supplementary Item 5).
- 29** The Defence Families of Australia, National Convenor, Mrs. Julie Blackburn has been briefed on the project and has provided a letter of support (see Supplementary Item 6).

Purpose of Works

Project Location

- 30** Muirhead is a 167.6 hectare property located in the Northern suburbs of Darwin, approximately 15 kilometres from Central Business District.

Project Objectives

- 31** In this submission, Defence Housing Australia (DHA) seeks approval from the Parliamentary Standing Committee on Public Works (PWC) to develop Stages 2 to 7 of a 167.6 hectare site in the Darwin suburb of Muirhead, Northern Territory. See Location Map at Supplementary Item 1.
- 32** The objective of the Project is to provide 930 lots on which DHA will build 279 modern community standard dwellings, in part satisfaction of the immediate housing requirements of ADF members serving in the Darwin area.

Project Description and Scope of Works

- 33** The proposal is for DHA to develop Stages 2 – 7 of the Muirhead site for residential construction in accordance with the Project Vision and Objectives. If approved, the site will yield 930 standard density lots. The proposal also includes the construction by DHA of detached homes on 279 of the 930 lots. The construction of dwellings on the balance of the standard lots is not part of this proposal. A copy of the subdivision plan is at Supplementary Item 3.

Details and Reason for Site Selection

- 34** Land is in critically short supply in Darwin. Muirhead is one of the last remaining areas in Darwin's northern suburbs, and represents a rare opportunity for DHA to undertake a major development that will help satisfy Defence housing needs in Darwin for the next 8 years and beyond.
- 35** In locations such as Darwin where there is a high level of Defence demand, constructed housing delivered through bulk procurement contracts is a cost effective provisioning option. DHA is an experienced land developer with the ability to develop housing estates and contract out the construction of houses, with eventual sale through the SLB program. Moreover, control over the

housing design facilitates and provides greater assurance that DHA will deliver housing that is geared to Defence requirements, in terms of the house specification and delivery time.

Public Transport

- 36** Discussions about future bus services for Lyons/Muirhead have been held with the Department of Transport and bus operators. Advice is that, while a bus route through Lyons and Muirhead will be established so that 90 per cent of dwellings will be within 400 metres of a bus stop, the final route has yet to be determined. Potential bus routes are shown on both Supplementary Items 13 and 14.

Zoning, Land Approvals and Land Acquisition

- 37** 152.7 hectares of the site was re-zoned *Specific Use Darwin 23* (SD23) on 28 October 2009, the remaining 15 hectares of the site was rezoned *Specific Use Darwin 23* (SD23) on 6 January 2011. This zoning provides for primarily low density residential development with a maximum of 10 houses per hectare and a minimum lot size of 450 sqm. The zoning specifies a number of other restrictions, all of which can and have be accommodated in DHA's proposed land use.
- 38** An application for Development Approvals for Stages 2 – 7 has not been submitted. However, Stage 1 has received development approval from the Development Consent Authority (DCA) and DHA considers that all requirements of SD23 have been met. The development of Stages 2 – 7 is expected to be substantially in accordance with Stage 1 approvals, therefore the project is expected to proceed on schedule.

Planning and Design Concepts

- 39** ***Design Philosophy.*** DHA's vision is that "*Muirhead will be an economically viable, diverse and sustainable yet affordable master planned community*". To achieve this vision, and to deliver building sites that respond to Darwin's tropical climate and lifestyle attributes the development will incorporate the following design features:

- lot layouts that are best suited to catching prevailing breezes;

- local streets that enable groupings of large street trees in public space and smaller trees in front yards;
- dwellings constructed within specified envelopes so as to have sufficient area to provide for the dwellings, vehicle access, parking and ancillary structures;
- porches and decks as living spaces that are designed to encourage activation of and overlooking of streets and public spaces;
- a mix of heavy and lightweight elements in the front façade of the building;
- breezeway separations between buildings, generally not less than six metres, created through individual envelopes developed for each lot; and
- housing that promotes cross ventilation through building orientation and layout, with extended roof overhangs for additional shade and weather protection.

Construction.

- 40 Dwellings will be constructed by local contactors engaged through a 'Design and Construct' request for tender. Contractors will be expected to submit 'project home' designs using materials that are durable and robust and which do not require regular maintenance such as painting.
- 41 ***Subsurface Conditions.*** A geotechnical survey has been carried out by consultants, Douglas Partners (DP). Their advice is that the site has some areas that will require drainage and sub-soil remediation by excavating and stockpiling the topsoil, replacing underlying loose silty sand subsoils with 'select' fill and then resspreading the topsoil. The additional works required are not considered to be unusual and have been allowed for in the cost estimates for operational works.

Erosion and Sediment Control.

- 42 Bulk earthworks are required for sub-soil remediation and to re-profile the site for drainage purposes. Earthworks will seek to follow the natural contours to minimise cut to fill volumes, and, where possible, fill material required to re-

profile the development will be sourced from within the site. Generally lots will be shaped so that properties fall towards the road reserve.

- 43 The earthworks required will be a potential source of stormwater pollution. Accordingly, erosion and sediment controls will be established and maintained in accordance with the Stormwater Management Plan prepared by consultants SMEC Urban and as documented on the approved Operational Works drawings for the project. During earthworks operations, sediment fences, sediment traps, check dams, runoff diversions and other erosion measures will be used to minimise soil erosion and to retain all sediment on site. Dust emissions will be controlled by sprinkling from a water truck, and by minimising site disturbance.
- 44 On completion of the earthworks, the subject areas will be stabilised by resspreading stockpiled topsoil, hydro mulch stabilisation or landscaping.

Water Supply.

- 45 Power Water Corporation has advised that the current 300mm water main that services the caravan park to the north of the site has insufficient capacity to service the total Muirhead development, and upgrade of the existing water supply is required. DHA's engineering consultant is currently designing the Upgrade to the water main as part of Stage 1 works.
- 46 The design and construction of the water supply within the site will be undertaken in accordance with the standard requirements of Power Water Corporation.

Drainage.

- 47 A preliminary design assessment of the natural drainage watersheds has been undertaken for the whole of the Muirhead development site by SMEC Urban. The resultant Stormwater Management Plan is consistent with sustainable surface water management and will ensure that downstream discharges are limited to the existing (pre-development) flows. Features of the plan include:
- Maximising on-site storage and recharge of surface runoff into existing aquifers;
 - Filtration of runoff through enhanced natural vegetation and storage systems;

- Providing erosion and sediment control measures during construction; and
- Constructing permanent sediment basins at outlets to natural waterways.

48 Design of the stormwater drainage system and structures will be in accordance with the requirements of the Australian Rainfall and Runoff (IEAUST) and the DCC's Development Guidelines.

Sewerage.

49 Assessment and preliminary design of the sewerage infrastructure has been carried out by SMEC Urban. The internal sewer mains servicing the individual lots will be constructed in accordance with Power Water Corporation guidelines and standard drawings.

50 SMEC Urban advises that the current sewer trunk main has insufficient capacity for the proposed development, and that Power Water Corporation has approved another trunk main that will service the Muirhead development as well as the remaining parts of Lyons. This new main is under construction and is expected to be operational in early 2011.

Electrical Services.

51 A high voltage concept plan has been prepared as part of Stage 1 approval.

52 As the development is adjacent to existing supply, it is expected that the supply of electricity will be readily available. Power Water Corporation will confirm supply once Development Consents are received for each stage. Electricity supply to dwellings on site will be delivered by means of underground cable, installed to the requirements of Power Water Corporation.

Telecommunications

53 It is proposed to install optic fibre via the National Broadband Network (NBN) program or equivalent if available. This service is likely to be an extension of the infrastructure within the Lyons development. DHA dwellings will be wired to be NBN ready.

Mechanical Services

- 54 All houses will be air conditioned in accordance with Defence policy, which for the Darwin area requires the installation of refrigerated air conditioning (split systems) plus ceiling fans to all bedrooms and living rooms.

Design and Civil Works

Lot Arrangement.

- 55 The layout of the site has been planned to enable the maximum number of lots to be oriented within 30 degrees of north to capture dominant breezes. Lots that have a dominant east-west orientation are separated from dwellings to the rear by at least 6 metres. This separation provides optimal conditions to capture cooling breezes. Supplementary Item 8 refers.
- 56 A standard suburban lot layout restricts the amount of cooling breeze available and is not suited to the Darwin climate and lifestyle. Muirhead lot layouts and individual building envelopes will position houses to provide adequate areas of private open space while maintaining breeze ways between buildings. The concept is to locate bedrooms, bathroom, laundry and garage on one side of the block, giving the key living area an outdoor feel.
- 57 The side yard is an important space for the Darwin lifestyle, allowing space to store boats, play cricket and football and plant shady trees, as well as allowing maximum air to circulate. The concept is shown in the diagrams at Supplementary Item 9. Lot layout and lot sizes are indicated on Supplementary Item 10.
- 58 Darwin City Council requires all lots to drain to the road reserve and to locate all services in the road reserve, thereby avoiding easements at the back of blocks. This requirement enables the back boundary to vary from lot to lot to present a more consistent and equitable street frontage independent of lot size, and maximises air circulation. This feature is planned to be addressed to the satisfaction of Darwin City Council as part of the detailed design of each individual stage.

Dwelling Types

- 59 Prospective contractors will be invited to submit house designs through a 'Design and Construct' request for tender. The successful contractors will be

those who use designs that reflect the Darwin lifestyle and residential character as reflected in the Muirhead Vision. It is also intended that, through the use of different external materials and finishes, no two adjacent detached houses will look identical, creating a diverse yet cohesive streetscape. Supplementary Item 11 is an example of a house that responds to the Darwin climate and lifestyle.

Recreation Area

- 60 The Master Plan created for Muirhead (Supplementary Item 3) provides a mixture of public open space areas providing opportunities for both active and passive uses. The quantum and type of areas are considered to be in accordance with DCC regulations and guidelines.

Roads

Connection to External Road Network.

- 61 Traffic Engineers, TTM Consulting determined that the proposed site development is expected to generate increased traffic volumes along Lee Point Road and Tambling Terrace. Owing to the proximity of the intersections of Tambling Terrace and Fitzmaurice Drive with Lee Point Road, these two intersections will require upgrading with coordinated traffic signals.
- 62 Stages 2 to 7 of the development will connect to the external road network via Lee Point Road at two intersections, as well as through the existing Stage 1 as shown on the subdivision plan at Supplementary Item 3.
- 63 The development will be required to contribute to the cost of the upgrades outlined above, and this has been allowed for in the budgetary estimates. A Developer Contribution Plan (DCP) that is currently being prepared by DCC will allocate the cost of these traffic works on an equitable basis to the relevant parties in the catchment.

Internal Road Network.

- 64 The design intent for Muirhead is to create streets that are liveable spaces to be shared by a range of users not just car drivers. Accordingly, the street layout is designed to keep vehicle speeds sensibly low and to provide adequately for pedestrians, cyclists, landscaping and car parking.

- 65** Generally the internal roads will generally be either a 6.0m or 7.2m wide carriageways within a 17m wide road reserve. The internal street layout is illustrated at Supplementary Item 12.

Footpaths

- 66** Footpaths will be incorporated in the street layout in accordance with the DCC requirements, which generally require footpaths to be provided on one side of the street, and on both sides of the street when adjacent to open space.

Car Parking

- 67** All roads are of a sufficient width that will enable street parking for visitors' vehicles.

Acoustics

- 68** Acoustics consultants Marshall Day Acoustics have advised that some lots along the western boundary of the site may be affected by traffic noise from Lee Point Road.
- 69** Traffic volumes that will be generated during the later stages can be adequately addressed by changing the road surface. These works will take place prior to stage where the increase in traffic is expected to generate unacceptable noise levels. It is also expected that a development contribution scheme with DCC and other land owners will be established to deliver these future works. An allowance for the contribution scheme will be made in budgetary estimates for future stages.
- 70** Noise associated with construction work will be managed by ensuring contractors' equipment operates within specified noise levels, restricting contractors' working hours and notifying adjacent residents of the expected noise impacts. These matters will be covered in the Construction Environmental Management Plan (CEMP).
- 71** All design and construction works carried out as part of this project will comply with or exceed Local, Territory and Federal Government controls and requirements, and all housing works will meet the requirements of the Building Code of Australia.

- 72 Civil works will be certified by DCC. 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 as required.

Electrical services, fire protection and home security

- 73 Dwelling construction 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.

Water and energy conservation measures

Water

- 74 No water conservation measures are required in Darwin, however an allowance has been to provide recycled water should it become available during the life of the project.

Direct energy consumption.

- 75 Building envelopes and house design will maximise the use of shade and prevailing breezes to achieve maximum cooling and therefore minimise air conditioner use.
- 76 All dwellings must comply with *Design and Construction Specifications for DHA Residences* (see Supplementary Item 16). In particular, all DHA dwellings must achieve a minimum 6 star Energy Efficiency Rating (EER) as certified by an independent accredited assessor using NatHERS or other equivalent method.

Parklands and streetscapes

- 77 The master plan for the site includes two east-west linear parks that connect Muirhead to the adjoining suburb of Lyons and form part of an overall northern suburbs open space network. While there is not considered to be a high instance of faunal movement and activity in this locality the greenspace corridors and retention of significant stands of vegetation can assist in providing corridors for any fauna to use and enable connection to habitat areas of Casuarina Coastal Reserve and Buffalo Creek

- 78** The linear parks incorporate Water Sensitive Urban Design (WSUD) stormwater drainage features. Existing vegetation will be retained in these areas where possible, augmented by native species suitable to Darwin.
- 79** The 'breezeway' layout of the building envelopes enables tree plantings down one side of each lot. Landscaping of the front yard of the houses will merge with the street footpath with a couple of shady trees, one inside the property boundary and one outside, with both located to accommodate driveways and kerbside parking, creating shady spaces along the street.
- 80** Landscaping within residential properties will include paved driveways, pathways and terraces, turf, low maintenance native gardens and timber yard fencing. Shrubs and trees will be used to reduce overlooking into adjoining properties, screen fences and provide shade. Turf areas will be provided only in the private recreation spaces. All lawn grass species will be of a type suited to the Darwin area.
- 81** A landscape plan is included at Supplementary Item 15.

Provisions for people with disabilities

Disability Provisions

- 82** The current Defence policy is for Defence families with special needs to be accommodated by DHA by either modifying existing homes, or by securing properties that are already modified or that can be adapted to meet the particular requirements of the disabled party.
- 83** DHA is cognisant of the previous PWC recommendation to establish the demand for houses with disability provisions and to reflect this demand in a designated proportion of housing stock. DHA will maximise the number of dwellings built to the Silver Level Core Livable Housing Design Elements and will take into account the complex issues involved including:
- the ability or inability of the current approach to match, in a timely and cost effective manner, appropriate housing for member families with disabilities,
 - the percentage of special needs families,
 - specific requirements to cater for the different types of disabilities,

- the rate of house turnover,
- the availability for allocation, houses with suitable disabled facilities at the time when they are required,
- the satisfaction of personnel without special needs being required to live in a home that incorporates facilities for the disabled (otherwise the home would remain vacant) ,
- the effect on DHA's funding model, as these special homes may be required to be retained in DHA ownership rather than sold via DHA's sale and lease program, and
- the additional costs of building a pre-determined percentage of houses with disabled provisions in terms of additional house footprint and increased block size and the extra costs associated with the provision of specialist/non-standard fittings.

84 Meanwhile, the Muirhead development will include footpath design that accommodates wheelchair access, and a percentage of lots will have topography and size that are conducive to building houses with disabled provisions.

Community facilities, childcare and schooling

85 ***Shops and Services.*** The site is served by the Casuarina Shopping Centre, a major shopping complex situated less than 2 kilometres southwest of the site. The Royal Darwin Hospital is approximately 500 metres to the west of the site. The site is less than 500m from the Tracy Village Sports and Social Club in neighbouring Lyons. A map showing the relative locations of these services together with schools is at Supplementary Item 13.

86 ***Public transport.*** Discussions about future bus services for Lyons/Muirhead have been held with the Department of Transport and bus operators. Advice is that, while a bus route through Lyons and Muirhead will be established so that 90 per cent of dwellings will be within 400 metres of a bus stop, the final route has yet to be determined. Potential bus routes are shown on both Supplementary Items 13 and 14.

Education

Primary Schools

87 The site is served by a number of schools in nearby suburbs, as outlined below:

- A government primary school and a Lutheran Primary School in the neighbouring suburb of Leanyer,
- Government primary schools in the nearby suburbs of Wanguri and Nakara.
- A Catholic primary school in nearby Casuarina.

At this stage the NTG has no formal plans to build additional schools in the area.

Secondary Schools

88 Dripstone High School in Nakara is the closest high school.

Tertiary

89 Charles Darwin University is approximately 2.5 kilometres southwest

Child Care Facilities

90 Long day child care facilities are located in the nearby suburbs of Tiwi, Casurina and Wanguri.

Occupational Health and Safety Measures

91 All DHA contractors to be used in the project will be accredited by the Federal Safety Commissioner as required.

Cost-Effectiveness and Public Value

Outline of project costs

92 The estimated overall project cost is \$410 million including GST and the cost of land. The cost 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 (SLB) program.

Details of project delivery system

- 93** Operational works will be contracted on a fixed price lump sum basis to a select panel of tenderers who will have been successful in addressing the selection criteria from a publicly advertised open call for expressions of interest.
- 94** Dwelling construction packages will be contract on a 'design and construct' basis. The successful tenderers will be required to comply with the DHA Performance and Design Requirements (Supplementary Item 16), and within architectural guidelines aimed at delivering homes that meet the Vision for Muirhead and design principles. Contractors will be required to deliver well constructed homes that conform to the project objectives and provide value for money

Construction schedule

- 95** Subject to Parliamentary approval by June 2011, the significant milestones to achieve completion of Stages 2 – 7 of the project by June 2019 are:

Date	Milestone
30 April 2011	Lodge Application for Development Consent Stage 2
1 July 2011	Development Consent Issued Stage 2
1 July 2011	Commence Detailed Design Stage 2
30 November 2011	Operational Works Approval Stage 2
15 March 2012	Commence Civil Construction Stage 2
30 November 2012	Completion of Civil & Landscaping Works Stage 2
15 March 2013	Commence Construction DHA homes Stage 2
31 October 2013	Complete Construction DHA homes Stage 2
14 March 2012	Lodge Application for Development Consent Stage 3
1 July 2012	Development Consent Issued Stage 3
1 July 2012	Commence Detailed Design Stage 3
23 November 2012	Operational Works Approval Stage 3
15 March 2013	Commence Civil Construction Stage 3
30 November 2013	Completion of Civil & Landscaping Works Stage 3
15 March 2014	Commence Construction DHA homes Stage 3
31 October 2014	Complete Construction DHA homes Stage 3
14 March 2013	Lodge Application for Development Consent Stage 4
1 July 2013	Development Consent Issued Stage 4
1 July 2013	Commence Detailed Design Stage 4
30 November 2013	Operational Works Approval Stage 4

15 March 2014	Commence Civil Construction Stage 4
30 November 2014	Completion of Civil & Landscaping Works Stage 4
15 March 2015	Commence Construction DHA homes Stage 4
31 October 2015	Complete Construction DHA homes Stage 4
14 March 2014	Lodge Application for Development Consent Stage 5
1 July 2014	Development Consent Issued Stage 5
1 July 2014	Commence Detailed Design Stage 5
30 November 2014	Operational Works Approval Stage 5
15 March 2015	Commence Civil Construction Stage 5
30 November 2015	Completion of Civil & Landscaping Works Stage 5
15 March 2016	Commence Construction DHA homes Stage 5
31 October 2016	Complete Construction DHA homes Stage 5
15 March 2015	Lodge Application for Development Consent Stage 6
1 July 2015	Development Consent Issued Stage 6
1 July 2015	Commence Detailed Design Stage 6
30 November 2015	Operational Works Approval Stage 6
15 March 2016	Commence Civil Construction Stage 6
30 November 2016	Completion of Civil & Landscaping Works Stage 6
15 March 2017	Commence Construction DHA homes Stage 6
31 October 2017	Complete Construction DHA homes Stage 6
15 March 2016	Lodge Application for Development Consent Stage 7
1 July 2016	Development Consent Issued Stage 7
1 July 2016	Commence Detailed Design Stage 7
30 November 2016	Operational Works Approval Stage 7
15 March 2017	Commence Civil Construction Stage 7
30 November 2017	Completion of Civil & Landscaping Works Stage 7
15 March 2018	Commence Construction DHA homes Stage 7
31 October 2018	Complete Construction DHA homes Stage 7
30 June 2019	Project Complete

Public value

- 96** 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 posted to Darwin, thus enhancing key objectives for retention of Defence personnel. More broadly, the Muirhead will create jobs in the

construction industry and through the development of 930 lots in Stages 2 – 7, bring additional dwellings to the Darwin housing market.

Revenue

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