9 November 2018 Reference: PA2018/0436 DB:hd

Ms Dawn Parkes
Manager Urban Planning
Department of Infrastructure, Planning & Logistics
GPO Box 1680
DARWIN NT 0801

Dear Ms Parkes

Parcel Description: Lot 9370 - Town of Nightcliff
                   544 Lee Point Road, Lee Point

Proposed Development: Subdivision to create 283 lots in five stages

Thank you for the development application referred to this office 25 October 2018, concerning the above. This letter may be placed before City of Darwin’s Ordinary Council Meeting. Should this letter be varied or not endorsed by Council, you will be advised accordingly.

The following issues are raised for consideration by the Authority:

   a). Transport networks – Public transport, vehicle, cyclist and pedestrian
       City of Darwin requires all transport infrastructure and networks to be in accordance with City of Darwin Subdivision and Development Guidelines. The following matters do not meet City of Darwin Subdivision and Development Guidelines:

       • Modified ‘Y-intersections’ are not supported. Standard ‘T-intersections’ are preferred, pursuant to 3.5.4 Intersections and Separation Distances of the City of Darwin Subdivision and Development Guidelines.
       • The proposed secondary and primary collector streets indicate a minimum carriageway width of seven metres. All collector streets must have a minimum carriageway width of eight metres, pursuant to 3.6.2 Road Widths of the City of Darwin Subdivision and Development Guidelines.
Development Guidelines. Alternatively, City of Darwin may consider other options upon receipt of sufficient justification.

Subsequently, City of Darwin will require an amended Traffic Impact Assessment to the satisfaction of City of Darwin. Council encourages the applicant to engage further with Council, however, the matter may be resolved as a condition precedent on any subsequent development permit.

b). **Community Centre**
City of Darwin requests further clarification regarding the intended future development of the 0.21 hectare site marked as ‘Community Centre’, including but not limited to:
- Future intended ownership of the parcel and community centre;
- Design parameters for the community centre, if there is an intention to hand the centre to City Darwin;
- Timing for any development; and
- Any interim uses for the site.

City of Darwin requests that should a development permit be issued, that the following be provided as a condition precedent:

a). **Traffic Management**
Prior to the endorsement of plans and prior to the commencement of works (including site preparation), City of Darwin requires amendments to the proposed road configurations to meet the requirements of City of Darwin Subdivision and Development Guidelines.

a). **Open Space Areas and Landscaping**
Prior to the endorsement of plans and prior to the commencement of works (including site preparation), City of Darwin requires a detailed landscaping plan for all proposed road reserves and public areas. Approval by Council is required for any recreational/community infrastructure that is intended to be handed over to City of Darwin.

b). **Site Construction**
City of Darwin requests that an Environmental and Construction Management Plan (ECMP) be required. The ECMP should specifically address the following:
- waste management,
- traffic control,
- haulage routes,
- storm water drainage,
- use of City of Darwin land, and
- how this land will be managed during the construction phase;
to the satisfaction of City of Darwin.

**Note:** Sediment control measures are to be established and maintained, to prevent silt and sediment escaping the site or producing erosion.

Building rubbish or debris must not be placed, or be permitted to be placed, on any adjoining public reserve, footway, road or private land, without first obtaining a works approval from City of Darwin.

**In addition, City of Darwin requests that should a development permit be issued, that the following be provided as general condition requiring Council notification and/or clearance:**

a). **Street Trees, Verge Plantings and Footpaths**

The proposal includes plantings, new concrete footpaths and other works within existing and proposed City of Darwin verges. Verge plantings, footpaths and all other works are required to be constructed in accordance with City of Darwin policies and are subject to a separate approval from City of Darwin. City of Darwin requests that the applicant first seek all required approvals from City of Darwin for any proposed works within the road reserve.

b). **Street Trees**

Any proposed street tree/s to be planted within Council’s proposed or existing road reserve shall be carried out at full cost to the developer.

Species selection will be in sequence with Council’s strategy and policies.

Council is to be notified of any contractor prior to the commencement of any works.

As street trees will become an asset of City of Darwin, the developer shall provide Council specification for the purchasing of quality tree stock prior to construction. Specification for quality tree stock shall be submitted for approval to the satisfaction of City of Darwin.

The developer shall provide Council a Plant Schedule for street trees indicating:

- root-ball container volume (litres),
- height of species (metres),
- calliper (mm); and
- details identifying the nursery supplying the tree stock.
Street trees shall be of advanced size to provide greater impact to the road reserve and the development.

Prior to the establishment of street trees within the road reserve contact shall be made with City of Darwin’s Department of Parks and Reserves to ensure appropriate planting locations are defined.

A 12 month maintenance and 24 week establishment period shall comply with the proposed street tree planting fronting the development. During this period, the developer will be responsible for the ongoing establishment and maintenance to ensure a 100% survival rate.

c). City of Darwin requests that the Authority require a monetary contribution is paid to City of Darwin in accordance with its Developer Contribution Plan for Roadwork: Lee Point Road: Vanderlin Drive to Lee Point Reserve (November 2012) to upgrade Lee Point Road as a result of this development. The applicant will be required to pay City of Darwin a contribution towards roadworks in accordance with the above plan.

Should this application be approved, the following conditions pursuant to the Planning Act and City of Darwin’s responsibilities under the Local Government Act are also recommended for inclusion in the development permit issued by the Development Consent Authority.

- Prior to the commencement of work (excluding site preparation), designs and specifications for landscaping of any proposed road verges or public areas shall be submitted for approval by City of Darwin and all approved works shall be constructed at the applicant’s expense, to the requirements of City of Darwin.

- Prior to the commencement of work (excluding site preparation), engineering designs and specifications for the proposed and affected roads, and public spaces, including:
  - street lighting,
  - stormwater drainage,
  - vehicular access,
  - traffic management
  - pedestrian/cycle corridors,

shall be submitted for approval by City of Darwin; with all approved works constructed at the applicant’s expense to the requirements of City of Darwin.
• Any proposed stormwater connections to City of Darwin stormwater system or proposed works on/over City of Darwin property shall be subject to separate application to City of Darwin and shall be carried out to the requirements and satisfaction of City of Darwin.

• Any easements or reserves required for the purposes of stormwater drainage, roads, access or for any other purpose, shall be made available free of cost to City of Darwin and/or neighbouring property owners.

• Any proposed signage for the site shall be subject to a separate assessment in accordance with City of Darwin Policy Number 42 – Outdoor Advertising Signs Code.

In considering this application, the Development Consent Authority is requested to take into account any implications of the *Disability Discrimination Act* (Cth) or the *Anti-Discrimination Act* (NT) with regard to access for the disabled.

If you require any further discussion in relation to this application, please feel free to contact me on 8930 0528.

Yours faithfully

CINDY ROBSON  
MANAGER CITY PLANNING
NOTES
(1) This plan was prepared for the purpose and exclusive use of DEFENCE HOUSING AUSTRALIA as an investigation into the Development Potential of the land described in the plan and is not to be used for any other purpose or by any other person or corporation.
JFP URBAN CONSULTANTS PTY LTD accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this plan in contravention to the terms of this clause or clauses 2, 3, 4, 5, 6 or 7 hereof.
(2) The contours on this plan are approximate and are suitable only for the purpose of this application. The accuracy of the contours has not been verified and no reliance should be placed upon such contours for any purpose other than for the purpose of this application.
(3) JFP takes no responsibility for any changes to the design concept that may arise as a consequence of the detailed vegetation assessment undertaken in the future. To increase certainty JFP recommends the appointment of suitable vegetation professionals to complete the vegetation assessment as soon as practical.
(4) This plan shall be read in conjunction with the JFP preliminary planning assessment prepared in relation to the site.
(5) The dimensions, area, plan and location of improvements, flood information (if shown) and number of lots shown on this plan are approximate only and may vary.
(6) Information sourced from third-parties has been utilised in the preparation of this plan. JFP URBAN CONSULTANTS PTY LTD accepts no responsibility for the accuracy of the information sourced from third parties. Furthermore it is noted that the boundaries and extents of the site have not been confirmed by survey and therefore cannot be relied upon until such survey is undertaken.
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MN OVERALL PROPOSAL PLAN S

544 LEE POINT ROAD, LEE POINT, DARWIN
DEFENCE HOUSING AUSTRALIA

NOTES

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PROPERTY DESCRIPTION
LOT 9370 ON S901068
TOTAL AREA 51.17 ha

LEGEND
STAGING
LOTS 4000m² & larger (40m frontage min.)
LOTS 600-800m² (30-34m)
LOTS 540-599m² (27-30m)
LOTS 450-539m² (15-18m)
PARK / OPEN SPACE
COMMUNITY USES
COMMERCIAL USES
OPEN SPACE / DRAINAGE RESERVE
MONSOON RAINFOREST
BITING INSECT BUFFER
DRAINAGE RESERVE
DETENTION STORAGE
TELECOMMUNICATION TOWER
MILITARY HERITAGE BUFFER
PROPERTY DESCRIPTION
LOT 9370 ON S901068
TOTAL AREA 51.17 ha

STATISTICS
STAGE 1A STAGE 1B STAGE 2 STAGE 3 BALANCE TOTAL

- NO. OF LOTS
4000m² & larger
600-800m²
540-599m²
450-539m²
TOTAL
87
85
71
27
270

- LENGTH OF NEW
17m ROAD
20m ROAD
25m ROAD
TOTAL
750m
750m
450m
580m
2530m

- SCHOOL SITE AREA
COMMUNITY CENTRE AREA
ACTIVE RECREATION RESERVE AREA
DRAINAGE RESERVE AREA
TOTAL
0
0
0
0
0

- OPEN SPACE / DRAINAGE RESERVE
0
0
0
0
0

- CONSERVATION RESERVE (CR)
0
0
0
0
0

- MILITARY HERITAGE SITE (KONFRONTASI)
0
0
0
0
0

Note: Average residential lot size is 533m². Average rural lot size is 400m².
PROPERTY DESCRIPTION
LOT 9370 ON S901068
TOTAL AREA 51.17 ha

LENGTH OF NEW
17m ROAD 750m 750m 450m 580m 0 2510m
20m ROAD 200m 200m 360m 0 0 633m
25m ROAD 0 285m 210m 0 0 495m
TOTAL 750m 1120m 1020m 580m 0 3860m

SCHOOL SITE AREA 0 0 0 0 3.25ha 3.25ha
COMMUNITY CENTRE AREA 0 0 0 0 0.21ha 0.21ha
ACTIVE RECREATION RESERVE AREA 0 0 0 0 2.46ha 2.46ha
DRAINAGE RESERVE AREA 0.12ha 0 2.74ha 0 0.30ha 0.30ha
PARK AREA 0.04ha 0.54ha 0 0 0.59ha 0.59ha
OPEN SPACE/DRAINAGE RESERVE 0 0 0 0 7.03ha 7.03ha
CONSERVATION RESERVE (CR) 0 0 0 0 2.24ha 2.24ha
STAGE AREA 8.15ha 6.89ha 16.62ha 11.81ha 7.79ha 51.17ha

Note: Average residential lot size is 533m²; Average rural lot size is 4001m²

STAGING
- MONSOON RAINFOREST (0.88 ha)
- 15m CONSERVATION BUFFER (0.71 ha)
- BITING INSECT BUFFER

STATISTICS
NO. OF LOTS
4000m² & larger 3 0 0 0 30 (11%)
600-800m² 27 1 19 0 47 (18%)
540-599m² 14 17 21 0 52 (19%)
450-539m² 43 67 31 0 141 (52%)
TOTAL 87 88 77 0 270 (100%)

NOTES
(1) This plan was prepared for the purpose and exclusive use of DEFENCE HOUSING AUSTRALIA to accompany an application to the DIVE LOMEN CONSENT AUTHORITY for approval to subdivide the land described in this plan and is not to be used for any other purpose or by any other person or corporation.

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(3) The dimensions, areas, and locations of improvements, food, information (if known) and number of lots shown on this plan are approximate only and may vary.

(4) This plan may not be photocopied unless this note is included.
STAGING

LEGEND

MONSOON RAINFOREST (0.88 ha)
15m CONSERVATION BUFFER (0.71 ha)
BITING INSECT BUFFER

PROPERTY DESCRIPTION
LOT 9370 ON 5901068
TOTAL AREA 51.17 ha

NOTES

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(3) The dimensions, areas, size and location of improvements, fiscal information (if shown) and number of lots shown on this plan are approximate only and may vary.

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PROPOSAL PLAN STAGES 1-3
DEFENCE HOUSING AUSTRALIA
LEE POINT ROAD, LEE POINT - DARWIN

M2737P MN_DA2 R1.DWG
23rd October 2018
PROPERTY DESCRIPTION
LOT 9370 ON S901068
TOTAL AREA 51.17 ha

LEGEND

STAGING
NON-MANDATORY ZERO
BUILDING SETBACK (Lots 360m²-599m²)
SEE SHEET 5 FOR BUILDING ENVELOPES

NOTES

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(3) The dimensions, areas, lots and sections of improvements, flood information (if shown) and number of lots shown on this plan are approximate only and may vary.

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TYPICAL BUILDING ENVELOPES - REGULAR LOTS

DEVELOPMENT CONTROL NOTES
GENERAL DESIGN CONTROLS FOR LOTS 360m²-599m²

Front Boundary setbacks
- Primary Frontage boundary setback
  6m setback to single or double garage;
  8m setback for the remainder of the dwelling, subject to the requirements of the NT Planning Scheme.
- Secondary Frontage boundary setback
  2.5m setback; and
  1.5m for verandahs, balconies and ancillary structures without external walls.

Side and Rear Boundary setbacks
Unless built to boundary:
- 15m or
- 1m provided that the subject wall:
  • Only includes openings that are either glazed in an opaque material and cannot be opened, or have a sill height of 1.6m or greater;
  • Does not exceed beyond a maximum height of 3.5m; and
  • Does not extend beyond a maximum length of 9m; and
  0.9m for shade sails to a maximum height to 2.5m at the minimum setback.

Zero Building Setback (built to boundary walls)
Any part of a dwelling utilising a zero building setback must have its external wall erected to the boundary with no gap.
For Lots 300-429m²
A zero building setback is permitted to a maximum of one side boundary.
For Lots 450 - 599m²
A zero building setback is permitted to one side boundary where a 3m setback is provided to the other side boundary.

Building Height
Maximum 2 storeys to 8.5m

Private Open Space
50m² including an area no less than 6m x 6m.
Must include an area of approximately 5m² for the deep soil planting of shade trees.

Carparking
At least 2 (two) car parking spaces with at least one space capable of being covered.

Front Entry
Pedestrian entry and door visible and accessible from primary street frontage.

LEGEND:
- BUILT TO BOUNDARY ZONE (Lots 360m²-599m²)
- INDICATIVE OPEN SPACE (6m x 6m)
- DRIVEWAY LOCATION (3.5m wide)
- BUILDING ENVELOPE
TYPICAL BUILDING ENVELOPES - IRREGULAR LOTS

LEGEND
- BUILDING ENVELOPE
- BUILT TO BOUNDARY ZONE (Lots 360m²-599m²)
- INDICATIVE OPEN SPACE (6m x 6m)
- DRIVEWAY LOCATION (3.5m wide)

SCALE: @ A3 1:900

BUILDING ENVELOPE PLAN: STAGES 1-3
DEFENCE HOUSING AUSTRALIA
LEE POINT ROAD, LEE POINT - DARWIN

JFP URBAN CONSULTANTS PTY LTD  A.C.N. 050 414 045
BRISBANE - SUNSHINE COAST - CENTRAL QLD
BRISBANE - JFP House
76 Ernest Street, South Brisbane Qld 4101
P 07 3844 7161  W www.jfp.com.au
DEVELOPMENT APPLICATION – SUBDIVISION

LEE POINT MASTER PLANNED URBAN DEVELOPMENT
LOT 9370 TOWN OF NIGHTCLIFF

PREPARED FOR:

[Logo of Defence Housing Australia]

BY:

[Logo of Northern Planning Consultants]

NORTHERN PLANNING CONSULTANTS PTY LTD
U6, T212 Darwin Corporate Park, 631 Stuart Highway, Berrimah
ABN 88 609 134 741
Phone 0427 796 140
Brad.Cunnington@northernplanning.net

October 2018
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This report (and application) is to be read together with the following attachments:

**Attachment A:** Master Plans

**Attachment B:** Subdivision Plans

**Attachment C:** Building Envelope Plans

**Attachment D:** Servicing and Infrastructure Report and Plans, Cardno

**Attachment E:** Landscaping Master Plan, Clouston Associates

**Attachment F:** Traffic Impact Assessment, Cardno

**Attachment G:** Land Suitability Assessment

**Attachment H:** Title Documents
1. INTRODUCTION AND BACKGROUND

This report accompanies an application for subdivision of the existing parcel into 283 allotments, comprising the second phase of the Lee Point Master Planned Urban Development. Ultimately the development will provide a new urban residential subdivision within the land contained in the Lee Point Area Plan, comprising Lots 4873 and 9370 Town of Nightcliff, referred to as 2CRU (Number 2 Controlling and Reporting Unit) and Muirhead North respectively. This application seeks a development permit for the Muirhead North component (lot 9370) of Lee Point, and comprises:

- Single dwelling and rural residential allotments;
- Community purpose precinct comprising a site for a new primary school and separate community centre, an active recreation area comprising separate playing fields / courts co-located with the school and available for public use;
- Community amenity precinct comprising a childcare centre and café, co-located with a temporary sales and display office;
- Open space and drainage;
- The retention of the existing Monsoon Vine Forest within a single conservation lot; and
- Remnant land at the eastern end of lot 9370.

Lot 9370 is crown land under the care and control of the Department of Infrastructure, Planning and Logistics (DIPL). The development of Lot 9370 is subject to a development agreement between DIPL and Defence Housing Australia (DHA), and includes the required provision of serviced land by DHA to the Northern Territory Government for the future development of a primary school and tourist accommodation (with tourist accommodation lots located within lot 4873).

The proposal is defined as a form of subdivision pursuant to Section 5 of the Northern Territory Planning Act, and thus requires a development permit pursuant to Section 44(b) of the Act. This report details the nature of the subject land and locality, the proposed development, considers the proposal against the relevant provisions of the Planning Scheme, and the relevant components of Section 46 of the Northern Territory Planning Act.

1.1 Planning History

In late 2015, the Minister for Lands and Planning approved an amendment (Amendment Number 369) to the Northern Territory Planning Scheme to rezone lots 4873 and 9370 from Commonwealth / SD26 to FD (Future Development) and CN (Conservation), and to introduce the Lee Point Planning Principles and Area Plan into the Scheme.
The amendment provided the regulatory policy framework to allow the development of the area for the purpose of a new suburb, including residential, commercial, tourist accommodation, recreation, community, education and open space uses. Specifically, the amendment sought to:

- Introduce a land use / development zone under the NT Planning Scheme to lot 4873 by zoning the land FD (Future Development);
- Rezone lot 9370 from SD26 to FD (Future Development); and
- Amend Part 8 of the Scheme to include the Lee Point Area Plan and Planning Principles in order to facilitate a master planned urban subdivision on lots 4873 and 9370.

The Lee Point Area Plan was proposed to facilitate:

- Residential development at a range of densities and housing typologies to accommodate a mix of defence and private residents;
- The development of land for necessary and appropriate community services and facilities based on the existing and anticipated population within the subject land and surrounding areas;
- A mixed use ‘neighbourhood centre’ that will integrate tourism, commercial, community and residential development around a ‘main street’, whilst integrating with surrounding residential, community and open space development;
- A dedicated tourism precinct, including accommodation and tourism / community activities that integrate with the main street;
- Coastal view corridors and access to the Casuarina Coastal Reserve, whilst protecting the reserve from potential impacts arising from the development of the land;
- Development that responds to the characteristics and constraints of the site and surrounding land, including the coastal reserve, tourism and public space facilities, the Royal Darwin Hospital and existing residential areas;
- Due consideration to historically significant items within the subject land and the historic use and significance of lot 4873 in defence operations;
- Integration with the surrounding road network, including safe, functional and efficient connections to Lee Point Road for all necessary forms of transport; and
- A high quality open space and pedestrian network, including a high level of accessibility and connectivity for pedestrians and cyclists.
The current FD (Future Development) Zoning enables the subdivision master plans (including confirmation of intended land use for each lot) to be finalised and the application for subdivision to be made in accordance with the Lee Point Area Plan and Planning Principles. Upon the completion of the various stages of development within the site, the land will be rezoned in accordance with the relevant Planning Scheme Zone, likely to include (but not necessarily limited to):

- SD (Single Dwelling), MD (Multiple Dwelling) and RR (Rural Residential);
- CP (Community Purpose) and C (Commercial);
- PS (Public Open Space) and OR (Organised Recreation); and
- CN (Conservation).

In November 2017, Defence Housing Australia lodged a development application for subdivision to create 498 allotments within lot 4873 (2CRU). The application (PA2017/0569) comprised the western portion of the Lee Point Master Planned Urban Development, and sought approval for 498 allotments, including single and multiple dwelling lots, commercial and tourist commercial, public open space and conservation areas. The subdivision includes the excision of 21.95 hectares to be incorporated into the Casuarina Coastal Reserve. The application was amended in response to submissions to now comprise subdivision to create 513 lots. It is anticipated that the consent authority will consider PA2017/0569 before the end of November 2018.

1.2 Environmental Assessment

In October 2017, Ecology and Heritage Partners on behalf of Defence Housing Australia submitted an Environmental Impact Statement (EIS) for the Lee Point Master Planned Urban Development to the Northern Territory Environment Protection Authority (EPA). The EIS was formulated in response to the Terms of Reference (TOR) provided by the EPA, and addressed the following impacts:

- Hydrology and associated impacts;
- Air Quality;
- Utilities and Infrastructure;
- Biodiversity and Heritage, including a full risk assessment, significant impact assessment and provision of environmental offsets;
- Social and Economic impacts, including a social infrastructure assessment, assessment of project impact, and risk assessment;
- Noise assessment, including consideration of road noise;
- Construction Environment Management Plan;
• Odour Impact Assessment Report; and
• Biting Insect Report.

The draft EIS was accepted by the EPA and has progressed through the public exhibition, submission response and final assessment phases. A site tour was conducted with members of the NTEPA, and the final outcome and recommendations are expected on or before 31 October 2018.

2. SUBJECT LAND

![Map of Subject Land - Lot 9370 Town of Nightcliff (544 Lee Point Road, Lee Point)](image)

**Figure 1:** Lot 9370 Town of Nightcliff (544 Lee Point Road, Lee Point)

**Address:**  
Lot 9370 Town of Nightcliff (544 Lee Point Road, Lee Point)

**Title Reference and Land Tenure:**  
No current title issued – Northern Territory Crown Land (9370)

**Landowner:**  
Department of Infrastructure, Planning and Logistics (Controlling Agency)

**Land Area:**  
51.17 hectares

**Easements:**  
None identified

**Road Frontage:**  
524.4 metres to Lee Point Road (approximately)

**Zone:**  
FD (Future Development)

**Relevant Planning History:**  
PA2014/0922 (NT Planning Scheme Amendment Number 369) – “Include Lot 4873 Town of Nightcliff into the NTPS to Zone FD (Future Development) and to
rezone Lot 9370 Town of Nightcliff from Zone SD26 (Specific Use Zone Darwin No. 26) to Zone FD (Future Development) and to introduce the Lee Point Area Plan to Part 8 of the NTPS.”

PA2017/0569 – “Subdivision to create 498 lots in 2 stages” (Lot 4873)

The subject land comprises a 51.17 hectare crown land parcel adjacent the eastern side of Lee Point Road, immediately north of Aldenham Road, itself comprising the northern boundary of the suburb of Muirhead. With the exception of the telecommunications tower and associated equipment shelter, lot 9370 is void of built form. The site is covered with remnant vegetation, with natural and modified drainage paths occurring across the site to the Leanyer Swamp further east. There is some seasonal inundation in the very eastern extent of the site, however the majority of the site consists of well-drained soils. There are numerous informal vehicle tracks within the site, and evidence of recreational four wheel drive and/or motorcycle/quad bike access. Lot 9370 is gently sloped towards the east with small localised undulations located throughout the property. There is extensive evidence of illegal dumping.

2.1 Storm Surge

Potential storm surge inundation is identified in figure 2, and during both primary and secondary storm surge events is limited to the south-eastern extremity of lot 9370. The extent of storm surge inundation is limited to land unsuitable for future development due to land unit and soil types and the proximity to biting insect breeding areas.

![Figure 2: Extent of storm surge inundation within lot 9370](image)

2.2 Heritage

Lot 9370 contains a single site of historical significance - a Konfrontasi Cruciform, a series of earth-filled 44 gallon drums likely used as a machine gun emplacement. The site is located within Lot 09370 adjacent Lee Point Road. An interpretive sign is situated to the front of the structure providing information on the site and the Confrontation period.
Currently no sites within the subject land or lot 4873 have been listed on the NT Heritage Register however some structures do hold a certain heritage value and the cruciform was identified as an item worthy of retention by the Heritage Branch within the Department of Infrastructure, Planning and Logistics.

An Aboriginal Areas Protection Authority (AAPA) Certificate was sought and obtained for a previous development proposal within Lot 9370. The Certificate has since expired (in June 2013) however identified no sites of significance within lot 9370.

### 2.3 Flora and Fauna

Detailed ecological assessments were carried out for both lots 4873 and 9370 in 2008 and 2010. DHA subsequently commissioned a further review of the background information, additional field work and ground truthing, and a detailed ecological assessment (including the identification of flora and fauna species protected under either Northern Territory or Commonwealth Legislation) in 2014 as part of the Planning Scheme Amendment process. This work identified a range of vegetation communities within both parcels, with specific ecological values comprising:

- Monsoon vine thicket / rainforest areas within both sites, comprising areas of high ecological value due to their limited distribution in Greater Darwin. Areas were identified in lot 4873 below the escarpment and in the south-western portion of the site (i.e., the CN area), and a small isolated patch in the eastern portion of lot 9370.

- Threatened species of moderate ecological value, comprising the Darwin Cycad (known to occur) and the Black-footed Tree-rat (likely to occur).

Subsequently, the EIS in 2017 undertook an extensive survey, assessment and reporting process to accurately assess the biodiversity values within the land, the presence of threatened or otherwise protected species, and the environmental reporting and protection obligations under both Territory and Commonwealth legislation. The EIS includes a full risk assessment on all potential biodiversity and heritage impacts and mitigation measures to minimise the risk thereto. Finally, the EIS details the environmental offset to be provided in lieu of any residual impact to a matter of National Environmental Significance.

### 2.4 Drainage

Topography across the site ranges from approximately 5 to 25 m AHD, generally grading from the west to east prior to discharging into Buffalo Creek. Surface runoff from the site is mainly conveyed via sheet flow and surface flow with a few areas where runoff is concentrated in defined gullies. These include naturally occurring gullies within the centre of the site. A proportion of the 2CRU existing catchment drains through the subject site via three culverts, illustrated in figure 3.
2.5 Site Images

Image 1: Lot 9370 taken from approximately 30 metres above lot 4873. The communications tower forms the north-western boundary of lot 9370, with Lee Point Road evident to the left of the tower. The suburb of Muirhead is visible in the background.
Image 2: Approximate extent of lot 9370, with Muirhead and Lyons visible in the background. The top of the communications tower and Lee Point Road are evident.

Image 3: Cruciform and signage adjacent Lee Point Road.
3. LOCALITY

Figure 1 in section 2 of this report demonstrates the zoning layout per the Northern Territory Planning Scheme within immediate proximity of the site. The land is situated in the area of Lee Point, between the existing suburb of Muirhead and the Lee Point Village / Club Tropical Resort. The Lee Point public recreation area is located at the northern end of Lee Point Road (comprising the northern extent of the Casuarina Coastal Reserve). Immediately north of the site, lot 9312 is a vacant strip of land extending along the northern boundary of lot 9370, with a width (and therefore frontage to Lee Point Road) of 30 metres. Lot 9312 comprises a sealed driveway its entire length, leading to a vacant fenced compound at its eastern end. The site is owned by the Power and Water Corporation.

North of lot 9312 is the Lee Point Village Resort / Club Tropical Resort, comprising a large caravan park including cabins and camp grounds, along with recently developed motel facilities concentrated in the northern portion of the site (adjacent Buffalo Creek Road). Buffalo Creek Road, located opposite and slightly north of lot 4873 provides access to the mouth of Buffalo Creek, including boat ramp and car / trailer parking areas.

To the south of the site, the joint Defence Housing / private residential suburbs of Lyons and Muirhead are located on the western and eastern sides of Lee Point Road respectively. Lyons comprises approximately 690 lots with Muirhead some 1,200 lots once completed. Stage 7 (final stage) of Muirhead is currently nearing completion. A small local centre is identified for development within Muirhead, located adjacent the Lee Point Road frontage and approved in August 2017 through DP17/0308. Adjacent the western boundary of Lyons is the Royal Darwin Hospital, Darwin Private Hospital and associated government and private health facilities. Further south are the suburbs of Tiwi, Wanguri and Leanyer.

Zoning within the greater locality comprises a mix of residential, accommodation, public, community and conservation zones, partly evident in figure 1. The Casuarina Coastal Reserve extends adjacent the western side of lot 4873 to the north and south, and is zoned CN (Conservation). To the south of lot 4873, the hospital site is encompassed within Zone CP (Community Purpose), with the suburb of Lyons within Zone SD17 (Specific Use Darwin 17). Muirhead, adjacent the southern boundary of lot 9370, is zoned SD23 (Specific Use Darwin 23), with land adjacent the eastern boundary zoned PS (Public Open Space). To the north of lot 9370, land is zoned OR (Organised Recreation), with a small strip of PS land extending from Lee Point Road adjacent part of the site’s northern boundary. The Lee Point Village Resort is zoned CV (Caravan Park), with land further north comprising a combination of PS, CP and CN zones.

Commercial and recreation facilities within the broader locality include the Tracey Village Social and Sports Club, Casuarina shopping and commercial precinct, Hibiscus Shopping Centre and various small local shops. Schools, early learning and childcare facilities in the greater locality include the Dripstone Middle School, Tiwi Early Learning Centre, Henbury School, Wanguri Preschool, Leanyer Primary School, St Andrew Lutheran School and the Holy Spirit Catholic Primary School. The majority, if not all, commercial and community facilities are outside of what would ordinarily be considered the immediate locality.

Both parcels present to Lee Point Road as natural bushland with relatively minimal intrusion, and thus the amenity of the locality is moderate-high. The communications tower adjacent the north-western corner of lot 9370 is a prominent feature, with the southern portion of the Lee Point Village Resort maintaining vegetation through established landscaping.
Further north along Lee Point Road, vegetation at the Resort is more open and formally landscaped due to the presence of hardstand areas and the recently developed motel facilities. Lee Point Road crests near the intersection with Buffalo Creek Road, and allows ocean views from this point onwards (to vehicles travelling north).

4. PROPOSAL – LEE POINT MASTER PLANNED URBAN DEVELOPMENT

The proposed subdivision is identified in the Master Plan in Attachment A, the detailed subdivision dimension plans in Attachment B, and the building envelope plans (for lots less than 600m²) in Attachment C.

The application seeks to subdivide the subject land to create 283 allotments in five stages, comprising the second phase of the Lee Point Master Planned Urban Development (the first phase being the master plan within lot 4873). The master plan is based on the previous master plan presented as part of PA2014/0922 (Planning Scheme Amendment), and the Lee Point Area Plan, and in its entirety will comprise an urban development over both lots 4873 and 9370. The master plan for lot 9370 includes the school and public recreation areas, residential and rural residential development, and has been developed together with the master plan for lot 4873, however the different owner arrangements (lot 9370 is crown land) and agreements between DHA and DIPL are such that separate development applications are required. Development of the Lee Point Master Planned Urban Development will ultimately facilitate:

- Residential development at a range of densities and housing typologies to accommodate a mix of defence and private residents;
- The development of land for community services and facilities based on the existing and anticipated population within the subject land and surrounding areas;
- A mixed use ‘neighbourhood centre’ that will integrate tourism, commercial, community and residential development around a ‘main street’, whilst integrating with surrounding residential, community and open space development;
- A dedicated tourism precinct, including accommodation and tourism / community activities that integrate with the main street;
- Coastal view corridors and access to the Casuarina Coastal Reserve, whilst protecting the reserve from potential impacts arising from the development of the land;
- Development that responds to the characteristics and constraints of the site and surrounding land, including the coastal reserve, tourism and public space facilities, the Royal Darwin Hospital and existing residential areas;
- Due consideration to historically significant items within the subject land and the historic use and significance of lot 4873 in defence operations;
- Integration with the surrounding road network, including safe, functional and efficient connections to Lee Point Road for all necessary forms of transport; and
• A high quality open space network, including a high level of accessibility and connectivity for pedestrians and cyclists.

Given the above objectives, the lot 9370 master plan provides:

• 240 single dwelling residential lots between 450m² and 805m². Lots have been configured as Villa (450-539m²), small-traditional (540-599m²) and larger-traditional (>600m²) single dwelling parcels, with proportions at 49%, 19% and 20% respectively. Lot typologies are evenly dispersed, ensuring smaller lot typologies are located closest to public open space, the school / community centre site and the active recreation reserve. Larger-lot typologies are interspersed with smaller lots, and border the northern, eastern and southern extents of the proposed urban areas;

• 30 rural residential lots between 4,000m² and 4,008m², providing a rural residential buffer between urban areas and the Leanyer swamp, in accordance with the established biting insect buffer and the Lee Point Area Plan. The rural residential areas comprise 11% of the total residential allotments;

• A 3.25 hectare school site to be constructed, serviced and titled by DHA as part of the subdivision development, and provided to the Northern Territory Government for the development of a primary school and pre-school to service the local population and broader catchment. The school site has two road frontages, is co-located with the community centre site and will co-exist with the active recreation fields;

• A 2,100m² community purpose lot immediately adjacent both the school and active recreation area, for the purpose of accommodating a community centre;

• An organised recreation (public open space) parcel of 2.46 hectares, comprising an active recreation reserve with public open space, sports field/s and playing courts;

• 3 community amenity lots in the south-western portion of the subdivision for the purpose of accommodating a childcare centre, a small café and a temporary sales office / display home. The sales office / display home would revert to a single dwelling upon the completion of the development;

• A 2.24 hectare conservation parcel incorporating the retained monsoon rainforest with associated buffers. An adjoining drainage / detention allotment to the west of this site will ensure the flow of stormwater into this area maintains pre-development conditions; and

• 5 parcels accommodating drainage infrastructure / detention facilities, including the remnant area at the east of lot 9370.

Upon the completion of the various stages of development within the site, the land will be rezoned in accordance with the relevant Planning Scheme Zone, likely to include (but not necessarily limited to):

• SD (Single Dwelling) and MD (Multiple Dwelling) for the single dwelling residential allotments.
It is expected that single dwelling lots under 600m$^2$ will be zoned MD (to avoid further subdivision and/or multiple dwellings given the 300m$^2$ minimum density requirements of the Planning Scheme), and lots over 600m$^2$ will be zoned SD. At this stage no duplex or small multiple dwelling lots are proposed;

- RR (Rural Residential) for the residential lots in the rural residential buffer area (all residential lots over 4,000m$^2$);
- CP (Community Purpose) for the school and community centre sites;
- C (Commercial) for the child care centre and café sites. Alternatively, a specific use zone may be considered over these lots in order to restrict development in accordance with the master plan (ie limited to a child care centre and café), and avoid any unintended development under Zone C;
- OR (Organised Recreation) for the active recreation reserve;
- PS (Public Open Space) for all open space and dual purpose park and stormwater detention allotments;
- U (Utilities) or PS (Public Open Space) for open drainage infrastructure and the detention area in the eastern extent of the site; and
- CN (Conservation) for the monsoon rainforest parcel.

### 4.1 Staging

The application proposes development across 5 stages, comprising stages 1a and 1b, 2, 3 and a separate stage for the school, community centre and recreation reserve (comprising the community purpose precinct). The order of staging for the community purpose precinct has not been nominated as the delivery of these areas is subject to confirmation from the Northern Territory Government as to the timing of the school site. DHA confirms it is able to ensure the provision of the school site in accordance with Government’s requirements, whether this be as part of early stages or later. At this stage it is anticipated that the community precinct is likely to be required concurrent with stage 2.

### 4.2 Community Infrastructure

As part of both the rezoning submission and the EIS, extensive analysis was undertaken regarding the requirement for and provision of community and social infrastructure, including a Social Infrastructure Needs Analysis, Social Impact Assessment and Social Impact Management Plan. These works have culminated in the Lee Point Area Plan identifying a Primary School and Community Hub (Lee Point Area Plan 2 – herein referred to as the community purpose precinct) on the eastern side of lee Point Road. The proposed subdivision includes 5.92 hectares across 3 lots for the development of a school, community centre and active recreation reserve. The development of Lee Point (lot 9370 together with lot 4873) will facilitate the future provision of the following community and social infrastructure:

- Affordable housing, particularly for Defence personnel and key workers;
• Medical practitioner and/or allied health services;

• Child care services, with initial demand estimated at 120 children subject to full occupancy and the final extent of child care services provided within the local centre site in Muirhead;

• Integrated school / education facility comprising one primary school, integrated / collocated after school-hours care facilities, pre-school / long day care / kindergarten.

• Community centre as a shared space with multiple rooms and flexible useability.

• Outdoor sports facilities including sports field, tennis and netball facilities.

• Local / neighbourhood parks and playgrounds.

• Neighbourhood shops.

The provision of a range of housing options, lot sizes and locations seeks to increase the affordability of housing in the Northern Suburbs. Commercial space within the village centre on lot 4873 will be appropriately zoned to allow the development of land for convenience shopping needs and recreational retail (such as cafes and restaurants), as well as the development of medical clinics, including general practice and allied health services, with demand / provision driven by the private sector. Development within the community amenity precinct will be limited to a child care centre and a small café, and will be developed as part of stage 1a, in order to ensure the provision of basic amenities for residents of early stages.

4.3 Road Hierarchy, Stormwater, Earthworks and Service Infrastructure

Concept engineering plans include the road hierarchy concepts, indicative road cross-sections for all road levels, indicative bus bay designs, stormwater drainage concept, and water and sewerage reticulation concepts, all provided within Attachment D. In addition, a stormwater management plan is also provided in Attachment D, and a Traffic Impact Assessment in Attachment F.

The Road Hierarchy Plan identifies the intent for a primary road network that enables efficient access to and between all areas of the proposed subdivision, with connection to Muirhead and the primary connections to Lee Point Road. The application proposes a single additional connection to Lee Point Road, with access also possible from existing Lee Point Road via Aldenham Road and through Muirhead. This approach will ensure an even distribution of traffic, whilst ensuring the intersection with Main Street within lot 4873 remains the primary focal point. The intention for primary pedestrian and cycling routes are also demonstrated, with an emphasis on the primary pedestrian routes and lineal open space.

Discussions with the Public Transport Division within the Department of Infrastructure, Planning and Logistics have led to the development of a bus route that connects lot 4873 to the existing Lyons service through Damabila Drive, along the coastal esplanade and back along Lee Point Road, then entering lot 9370 from Lee Point Road, travelling west along the front of the school and recreation area, then turning right onto Aldenham Road to the south of the site, again exiting onto Lee Point Road.
The proposed route ensures the provision of public transport services within 400 metres of all residential areas, and direct public transport services to both the urban centre within lot 4873 and the community purpose precinct within the subject land.

The stormwater concept design identifies the drainage of all individual allotments, catchment and sub-catchment area boundaries and the ultimate discharge locations for water leaving the site.

Three detention basins are proposed to ensure post-development discharge rates do not exceed pre-development conditions, with detention proposed in the active recreation reserve (to account for major flooding events only), to control flows going into the Monsoon Vine Thicket, and in the eastern portion of the site prior to discharge.

The intensified development of the site has the potential to increase local site runoff due to the increase in impervious areas associated with the development. This potential increase in local peak flows can ultimately result in increased peak discharges within the adjacent waterways that can result in increased flood levels, erosion of waterways and affect bank stability. In the case of lot 9370, increased overland flows are also associated with an increased risk to the integrity and health of the Monsoon Vine Thicket, a sensitive environment to be conserved under Zone CN. To limit the adverse impacts external to the developed site and within the Monsoon Vine Thicket it is proposed to include in-line and end-of-line detention basins prior to discharging into the monsoon vine thicket and at the site’s major outlets. The preliminary sizing of the detention basins has been undertaken using the XPRAFTS hydrology model with pre-development flows validated to the Rational Method.

The sewerage and potable water reticulation plans demonstrate the intended routes and pipe sizing for the provision of water and sewerage services to each proposed allotment, and will be subject to detailed design approval from the Power and Water Corporation.

An Erosion and Sediment Control Plan (ESCP) will be prepared to address how the risk of erosion and sedimentation will be managed during construction, so as to preserve the quality of sensitive receptors such as Buffalo Creek and the Leanyer Swamp.

### 4.4 Street Network Landscaping and Open Space

A residential landscaping master plan has been developed by Clouston and Associates and is provided in Attachment E. The landscaping master plan provides a landscaping vision, identifies the pedestrian and cycling network, street landscaping and pedestrian design examples, open space design, Community Protection Through Environmental Design (CPTED) and the design of individual open space areas. The landscaping master plan seeks to:

- Create a consistent community aesthetic and sense of place driven by existing site values and the unique landscape character of the surrounding landscape and suburbs.
- Establish a network of urban and suburban streetscapes that balance the importance of pedestrians, cyclists and vehicles in the street.
- Engage the wider community with the environment through extended, legible and meaningful pedestrian and greenspace linkages.
• Provide diverse, visually rich, high quality open spaces and streetscapes that maximise recreational opportunities and connectivity.

• Respect, retain and enhance the surrounding natural environment and promote the importance of viable ecosystems and their inherent landscape value.

• Develop a public domain that is safe, welcoming and engaging and promotes an active outdoor lifestyle.

• Plan and design landscape elements to minimise resource consumption and reduce ongoing maintenance costs.

The active recreation area is a key component to the subdivision, and will form a critical frontage to Lee Point Road, and will serve as the primary connection linking the residential and community areas within 9370 to the commercial and main centre facilities within the 4873 development. Based on the above principles, the landscaping master plan indicates a design intent for each of the individual public open space areas, comprising:

• Active recreation reserve with a full size sports pitch to cater for rugby and soccer, including shade planting on each side to provide a pleasant space for spectating, space for multiple sports courts including netball and basketball, retention and enhancement of the Konfrontasi heritage site, and a retained bush buffer between Lee point Road and the sports field.

• Local park with large shade tree planting along pathways, path connections to all adjoining streets, picnic shelter with BBQ facilities, playground including fenced adventure play area with play equipment catering for all ages, and a central irrigated lawn area for picnics, gatherings and games.

A lineal open space corridor has been provided to the Lee Point Road frontage in order to integrate with the road reserve (including the infrastructure therein, such as the shared path) and provide a positive visual connection between Lee Point Road and the subdivision. This corridor will include large shade tree planting along the road and patch edge, with mass planting of long lived trees and shrubs along the frontage of the community amenity precinct to aid privacy and cool breezes. Vertical slat boundary fencing will be provided along the adjoining boundary of the two residential lots directly adjacent the Lee Point Road frontage.
5. **SECTION 46(3)(A) - NT PLANNING SCHEME**

The relevant provisions within the Northern Territory Planning Scheme (the Scheme) are referred to below.

### 5.1 Nature of Development

**Section 5(1)(a)** of the Northern Territory Planning Act provides that:

1. **Subject to subsections 2), 3) and 4), in this Act, subdivision means the division of land into parts available for separate occupation or use, by means of:**
   - **Sale, transfer or partition.**

Accordingly, the proposal fits within the definition of **subdivision**, and requires a development permit pursuant to **Section 44(b)** of the Act.

### 5.2 Zone FD

**Clause 5.26** refers to land zoned FD (Future Development), and provides:

1. **Zone FD is an interim zone identifying an area that is intended for future rezoning and development in accordance with an Area Plan (where applicable) and its purpose is to:**
   - **Limit uses and development within the zone to a level that will not prejudice the future development; and**
   - **Provide for development in accordance with the Area Plan (where applicable) once services are (or can be) made available to the land.**

2. **Subdivision is not to prejudice the intended ultimate subdivision and future use or development of the land.**

The subject land is covered by the Lee Point Area Plan, which provides for the development of an urban subdivision including residential, tourist, commercial, community purpose and open space uses. A detailed assessment of the proposed development against the Lee Point Area Plan and associated Planning Principles is provided in **Section 5.6** of this report, however in summary, the proposal is considered to appropriately consider and adhere to the planning principles and the Lee Point Area Plan. The proposed subdivision does not prejudice the intended ultimate subdivision and future use / development of the land (rather provides “the intended ultimate subdivision and future use / development”), and thus is consistent with the objectives for development in Zone FD. Services, including power, water and sewerage, road access and stormwater drainage will be provided as part of the proposed subdivision, and will integrate with the broader public infrastructure network.
5.3 Proposed Zoning

Land is currently Zoned FD (Future Development), however Clause 5.26 and 6.13 facilitate the subdivision of land zoned FD providing the subdivision occurs in accordance with the Area Plan, and consistent with the intended zoning. Clause 6.13 provides:

1) The purpose of this clause is to provide for the development and use of land in Zone FD (which would typically be urban development) consistent with the intended future use or development of the land.

2) Despite anything to the contrary in this Planning Scheme, where a development permit has been issued for subdivision of land in Zone FD, the consent authority may permit development of that land only if:
   a. the development is consistent with any Area Plan in Part 8 applicable in the circumstances;
   b. the development is consistent with the intended ultimate zoning; and
   c. services (in particular reticulated services including water and sewerage) are, or can be, made available to that land.

Whilst Clause 6.13 specifically relates to development after the approval of the subdivision (the subject of this application), the detailed assessment in Section 5.6 confirms the proposed subdivision is consistent with the area plan, whilst the assessment in Sections 5.4 and 5.6 confirms adherence to the ultimate intended zoning (being the requirements for subdivision in general and residential subdivision specifically).

It is anticipated that future zoning will be determined by the approved subdivision layout, and comprise a mix of:

- SD (Single Dwelling) and MD (Multiple Dwelling) for the single dwelling residential allotments.
- RR (Rural Residential) for the residential lots in the rural residential buffer area (all residential lots over 4,000m²);
- CP (Community Purpose) for the school and community centre sites;
- C (Commercial) or a specific use zone for the child care centre and café sites;
- OR (Organised Recreation) for the active recreation reserve;
- PS (Public Open Space) for all open space and dual purpose park and stormwater detention allotments;
- U (Utilities) or PS (Public Open Space) for open drainage infrastructure and the detention area in the eastern extent of the site; and
- CN (Conservation) for the Monsoon Vine Thicket.
5.4 Clause 11.1 – Subdivision General

5.4.1 Clause 11.1.1 – Minimum Lot Sizes and Requirements

1) The purpose of this clause is to ensure that unzoned land and lots in Zones SD, MD, MR, HR, RR, RL, R, LI, GI, DV, FD, RD, H, WM and T will be of a size capable of accommodating potential future uses.

2) Land to which this clause applies should be subdivided in accordance with the minimum lot size and requirements specified in the table to this clause.

3) The consent authority must not consent to a subdivision:

   a. in Zones SD, MR, RR or RL in Alice Springs and adjacent zoned areas; or

   b. in Zone SD otherwise than described in (a);

that reduces a lot size by an area greater than 5% of the minimum specified in the table to this clause.

4) The consent authority must not consent to a subdivision in Zone MD that is not in accordance with the table to this clause.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Minimum Lot Size and Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD, MR, HR and lots for residential buildings in Zone T</td>
<td>800m²</td>
</tr>
<tr>
<td>MD</td>
<td>300m²</td>
</tr>
<tr>
<td>RR</td>
<td>0.4ha – all unconstrained land OR 1ha in Litchfield outside urban / peri-urban areas and outside rural activity centres – all unconstrained land</td>
</tr>
</tbody>
</table>

The proposed subdivision provides single dwelling MD lots between 450m² and 599m², single dwelling SD lots between 600m² and 805m², and RR lots between 4,000m² and 4,008m². With the exception of the SD lots, which are provided in accordance with Clause 11.1.2 (refer section below) and thus not subject to Clause 11.1.1, the proposed lots exceed the minimum lot size requirements, and thus comply with Clause 11.1.1.

5.4.2 Clause 11.1.2 – Lots intended for SD in Greenfield Areas

1) The purpose of this clause is to provide for a range of lot sizes no less than 450m² for single dwellings intended for Zone SD in greenfield areas.
2) Lots created by subdivision in accordance with this clause must be within greenfield areas identified for compact urban growth by a map, plan, design or diagram and associated planning principles forming part of the Planning Scheme.

The subject land is identified within the Lee Point Area Plan, a “plan” with associated planning principles, and forming part of the Planning Scheme, that identifies the land for compact urban growth. Subclause 2 of Clause 14.1.5 (the Lee Point Area Plan Planning Principles) seeks development that “Provide compact interconnected neighbourhoods as an extension to the existing northern suburbs.” Further, Subclause 4 seeks to ensure development “includes the development of small lot housing to complement more traditional housing types.” Finally, all proposed dwellings are within 400 metres of the proposed Main Street and commercial centre (within 4873), an area of public open space, the future school site or the proposed bus route, and as such the proposed residential lots are appropriately located to comprise compact urban growth per the Northern Territory’s Compact Urban Growth Policy 2015. Accordingly, the proposed subdivision is within a greenfield area identified for compact urban growth.

3) Lots created by subdivision in accordance with this clause shall have an area of no less than 450m².

SD Zoned lots will have a minimum lot area of 600m², well above the required minimum.

4) Lots created by subdivision in accordance with this clause must have a minimum average lot size of 600m².

47 SD lots are proposed, with a minimum lot size of 600m², and a maximum lot area of 805m², therefore an average lot size well above 600m².

5.4.3 Clause 11.1.3 – Subdivision of Land Zoned FD

1) The purpose of this clause is to provide for the subdivision of land in Zone FD in a manner that will not prejudice the intended ultimate subdivision and future use or development of the land.

2) Land in Zone FD may be subdivided generally in accordance with any relevant Area Plan for urban (typically residential or mixed use) development once services are, or can be, made available to that land.

The Lee Point Area Plan applies to the subject land, and provides the land use and subdivision layout for future development. A detailed assessment of the proposed development against the Lee Point Area Plan and associated Planning Principles is provided in Section 5.6 of this report, however in summary, the proposal is considered to appropriately consider and adhere to the planning principles and the Lee Point Area Plan. The proposed subdivision provides development in accordance with the intended ultimate subdivision and future use / development, and power, water and sewerage, road access and stormwater drainage services will be provided as part of the proposed subdivision, and will integrate with the broader public infrastructure network.
3) Despite anything to the contrary in this Planning Scheme, the consent authority may permit subdivision into lots of a size and configuration consistent with the intended ultimate zoning of the land.

The detailed assessment in Section 5.6 confirms the proposed subdivision is consistent with the area plan, whilst the assessment in Sections 5.4 and 5.6 confirms adherence to the ultimate intended zoning (being the requirements for subdivision in general and residential subdivision specifically).

5.5 Clause 11.2 – Residential Subdivision

5.5.1 Clause 11.2.1 – Site Characteristics in Residential Subdivision

1) The purpose of this clause is to ensure residential subdivisions respond to the physical characteristics of the land.

2) Residential subdivision design should:
   a. avoid the development of land of excessive slope, unstable or otherwise unsuitable soils (e.g. seasonally waterlogged) and natural drainage lines;

   The proposal limits the extent of development to areas suitable and not affected by unstable or otherwise unsuitable soils or natural drainage lines. The Monsoon Vine Thicket in the eastern portion of the site will be retained and protected, and the stormwater management plan confirms that the design of the drainage and detention systems retains sufficient water prior to traversing the Monsoon Vine Thicket to ensure pre-development (existing) conditions are matched, and the health of this area is preserved. The contours evident in the Master Plan in Attachment A confirm no significant drainage lines within lot 9370.

   b. ensure, by site selection or site grading, that areas intended for lots less than 600m² do not slope in excess of 2%, such that the need for on-site stormwater structures, retaining walls and the like is minimised;

   The concept stormwater plan in Attachment D confirms the existing site generally grades between 0.5% and 2%, with isolated areas between 2% and 5%. Site works and grading to the extent typical for any urban subdivision will ensure resultant lots, including those below 600m², will have a gradient not exceeding 2%.

   c. retain and protect significant natural and cultural features;

   The detailed ecological and heritage surveys previously carried out (refer sections 2.2 and 2.3) identified vegetation communities within both parcels (4873 and 9370), with specific ecological values comprising:

   * Monsoon vine thicket / rainforest areas within both sites, comprising areas of high ecological value due to their limited distribution in Greater Darwin. Areas were identified in lot 4873 below the escarpment and in the south-western portion of the site (ie the CN area), and a small isolated patch in the eastern portion of lot 9370.
• Threatened species of moderate ecological value, comprising the Darwin Cycad (known to occur) and the Black-footed Tree-rat (likely to occur).

The EIS process details the environmental offsets in relation to the relocation of any Black-footed Tree-rats from within the subdivision area. The monsoon vine thicket area will be preserved and will be zoned CN (Conservation). The Konfrontasi Cruciform will be protected and incorporated into public open space in accordance with the Landscaping Master Plan in Attachment E. Previous Aboriginal Areas Protection Authority (AAPA) certificates confirm that there are no known sacred sites within Lot 9370. An updated AAPA Certificate will be sought prior to the commencement of construction.

d. avoid development of land affected by a 1% AEP flood or storm surge event; and

Storm surge impact to lot 9370 is limited to the south-eastern corner of the site, well away from proposed development areas. Accordingly, no development of land affected by storm surge will occur.

e. retain and protect natural drainage lines and any distinctive landform features or stands of natural vegetation and incorporate them into public open space.

There are no significant drainage lines within the land. The monsoon vine thicket comprises a distinctive and important stand of native vegetation, and will be preserved through the avoidance of development and control over the extent of stormwater fed into this area. Aside from the monsoon vine thicket, the subject land currently comprises remnant native vegetation, however the previous flora and fauna surveys confirm these are not ecologically significant (section 2.3). Existing stands of native vegetation will be retained within portions of the proposed public parks (refer landscaping master plan in Attachment E).

5.5.2 Clause 11.2.2 – Infrastructure and Community Facilities in Residential Subdivisions

1) The purpose of this clause is to ensure that residential subdivisions are integrated with infrastructure, community services and facilities.

2) Residential subdivision design should:

a. provide a high level of internal accessibility and external connections for pedestrian, cycle and vehicle movements;

The landscaping master plan in Attachment E includes a detailed pedestrian and cycling network plan, indicating the provision of 3 metre shared walking and cycling paths along the main traffic and transport routes and through the community park, connecting to the shared path along Lee Point Road. 1.5 metre footpaths are provided to all other streets and through key connection points, with a gravel ‘nature trail’ provided adjacent the monsoon vine thicket, together enabling a high level of pedestrian and cycle movement throughout the subdivision and connecting with the larger paths at the periphery.
b. provide links to schools, commercial facilities and public transport services;

The siting of the school differs slightly from that in the Area Plan, in that the school is no longer located adjacent Lee Point Road, effectively ‘swapping’ with the active recreation reserve. This rearrangement occurred as a result of a request from the Northern Territory Education Department, in order to enable better traffic management during peak times (and avoid potential conflict with vehicles along Lee Point Road), and to provide increased amenity to school students by effectively buffering the school site from Lee Point Road. Whilst slightly further away from the Main Street in lot 4873, the school is well connected via primary (3 metre wide) shared paths, linking to the primary paths along Lee Point Road and Main Street. Additional pedestrian access opportunities are available through the active recreation reserve, and along the pedestrian footpath adjacent the eastern boundary of the school site. The proposed road and pathway layout therefore ensures a high level of connectivity and accessibility between the community precinct, the commercial and higher density residential areas within lot 4873, and the single dwelling lots. The proposed bus route will ensure all dwellings, commercial, mixed use and community use areas are located in close proximity to public transport services.

c. provide traffic management to restrain vehicle speed, deter through traffic and create safe conditions for all road users;

The proposed road network avoids long, unbroken roads thus deterring speeding (the rural residential access road will accommodate very low traffic volumes with a low concentration of lot frontages), enables multiple estate entry / exit points to distribute vehicle movements evenly and avoid a concentration of vehicles on any one intersection, and will provide speed mitigation measures where warranted. The Traffic impact Assessment in Attachment F confirms that the proposed site access will perform satisfactorily, that the site will have negligible impact on the surrounding road network, and that there are no recommended improvements to the surrounding road network.

d. incorporate street networks capable of accommodating safe and convenient bus routes with stops within a 400m radius of a majority of dwellings;

Discussions with the Public Transport Division within the Department of Infrastructure, Planning and Logistics have led to the development of a bus route that connects lot 4873 to the existing Lyons service through Damabila Drive, along the coastal esplanade and back along Lee Point Road, then entering lot 9370 from Lee Point Road, travelling west along the front of the school and recreation area, then turning right onto Aldenham Road to the south of the site, again exiting onto Lee Point Road. The proposed route ensures the provision of public transport services within 400 metres of all residential areas, and direct public transport services to both the urban centre within lot 4873 and the community purpose precinct within the subject land. The indicative bus route is identified in figure 4 below.
Figure 4: Indicative Bus Route (red), with scale references in blue. *Note – superseded subdivision layout referred, however bus route and spacings are not affected*

e. provide for connection to reticulated services;

Each lot will be connected to reticulated power, water and sewerage services, and will discharge stormwater to an underground drainage network, in accordance with the servicing plans and report in Attachment D.

f. provide a minimum of 10% of the subdivision area as public open space which:

   i. ensures the majority of dwellings are within 400m walking distance of a neighbourhood park;

   ii. incorporates recreational open space in larger units available for active leisure pursuits;

   iii. is unencumbered by drains and has sufficient flat area for informal recreation; and

   iv. is designed to provide a safe environment for users by allowing clear views of the open space from surrounding dwellings or passing vehicles.
The subdivision area is taken as the urban area proposed for development as a result of this application, being lot 9370 in its entirety, excluding the RR and CN areas to the east of the proposed north-south road continuing from Asche Street (in Muirhead). The combined rural residential lots and conservation / drainage areas equate to 23.71 hectares, therefore the proposed urban subdivision area (including the school site, active recreation reserve and community amenities precinct) equates to 27.46 hectares. Accordingly, a minimum of 2.746 hectares of public open space is required.

Two primary areas of public open space are proposed, comprising:

- Local park centrally located within the southern portion of the subdivision area, with a land area of 5,800m² and intended to contain passive recreation space, BBQ facilities, walking and cycling trails and a playground; and

- Active recreation reserve with a full size sports pitch to cater for rugby and soccer, including shade planting on each side to provide a pleasant space for spectating, space for multiple sports courts including netball and basketball, retention and enhancement of the Konfrontasi heritage site, and a retained bush buffer between Lee point Road and the sports field. The active recreation space equates to 2.46 hectares.

The above areas do not include walking trails / shared paths along the drainage reserves, nor the drainage reserves themselves. Per the landscaping master plan in Attachment E, a public walking trail will also be provided around the monsoon vine thicket, providing further open space and recreational opportunities. Notwithstanding, this area has also been excluded from the calculation of open space for the purpose of Clause 11.2. The extent of public open space is therefore 3.14 hectares, equivalent to 11.4% of the subdivision area, well in excess of the required 10%. All dwellings will be within 400 metres of public open space, and the landscaping master plan in Attachment E confirms the design intent accommodating passive and active recreation needs, an interconnecting pedestrian and cycling network ensuring a high level of accessibility to public open space and community / commercial areas, and community use and design measures to ensure the achievement of Community Protection Through Environmental Design (CPTED) principles. In addition to public open space, allotments in 9370 also have immediate access to public open space to be developed within 4873, equating to approximately 18.9% of the total urban area within that lot.

5.5.3 Clause 11.2.3 – Lots Size and Configuration in Residential Subdivisions

1) *The purpose of this clause is to ensure residential subdivisions contain lots of a size, configuration and orientation suitable for residential purposes.*

2) *Residential subdivision design should provide that:*

   a. lots have sufficient area and appropriate dimensions to provide for the proposed density of developments including *dwellings*, vehicle access, parking and ancillary buildings;

The building envelope plans provided in Attachment C confirm single dwelling lots less than 600m² contain appropriate area to accommodate dwellings, vehicle access, parking and street infrastructure. Allotments exceed the minimum lot size requirements of Zones SD and MD, and are well within the density requirements of the Lee Point Area Plan.
b. lots conform with the building envelope requirements in the table to this clause;

<table>
<thead>
<tr>
<th>Lot Size</th>
<th>Minimum Building Envelope Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>300m² to less than 450m²</td>
<td>7m x 15m (exclusive of any boundary setbacks or service authority easements)</td>
</tr>
<tr>
<td>450m² to less than 600m²</td>
<td>8m x 15m (exclusive of any boundary setbacks or service authority easements)</td>
</tr>
<tr>
<td>600m² and greater</td>
<td>17m x 17m (exclusive of any boundary setbacks or service authority easements)</td>
</tr>
</tbody>
</table>

When combined with the setback requirements of Clause 7.3 of the Planning Scheme, the table to Clause 11.2.3 requires that the residential lot typology’s have the following minimum dimensions:

- **Villa lots** (450-539m²) and **small-traditional lots** (540-599m²) have a minimum width of 11 metres (12 metres where located on a corner) and depth of 22.5 metres. The minimum lot dimensions comprise the building envelope of 8 x 15 metres, front and rear setbacks of 6 and 1.5 metres respectively, and combined side setbacks of 3 metres; and

The villa lots and traditional lots below 600m² are based on a minimum street frontage of 15-18 metres (lots 450-539m²) or 17-20 metres (lots 540-600m²), and a minimum depth of 27-35 metres. All lots, including corner lots, meet or exceed the dimension ranges for the relevant lot typologies provided on the Master Plan, and as such are well in excess of the minimum 11 / 12 metre frontages required for lots 450 – 599m².

- **Lots above 600m²** have a minimum width of 20 metres (21 metres where located on a corner) and depth of 24.5 metres. The minimum lot dimensions comprise the building envelope of 17 x 17 metres, front and rear setbacks of 6 and 1.5 metres respectively, and combined side setbacks of 3 metres.

The proposed traditional lots are based on a frontage grid of 18-22 metres, with a depth range between 30 and 44 metres. The minimum street frontages (no less than 18 metres) seek a departure from the required dimensions of the Planning Scheme (per Clause 11.2.3) which requires a minimum building area of 17 metres wide, with combined side setbacks of no less than 3 metres. The nature of the proposed traditional lots is, however, consistent with the form of residential development in other greenfield development areas within the Darwin region, including Muirhead, The Heights Durack, and Stage 1 of Zuccoli. Accordingly, it is relevant to consider the specific use zones that apply to these areas:

- **Zone SD23** applies to development in Muirhead, and **subclause 4(d)** requires that “The overall subdivision design should ensure lots are generally square in shape, with a minimum frontage of 18 metres, unless a lot is of an irregular shape or truncated;

- **Zone SP8** applies to development in The Heights Durack, and **subclause 4** provides that, for lots equal to or greater than 600m², lots should have a minimum building envelope of 12 x 15 metres
(therefore minimum dimensions based on the setback requirements in Clause 7.3 of the Scheme of 15 x 22.5 metres); and

- Zone SP9 applies to development in Stage 1 of Zuccoli, and subclause 3 requires that “traditional” lots (average lot size of 570m²) have an average frontage of 19 metres.

The proposed lots are therefore consistent with positive urban development examples within other parts of the greater Darwin area.

The reference to the frontage / depth requirements for Muirhead, The Heights Durack and stage 1 of Zuccoli are considered appropriate given the similar nature of development proposed within Lee Point. The application of an 18 – 22 metre frontage range ensures the proposed residential subdivision contains lots of a size and configuration suitable for residential development (particularly as the variation is sought to the larger lot typologies rather than smaller lots), and consistent with existing development immediately south (Muirhead).

Irregular shaped lots are minimised given the consistent road layout and rectangular dimensions of lot 9370, with irregular shaped lots limited to lots 56, 57 and 190. Lots 56 and 57 (refer figure 5 below) are utilised to accommodate the space adjacent outside road curvature. The lots are irregular in shape due to the road layout, and a number of these lots are to be expected as part of any residential subdivision. The below lots seek to ensure the additional lot area (in excess of 750m²) offsets any future construction difficulties due to the irregular shape. These lots provide significant building envelopes (refer the building envelope plans in Attachment C) to ensure future development can be accommodated whilst ensuring compliance with the setback and private open space requirements of the Planning Scheme.

![Figure 5: Irregular shaped lots](image-url)
Lot 190 has a reduced depth due to the rear boundary adjoining the drainage reserve. The reduced depth along the eastern side of the allotment (maximum reduction of 1.7 metres) is offset by the increased width (increase of 3.9 metres of that required by Clause 11.2.3, and 5.9 metres above the minimum 18 metre frontage) and western boundary depth (increase of 10.5 metres) offsets the reduction. Again, the size of the allotment (691m²) and the large building envelope (refer Attachment C) ensures the lot is suitable for residential development.

c. Battle-axe lots are only to be provided as part of a subdivision that has taken place through clause 11.1.4 (Subdivision of Multiple Dwellings in Zone SD);

No battle axe lots are proposed.

d. lots are oriented to allow dwellings to take advantage of environmental conditions such as prevailing breezes and sunlight;

The narrow north-south dimension of lot 9370, the need to accommodate the school and active recreation reserve in uniform parcels adjacent the northern boundary, and the existing alignment of Aldenham Road, restrict the ability for allotment alignment with a long-axis running north-west / south-east. The Australian Government provides a number of guidelines to achieving environmentally sustainable homes, specifically tailored to the different climatic regions of Australia. The guidelines confirm that allotment orientation is more critical in south of the tropic of Capricorn where a balance between passive cooling and heating must be obtained.

North of the Tropic of Capricorn, orientation is more important to take advantage of the NW / SE prevailing breezes, however unlike sunlight, airflow and breezes can be diverted in and around dwellings through building design, positioning and landscaping. In addition, the shading of walls and openings critically relies on built form design and shading.

As the proposed lots provide sufficient building envelopes to ensure built form can adapt to lot orientation, provide landscaping and shading, and take advantage of prevailing breezes, the proposal adheres to the requirements of Clause 11.2.3(2(d), and ensures that lot orientation allows dwellings to take advantage of environmental conditions.

e. lots are connected to reticulated services;

All lots will be connected to reticulated power, water and sewer, and discharge stormwater in accordance with the requirements of the City of Darwin and the Northern Territory Government.

f. potential land use conflicts are minimised by taking account of the visual and acoustic privacy of residents; and

The master plan ensures an appropriate range of residential densities, with multiple dwelling lots limited to the urban centre within lot 4873.

Where residential and non-residential uses adjoin, the extent and type of non-residential uses are such that adverse amenity impacts will be avoided. Dwellings immediately adjacent the Lee Point Road boundary are minimised, and the two lots (88 and 104) that do adjoin Lee Point Road are separated from the carriageway by an open space buffer. The separation provided, along with the intended treatment of this buffer (detailed in the landscaping master plan in Attachment E) ensure road traffic impacts will be mitigated. Design treatments include aluminium vertical slat fencing to ensure breeze penetration whilst maintaining privacy, large shade planting along the road and shared path edge, and mass planting of long lived trees and shrubs for privacy and breeze access.

Potential land use conflicts between proposed development and existing residential lots adjacent the northern boundary of Muirhead are mitigated by replicating the density of these existing dwellings, in accordance with the requirements of the Area Plan, and the fact that existing (albeit unoccupied) dwelling lots within Muirhead are separated from the subject land by Aldenham Road.

g. where there are lots for medium and higher density residential development, those lots are:

i. distributed in small groups serviced by public transport;

ii. in close proximity to public open space and with adequate access to community facilities and services; and

iii. not located in a cul-de-sac.

Medium and higher density residential development lots are limited to 4873, and are not proposed within lot 9370.

5.5.4 Clause 11.2.4 – Lots less than 600m2 for Single Dwellings

1) The purpose of this clause is to provide for the subdivision of land to accommodate single dwellings on lots of less than 600m² in a manner that has regard for vehicle access, on-site parking and street infrastructure.

2) An application to subdivide land to provide lots subject to this clause must include plans and diagrams to demonstrate that proposed lots, building envelopes, private open space, vehicle access, on-site parking and habitable rooms facing the street will be provided to meet performance criteria and respond to parking and infrastructure in the adjacent public road.

The building envelope plans in Attachment C indicate the proposed lots below 600m² provide building envelopes in accordance with Clause 11.2.3, setbacks in accordance with Clause 7.3, private open space in accordance with Clause 7.5, vehicle access and parking in accordance with Clause 6.5.1 and vehicle access and on-street parking in accordance with Clause 6.5.4 in a manner that will facilitate the orderly integration of dwellings with the proposed road network, services and street infrastructure.
3) Lots subject to this clause shall not have a boundary to any public road less than specified in the table to this clause.

4) The consent authority must not consent to a subdivision that is not in accordance with subclause 3.

<table>
<thead>
<tr>
<th>Range of Lot Size</th>
<th>Minimum Length of any Boundary to a Public Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>300m² to less than 450m²</td>
<td>10m</td>
</tr>
<tr>
<td>450m² to less than 600m²</td>
<td>13m</td>
</tr>
</tbody>
</table>

Lots 450-600m² (villa and small-traditional) provide minimum boundary lengths to a public road of 15 metres or more, with the range of lot frontages for all lots 450-600m² between 15 and 20 metres, well in excess of that required by Clause 11.2.4.

5.6 Rural Subdivision – Clause 11.4

5.6.1 Clause 11.4.2 – Infrastructure in Subdivisions of Rural and Unzoned Land

Given the nature of the proposed development and the purpose of the rural residential lots as rural residential buffer to protect against biting insect impacts, the applicability of Clause 11.4 (with the exception of Clause 11.4.5) is limited. Notwithstanding, the relevant provisions of Clause 11.4.2 and 11.4.3 are considered below.

1) The purpose of this clause is to ensure subdivisions of rural and unzoned land are integrated with infrastructure, community services and facilities.

2) Rural subdivision design should:

   a. minimise disturbance through earthworks associated with the provision of infrastructure;

   b. provide for connection to reticulated services where practicable;

   c. where no reticulated sewerage is available, demonstrate that the soils are suitable for the on-site absorption of effluent without detriment to the environment and in particular to ground and surface waters; and

   d. where no reticulated water is available, demonstrate that an adequate supply of groundwater is available for domestic purposes.

Rural residential allotments are proposed to ensure an adequately low population density within the biting insect zone, and to aid in buffering urban lots from biting insect impacts. Earthworks will be undertaken to rural residential lots to ensure serviceability by reticulated sewer, and ensure each lot is free draining. Earthworks associated with the provision of infrastructure will be limited to roads and services, and will be minimised.
The use of a pressure sewer for all rural residential allotments will negate the need for significant earthworks (fill) in the eastern portion of the rural residential area (which would otherwise be required for lots to gravity feed to proposed sewer mains) or the need for a new sewer pump station. All lots will be connected to reticulated power, water and sewer, and no on-site effluent disposal or bores will occur.

3) Roads in rural subdivisions should:

a. be designed to:
   i. interconnect with the existing road network;
   ii. provide for connections to potential future subdivisions of adjoining lands;
   iii. provide a clear hierarchy of roads; and
   iv. minimise individual lot access to major roads;

Two new roads will provide access to the rural residential lots through existing / proposed urban residential areas. No direct lot access to major roads will occur. Adjoining land is not zoned for residential development, however the proposed road layout will allow future connection to adjoining land if required.

b. respond to the physical characteristics of the land by:
   i. following ridge lines or contours where possible; and
   ii. where crossing watercourses be positioned at right angles to the watercourse and minimise the number of crossing points;

c. be sealed where lot sizes are 2ha or less;

d. be located above the 1.0% AEP flood line or any seepage line, whichever is the higher;

e. be designed with discharge drains placed to minimise erosion and associated engineering and maintenance costs;

f. provide direct access to lots and avoid battleaxe strips, however, where justified, battleaxe strips should be:
   i. not less than 10m wide; and
   ii. less than 250m in length.

The subject land is relatively flat with the rural residential access roads adjoining to existing roads and corresponding to the existing landform. All roads will be sealed, and no watercourse crossings are proposed (with the exception of new drainage infrastructure as part of the proposed urban development).
Roads are not subject to flooding or seasonal inundation and an urban stormwater drainage infrastructure system will be provided. No battleaxe lots are proposed.

4) Where a road crosses a tidal arm in a rural subdivision it is expected to have a minimum elevation of RL 8m AHD and be designed to enable a discharge of at least a 5.0% AEP flood event.

Proposed roads do not cross a tidal arm.

5.6.2 Lot Size and Configuration in Subdivision of Rural and Unzoned Land

1) The purpose of this clause is to ensure subdivisions of rural and unzoned land:

a. have lots that are of a size and configuration suited for the intended purpose;

b. have lots that are of a size consistent with the topographical constraints of the land (that may dictate that lots are of an area in excess of the specified minimum); and

c. do not impose unsustainable demands on groundwater or unreasonably degrade the environment.

The proposed rural residential lots adhere to the required minimum lot sizes for Zone RR, are suitable for the intended purpose (in accordance with the Area Plan) and are consistent with the (relatively benign) topographical constraints of the land. The rural lots avoid development of the Monsoon Vine Thicket identified for preservation, and will not unreasonably degrade the environment or groundwater.

2) Subdivision design in relation to lot size and configuration is to:

a. ensure lots are of a size that does not prejudice the economic viability of the proposed use;

b. ensure that each lot has a minimum of 1ha of unconstrained land and that access to that land from a public road is similarly unconstrained;

c. ensure that lots have a depth to width ratio not exceeding 4:1;

d. show the location of notional and existing bores, wells and on-site effluent disposal systems and allow for effluent disposal systems to be sited at least 50m up slope from any seepage line and above the 1% AEP flood event and at least 100m from any groundwater extraction point;

e. incorporate as far as practicable, drainage lines and drainage floors wholly within a single lot;

f. allow for 70m separation between bores, both proposed and existing; and

g. ensure lot boundaries:

i. are at right angles to any watercourse;
ii. are sufficiently up slope to be outside of seepage zones where following drainage lines;

iii. are at right angles to contours or along contours where slope is between 2.0% and 5.0% and follow ridge lines, spurs or contours where slope is above 5.0%; and

h. minimise the number of watercourse crossings.

The above provisions relate to rural lots in excess of 1 hectare with reliance on bores and on-site wastewater treatment systems. Accordingly the above provisions are not applicable to the current application.

5.6.3 Clause 11.4.5 – Subdivision of Land Zoned RR

1) The purpose of this clause is to ensure that small lot rural residential subdivisions:

a. respond to the physical characteristics of the land;

The stormwater management plan in Attachment D confirms the rural residential lots respond to the physical characteristics of the land by reducing the extent of earthworks, reducing the alteration of existing levels, and retaining the existing direction of overland flows (generally towards the south-east).

b. are integrated with local infrastructure, community services and facilities; and

Rural residential lots are located in close proximity to public open space, the active recreation reserve and the community precinct. The adjacent road network, including that providing access to rural residential lots, reflects an urban road typology, with associated pedestrian / cyclist infrastructure ensuring a high level of access.

c. ensure that lots are of a size and configuration suited for the purpose.

Rural residential lots adhere to the minimum lot size requirement of 4,000m², and are below the maximum density rate per the Area Plan. The proposed lots are (generally) regular shaped, with large frontages ensuring adequate space for housing, private open space and to maintain appropriate levels of privacy and amenity.

2) Subdivision design should:

a. provide connection to reticulated sewerage or where no reticulated sewerage is available, demonstrate that the soils are suitable for the on-site absorption of effluent without detriment to the environment and in particular, to ground and surface waters; and

b. provide for adequate drainage within the road reserve or through engineered drainage reserves.

Reticulated sewerage will be provided to all rural residential lots, with no on-site effluent treatment / disposal. The stormwater management plan confirms all rural residential lots will be free-draining and will incorporate overland flows with the broader stormwater network, including detention basins.
3) Each lot in a rural residential subdivision is to be connected to reticulated water.

All lots will be connected to reticulated water.

4) A rural residential subdivision should provide sealed roads and direct access to a sealed public road.

All roads, and access roads thereto, will be sealed public roads.

5) The consent authority must not consent to a subdivision that is not in accordance with sub-clause 3.

The application does not seek a variation to sub-clause 3.

6) The unconstrained nature of the land is demonstrated by a land suitability assessment addressing the NT Land Suitability Guidelines, prepared by a suitably qualified professional.

Consideration of the Northern Territory Land Suitability Guidelines is provided in Attachment G. The assessment indicates that existing areas within the eastern portion of lot 9370 are constrained under the Land Suitability Guidelines, however that the connection to reticulated sewer and the use of fill to overcome drainage constraints, the NT Land Suitability Guidelines are not relevant and a Land Suitability Assessment is not required.
5.7 Lee Point Planning Principles and Area Plan

Clause 11.1.5 of the Planning Scheme contains the Planning Principles associated with the Lee Point Area Plan, with two Area Plans (relating to lots 4873 and 9370 respectively). Area Plan 2 of 2 relates to development within lot 9370.

5.7.1 Area Plan Layout

Area Plan 2 of 2 within the extent of lot 9370 is shown in figure 6, with the same area per the proposed development in figure 7.

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**Figure 6:** Lot 9370 per the Lee Point Area Plan

**Figure 7:** Proposed development – lot 9370 master plan
The layout of the proposed development is consistent with the Area Plan with the exception of the following:

- The location of the **primary school and community hub** (per the Area Plan) and the active recreation reserve have been swapped, such that the active recreation reserve now fronts Lee Point Road, and the school / community centre is located between the reserve and the single dwelling lots to the east.

- The south-western corner includes the provision of a community amenities precinct comprising a child care centre, café and sales office. These land uses are not specified within the Area Plan.

The rearrangement between the school, community centre and active recreation reserve has occurred due to a requirement from the Northern Territory Department of Infrastructure, Planning and Logistics on behalf of the Northern Territory Department of Education. DHA will provide the Department with a serviced site for the construction of a primary school and pre-school. The Department requested the active recreation reserve be located between the school site and Lee Point Road to mitigate any potential vehicle queuing issues at the Lee Point Road intersection during peak demand times (ie pick-up and drop-off). Whilst the layout of the community precinct differs somewhat from the Area Plan, the type, extent and purpose of the land use areas remains the same, and the proposal is still consistent with the planning principles of **Clause 14.1.5 relating to land for education and community facilities**, in that:

- The layout allows for shared use of community and active recreation facilities as both sites are immediately adjacent one another;

- The school site is located directly adjacent the public transport route, with the primary shared path providing a high level of accessibility through walking and cycling; and

- Safety and efficiency of the road network is maintained and even improved (relative to the Area Plan layout) given the increased distance of the school site to Lee Point Road and thus improved ability to avoid any traffic congestion and possible conflict.

Accordingly, the proposed layout is considered to be consistent with the planning principles and the intent of the Area Plan.

The master plan also identifies three lots for the purpose of a **community amenities precinct**, comprising three lots in the south-western corner of lot 9370. The master plan identifies the use of these lots for the purpose of **commercial**, specifically a 2,505m² lot (lot 300) for the purpose of a child care centre, a 1,000m² lot (lot 301) for the purpose of a sales office and a 852m² lot (lot 302) for the purpose of a café. The purpose of this precinct is two-fold. Firstly, to facilitate a purpose-built sales facility (including car park) similar to that currently located in Fuhrmann Street, Muirhead, and secondly to ensure that early stages of residential development in both lots 9370 and 4873 have access to essential community and recreational facilities prior to the completion of the community precinct and Main Street (Main Street within lot 4873). The community amenities precinct will also service existing / future residents within Lyons and Muirhead.

The sales centre is entirely ancillary to the development of an urban subdivision, and is a necessary facility to ensure a central point of contact to the developer and sales agents. As with other sales centres, the site will be converted to dwellings when no longer required.
The location of the childcare centre and café outside of the Main Street within lot 4873 is appropriate given:

- The facilities will provide much needed essential facilities and amenity to residents of early stage allotments, and existing residents of Lyons and Muirhead, well before local centre facilities within lot 4873 are constructed;

- Development is limited to a childcare centre and café within limited land areas, and as such will not compromise the commercial viability of land within lot 4873; and

- The relocation of the childcare centre out of the lot 4873 commercial areas will avoid potential conflicts between childcare centres and other commercial / tourist accommodation uses, and situate the childcare centre on the major transit route, improving accessibility for parents and carers.

A childcare centre has been approved for lot 11847 Town of Nightcliff (15 Fuhrmann Street, Muirhead) through DP17/0308 and subsequently DP17/0308A. Lot 11847 was sold by DHA to a private entity for the purpose of a mixed use commercial centre. No other childcare centres have been approved or proposed within the suburbs of Lyons, Muirhead or Lee Point. The Lee Point Area Community Infrastructure Requirements report (GHD, 2014) indicated a leading practice provision of 1 childcare centre per 4,000 – 8,000 persons, with a recommendation for the provision of two childcare centres servicing Lyons, Muirhead and Lee Point. The report also noted a *high need* for childcare centres due to the high proportion of incoming children aged 0-4 years. Accordingly, given the identified demand, the provision of a childcare centre within proposed lot 300 will not undermine the approved childcare centre at lot 11847.

Finally, whilst a childcare centre and café are not residential land uses, they are expressly for the purpose of servicing residential development within the immediate area, and are a form of development anticipated within residential areas (at the scale proposed). The location of both lots 300 and 302, adjacent Lee Point Road and Aldenham Road, is such that activity will be concentrated towards Lee Point Road, away from the residential development to the east. The adjoining lot (proposed lot 1) is in excess of 705m², and the zoning and intended use of the adjacent land will be readily apparent at the time of sale. Accordingly, whilst the proposed childcare centre and café are not a form of *residential* development, they can reasonably be considered to form part of a *residential* area, and will not cause any undue impact on the amenity of surrounding land.

It is noted that the revised layout, both in relation to the school site and the community amenities precinct, does not seek to vary the requirements of the NT Planning Scheme as identified in **Section 9(1)(a)** or **Section 9(1)(b)** of the Northern Territory Planning Act (rather relates to part of the Planning Scheme referred to in **Section 9(1)(f)**), and accordingly the Consent Authority is not bound by **Section 52(1)** of the Act.
5.7.2 Planning Principles

Future development within the Lee Point area is to:

1) Preserve and integrate areas and items of environmental and heritage significance by:
   
a. limiting development below the escarpment to community uses, tourism activity and pedestrian / cycle tracks that protect the environmental values of the coastal reserve and adjoining vegetation types;

Lot 9370 is located entirely above the escarpment, and the above clause relates to development within 4873. Notwithstanding, urban development in 4873 is limited to the areas above the escarpment and outside of the sensitive vegetation communities within the CN Zone and the Casuarina Coastal Reserve. As part of that development, improvements to existing mountain biking tracks, the provision of new tracks in appropriate areas, and the provision of a low-impact pedestrian connection (likely a raised timber walkway) will ensure works below the escarpment protect the environmental values of the coastal reserve and the sensitive and significant vegetation types.

b. implementing appropriate environmental and engineering measures including but not limited to the application of principles of water sensitive urban design; and

Extensive environmental and biodiversity investigations and analysis have resulted in the preparation of a detailed construction environmental management plan and a range of environmental offsets (including the provision of a large portion of lot 4873 into the Casuarina Coastal Reserve) to counter any environmental impact from the proposal. The stormwater concept plan seeks the inclusion of multi-purpose detention and bio-filtration basins to ensure stormwater runoff leaving the site is of appropriate quality. The landscaping master plan in Attachment E identifies select street tree species based on hardiness and suitability for local conditions, ability to retain form, longevity and vigour.

Development of the site may have the potential to:

- Release sediment and potential contaminants into receiving waters as a result of vegetation clearing and / or excavation;

- Adversely impact fish and other aquatic species due to increased turbidity and / or release of contaminants during construction, or increased pollutant loads from road runoff during operation; and

- Contaminate water in the event of fuel or oil spills during construction and operation.

The formulation and implementation of the water quality management plan for the development is based on the following key principles:

- Adoption of Water Sensitive Urban Design (WSUD) principles where feasible; and
- Management and control of water quality both during and after construction. A detailed Erosion and Sedimentation Control Plan will need to be developed in accordance with recognised standards during the detailed design phase and implemented on site during the subdivision construction process.

The majority of potential water quality related impacts can be adequately managed with effective implementation of additional mitigation measures to meet specific Water Quality Objective’s (WQO’s). These measures include the use of bio-retention systems, vegetated swales/buffers and proprietary devices.

Water quality objectives exist for Darwin Harbour (Water Quality Objectives for the Darwin Harbour Region, Department of Natural Resources, Environment, The Arts and Sport, 2010). These objectives are concentration based outcomes.

To be consistent with current best practice with respect to water quality, load based water quality objectives were adopted for the consideration of water quality issues and modelling within the current industry standard water quality modelling package (MUSIC). The following water quality objectives were adopted:

- 80 % reduction in Suspended Solids;
- 60 % reduction in Total Phosphorus;
- 45 % reduction in Total Nitrogen; and,
- 90 % reduction in gross pollutants.

The treatment measures to be adopted for the majority of the development include the use of Ecosol Net Guards (the City of Darwin’s preferred system for capturing gross pollutants), bio-retention basins and vegetated swales/buffers.

The opportunity to adopt small scale WSUD systems has not been considered at this stage. During the detailed design phase of the project if opportunities to utilise small scale bio-retention systems (such as tree pits and raingardens) exist they will be considered. It is noted that not all WSUD measures will be suitable for the Darwin Harbour region due to the variable climate experienced. Review of previously successful implementation of WSUD within the Darwin Harbour region will guide the final bio-retention basin design approach.

It is noted that the use of rainwater tanks for re-use of rainwater could also potentially reduce the pollutant loads discharging from the site while also reducing demand on town water supply. However, imposing this requirement on potential property buyers is not easily enforced and has therefore not been included as part of the treatment train.
c. adopting measures that acknowledge the role of Lot 4873 Town of Nightcliff in the Indonesia – Malaysia Confrontation including, where practicable, the retention of existing defence items or replacement with artistic/cultural interpretive works that reflect the historical significance of the land.

The above clause relates to lot 4873, however the landscaping master plan in Attachment E confirms the retention of the existing Konfrontasi Cruciform within lot 9370 integrated with public open space adjacent Lee Point Road. The public open space area will ensure that public areas acknowledge the role of both lots 4873 and 9370 in the Indonesia – Malaysia Confrontation.

2) Provide compact interconnected neighbourhoods as an extension to the existing northern suburbs that:

a. foster a distinct identity in the street layout and built form responding to the site’s unique location, including its proximity to the Casuarina Coastal Reserve;

The master plan seeks to expand on the street layout objectives within lot 4873, which provides a street layout aligned to take advantage of the coastal location by situating Main Street to minimise the distance between Lee Point Road and the coastal reserve pedestrian access (and thus increase proximity to the coastal reserve), and to maximise views and access to Casuarina Beach.

A number of local and higher order streets located perpendicular to the coast ensure the western extent of the site (and beyond) is always a focal point, and the alignment and location of roads within lot 9370 focusses pedestrians, cyclists and vehicles towards the 4873 streets and towards the coast. The community precinct acts as a primary connection point to Main Street within 4873, and ensures the subdivision within 9370 acts as a continuation of 4873, with integration of the school site, community centre and active recreation reserve with the commercial, recreation and tourism facilities on the western side of Lee Point Road.

b. create a quality public realm and built form environment responsive to local climatic conditions through, but not limited to, the design of public areas and open space, the use of pedestrian shelters and landscaping, and the implementation of an energy-efficient built form;

The road orientation and street layout, extent (above the requirements of the Planning Scheme) and proximity of open space, high quality design of open space areas, extensive provision of pedestrian and shared paths and landscaping ensure a distinctive and quality urban environment. The lot orientation (addressed in section 5.5.3 of this report) allows the implementation of energy-efficient built form, together with both the residential design requirements of the Northern Territory Planning Scheme, and the design guidelines to be implemented by Defence Housing Australia.

c. facilitate access north from Lyons and Muirhead to future community, commercial and recreation facilities;

The site connects to Bridge Street in Muirhead, with the north-south connecting road (effectively becoming the Bridge Street extension) comprising a secondary collector road with a higher order shared path (3 metre shared path).
This connection leads straight into the primary collector road (and continued 3 metre shared path) providing direct access to the school, community centre and active recreation reserve. The strategic location of access roads into lot 9370, and the pedestrian network through the recreation reserve, enables access to commercial and recreation areas within 4873, with connection to Lyons through Damabila Drive, and to other areas via the upgraded Lee Point Road.

d. maintain a high level of public access to Lee Point and promote access to the Darwin Northern Suburbs and other major centres through a connected local road network, including access to public transport and key pedestrian / cycleways identified on the Area Plan;

A high level of vehicle and pedestrian access is provided to Lee Point Road, including enabling vehicles and pedestrians to access through the existing suburb of Muirhead. A public transport route will provide equitable access to bus services throughout the subdivision, and enable broader access to the northern suburbs and services and facilities within the region. The pedestrian network will interconnect with the upgraded shared path along Lee Point Road, and will enable access between existing and proposed subdivision areas, and commercial, community and open space areas.

e. include a lineal open space between development and the coastal reserve, and establish pedestrian connections to the Casuarina Coastal Reserve; and

The lineal open space and connections to the Casuarina Coastal Reserve are provided as part of the development of Lot 4873.

f. promote walking and cycling as the preferred mode of travel for local trips.

The extensive pedestrian and shared path network, and the provision of 3 metre wide shared paths when 2-2.5 metre widths are generally required, ensures a high level of encouragement for walking and cycling.

3) Provide a mixed use village centre that integrates services to the local community while maximising opportunities for tourism by:

a. creating urban spaces that take advantage of the coastal location of the site;

b. providing a destination and focal point for visitors that is easily accessible to pedestrians, cyclists and vehicles travelling along Lee Point Road;

c. providing a mix of tourist accommodation, commercial development including tourism and recreation, and residential development along the main street;

d. maximising opportunities for active street frontage in the main street;

e. maximising accessibility to the centre by catering for all modes of transport;

f. reducing traffic speed to create a pedestrian-friendly shared public environment with clearly identified key pedestrian access locations; and
g. integrating development within the village centre with surrounding residential areas.

A mixed use village centre is provided along Main Street within the Lot 4873 development proposal. The centre includes land for a range of uses including tourist commercial, medium density residential, shops, restaurants and commercial-based community facilities (such as medical clinics). The concept design for Main Street prioritises pedestrian movement over vehicle movement, and enables opportunity for active frontage and integration of different land uses. The orientation of Main Street enables the coastal reserve to be the primary focal point, with the beach access stairs acting as a continuation of the Main Street alignment.

4) Provide a range of housing options and lot sizes to cater for diverse household types by:

a. including the development of small lot housing to complement more traditional housing types;

Small-lot housing is facilitated by the inclusion of villa lots, albeit in a manner that provides for a range of future development by ensuring the minimum area, dimension and building envelope requirements of the Planning Scheme are exceeded. More traditional housing is facilitated on lots 540-599m² and 600m² and above, collectively comprising 48% of all residential lots.

b. creating a mix of lot sizes for single and/ or multiple dwellings;

A range of lot sizes between 450-539m² (52%), 540-599m² (19%) and 600m² and above (29%) are provided. Multiple dwelling lots are restricted to lot 4873 given the proximity to the local centre.

c. associating medium and high density housing including townhouses and apartments with neighbourhood centres, public open space and/ or areas of high amenity; and

Medium and high density housing is not proposed as part of the subdivision of 9370, rather restricted to lot 4873, integrated as part of the local centre, in close proximity to commercial and recreational facilities, and public open space.

d. providing larger rural residential lots as a further choice and to serve as buffers between urban residential development and potential biting insect areas.

30 Rural residential lots are provided in the eastern portion of the proposed subdivision, in order to buffer between urban residential areas and potential biting insect breeding areas. This approach is consistent with the use of rural residential lots in Muirhead, Marlows Lagoon and Bellamack, and enables low density living with landscaped rural residential lots enabling effective wind buffers to restrict biting insect travel.

5) Provide an appropriate built form that maximises site opportunities by:

a. incorporating a range of building heights to maximise opportunities for coastal views while retaining appropriate built form character and residential scale;

With the exception of the school and community centre site (Zone CP) and the community amenities precinct (Zone C / Specific Use Zone), all development within the proposed subdivision will be limited to a maximum height of 8.5 metres and 2-storeys.
Both Zones C and CP are exempt from **Clause 6.1** (height limits), however it is unlikely that the development of the school/community centre will exceed single storey and 8.5 metres. Development within the community amenities precinct will be limited to one or two storeys.

b. **providing accommodation and residential development that is climatically appropriate, including appropriate solar orientation and natural ventilation; and**

Whilst the dimensions and required parameters of the subject land limit the extent to which street and lot orientation can occur, single dwelling residential lots provide sufficient building envelopes to ensure built form can adapt to lot orientation, provide landscaping and shading, and take advantage of prevailing breezes. As has occurred with other DHA subdivisions, particularly Muirhead, building design guidelines will be implemented to ensure built form responds to climatic considerations and enables a high level of amenity throughout the subdivision. The provision of consistent breezeways, setback consistency, use and design of window and door openings, and the requirement for shade planting and building eaves, will ensure the proposal adheres to the requirements of **Clause 11.2.3(2(d))**, such that lot orientation allows dwellings to take advantage of environmental conditions.

c. **respecting adjoining residential areas through appropriate transitions from commercial development and between residential areas of different densities, and by interfacing with Lyons and Muirhead at the same residential density.**

The proposed subdivision incorporates small and medium residential allotments in the centre of the site, nearest the public open space, recreation and school sites, whilst larger residential lots are located peripherally to transition from the northern stages of Muirhead, the caravan park to the north and the rural residential lots to the east. The density of lots along the southern side of Aldenham Road, in the northern section of Muirhead, is reflected or reduced in the adjacent lots in the proposed subdivision.

6) **Provide adequate land for education and community facilities that:**

   a. **allows for the shared use of community and active recreation facilities;**

The proposal provides an integrated community precinct with separate allotments for the development of a primary school/pre-school, community centre and active recreation reserve, comprising playing fields and courts. The integration of the precinct allows access to the recreation facilities for school students (in addition to playing fields provided within the school grounds), and increases the range of infrastructure available for weekend sport. The community centre site enables integration with both the school and the recreation reserve, and it is anticipated the community centre will provide a space for community groups and members of the public, as well as sporting groups also using the recreation reserve. The provision of higher-order pedestrian and cyclist access to the community precinct ensures the area is accessible to residents in the wider locality.

   b. **is located close to public transport and supports a high level of neighbourhood accessibility through the encouragement of cycling and walking; and**

The proposed public transport route will directly service the school site and active recreation space in lot 9370.
The pedestrian and cycle network provided in the landscaping master plan in Attachment E ensures local roads and footpaths feed into wider shared paths along all major roads (including that fronting the community precinct) higher order roads and open space areas to provide a high level of accessibility and connectivity to community facilities and recreation space.

\[c.\] facilitates safe and efficient access via the local road and pedestrian network to community services and facilities in the broader area, including the Royal Darwin Hospital.

The proposed road, pedestrian and shared path network interconnects with Lyons through Damabila Drive and Muirhead through Bridge Street, and provides a direct connection to Lee Point Road in order to disperse traffic and provide a high level of access to arterial and collector roads, and thus services and facilities elsewhere in the region.

5.7.3 Residential Density

The Lee Point Area Plan (Plan 2 of 2) provides 3 distinct density areas for residential development within lot 9370. These areas are identified in the master plan in Attachment A, and group areas into two residential density brackets:

- The urban residential lots, separated into two areas – the northern area together with the active recreation reserve, and the remaining residential areas south of the new east-west access road from Lee Point Road, with each area allowing for a residential density between 10 and 20 dwellings per hectare; and

- The rural residential buffer, comprising lots no less than 4,000m² and comprising land east of the Bridge Street extension, including the monsoon vine thicket and a portion of the conservation / drainage area, shall allow for a maximum of 2 dwellings per hectare.

No multiple dwelling or multi-level residential allotments are proposed. As such, the maximum dwelling density is equivalent to the number of lots proposed within each area. The proposed density rates of each area are as follows:

- The northern urban residential area covers 7.07 hectares including the active recreation reserve and drainage areas (per the Area Plan), but excluding the school site and community centre, with 54 allotments proposed, thus a maximum of 54 dwellings. The proposed density rate is therefore 7.64 dwellings per hectare;

- The southern urban residential area covers 13.34 hectares including the public open space and community amenity precinct, and excluding the collector road reserve, with 186 allotments proposed, thus a maximum of 186 dwellings. The proposed density rate is therefore 13.9 dwellings per hectare; and

- The rural residential buffer covers an area of 20.2 hectares excluding the monsoon vine thicket and the eastern extent of lot 9370 (identified in the Area Plan as development restricted by constraints), with 30 allotments proposed, thus a maximum of 30 dwellings. The proposed density rate is therefore 1.48 dwellings per hectare.
The proposal therefore provides for future development well below the density rates identified in the Area Plan.

5.8  **Darwin Regional Land Use Plan**

Clause 2.7 of the NT Planning Scheme provides requirements regarding reference to policy documents in development applications. **Clause 2.7** provides:

1. **The interpretation of this Planning Scheme and the determinations of a consent authority must have regard to the policies and planning concepts expressed in those documents appearing in Part 8 or Schedule 2 and ensure that a use or development or proposed use or development is consistent with them.**

2. **Where there is an inconsistency between any applicable policy and this Planning Scheme, the provisions of the Planning Scheme will prevail**

**Schedule 2** of the Planning Scheme makes reference to eleven policy documents, including the **Darwin Regional Land Use Plan**. The **Darwin Regional Land Use Plan** was prepared by the NT Planning Commission and incorporated into **Schedule 2** of the Planning Scheme in 2015. The plan provides a vision, goals and intended outcomes for development of the Darwin Region, identifies regional opportunities and the intention for development into the medium and long term. The Land Use Structure on Page 13 of the Plan identifies the subject land as **Urban / Peri-Urban** (as part of the Darwin Northern Suburbs urban area).

Page 16 of the Plan identifies **Urban / Peri-Urban** to include:

- A variety of housing types;

- Retail and commercial;

- Community facilities and services;

- Sport, recreation and urban open space; and

- Natural and conservation areas.

Page 17 of the Regional Land Use Plan refers to **Greenfield Development**, and provides:  

“The land use plan also recognises the role of greenfield development in maintaining housing choice and mitigating housing affordability risks.

The Lee Point locality in Darwin’s northern suburbs and the eastern suburbs of Palmerston are the final greenfield developments possible within existing urban boundaries. Without new greenfield development opportunities, completion of these two areas would result in sole reliance on infill development.”

The proposal aligns with the objectives of the Darwin Regional Land Use Plan, and is consistent with the provision of a variety of housing types, retail and commercial, community facilities and services, recreation and urban open space, and natural and conservation areas.
The site is specifically identified for greenfield development, and ensures urban residential land with access to public transport and accessible to a range of community, health, commercial and recreation facilities.

6. **SECTION 46(3)(B) – INTERIM DEVELOPMENT CONTROL ORDER**

There are no Interim Development Control Orders that apply to the proposal or the subject land.

7. **SECTION 46(3)(C) – ENVIRONMENTAL ASSESSMENT ACT**

Formal consideration under the Northern Territory Environmental Assessment Act is required and is currently underway. The Environmental Impact Assessment and associated documents (social impact assessment and management plan, assessment of economic risks, construction environmental management plan, biting insect report and the stormwater management plan) are available at https://ntepa.nt.gov.au/environmental-assessments/register/lee-point-master-planned-urban-development/draft-environmental-impact-statement. The public exhibition, submission, response and review process has been completed, and the Northern Territory Environment Protection Authority has advised that their findings and recommendations will be provided on 31 October 2018.

8. **SECTION 46(3)(D) – MERITS OF PROPOSED DEVELOPMENT**

The proposed subdivision facilitates development in accordance with the Area Plan and the Darwin Regional Land Use Plan, in a manner befitting the unique location and the attributes thereof. The proposal will facilitate an increase in the range of housing available, and will provide land for vital community infrastructure and recreational opportunities to existing and future residents in the Northern Suburbs.

9. **SECTION 46(3)(E) – SUBJECT LAND, SUITABILITY OF DEVELOPMENT AND EFFECT ON OTHER LAND**

Sections 2 and 3 of this report detail the subject land and surrounding locality, and the contents of both this report and the EIS (https://ntepa.nt.gov.au/environmental-assessments/register/lee-point-master-planned-urban-development/draft-environmental-impact-statement) detail the capability of the subject land and the effect on other land. The vacant state of the land in its current form, and the size of the proposed development, are such that the proposal will notably change the character of the immediate and broader locality.

However, given the extent of strategic planning and environmental offsets that have / will occur, and the suitability of the site for the development proposed, the proposal is an anticipated expansion of Darwin’s northern suburbs, and will be a positive inclusion to the existing urban area.

10. **SECTION 46(3)(F) – PUBLIC FACILITIES AND OPEN SPACE**

The proposed subdivision includes the provision of public open space well above that required by the NT Planning Scheme. An extensive social impact assessment was undertaken as part of the EIS, including a social infrastructure needs analysis, which identified the need for the following as part of the development of Lee Point:

- Provision of suitably sized and serviced land for the development of:
  - An integrated primary school, kindergarten and long day care facility;
At least one Childcare centre for approximately 60 children;

Community centre; and

Integrated formal recreation complex, collocated with primary school site, comprising sport fields and courts.

- Provide a range of lot sizes and housing types to ensure availability of housing across different market sectors;

- Provide public open space which, at a minimum, achieves the requirements of the Northern Territory Planning Scheme; and

- Provide land for commercial development, appropriately integrated with recreation and tourism-focussed activities which, at a minimum, facilitates a convenience store and opportunity for the establishment of a general practice medical clinic, with provision to be led by the private sector (located within the lot 4873 development).

The Lee Point Area Plan confirms the requirement, and allocation of land, for the above infrastructure, and the proposed subdivision clearly identifies the creation of land to support such infrastructure.

11. SECTION 46(3)(G) – PUBLIC UTILITIES AND INFRASTRUCTURE

The servicing and infrastructure report confirms the provision of reticulated power, water and sewerage infrastructure, and the discharge of each proposed lot to a new underground drainage system. The provision of reticulated infrastructure will accompanied by developer upgrades to the broader systems, and/or developer contributions in accordance with the requirements of the relevant service agencies.

12. SECTION 46(3)(H) – IMPACT ON AMENITY

The undeveloped nature of subject land, and the size of the proposed development, are such that a fundamental change to the nature and character of the locality will occur.

To mitigate this and minimise potential amenity impacts, the proposal incorporates measures to appropriately transition from existing residential areas, distribute vehicle traffic, minimise impact on the coastal reserve and Leanyer Swamp, retain and protect important stands of vegetation, and include land uses and development that will benefit residents of other suburbs, such that amenity impacts (given the ‘anticipated’ nature of development based on the existing zoning, the Regional Land Use Plan and the Area Plan) are minimised.

13. SECTION 46(3)(J) – BENEFIT / DETRIMENT TO PUBLIC INTEREST

The proposal will increase the range and affordability of housing within Darwin’s northern suburbs, as well as providing facilities that will benefit residents of other areas, and appropriately integrate with the Casuarina Coastal Reserve.
The development of lot 9370 will enable the provision of serviced land for the development of vital community infrastructure, including a new primary school and pre-school, community centre, active recreation areas and childcare centre.

14. **SECTION 46(3)(K) – COMPLIANCE WITH THE BUILDING ACT**

The subject land is vacant and void of existing buildings. Accordingly, a certifier statement per Section 46(3)(k) is not required.

15. **SECTION 46(3)(L) – DEVELOPMENT OF SCHEME LAND**

The application does not comprise the subdivision of land under a unit titles scheme. Accordingly Section 46(3)(l) is not relevant.

16. **CONCLUSION**

The Lee Point Master Planned Urban Development is a large urban development on land held by Defence Housing Australia and the Northern Territory Government in the area of Lee Point, in Darwin’s northern suburbs. This application seeks a development permit for the second phase of the subdivision, comprising 282 residential, rural residential, community purpose, commercial (childcare centre and café), open space, drainage and conservation lots, with an interconnected road and pedestrian network.

The proposal has been developed in accordance with the Lee Point Area Plan, and generally complies with the requirements of the NT Planning Scheme. Where variations are proposed, they are appropriate and do not compromise the future use, efficiency or amenity of the land. The proposal will form a positive inclusion into Darwin’s northern suburbs in a manner reflective of anticipated greenfield development.

Brad Cunnington  
Principal, Northern Planning Consultants Pty Ltd

17 October 2018
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1 Introduction

Cardno has been commissioned by Defence Housing Australia (DHA) to prepare an Engineering Services Report for the proposed ‘Muirhead North’ subdivision development at Lot 9370 Lee Point, Northern Territory.

This report provides supporting information for the Development Application and outlines the preliminary engineering proposals and constraints for development of the site including earthworks, roadworks and transportation, stormwater, Water Sensitive Urban Design, water supply, sewerage, power and telecommunications.

The information contained within the report is based on the current proposed subdivision layout and the requirements of relevant authorities including the City of Darwin, Power and Water Corporation and NBN.
2 Site Description

2.1 Locality and Zoning

The Muirhead North site is located on Lot 9370, Town of Nightcliff, situated to the east of Lee Point Road. The site is bounded by Lee Point Road to the west, Lee Point Village Resort and Caravan Park to the north, vacant Crown Land to the east and the suburb of Muirhead to the south. The total area is approximately 51 hectares.

The town planning zone is FD (Future Development).

![Site Location](image)

2.2 Existing Conditions and Topography

The site is covered with remnant vegetation. Natural and modified drainage paths occur across the site to the Leanyer Swamp further east. A number of unsealed tracks traverse the site, and a rural dam exists within the adjacent private property to the north. There is an area of rainforest within the site that has been identified as having conservation value.

Topography across the site ranges from approximately 5 to 25 m AHD, generally grading from the west to east prior to discharging into Buffalo Creek. Surface runoff from the site is mainly conveyed via sheet flow and surface flow with a few areas where runoff is concentrated in defined gullies. These include naturally occurring gullies within the centre of the site.
3 Earthworks

The earthworks design for the site will be determined during detailed design, but will generally follow the natural surface contours to minimise cut and fill volumes.

Subject to detailed design and geotechnical investigations, it is intended to optimise the cut to fill balance. Existing gradients are typically 1% to 2%, with some steeper gradients to 5% within the development area. The residential lots less with an area than 800m$^2$ will be regraded to fall towards the road reserve. Lots less than 600m$^2$ will be regraded to 2% maximum slope. The rural residential lots (greater than 4,000m$^2$) will generally be graded to natural surface contours, with some potential lot filling to facilitate connection to the sewerage system.

Earthworks will be inspected and tested at regular and appropriate intervals to the requirements of Level 1 Inspection and Testing in accordance with AS 3798.

Topsoil from the site will be stripped and stockpiled for respreading following the completion of earthworks. Surfaces will be stabilised where required by means of hydromulch or landscaping.

Erosion and sediment control plans will be prepared as part of detail design and will be implemented and maintained throughout construction of the works in accordance with the requirements of the Department of Environment and Natural Resources.
4 Roadworks and Transportation

4.1 Road Network

The internal road network will be designed and constructed in accordance with the requirements of City of Darwin (CoD) including the Subdivision and Development Guidelines and CoD standard drawings.

The proposed road hierarchy consists of Primary and Secondary Collector Roads and Local Streets within road reserves ranging from 17m to 25m in width. The roads will be conventional two-way crossfall with kerb and channel. On street car parking will be provided where required, including adjacent to parks and commercial areas.

Geometric design and pavement design will be in accordance with CoD requirements and Austroads guidelines.

The proposed Road Hierarchy Plan, typical cross sections and parking / bus bay details are provided in Appendix B.

4.2 Site Access

The proposed vehicular access for the development includes the following access points:

- Lee Point Road / Aldenham Road – full movement give way priority controlled access. Aldenham Road was constructed as part of the final stage of the previous Muirhead development.
- Lee Point Road Future Roundabout - full movement roundabout access to Muirhead North and proposed 2CRU development.
- Aldenham Road / Bridge Street - full movement roundabout access to existing Aldenham Road and Bridge Street.

The main Primary Collector providing access to the development including the School Site will be via the future roundabout on Lee Point Road.

4.3 Traffic Impact Assessment

A detailed Traffic Impact Assessment has been undertaken. SIDRA Intersection analysis was used to evaluate the impact of the increased volumes anticipated for background and full buildout scenarios. The analysis demonstrates that the accesses to the site will perform satisfactorily and with minimal impact on the surrounding road network.

Refer to ‘Transport Impact Assessment – Muirhead North Subdivision, Lee Point’, (Cardno, October 2018) for further details.

4.4 Public Transport

Discussions with the Public Transport Division within the Department of Infrastructure, Planning and Logistics (DIPL) have led to the development of short term and long term bus routes. DIPL have provided concept plans for these routes, which are included in the Transport Impact Assessment report.

The short term route will utilise the proposed roundabout and temporary bus stops on Lee Point Road. The long term concept is for a route extension from Lyons through the proposed 2CRU development and Muirhead North.

4.5 Pedestrians and Cyclists

A networks of 3.0m shared paths and 1.5m footpaths is proposed, with shared paths provided on all primary routes. The proposed path network is shown on the Road Hierarchy Plan provided in Appendix B.

4.6 Development Contribution Plan

It is envisaged that the Muirhead North development will be subject to making contributions towards the upgrade of Lee Point Road under the terms of the ‘Lee Point Road Development Contribution Plan’ (DCP) (GHD, 2011).
5 Stormwater and Water Sensitive Urban Design

5.1 Catchment Description and Existing Conditions

Topography across the site ranges from approximately 5 to 25 m AHD, generally grading from the west to east prior to discharging into Buffalo Creek. Surface runoff from the site is mainly conveyed via sheet flow and surface flow with a few areas where runoff is concentrated in defined gullies. These include naturally occurring gullies within the centre of the site.

The site also receives flows from the eastern catchment area of the 2CRU site, located to the west of Lee Point Road. Flows are discharged across Lee Point Road via a culvert crossing consisting of 5 x DN750 RCPs. A second culvert crossing consisting of 2 x 1200W x 450H RCBCs discharges into an unlined drain that runs along the Lee Point Resort southern boundary before discharging into a large rural dam.

Gradients across the site are typically 1% to 2%, with some steeper gradients to 5% within the development area.

5.2 Stormwater Management Plan

The intensified development of the site has the potential to increase local site runoff due to the increase in impervious areas associated with the development. This potential increase in local peak flows can ultimately result in increased peak discharges within the adjacent waterways that can result in increased flood levels, erosion of waterways and affect bank stability.

To limit the adverse impacts external to the developed site, it is required to limit post-development flows from the site to less than pre-development levels using appropriate mitigation measures including detention basins at strategic locations and the site outlet.

The preliminary sizing of the detention basins has been undertaken using the XPRAFTS hydrology model with pre-development flows validated to the Rational Method.

The proposed development of the site has been shown to result in an increase in flow of 31% for the 100 year ARI peak flows at the site outlet. To mitigate the increases in flows discharging from the site, it will be required to provide detention basins to attenuate the local stormwater runoff from each developed sub-catchment.

Preliminary design of the detention basins has been undertaken. It is proposed to mitigate the increases in flows via a detention basin at the downstream extent of the site and via the Active Recreation Reserve. The
post-development hydraulic model also considers the impact of the proposed diversion of high flows along Lee Point Road.

The Active Recreation Reserve to the west of the school is proposed to detain flows discharging from the adjacent 2CRU development under Lee Point Road. For the purposes of this assessment a maximum detention depth of 300mm on the oval has been incorporated into the modelling. A low flow channel will be provided to bypass the 1 year ARI flow around the proposed detention, to reduce the frequency of inundation and to minimise the potential for mosquito breeding.

The main end-of-line basin is proposed to be located in the south-eastern corner of the site. The potential for this to discharge to the existing Muirhead detention basin outlet drain will be considered during detailed design.

The basins are estimated to empty within approximately 6-9 hours for all ARI events.

This preliminary design assumes the following criteria:

- 1 in 4 batters to facilitate maintenance of turfed batters;
- Trapezoidal shape; and
- Maximum depth of 1.2m for the 20 year ARI event for public safety.

Points of discharge in the post-development model align with existing conditions.

Preliminary modelling indicates the proposed detention basins are capable of attenuating peak flow rates from the site in the post-development scenario to pre-development levels.

Further details are provided in ‘Muirhead North - Lee Point Road, Lee Point - Stormwater Management Plan’, (Cardno, October 2018).

![Figure 5-2 XPRAFTS Post-Development Model Layout](image)

5.3 Water Sensitive Urban Design (WSUD)

Development of the site may have the potential to:

- Release sediment and potential contaminants into receiving waters as a result of vegetation clearing and / or excavation;
- Adversely impact fish and other aquatic species due to increased turbidity and / or release of contaminants during construction, or increased pollutant loads from road runoff during operation; and
> Contaminate water in the event of fuel or oil spills during construction and operation.

The formulation and implementation of the water quality management plan for the development is based on the following key principles:

> Adoption of Water Sensitive Urban Design (WSUD) principles where feasible; and
> Management and control of water quality both during and after construction. A detailed Erosion and Sedimentation Control Plan will need to be developed in accordance with recognised standards during the detailed design phase and implemented on site during the subdivision construction process.

The majority of potential water quality related impacts can be adequately managed with effective implementation of additional mitigation measures to meet specific Water Quality Objective’s (WQO’s).

A number of possible mitigation measures are available to manage potential water quality impacts from the development. These include gross pollutant traps (GPT’s), vegetated swales/buffers, bioretention systems and proprietary devices.

The Developer is committed to the adoption of Water Sensitive Urban Design (WSUD) principles where technically feasible, practical and agreed by City of Darwin (CoD).

CoD has been consulted regarding gross pollutant traps and the development will incorporate their preferred ‘Net Guard’ systems.

Higher density areas within the development may also incorporate proprietary treatment devices such as the Stormwater360 treatment system.

It is noted that not all WSUD measures are suitable to the Darwin climate and that problems have been experienced with previous bioretention basins, including concerns over ongoing maintenance, potential mosquito breeding and functionality during heavy wet season rain events. The final design and water quality objectives will be based on systems that are agreed by the City of Darwin and other relevant authorities and guided by previous successful WSUD implementation in the region.

Further details are provided in ‘Muirhead North - Lee Point Road, Lee Point - Stormwater Management Plan’, (Cardno, October 2018).

5.4 Flooding

Notwithstanding inundation across the site from local catchment runoff, other potential sources of inundation could occur due to storm tide inundation given the proximity of the site to Beagle Gulf.

Storm tide levels for Lee Point were obtained from the ‘High Resolution Storm Tide and Climate Change Impacts Study – 2010’ prepared by System Engineering Australia for the Northern Territory Department of Lands and Planning. Storm tide levels for 2100 have been mapped by GHD, 2014 based on the latest topographic information (2009 and 2011) as part of the Northern Territory Storm Surge Mapping.

Based on the above, the majority of the Muirhead North site and the entirety of the developable portion of the site, is above both the 100 year and 1,000 year Average Recurrence Interval (ARI) storm tide level for 2100.

5.5 Erosion

An Erosion and Sediment Control Plan will be prepared to address how the risk of erosion and sedimentation will be managed during construction, so as to preserve the quality of sensitive receptors such as Buffalo Creek.
6 Water Supply

6.1 Design Criteria
Design criteria for water supply will be based on the Water Supply Code of Australia (WSA 03-2011), and the PWC Northern Territory supplement to this code, dated April 2010.

6.2 Demand Projection
Based on the nominated subdivision layout and EP ratings in accordance with PWC design criteria the following demands have been calculated for Muirhead North:

<table>
<thead>
<tr>
<th>Equivalent Population (EP)</th>
<th>Peak Day (PD)</th>
<th>Peak Hour (PH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,184</td>
<td>15 L/s</td>
<td>40.8 L/s</td>
</tr>
</tbody>
</table>

6.3 Network Modelling
A water supply network model was developed based on previously supplied inputs from PWC. PWC advised hydraulic grades at the agreed offtake points, for both the existing and ultimate planning horizons. The advised grades are:

> Existing: Peak Hour 51.4m AHD, Fire Flow 53.9m AHD
> Ultimate: Peak Hour 48.46m AHD, Fire Flow 51.6m AHD

A local water supply network was built in Bentley WaterGEMS to determine the required infrastructure. Updated boundary conditions have been requested from PWC and the network model will be revised as part of overall master planning for 2CRU and Muirhead North.

6.4 Network Planning Strategy
The proposed development is located within the Casuarina Water Supply Zone (WSZ). Storage for the zone is facilitated by the Marrara and Casuarina Reservoirs. A trunk network extends along Lee Point Road to supply the network. In particular, a DN450 main extends along Lee Point Road in the vicinity of the existing Lyons and Muirhead developments.

In regard to network planning PWC has advised that no new trunk services are proposed in the vicinity of the site. This includes both storages and trunk mains. New storages are proposed at the Marrara Complex at some point in the future, however, no bulk strategic planning will impact the proposed development.

Supply to the proposed development will be via the existing trunk main network along Lee Point Road.

6.5 Muirhead North Network Planning
The DN450 trunk main was assumed to continue from the proposed connection along Lee Point Road to the second proposed intersection immediately south of the Caravan Park.

Smaller reticulation services ranging in size from DN150 to DN225 are proposed to supply the development and create a looped reticulation network.

6.6 Existing Network Assessment
A preliminary water supply network model was developed to determine the internal network sizing and the services pressures for the proposed Muirhead North development.

For this assessment, the boundary conditions previously provided by PWC were adopted, against the full demand of 1,184EP.

The analysis has indicated that sufficient pressure can be maintained for both peak hour and fire flow events in the described network.
6.7 Ultimate Network Assessment

The ultimate network adopted the ultimate boundary condition of the supply reservoir levels of 46.46m AHD for peak hour and 51.2m AHD for firefighting.

The network proposed for the existing horizon was retained. Analysis shows that the minimum service pressures of 22m would still be maintained based on the projected peak demand for the site. Similarly, available fire-flow at all nodes within the development can be maintained at PWC's standards.

The network model will be revised as part of overall master planning for 2CRU and Muirhead North based on updated boundary condition information to be supplied by PWC.

6.8 Water Reticulation Concept Plan

The water reticulation concept plan is provided in Appendix B. Final layout and sizing will be determined during detailed design in consultation with PWC.
7 Sewerage

7.1 Design Criteria
Design criteria for sewerage will be based on the Gravity Sewerage Code of Australia (WSA 02-2014), the Sewage Pumping Station Code of Australia (WSA 04-2005) and the PWC Northern Territory supplements to these codes, dated April 2010.

7.2 Wastewater Loading Projection
Based on the nominated subdivision layout and EP ratings in accordance with PWC design criteria the following wastewater loadings have been calculated:

<table>
<thead>
<tr>
<th>Equivalent Population (EP)</th>
<th>Average Dry Weather Flow (Qa)</th>
<th>Peak Dry Weather Flow (Qd)</th>
<th>Most probable Peak Dry Weather Flow (Qm)</th>
<th>Peak Wet Weather Flow (Qw)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,045</td>
<td>3.6 L/s</td>
<td>15 L/s</td>
<td>11.2 L/s</td>
<td>45 L/s</td>
</tr>
</tbody>
</table>

7.3 Network Modelling
A desktop model was developed to determine the gravity network.

The assessment of the pump stations was undertaken against as constructed data.

7.4 Network Strategy
The existing wastewater network in the vicinity of the study area includes the Muirhead sewer pump station (SPS) catchment. This pump station convey flows to the trunk sewer mains that discharge to the Leanyer Sanderson Waste Stabilisation Ponds (LSWSP).

PWC have identified that no future trunk network augmentations have been identified downstream of the site. PWC have also advised that the existing LSWSP have adequate capacity for the projected load created by the development.

7.5 Network Assessment
A desktop assessment was undertaken to determine the requirements to service the development.

7.5.1 Local Gravity Network
All flows from the Muirhead North development will gravitate to the Muirhead sewage pump station (SPS), located within the existing Muirhead development to the south.

A gravity network ranging in size from DN150 to DN225 is proposed for the site. This network will discharge to an existing stub across Aldenham Road that connects to the DN375 trunk sewer within the existing Muirhead development leading to the Muirhead SPS. This existing DN375 main also caters for flows from the eastern catchment of the proposed 2CRU development, located adjacent to Muirhead North.

7.5.2 Muirhead Pump Station
A summary of the additional flows to the Muirhead SPS from the proposed Muirhead North and 2CRU developments is presented in Table 7-2.

<table>
<thead>
<tr>
<th>Sub-catchment</th>
<th>EP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2CRU East</td>
<td>1,995</td>
</tr>
<tr>
<td>Muirhead North</td>
<td>1,045</td>
</tr>
<tr>
<td>Total</td>
<td>3,040</td>
</tr>
</tbody>
</table>

It is noted that the Muirhead SPS was designed with consideration for the proposed development. The Muirhead SPS has a total capacity of 4,429EP, with an allowance of 2,747EP from upstream development at...
2CRU and Muirhead North based on the *Developer Contributions Plan (DCP) - Lee Point Sewerage Infrastructure*. 

The proposed 2CRU and Muirhead North developments will contribute a combined loading of 3,040 EP, which is approximately 11% above the DCP allowance. The Developer will be required to upgrade the Muirhead SPS to cater for the additional loading. This is likely to require impeller or pump replacement and possible augmentation of emergency storage.

**7.5.3 Leanyer Sanderson Waster Stabilisation Ponds (LSWSP)**

It is understood that PWC are planning augmentation works to the LSWSP, but notwithstanding this the existing LSWSP have adequate capacity for the projected load created by the development.

**7.6 Sewerage Reticulation Concept Plan**

The sewerage reticulation concept plan is provided in Appendix B. Final layout, sizing and pump station assessment will be determined during detailed design in consultation with PWC.
8 Utility Services

8.1 Electrical - High and Low Voltage

The estimated electrical load for Muirhead North based on the current subdivision lot layout is 2.32MVA. Based on the previous lot layout, the estimated electrical load is slightly higher but not to the extent that it will impact headworks requirements as previously agreed with Power and Water Corporation (PWC).

The subdivision headworks will be provided by the Developer and will include a new dedicated underground High Voltage (HV) Feeder from Leanyer Zone Substation, with a majority of the new HV cable to be installed within existing spare conduit through Muirhead Subdivision. The connection points from the new HV Feeder to within the Muirhead North Subdivision area will be via two new Ring Main Units (RMU's) located along Lee Point Road.

The underground HV reticulation will extend throughout the subdivision via a number of HV Rings, each with a number of substations to supply the underground LV electrical reticulation and associated loads. The underground LV reticulation will generally consist of 5 to 6 LV Feeders from each substation connected to distribution pillars with 1 pillar per 2 lots for the SD and MD zoned lots. The LV Feeders are then interconnected into LV Rings either by connection to an adjacent LV Feeder from same substation or a LV Feeder from an adjacent substation. The lots zoned for higher density development will either have a dedicated distribution pillar or substation, depending on type of development and its associated electrical loading. All HV/LV reticulation will be in accordance with PWC standards and requirements.

The HV electrical reticulation headworks concept plan is attached in Appendix B.

8.2 Street Lighting

In accordance with recent changes to standards and requirements, street lighting is no longer to PWC design requirements and is now required to be to the standards and requirements of the road owner, City of Darwin (COD). In addition, all parts of the street lighting reticulation need to comply with AS/NZS 3000. The Developer will provide designs to COD standards and requirements. Street lighting will be designed in accordance with AS/NZS 1158.1.1 and AS/NZS 1158.3.1 and depending on road type will be either Category P3 or P4 within the subdivision or Category V3 along Lee Point Road (this would be confirmed with COD prior to design being undertaken). Street lighting will be LED type. All street lighting reticulation will be underground and will be connected to a dedicated Road Owner distribution pillar which will incorporate time clock control for street lighting.

8.3 NBN

The NBN underground network will be extended from the adjacent existing Muirhead Subdivision to service this subdivision. Pit and pipe reticulation within the subdivision will be provided by the Developer and will be in accordance with NBN standards and requirements.
LEGEND

LOCAL STREET
TW-CARRIAGEWAY IN A 17m ROAD RESERVE
SECONDARY COLLECTOR STREET
TW-CARRIAGEWAY IN A 20m ROAD RESERVE
PRIMARY COLLECTOR STREET
8m CARRIAGEWAY IN A 25m ROAD RESERVE
1.50m WIDE CONCRETE FOOTPATH
3.00m WIDE CONCRETE SHARED PATH

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SUBDIVISION OF LOT 9370, LEE POINT ROAD
LEE POINT, DARWIN
MURHEAD NORTH SUBDIVISION

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FOR CONTINUATION REFER TO DWG. SHEET 1

For Continuation Refer to Dwg. Sheet 1
STAGE 3

STAGE 1A

STAGE 2

ALDENHAM ROAD

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SUBDIVISION OF LOT 9370, LEE POINT ROAD
LEE POINT, DARWIN

MURHEAD NORTH SUBDIVISION

Sheet 3 of 3

SCALE 1:1000

DC1603-002-CI-HR04

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Level 6, 93 Mitchell Street
Darwin NT 0800
Tel: 08 8942 8200  Fax: 08 8942 8211
Web: www.cardno.com.au

DFE103-002-CI-HR04
DEFENCE HOUSING AUSTRALIA
SUBDIVISION OF LOT 8911, LEE POINT ROAD
LEE POINT, DARWIN
MUIRHEAD NORTH SUBDIVISION

ROADWORKS
TYPICAL CROSS SECTIONS & PARKING BAY DETAILS

DC1603-002-C1-HR06
A1

LOCAL STREET
TYPICAL ROAD CROSS SECTION
7m CARREGE A + 2m BUS RESERVE

LOCAL G LOCAL -250m & CILDESA(1)
TYPICAL ROAD CROSS SECTION
6.5m CARREGE A + 5m ROAD RESERVE

NOTES:
1. FOR ENGINEER-DESIGNED WORK
   J.M.B. O'NEILL CIVIL ENGINEER

NOTE:
1. ROADWORKS - TYPICAL CROSS SECTIONS & PARKING BAY DETAILS

DESCRIPTION: TYPICAL CROSS SECTIONS

TYPICAL DETAILS:

TYPICAL BUS BAY DETAIL

TYPICAL DETAIL

TYPICAL DETAIL

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NOTE:
1. ROAD CONFIGURATION IS INDICATIVE ONLY. ALIGNMENT AND PROFILES TO BE FINALISED DURING DETAIL DESIGN PHASE.
2. FINAL BASIN SHAPING PENDING TREE PICKUP AND DETERMINATION OF GROUND CONDITIONS ON SITE. FINAL SHAPE AND SIZE TO BE DETERMINED AT DETAIL DESIGN STAGE.
3. GENERALLY THE LAND IS GRADING NATURALLY AT 1% TO 2%. WITH SOME AREAS OF BETWEEN 2% TO 5%. DURING DETAIL DESIGN STAGE THE ROADS WILL BE DESIGNED AND LOTS REGRADED TO HAVE A 2% MAXIMUM SLOPE.

LEGEND
- STAGE BOUNDARY
- PROPOSED OVERLAND FLOW PATH
- PROPOSED UNDERGROUND DRAINAGE SYSTEM AND DRAINAGE PIT
- DRAINAGE RESERVE
- CONSERVATION AREA
- BITING INSECTS BUFFER
ALDENHAM ROAD

STAGE 1A

EXISTING GRAVITY SEWER

TO MUIRHEAD SEWER PUMP STATION

CONNECTION MANHOLE

EXISTING GRAVITY SEWER

LEGEND

STAGE BOUNDARY
EXISTING SEWER MAIN & MANHOLE
PROPOSED GRAVITY SEWER MAIN & MANHOLE
PROPOSED PRESSURE SEWER MAIN
DRAINAGE RESERVE
CONSERVATION AREA
BITING INSECTS BUFFER

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LEE POINT ROAD
MUIRHEAD, DARWIN

MUIRHEAD NORTH SUBDIVISION

DATE: 15/10/2018

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Level 6, 93 Mitchell Street
Darwin NT 0800
Tel: 08 8942 8200  Fax: 08 8942 8211
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ISSUED FOR INFORMATION

GM 6/09/2018
RP 6/09/2018
DB 15/10/2018
GO 16/10/2018

A 17-10-18

DC1603-002-CI-S04 SHEET 3 OF 3
Re: Muirhead North LSA/LCA survey report

Dear Chris,

EcOz Environmental Consultants undertook a field survey of the Muirhead North subdivision on the 16th and 17th of October 2018 to address the requirements of a Land Suitability Assessment (LSA) and a Land Capability Assessment (LCA) for the disposal of onsite wastewater on the site. Proposed works are outlined in EcOz proposal EZ18157. The project area investigated is outlined within Cardno Plan – drawing number DC1603-001-CI-XXXX.

Ground truthing of land constraint boundaries found that the project area consists mainly of constrained land types (Class 4 – Not Suitable) as shown in Figure 1, attached. Constrained land was identified using soil indicators such as evidence of debil debil mounds on the soil surface and flora species indicative of wet sub-soils such as *Melaleuca* sp., *Lophostemon lactifluus* and *Corymbia polycarpa*.

Two land areas were identified as not fully constrained and have varying levels of development suitability as follows:

The land area (3.9 ha) located at survey site VS1 was identified as being Class 2 – Moderately Suitable, under the *NT Land Suitability Guidelines* (2012). This area supports moderately drained sandy loam soil grading down to sandy clay in the lower soil horizons. *Eucalyptus miniata* and *Eucalyptus tetrodonta* woodland occurs on the site and wet indicator species are absent. *Cycas armstrongii* is also present within this vegetation type. This area falls just short of the required 0.4 ha of suitable land within each RL zoned lot.

The land area (0.45 ha) located at survey site VS5 was identified as being Class 3 – Marginally Suitable, under the *NT Land Suitability Guidelines* (2012). This area supports imperfectly drained sandy clay loam soils grading down to sandy clay in the lower horizons. *Eucalyptus miniata* and *Eucalyptus tetrodonta* woodland occurs on the site and wet indicator species are absent. *Cycas armstrongii* is also present within this vegetation type. This area is slightly larger than the required 0.4 ha of suitable land within each RL zoned lot. This lot has fallen into Class 3 – Marginally suitable as it is a small raised gravel mound surrounded by constrained drainage areas with high clay-content soils which will result in imperfect drainage during the wet season.

The project area has high levels of Gamba Grass infestation and changes in the fire frequency and intensity have resulted in a high level of tree death and fallen logs.
Overall the project area is not suitable for subdivision in its natural state due to poor drainage and/or seasonal inundation of the majority of the land.

A recent change to the proposed development of Muirhead North (as per Cardno Plan drawing number M2737P MN_Overall Proposal Q), has resulted in a change to the project area and proposed land development away from the disposal of onsite wastewater, to a reticulated sewerage solution. Lots will be engineered to receive sufficient land fill (minimum of 0.4 m) to overcome current land constraints across the development area, including seasonal waterlogging and/or inundation of soils. This change to the proposed development proposes engineering solutions to the current natural land constraints and no longer requires the disposal of onsite wastewater. Therefore, an LSA and LCA report are no longer required for the project area. It is however recommended that a weed management plan be developed for the Drainage/Conservation Area and Monsoon Forest to control the dense population of Gamba Grass.

Yours sincerely,

David van den Hoek
Senior Botanist
EcOz Environmental Consultants
david.vandenhoek@ecoz.com.au
Figure 1. Land suitability classes for the project area
# Record of Administrative Interests and Information

- **Record of Administrative Interests and Information**
  The information contained in this record of Administrative Interests only relates to the below parcel reference.

- **Parcel Reference:** Lot 09370 Town of Nightcliff plan(s) S 901068

(See section 38 of the Land Title Act)

Note: The Record of Administrative Interests and Information is not part of the Land Register and is not guaranteed by the Northern Territory of Australia, and the NT Government accepts no Liability for any omission, misstatement or inaccuracy contained in this statement.

- **Registrar General**

### Government Land Register
- **Controlling Agency:** Department of Infrastructure, Planning and Logistics (AAO 12/09/2016)

### Custodian - Registrar General (+61 8 8999 6252)
- **Current Title:** No Current Title Issued
- **Tenure Status:** Current
- **Easements:** (none found)
- **Scheme Name:** (none found)
- **Scheme Body Corporate Name:** (none found)
- **Reserved Name(s):** (none found)
- **Transfers:** (none found)
- **Historic Titles:** (none found)


### Custodian - Surveyor General (+61 8 8995 5362)
Address
544 LEE POINT RD, LEE POINT

Survey Plan
S2016/091

Survey Status
Approved

Parcel Status
CURRENT

Parcel Area
51 hectares, 1700 square metres

Map Reference
(none found)

Parent Parcels
Lot 09370 Town of Nightcliff plan(s) S2016/091

Parcel Comments
VCL IDENTIFIER 90/1068/81. LOT 10489(A) OVER PART FOR PROPOSED TELSTRA TOWER SITE. NATIVE TITLE DOES NOT EXIST ON THIS PARCEL (FEDERAL COURT DETERMINATION 17/5/2006) REF LI2009/36/135.

Survey Comments
LOT 9370 TOWN OF NIGHTCLIFF

Proposed Easements
(none found)

Municipality
DARWIN MUNICIPALITY

Region
DARWIN

Custodian - Valuer General (+61 8 8995 5375)

Owner's Last Known Address
CROWN LAND OF THE N T, GPO BOX 1680, DARWIN NT 0801

Parcels in Valuation
Lot 09370 Town of Nightcliff

Unimproved Capital Value
$10,000,000 on 01/07/2011
$17,900,000 on 01/07/2008

Valuation Improvements
(none found)

Custodian - Property Purchasing (+61 8 8999 6886)

Acquisitions
(none found)
Custodian - Building Advisory Service (+61 8 8999 8965)

Building Control Areas
BBDAR001 - Building Control Area

Building Permits
(none found)

Visit the website http://www.nt.gov.au/building/

Custodian - Town Planning and Development Assessment Services (+61 8 8999 6046)

Planning Scheme Zone
FD (Future Development)

Interim Development Control Orders
(none found)

Planning Notes
(none found)

Planning Applications

File Number
PA2014/0922

Type
Planning Scheme Amendment

Date Received
20/11/2014

Application Purpose
To include Lot 4873 Town of Nightcliff into the NTPS to Zone FD (Future Development) and to rezone Lot 9370 Town of Nightcliff from Zone SD26 (Specific Use Darwin No. 26) to Zone FD (Future Development) and to introduce the Lee Point Area Plan to Part 8 of the NTPS

Application Status
Approved

Other Affected Parcels
Lot 04873 Town of Nightcliff

Instrument Signed

Instrument Number

Instrument Issued
Not Complete

Instrument Status
Current

File Number
PA2011/0493

Type
Development
Date Received
18/07/2011

Application Purpose
35m high telecommunications facility with associated antennas and equipment shelter

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
26/10/2011

Instrument Number
DP11/0779

Instrument Issued
Signed

Instrument Status
Current

File Number
PA2008/0852

Type
Planning Scheme Amendment

Date Received
06/10/2008

Application Purpose
To rezone Lots 9369 and 9370 from PS (Public Open Space) and OR (Organised Recreation) and zone part Lot 9737 to a Specific Use Zone for a residential subdivision in the suburb of Muirhead.

Application Status
Approved

Other Affected Parcels
Lot 09369 Town of Nightcliff
Lot 09737 Town of Nightcliff

Instrument Signed

Instrument Number

Instrument Issued
Not Complete

Instrument Status
Current
Custodian - Power and Water Corporation (1800 245 092)

Meters on Parcel
   Power Water - Electricity (none found)
   Power Water - Water (none found)

For Account balances, contact the Power and Water Corporation.

Custodian - Pool Fencing Unit (+61 8 8924 3641)

Swimming Pool/Spa Status
   (none found)

For more information, contact the Pool Fencing Unit (+61 8 8924 3641).

Custodian - Mines and Energy (+61 8 8999 5322)

For information on possible Exploration Licences, contact Mines & Energy or visit the website http://www.nt.gov.au/d/Minerals_Energy/

For information on possible Petroleum Titles, contact Mines & Energy for further details.

Custodian - NT Environment Protection Authority (+61 8 8924 4218)

Results of site contamination assessment
   (none found)

For further information contact Environment Protection Authority or visit the website https://nteap.nt.gov.au/waste-pollution/contaminated-land

Custodian - Heritage Branch (+61 8 8999 5039)

Heritage Listing:
   (none found)

For further information on heritage places contact Heritage Branch or visit the website https://nt.gov.au/property/land/heritage-register-search-for-places-or-objects

Other Interests

For Account balances, contact Darwin City Council

Storm Surge: This lot is within a primary surge zone. For more information contact Lands Planning on 8999 8963.

Storm Surge: This lot is within a secondary surge zone. For more information contact Lands Planning on 8999 8963.
Mr Chris Grimm  
Senior Development Manager  
Defence Housing Australia  
Level 1, Building 4  
631 Stuart Highway  
BERRIMAH NT 0828  

Dear Mr Grimm  

Re: Lee Point Development Agreement  

This letter is to notify Defence Housing Australia that its development application for Lot 9370 Town of Nightcliff (submitted by email on 22 October 2018) is approved by the Territory for lodgement with the Development Consent Authority in accordance with Clause 3.7(c) of the Development Agreement.  

This approval should not be construed as approval of the application under the Planning Act as this is subject to the development consent process.  

Yours sincerely,  

Karen White  
Senior Manager, Land Transactions  

22 October 18