

# Pandanus Park

## Layout Plan 1

### Background Report

September 2003

Date endorsed by WAPC



### Amendments

- Amendment 1 - December 2007
- Amendment 2 - November 2008
- Amendment 3 - March 2011
- Amendment 4 - September 2012
- Amendment 5 - September 2012
- Amendment 7 - October 2016
- Amendment 8 - April 2017
- Amendment 9 - April 2017
- Amendment 10 - May 2017
- Amendment 11 - October 2017
- Amendment 12 - July 2018



Department of  
Planning



# Overview

*The Pandanus Park Community Layout Plan was developed under the Aboriginal Community Planning Project (ACPP).*

*The ACPP was initially hosted by the Shire of Derby/ West Kimberley and later transferred at the Department For Planning and Infrastructure.*

The Pandanus Park Community Layout Plan (CLP) was initiated to support the implementation of the ATSI Army Community Assistance Project (AACAP), which include housing upgrades & the construction of new housing, improvements to roads, water and power infrastructure, rubbish management and primary & environmental health aspects.

At the initiation of the planning project a proposal was developed with the assistance of, and submitted to, the Army for acceptance. The proposal was endorsed by key stakeholders including:

- The Pandanus Park Community Council,
- The Shire of Derby West Kimberley, the Department of Indigenous Affairs, the Department Of Housing & Works (AHIU- Aboriginal Housing Infrastructure Unit) and the Kimberley Public Health Unit (Department of Health).
- The Department of Planning and Infrastructure (DPI). The DPI holds a statutory role in the development and endorsement of layout plans for Indigenous Communities in Western Australia.

*Refer to letter of acceptance to the right*

Initial consultation with these organisations aimed to trigger the community and agencies commitment & support to the development of the plan, and facilitate its registration. The development of the Pandanus CLP was partly dictated by the tight time frame for the development of the AACAP project and AACAP project milestones.

<b>Pandanus Park Planning Proposal</b>		
<b>Endorsement of the Proposal, Agencies' comments</b>		
<i>Proposal subject to minor changes - The proposal is currently being reviewed by AACAP program managers</i>		
<b>Client</b>		
<i>Agency</i>	<i>Attention</i>	<i>Endorsement</i>
Pandanus Park Community	Community council	<i>Peter Grogan 28/10</i>
<b>The Aboriginal Community Planning Project (ACPP) Advisory Committee</b>		
<i>Agency</i>	<i>Attention</i>	<i>Supports the proposal</i>
ATSI Malarabah Regional council	Warren Smith, Doug Clements, Rhys Georges, Helen Grove	
The Department of Indigenous Affairs	Garry Ventris Cc to Jeremy Elliott	<i>Ch 11/10/01</i>
The Aboriginal Housing Board (Department Of Housing And Works )	Joddy Broun, David Carpenter	<i>16/10</i>
The shire of Derby West Kimberley	Jonathan Throssell, Nigel Bancroft	<i>01/10/01</i>
The Kimberley public Health unit	Michelle Mount, Iris Prouse	<i>05/10/01</i>
<b>Other stakeholders</b>		
<i>Agency</i>	<i>Attention</i>	<i>Supports the proposal</i>
The Ministry for Planning	Bob Wallin	<i>11/10/01</i>
<b>Agency's comments, relevant information</b>		
<i>The proposal is consistent with the intent &amp; purpose of Statement of Planning Policy No.13 &amp; the plan should be prepared in accordance to the guidelines.</i>		
<i>Bob Wallin 11/10/01</i>		
Please write your name and sign		

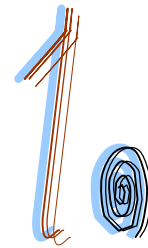
*Endorsement letter signed by Pandanus Park, the DIA, MOH&W,*

*DPI, Shire of Derby*  
The Pandanus Park CLP considers the whole of the land currently used by the community as well as additional land areas for future developments within and outside the boundaries of the Pandanus Park Management order.

The layout was developed with respect to the state-planning framework for the development and endorsement of Aboriginal Community Layout Plans in Western Australia - *Statement of Planning Policy Number 13 - Planning for Aboriginal Communities* and associated guidelines.

# Section

## General information



<b>Overview</b>	<b>2</b>
<i>Location &amp; tenure</i> .....	<b>2</b>
Location, accessibility .....	2
Coordinate .....	2
Tenure .....	2
<i>Environmental characteristics</i> .....	<b>2</b>
Climate .....	3
Rain fall .....	3
Wind .....	3
Temperatures .....	4
Soil, landscapes & vegetation .....	4
<i>Population</i> .....	<b>4</b>
Projection; anticipated population growth .....	4
Age component .....	5
Additional factors influencing population growth & community development .....	5
<b>Development parameters</b>	<b>6</b>
<b>Specific aspects of the plan</b>	<b>9</b>
<i>Flood levels</i> .....	<b>9</b>
<i>Land for future developments</i> .....	<b>9</b>
Strategies .....	9
<i>Culture</i> .....	<b>11</b>
Respecting culture in the plan .....	11
Protecting sites of cultural significance .....	12
<b>Planning concept</b>	<b>13</b>
<i>Overall land organisation</i> .....	<b>13</b>
<b>Review of the plan</b>	<b>13</b>

# Overview

## Location & tenure

### Location, accessibility

Pandanus Park is located approximately 56 kilometres from Derby on the edge of the Derby – Broome Highway and on the banks of the Fitzroy River. While Pandanus Park is remote in Australian standards, the community is accessible year round.

### Coordinate

Australian Grid system- MGA 94

Centre of living area A

- Northing 803 8910
- Easting 569 810

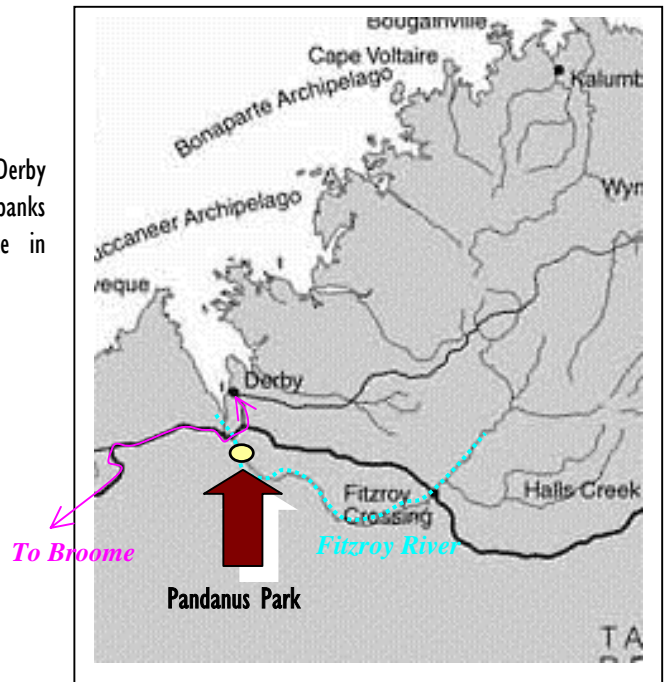
Centre of living area C

- Northing 803 8590
- Easting 570 030

### Tenure

Pandanus Park holds a Management Order (Certificate of Title) for an area of land of approximately 87.4 hectares (0.5 km by 1.5 km). The land excision is classified a Reserve “for the Use and Benefits of Aboriginal People” and is registered as Fitzroy location 69 on Land Administration diagram 76 302.

*Copy of certificate of title is enclosed in the report under Attachment 1.  
Additional information regarding land is presented in this section under “land investigations”*



## Environmental characteristics

*Information collected from The Bureau of Meteorology, the Dampier Peninsula Transport Strategy prepared by PPK in 1999, the Dampier Peninsula Tourism Strategy and the Environmental Appraisal And Management Plan For The Looma Power Station 2001*

*Annual Wind patterns and rain fallcharts provided by the Weather Bureau are presented in attachment 2*

The environment strongly influences community development, access, service delivery, etc of remote indigenous communities. The Kimberley is subject to severe climatic conditions, especially rain. The key elements of the physical environment in Pandanus Park are:

- Generally flat- low fall topography with a natural fall west towards the Fitzroy river,
- Extreme heat and rainfalls during the wet season with regular cyclone occurrences,
- The land comprised of pindan soils, provides good drainage- Some areas can be subject to erosion.
- Large vegetations can potentially contribute to heat control for buildings and outdoor activities.

The following sections summarise the physical environment background in Pandanus Park.



## Climate

The region experiences an arid to semi-arid monsoonal climate, characterised “in European terms”, by a distinct summer wet season (Nov-Apr) and a winter dry season (May-Oct). Almost all of the rainfall occurs during the wet season.

*The Dampier peninsula Tourism strategy recognises that “... Aboriginal concepts of seasonality are more complex than that of a wet and dry season ...”*

During the dry season a high pressure system dominates the region. The “Dry” is characterised by easterly winds and little cloud cover. Several consecutive months without rain are common during the dry season. Towards the end of the dry season a low pressure system develops over the region, with prevailing westerlies winds and an increase in humidity, cloud cover & rainfall.

Much of the rain comes from thunderstorms, but heavy falls result from cyclonic disturbances. Due to the large geographical extent of the region there are variations in coastal and island rainfall, temperature and humidity readings.

## Rain fall

The majority of the rainfall occurs during the wet season in short burst between December and March-April. The region experiences large fluctuations in annual rainfall due to cyclonic conditions. January and February are the wettest months, while the months of July through to October are the driest. Rainfall occurs in very short periods such as cyclones. Information collected from the Bureau of Meteorology at the “Willare Bridge weather station, approximately 900 meters from Pandanus Park, using available data from 1992 to 2002 indicates:

- High variations in rain fall in the ten past years. Readings show rainfall ranging from 28 mm to 789 mm in January or 5.6 mm to 635. 2 in March.
- The mean average rainfall for the area over 10 years is 824. 2 mm,
- Variations of annual rainfall are in the order of 31.5% (mean to lowest) to 63. 7 % (mean to highest). In the ten year period yearly rainfall ranged between 269 mm in 1992 to 1292. 7 mm in 2000.
- The months of June, July & august shows a constant low to zero rain fall which on some occasions has shown to start in May and extend until December

In the transport strategy for the Dampier peninsula PPK indicated that:

*... “Variability increases in the southern Kimberley, but even where least variable, rainfall is less reliable than in most tropical Australia with similar annual means”...*

A large percentage of the season’s rainfall is lost through evaporation. In Broome for instance the average evaporation is estimated at 2,860 mm per year. Derby and Pandanus Park would present similar characteristics.

## Wind

Analysis of Wind data, collected between 1989 and 2002 at Curtin Airport some 20 kilometres away from Pandanus Park, show seasonal pattern characterised by opposite wind directions in the wet and dry season.

Readings at Curtin Airport clearly show a dominance of East and South East winds, reaching 21 to 30 km./ h starting in March- April- May and increasing in June-July- August. While September October and November show mixed wind patterns including North West, West, South to South East the wet season December January and February show a dominance of the Westerlies.

This is known to apply throughout the West Kimberley with accentuated Easterlies in land and higher westerlies on coastal areas.

The “Dry season” Easterlies originate in the desert, are known to be cold and to transport dust. The “Wet season” westerlies, originating in the Indian Ocean are perceived as beneficial cooling breezes. Traditionally climatic-sensitive habitations in the Kimberley take advantage of the Westerly breezes and aim to shelter from the Easterly.

In addition winds resulting from cyclonic depressions, originating mainly in the Timor and Arafura seas, occur between November and April. Gale to hurricane force winds (160km/h) can be experienced, particularly on coastal areas which

create a major threat to settlements.

## Temperatures

The area experiences a variation between coastal and inland temperatures. Lowest temperatures are experienced in July and the highest just prior to the onset of the wet season.

The average daily maximum ranges from 35 ° C between January to about 28 ° C in July. The inland maximums are 39° C and 27 ° C respectively.

Similarly, the coastal average minima range from 20 ° C to 24 ° C in January to about 12 ° C to 15 ° C in July. In land average minima ranges between 21 ° C to 24 ° C in January, and between 9 ° C to 12 ° C in July.

## Soil, landscapes & vegetation

Much of the south-west Kimberley is characterised by extensive reddish sandy plains. This is true for the land including and surrounding Pandanus Park. The area is underlain by the ancient (Pre-Cambrian) rocks of the Canning Basin, a large structure that extends along the Western Australian coast from Port Hedland to the Northern Territory boarder.

Surface water is usually present only after heavy rains. In many places in the Kimberley including Pandanus Park, the rainfall is soaked up by the pindan sand plains. The topography in Pandanus Park also provides with a discharge area to the Fitzroy river that meanders west of the community.

The Vegetation in Pandanus Park includes typical pindan style vegetation particularly a broad diversity of wattles (which growth has been increased by burning and slashing), shrubs, bloodwoods and gum trees. Closer to the river the large river side vegetation is characteristic of the banks of the Fitzroy River including river gums, Melaleuca, Pandanus (which the community derives its name from)

## Population

Usual resident population in Pandanus Park is estimated between 60 and 100 residents (reference- CHINS survey). "Per House" data collected by Lui, Pandanus Park project officer early June 2002 indicates a resident population of 104.

*Resident Population table is presented in attachment 3.*

To understand and anticipate the physical growth of Pandanus Park it is necessary to rationalise the particular factors that influences the provision of housing, services & infrastructure and recreation/ public facilities on Aboriginal communities in conjunction with population increase.

## Projection; anticipated population growth

### *Reference papers*

*"The explosion of Aboriginality: Components of population growth 1991-96"*  
by A Gray,

*"Growth of the Aboriginal and Torres Strait Islander population 1991-2001 and beyond"* by A. Gray and

*"The relative economic status of indigenous people in Western Australia, 1986 1991"* by J Taylor and L Roach. Research and discussion papers published by The centre For Aboriginal Economic Policy Research.

Beyond 2001 annual population growth for Aboriginal and Torres Strait islander people in Australia is anticipated to be 2.2% to 2006 and, 2.1% to 2011. These estimates that encompass the Australian indigenous population do not differentiate between remote and urban communities patterns, and do not address local/ regional particularities. Regional growth population figures are considered to be 4.2 % (RE/ ATSIC Kullarri regional council - ATSIC Malarabah council that present common regional population characteristics.

Based on Regional figures considering indigenous population growth at 4.2 %

<i>Existing Population</i>	<i>Increase- person/ per year (Average)</i>	<i>Population increase by 2005</i>	<i>Population increase by 2010</i>
----------------------------	---	------------------------------------	------------------------------------

104	5 (over 8 years)	14	40
-----	------------------	----	----

Based on the Australian figures considering indigenous population growth at 2.2%

<i>Existing Population</i>	<i>Increase- person/ per year (Average)</i>	<i>Population increase by 2005</i>	<i>Population increase by 2010</i>
104	2.35 (over 8 years)	6.7	19

Based on a current population of 104 and regional growth figures of 4.2% it is estimated that Pandanus park could reach 150 residents in 2010.

### **Age component**

With regards to age distribution and suitability of developments, an important characteristic of the indigenous population is the far higher proportion of young people and the far lower proportion of aged persons than the non indigenous population (Australian- Median age 19.8). Pandanus Park population data shows that about 37.5 % of the resident population are children (between the ages of 0 to 14). A large population of young adults and adolescents also prevails in Pandanus Park.

This point relates to the provision of adequate housing, recreational, civic facilities to satisfy the needs of younger age categories. It also indicates a constant requirement for housing as young people will form families and require separate accommodation and young families will grow.

### **Additional factors influencing population growth & community development**

A range of papers & documents about population growth on Indigenous communities including "The relative economic status of indigenous people in Western Australia, 1986 1991" by J Taylor and L Roach consider issues regarding short term indigenous population mobility as well as the level of welfare dependency (measured as non- employment income).

Identifying the relevance of population movement is complex due to the difficulty in collecting and analysing data. It may in some situation result in a temporary population decrease or increase.

The CHINS report indicates that dramatic increase in population has occurred over time in Pandanus Park during cultural and ceremonial events including "sorry business" and "law business". The population has been known to double on some occasions for periods of up to 2 weeks. The community confirmed this information.

Further, factors such as the development of neighbouring communities with whose families might have some affiliations (eg, Looma), governance and law and order, outstation development have on some occasions resulted in major shift of population between living centres.

The strength of indigenous families' affiliations has in some circumstances lead to the accommodation of new residents on the community. Discussions with Pandanus Park residents and council indicate that families accommodate regularly visitors. It is difficult to determine the level of impact of visitors in Pandanus Park, however it is commonly accepted that visitors lead to overcrowding that itself lead to housing failure and shorter housing life span.

Welfare dependency and the delay in economic development of remote Aboriginal communities directly impact on physical growth placing communities in a dependent position with regards to development of their living areas. Funding of housing and essential services (by government agencies) is limited, resulting in difficulties to meet the community needs and requirements in terms of construction of new housing.

Even though the communities are taking an increasing role in the development of their living areas for instance through CDEP projects these tend to focus on the maintenance of existing facilities and improvements to the living environment.

The discussion papers stipulate that social support and intervention programs will need to be set at a constantly higher level to accommodate the rapid expansion of population numbers.

# Development parameters

## *What influences future developments in Pandanus Park*

The strength of planning resides in the fact that it considers all relevant aspects of development at once. In doing so a town plan is able to build up a global picture to coordinate efficiently future developments & their locations. Detailed planning then considers each element of the plan, for instance recreation, housing, roads, to determine strategies and improve identified issues.

Developments on Aboriginal communities include a broad diversity of facilities from housing, public buildings (eg, office) recreation facilities to essential services, infrastructure, tourism infrastructure, etc.

State and Federal regulations (laws) guide the location of certain types of facilities - for instance sewerage ponds should be sited at a minimum of 500 metres from housing. Regulations aim to achieve a safe and sound living environment.

Parameters influencing future development in Pandanus Park are presented in Diagram “*Development parameters*”, on the following page. These include:

- Pandanus Park is characterised by two separate living areas, which accommodate housing and public facilities.

*Approximately 500 metres of land on which the power station and workshop are located (Area B) separate the living centres. During consultation, Pandanus Park residents indicated that both places formed part of a single community.*

- Pandanus Park land boundaries.

*Existing developments in Pandanus Park are located close by the “Old Stock Route” boundary, sited approximately 100 metres to the East of the housing in area C.*

- Pandanus Park is located on the edge of the Fitzroy River and a portion of the land is flood prone.

*Wherever possible developments should not occur on flood prone areas. The Department of Environmental, Water and Catchment Protection has provided recommendations on flood levels and floor levels for future building. Future developments are away from flood prone areas, and above recommended levels.*

- The proximity of the main highway and Willare road house

*Residents highlighted noise aspects derived from increasing traffic on the highway located some 700 metres from the community's first living centre (area A).*

*The proposed location for the future sewerage ponds consider the proximity of the adjoining road house and aim to set suitable distance and visual separation between the road house and the highway and the ponds.*

- The power station is centrally located.

*Land use in its vicinity is limited to counteract the noise factor.*

- The location of existing service infrastructure eg, the bores and the tip also impacts on the location of future housing and community developments.

*For instance septic systems (leach drains) should not be located closer than 30 metres to bores, sewerage evaporation ponds 500 meters from housing, etc*

- A broad diversity of cultural areas is located within the Pandanus park land excision.

*Some are close to existing and proposed developments. The Plan will aim to ensure that developments are kept at appropriate distances from cultural areas.*



# Specific aspects of the plan

## Investigations

---

Three general planning aspects were investigated & advanced as part of the plan, including flood prone areas and areas suitable for future developments; land for long term expansion of the community as well as cultural aspects particularly the proximity of cultural areas to existing buildings & their influence on future developments.

*This aspect is further developed in the following pages under the title "Land investigations" and in the sections dealing with housing and infrastructure*

### ***Flood levels***

Flood levels were investigated with the assistance of the Department of Environmental, Water and Catchment Protection (DEWCP).

*"The DEWCP carrying out its role in floodplain management provides advice and recommends guidelines for development on floodplains with the object of minimising flood risk and damage".*

The DEWCP has provided the following recommendations for Pandanus Park:

*... "It is recommended that the Design Flood Level has a 100 year average recurrence interval. Peter Muirden advises that a maximum flood peak at Willare Bridge of 15.80 m AHD was recorded in March 1993 and is the highest on record since 1914.*

*Using our preliminary Fitzroy Crossing flood study work where the Design Flood Level is approximately 0.70 to 0.90 metre above the highest recorded flood peak, then for Pandanus Park:*

- *March 1993 flood peak @ Willare Bridge = 15.80 m AHD.*
- *Estimated Design Flood Level @ Willare Bridge = 16.70 m AHD.*
- *Estimated Design Flood Level @ Pandanus Park = 17.00 m AHD.*

*To ensure adequate flood protection to future development a minimum building floor of 17.50 m AHD is recommended.*

*Please note that a failure to properly adhere to these recommendations will result in a greater exposure to risks of flood damage."...*

These recommendations were adhered to in the plan.

### ***Land for future developments***

Areas of cultural significance to the south, noise aspects associated with the proximity of the main highway to the north, flood prone areas covering the west boundary, the closeness of the east boundary to existing and planned developments, significant sites to the south combined with the long and thin shape of the Pandanus Park land excision noticeably directs the physical growth of Pandanus Park. In the long term (beyond the plan) the expansion of housing and community facilities is most suitable towards the east.

In addition there is no site available within the existing community excision to construct the sewerage ponds in a manner that establishes appropriate buffers with housing, limits the spread of odours (wind), provide visual separation from the highway and community access road.

In the selection of a suitable site for the future sewerage ponds, the proximity of the Willare road house is to be considered. A site for the construction of the ponds was selected as far as possible from the roadhouse.

### **Strategies**

It was agreed that the community would request the inclusion of an additional portion of land in the existing Pandanus Park

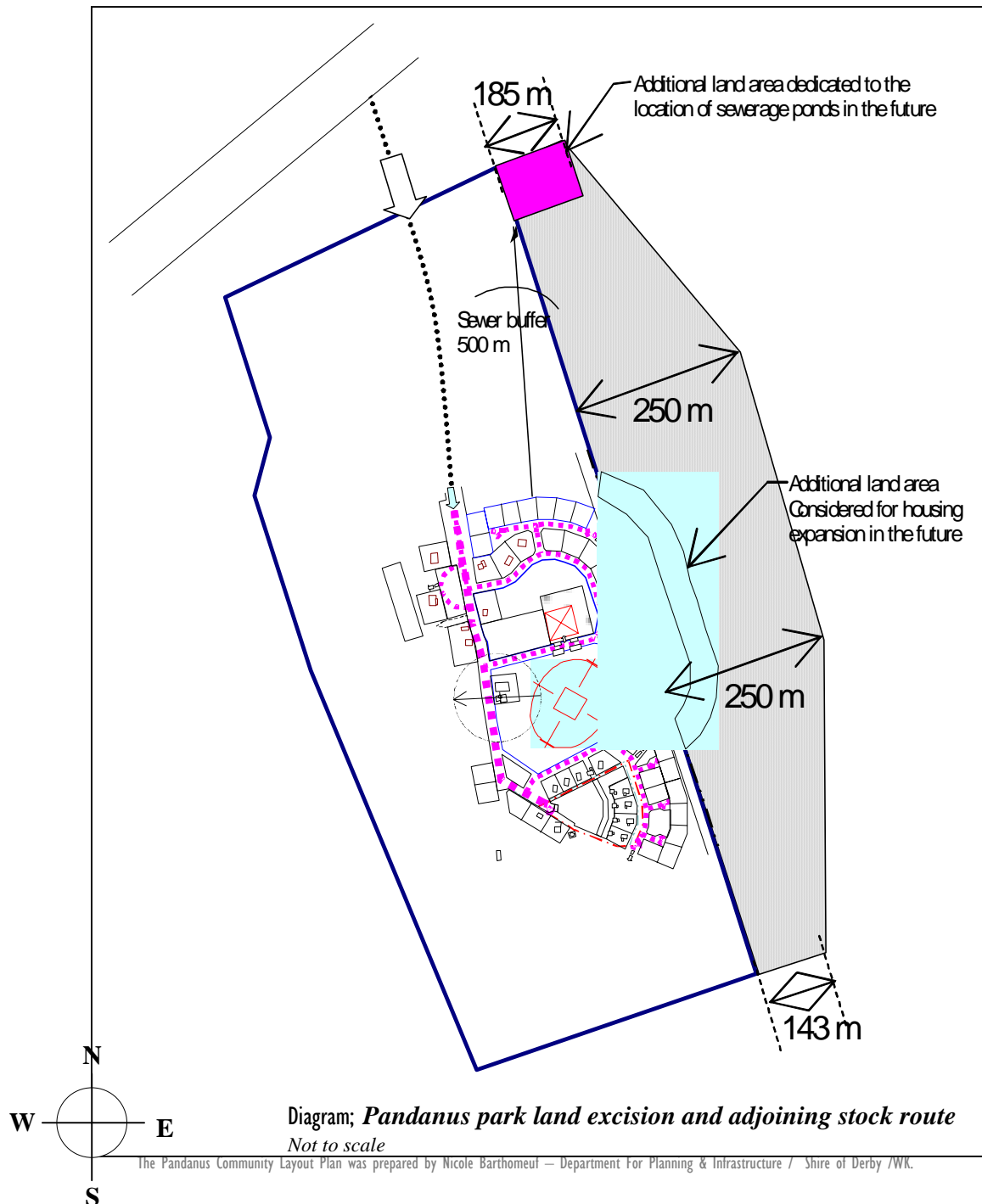
reserve.

Investigations revealed that the community land excision is centrally located within an old Stock route registered as reserve 23 226. The western portion of the stock route is flood prone and consists mostly of the Fitzroy River bed. Refer to diagram “Pandanus Park land excision and adjoining stock route” opposite

The stock route that follows the Fitzroy River for above 300 kilometres links Derby and Fitzroy and forks West towards Broome. The stock route is of historical and cultural significance and is linked with the early days of pastoral enterprising when stockmen brought cattle from Darwin to WA.

To determine which portion of land would be amalgamated in the existing Pandanus Park reserve the planner and community agreed to include sufficient land to enable the construction of sewerage ponds and the expansion of housing in the future. This option covers only a portion of the width of the stock route recognising its significance and aiming to preserve its continuity. Refer to diagram below showing proposed extension of Pandanus Park Land boundaries

The amalgamation process has been initiated with DOLA. As part of the endorsement process of the Community Layout Plan the shire of Derby West Kimberley will be presented with a proposal to amalgamate a portion of the stock route with the existing Pandanus Park Reserve. Additional details are presented in the section dealing with essential services & infrastructure



## **Culture** *Protecting areas of cultural Significance*

*Some information was provided by Pandanus Park community & Kevin Shaw from the DIA*

Discussions with the Pandanus Park community and the Department of Indigenous Affairs (DIA) revealed that a range of areas of cultural significance are located within the Pandanus Park land excision, some close to existing developments.

These are thought to include rubbish pits (in the vicinity of the rubbish tip, and, in general along the Fitzroy River), law grounds (in the vicinity of living area C) & cultural areas with mythological and/or religious significance (in the vicinity of living area C) are associated to various levels of secrecy.

While in the past there had been extensive discussions between the DIA (formerly AAD) site officer and the community about ways to protect areas of cultural significance these sites have not been registered.

The Aboriginal Heritage Act 1972 sets strict processes and requirements for developments in areas where sites have been registered or in the event people have knowledge of sites (even though these might not be registered).

Areas of cultural significance identified during the development of the plan and the relationship of proximity between cultural areas and planned developments are described below:

Location (in relation to existing developments)	Anticipated projects in the vicinity of cultural areas
AREA C- Around the existing water tanks/ refreshment area	New water tanks / public buildings, service extension
Around rubbish tip	The proximity of sites might impact on the long term expansion of the tip (Above the 20 years life span of the existing tip)- The community indicated that cultural sites are not located within the fenced perimeter of the tip site
AREA C- To the South / South-East of existing houses	Additional housing areas have been located in this direction, however: <ul style="list-style-type: none"><li>• Existing separation with law ground has been preserved in the plan</li><li>• Discussion with the community indicates that the proposed buffer between future housing and cultural areas is suitable</li><li>• Existing track is closer to law area than proposed new developments.</li></ul>

The community and planner asked the DIA sites / heritage officer to undertake a sites survey over the area close by the community, however due to a range of factors this was not possible during the development of the plan.

### **Respecting culture in the plan**

To support the development of the plan the Army has surveyed the location of one of the cultural areas. While this information will assist the community register the site (in the event the community want to proceed), the site location has not be shown on the layout or survey.

The plan locates boundaries where developments are not allowed and where access may be limited to people with affiliation to the area, given the lack of data available on the level of secrecy of the sites.

The plan has preserved a buffer between areas of cultural significance and future housing lots of equal size to the existing one. This is considered appropriate by Pandanus Park.

In addition a clause addressing the issue of closeness of cultural areas to future developments has been inserted in the plan requesting developers to work closely with the community when building close by known “sites”.

## Protecting sites of cultural significance

### Recommendations:

#### Site registration & management of cultural areas

The community should consider registration of “areas of cultural significance” under the *Aboriginal Heritage Act 1972*.

The development of a management and land use plan for areas identified with cultural relevance is also advised.

To proceed with sites registration Pandanus Park will need to undertake a survey - Contact the Department of Indigenous Affairs Heritage Officer for advice and assistance- (Regional office Broome)

*A map was produced by Sinclair Knight Merz (surveying company) to assist locating areas of cultural significance on the Australian grid line system. “Sites” survey data can be superposed on this drawing to assist with sites registration*

Community people and if relevant other parties (who have knowledge on these areas) should be involved in this process.

*People who could participate in the survey and have some affiliation with the area might include Pandanus Park residents, members from neighbouring communities (eg, families in Looma), and as a matter of courtesy some local elders might be informed and involved in the project.*

Collected data can then be transferred to the DIA Sites Department to enable registration.

Once the “sites” survey is available and when the plan will be reviewed in the future it is recommended to confirm that the buffer set in the plan between future developments and areas of cultural significance is suitable



# Planning concept

---

## *Overall land organisation*

The main layout shows medium to long-term developments in Pandanus Park. Options have been developed to assist with the implementation of the AACAP project, particularly upgrading of existing houses and roads. These are presented under the section of the report titled –“ Housing” and “Infrastructure”.

The planning concept aims to establish functional links between the two living centres (Area A & C) and create one living area. The layout builds on existing land organisation and uses, incorporates community projects & aspirations and proposes ways to alleviate issues identified through discussions and site analysis. It aims to create a sound and suitable living environment.

Developments have been mostly located to the East of the North-South axis, away from flood prone areas.

The layout allocates housing areas, public areas (community purpose) & recreation facilities linked by a functional road network. The land is organised as follows:

- Relevant levels of separation have been established between private areas (housing) and public places (office, refreshment area, clinic etc).
- Public areas have been re-structured and sited in two separate locations, recognising & differentiating facilities that are used mostly by community residents (eg, refreshment centre) from those used by visitors (eg, office).
- Parks and land for passive recreation have been established in strategic locations to support the community greening / landscaping project and increase privacy and separation between dwellings (houses) and community facilities.
- Access to public places and houses has been established considering the level of traffic / usage and the nature of the road. New housing is located away from the main access road in a circular shape around central recreation facilities and community facilities, taking into consideration expressed community aspirations .

The plan allows flexibility, particularly where land uses are linked to funding uncertainties, or where the project is long term (eg, stage 2 expansion of the burial area) or where specific land uses are linked to other projects or undertakings whose results might affect the land use (eg, two sites have been allocated to the future sewerage evaporation ponds, location of the workshop)

*Refer to the layout on the opposite page*

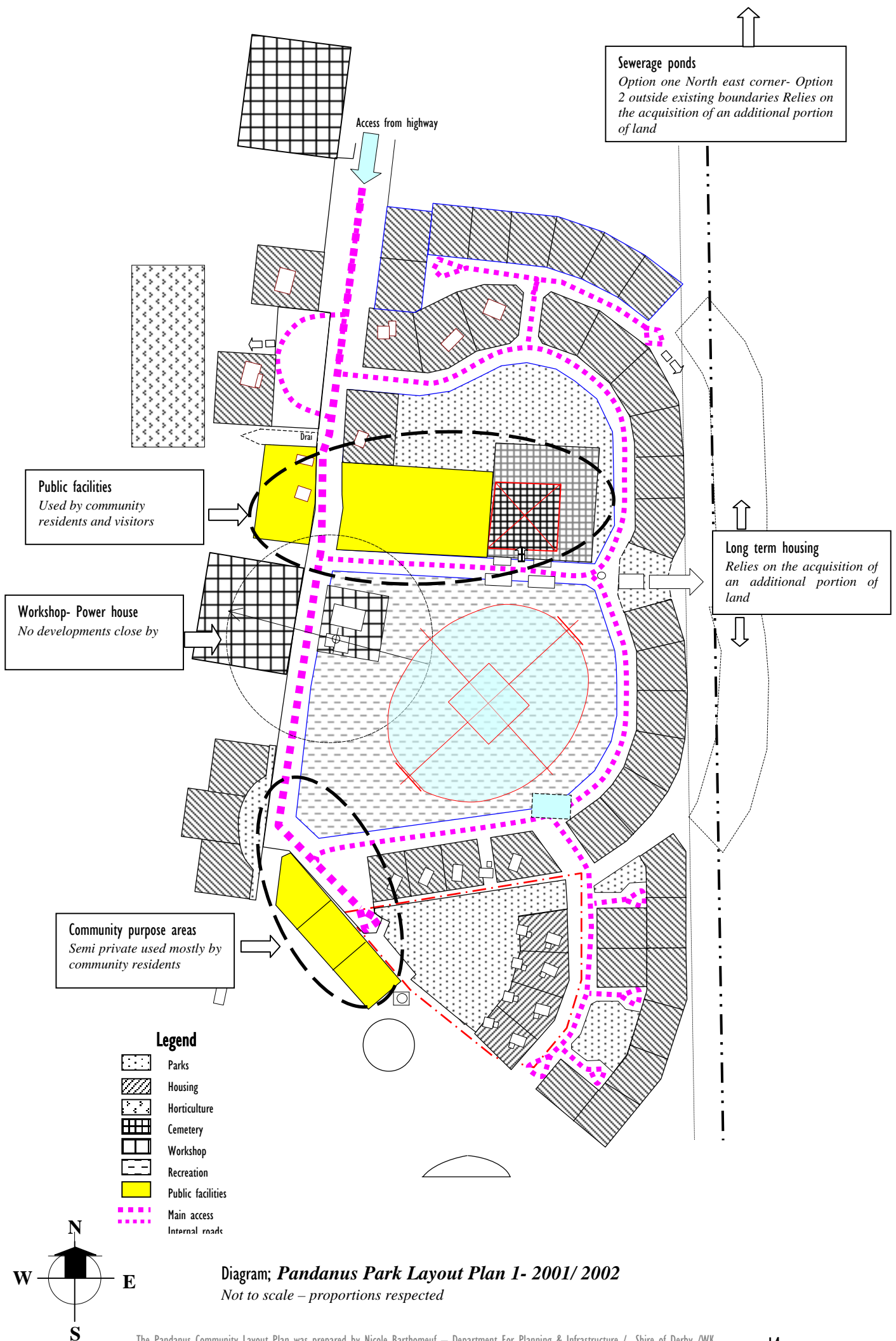
## Review of the plan

The Pandanus Park CLP is the first one that the community has developed. The plan has been the subject of major community decisions and will rely on the support of funding and resource agencies for its implementation.

It is recommended that the plan be reviewed regularly to refine the land organisation proposed in this layout and ensure that it is up to date and incorporate emerging community projects.

### **Recommendation: Review of the plan**

The Pandanus Park Layout Plan to be reviewed in the next four to five years



# Section



## Housing

<b>General housing aspects .....</b>	<b>15</b>
<i>Planning approach; housing aspects investigated in the plan</i>	<i>15</i>
<i>Synopsis of housing aspects discussed with Pandanus Park</i>	<i>15</i>
<b>Housing needs.....</b>	<b>16</b>
<i>Summary of housing occupancy &amp; residency</i>	<i>16</i>
<b>Residential areas in the plan .....</b>	<b>18</b>
<i>Planning for the location of new houses</i>	<i>18</i>
Selected areas for the location of future housing	18
<i>Re-organising the existing housing areas</i>	<i>19</i>
Existing, community aspirations, issues & needs	19
Planning strategies (Upgrade of existing housing- Long term redevelopment of existing residential areas)	19
<i>Serviced lots</i>	<i>21</i>

# General housing aspects

---

## *The words used in the report- Terminology:*

A “housing lot” or a “lot” is the area of land allocated to and surrounding a building or a house (sometimes referred to as the courtyard). This place is private and is the responsibility of the family that lives in the house.

In the report a “house” is sometimes called a “dwelling”. This is the place where people live.

Often houses are built in the centre of the lot, the housing lot is fenced and residents establish gardens and outdoor facilities.

The age, condition and type of housing in Pandanus Park varies, and comprises recent dwellings, dwellings over 20 years of age in need of repairs and improvements and some sheds (used for residential purposes) that community residents are upgrading. The compactness of the old housing areas (area C) and closeness of dwellings has a significant impact on the quality of life in Pandanus Park, particularly privacy, noise disturbances, poor definition of the courtyard area, and lack of outdoor facilities. Issues related to privacy were raised consistently by the community

## ***Planning approach; housing aspects investigated in the plan***

The Plan proposes a number of options to coordinate the location of housing considering short and long term projects. The following has been undertaken:

- Reorganise existing housing areas (to improve privacy) considering:  
*SHORT TERM: The works to be carried out through the AACAP project. The temporary layout for the upgrading of existing housing is presented in this section under the heading “Relationship with the AACAP project”.*  
*And,*  
*MEDIUM TO LONG TERM: The construction of new housing through other programs and projects (when the existing housing stock will be demolished). This option has been incorporated in the Final “Pandanus Park Layout Plan”*
- Identify land for the development new residential areas  
*SHORT TERM: For the construction of up to 4 houses through the AACAP program*  
*And,*  
*MEDIUM TERM (now to 15 years): For the construction of new housing through other programs.*
- Develop options for the expansion of housing areas beyond the proposed layout- Long term (15 years and beyond), aiming to optimise & rationalise the provision of housing and essential services and considering the lack of land availability as well as access & traffic, etc.  
*Refer to section 1 “Overview” under the headings “Specific aspects of the plan- land for future developments”*

## ***Synopsis of housing aspects discussed with Pandanus Park***

During consultation a range of housing issues and aspects were discussed with the community, particularly:

- Residents’ preferred location for their houses.
- The proximity of areas of cultural significance to existing and proposed residential areas  
*Refer to section of the report titled Overview- “Specific aspects of the plan – Culture”*
- Low water pressure, unsafe power in some old houses.
- Issues associated with overcrowding
- Vehicular and pedestrian access to each lot & control of vehicular traffic in the existing housing area to limit dust and create safe and pleasant public places, particularly park areas.
- Road reserves and access to land currently located outside the community boundary dedicated to long term housing developments.



Refer to section of the report titled Public facilities- and section 1 “additional land areas”

- Accommodation for the elderly and ways to address issues associated with visitors.  
*Options discussed for the accommodation of visitors include visitors staying with families, the establishment of camping facilities or the creation of joint sporting and camping facilities.*  
*The elderly are accommodated with family. In addition the provisions enables the amalgamation of 2 lots to build elderly or singles accommodation should the community wish to rehouse the old people.*
- The need to retain existing vegetation on future housing lots to increase privacy and sun & dust protection and the possibility of establishing gardens and fences around the houses.  
*Landscaping and the preservation of existing trees and vegetation is strongly emphasised in the planning provisions*
- Working with the plan. How to select the location of a house using the town plan.  
*Once the plan is finalised people should choose where new houses will be built from the plan. This emphasises the importance of community involvement in the planning process and the key role of the community council.*

## Housing needs

To foresee housing needs in Pandanus Park it is important to consider the broad spectrum of factors that dictates housing and service provisions on Aboriginal communities including the state of housing, number of bedrooms per house, waiting list, population movement & anticipated population increase as well as the dependency of Aboriginal communities on external resources for the provision of new housing and infrastructure.

### **Summary of housing occupancy & residency (current & short term)**

Resident population in Pandanus Park is estimated at 99. Over the past 2 years the population has fluctuated however remained in the arena of 100 residents.

In regards to housing the AACAP project 2002 includes the construction of 5 new houses, a new office which will make available an extra house currently used as office, the upgrade of 10 of the old dwellings and the demolition of 3 old dwellings. Once the AACAP project has been completed Pandanus Park housing stock will include overall 21 residential buildings. The table below presents a summary of residency and housing occupation information:

<i>House occupancy residency information</i> <i>- June 2002-</i>			<i>House occupancy residency information</i> <i>- Past AACAP project -</i>		
Overall 104 residents 69 Adults & 35 Children (below 12 years old)			Overall: 99 residents overall 51 Adults & 48 Children (below 15 years old)		
Overall: 15 residential buildings 14 occupied dwellings:	Area A	1 recent to new “Standard houses” (Excluding the office) 3 (CHECK) residential sheds (in needs of upgrade) 1 Old house (20 years+)	Overall: 21 buildings 18 occupied dwellings	Area A	5 recent to new “Standard houses” 3 sheds (Unsuitable for living) 1 Old house
	Area B	NA		Area B	NA
	Area C	10 old houses (20 years +) 3 are in the process of demolition		Area C	2 new “Standard houses” 1 old house - not upgraded. 9 upgraded old houses (20 years old +)
7.4 persons average occupancy per house			5.5 Average occupancy per house		
Minimum occupancy 3 person/house Maximum occupancy 19 person/ house			Minimum occupancy 1 person/ house Maximum occupancy 17 person/ house		

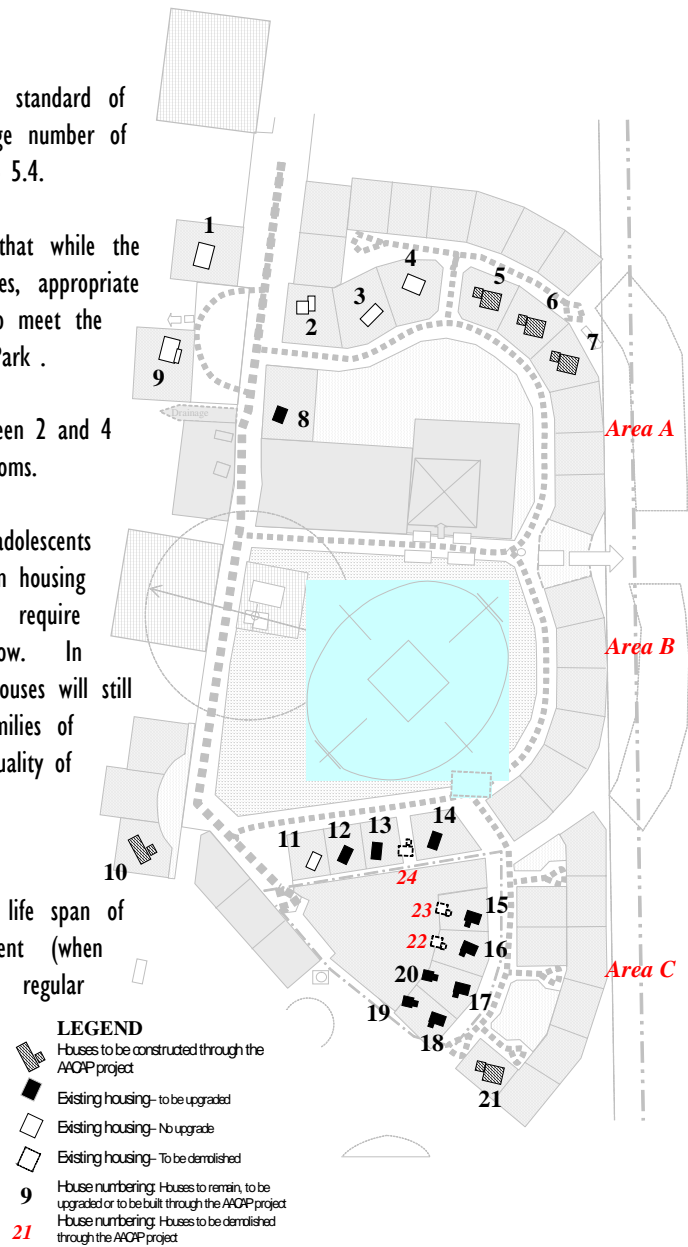
The AACAP project will significantly improve the standard of housing on the community decreasing the average number of residents per dwellings (occupancy rate) from 7.4 to 5.4.

Population and housing data analysis indicates that while the AACAP Project will make available 5 new houses, appropriate continued housing provision will be important to meet the short to medium term housing needs in Pandanus Park .

The number of bedrooms per dwelling ranges between 2 and 4 with some houses reaching 5.6 occupants per bedrooms.

The large proportion of youth, young families and adolescents tends to point towards a potential sharp growth in housing needs as young people will form families and require separate accommodation and as young families grow. In fact once the AACAP project is completed some houses will still accommodate a large number of independent families of various age groups impacting significantly on the quality of the residents' life.

While housing upgrade significantly increase the life span of existing dwellings, their progressive replacement (when degraded) is advised in conjunction with the regular provision of new houses to cater for natural population growth.



Based on a current population of 100 and regional growth figures of 4.2% for the Indigenous population, it is estimated that Pandanus Park would reach a population of approximately 150 residents in 2010 (an increase of approximately 50 %). Considering suitable an average of 6 persons per 3 bedroom house, an additional 9 houses would be required to house Pandanus Park families.

These predictions do not account for population mobility, which could lead to the accommodation of a larger number of residents.

*Housing occupancy data and resident population collected with the valuable assistance of Peter Mc Cumstie Community administrator and Pandanus Park council is enclosed in attachment3. Attachment 3 includes Table 1- resident population per dwelling- June 2002, Table 2- resident population per dwelling- past the AACAP project June 2003 and a diagram titled - Housing numbering.*

# Residential areas in the plan

The plan, which considers overall developments in Pandanus Park, provides directions to assist with the location of new houses & services and to determine the direction for existing housing expansion. The Army, community and the architect have decided which houses will be upgraded and , based on the layout where new houses will be built. Improvement to and provision of essential services is considered as part of the AACAP housing construction and upgrade.

## *Planning for the location of new houses*

### Selected areas for the location of future housing

The pandanus Park community indicated a preference for locating housing away from the existing (mostly to alleviate disturbances to the living environment associated with proximity and noise). Areas proposed by the community and selected sites for the expansion of housing are as follow:

<i>Area</i>	<i>Community preferences</i>	<i>Areas selected for the location of future housing</i>	<i>Number of housing lots proposed in the plan</i>
Area A	<ul style="list-style-type: none"> <li>• Around the grave yards</li> </ul>	<ul style="list-style-type: none"> <li>• East of the grave yards</li> </ul>	<ul style="list-style-type: none"> <li>• 4 to 6 housing lots</li> </ul>
		<ul style="list-style-type: none"> <li>• North of the existing housing</li> </ul>	<ul style="list-style-type: none"> <li>• 8 housing lots</li> </ul>
Area B	<ul style="list-style-type: none"> <li>• Behind the football oval to the East</li> </ul>	<ul style="list-style-type: none"> <li>• East of the football oval</li> </ul>	<ul style="list-style-type: none"> <li>• 6 housing lots</li> </ul>
Area C	<ul style="list-style-type: none"> <li>• In the prolongation of the clinic (close to the existing bores)</li> </ul>	<ul style="list-style-type: none"> <li>• Next to the clinic</li> </ul>	<ul style="list-style-type: none"> <li>• 3 housing lots</li> </ul>
		<ul style="list-style-type: none"> <li>• East of existing cluster of houses</li> </ul>	<ul style="list-style-type: none"> <li>9 housing lots</li> </ul>

Overall 30 to 32 housing lots are shown on the plan.

Some housing lots in area C are close to a “cultural area or Law ground”. Discussions with the community and site visits aimed to ensure that developments were not proposed at an unsuitable distance from this site.

*Strategies to identify development & cultural area boundaries are presented under the section of this report dealing with “Culture”.*

To alleviate overcrowding of housing areas and ensure privacy, each lot oversees a park, recreation area, or vacant land & road reserve. This has been applied consistently throughout the plan and it concerns existing and future housing areas.

## Re-organising the existing housing areas

### Existing, community aspirations, issues & needs

<i>Area / Existing</i>	<i>Community aspirations &amp; projects</i>	<i>Issues / comments</i>
<b>Area A- 6 houses</b> <ul style="list-style-type: none"> <li>• 2 houses are located to the west of the main road (old orchard area),</li> <li>• A cluster of three residential-sheds/dwellings- East</li> <li>• Patricia's residence is located close to the workshop (East of the main access road)</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Expand landscaped area</li> <li>• Preserve the orchard (West of new houses)</li> <li>• Upgrade existing residential-sheds to a better standard of accommodation</li> </ul>	<ul style="list-style-type: none"> <li>• One of the new houses is currently used as an office</li> <li>• Patricia's house is located close to the road and appropriate set backs from the street needs to be preserved</li> <li>• Ad'hock driving and lack of definition of access and driveways to houses, dust etc.</li> </ul>
<b>Area B- Not residential</b>	NA	NA
<b>Area C: Overall: 13 houses</b> <ul style="list-style-type: none"> <li>• Existing housing consists of a row of five dwellings and a cluster of eight dwellings around a central community area.</li> </ul>	<ul style="list-style-type: none"> <li>• Alleviate issues associated with closeness of existing housing</li> <li>• Limit traffic in the central community area (park)</li> <li>• Relocate two old houses in the park to create a child care centre</li> <li>• The community would like to extend the lawn areas behind the existing housing</li> </ul>	<ul style="list-style-type: none"> <li>• The closeness of dwellings results in a poor level of privacy &amp; noise problems.</li> <li>• State and size of houses</li> <li>• Access to each house and the location of internal roads is inappropriate</li> <li>• Issues were identified with the septic systems that overflow</li> <li>• Lighting over the basket ball courts invades people's privacy</li> </ul>

### Planning strategies (Upgrade of existing housing- Long term redevelopment of existing residential areas)

In area A and C existing housing lots have been re-proportioned and re-sized to provide more land around houses (courtyard) and to allow redevelopment of these sites while alleviating living problems associated with the closeness of existing dwellings. This considers the long term redevelopment of the existing housing area, which is shown in the main layout, and also the upgrade of houses in the short term through the AACAP program. A temporary layout has been developed for this purpose

The diagram on the following page presents a temporary layout to guide housing upgrades for the AACAP project in area "C". In the long term (once these houses are too old and need to be demolished) the community will aim to build less houses in the space selected in the overall community layout plan.

To undertake the housing upgrade it is recommended to keep an overall perspective on the location of housing extensions to determine appropriate directions for new rooms or Verandahs.

The diagram below presents recommended directions for additions to existing houses aiming to increase separation and space between dwellings to provide more privacy. (Building away from existing housing is possible mostly in corner lots). In some situations it is also advised to build towards the centre of the lot to properly locate the house.

This diagram also shows access and driveways to each dwelling.

In Area "A" additions to Patricia's house are recommended away from the access road towards the East (grave yards). It incorporates need for privacy, allows landscaping of the front yard increases separation from the main community vehicular route and considers issues associated with dust. Patricia indicated that she would prefer her house to expand towards the cemetery / workshop. A minimum set back of 6 meters from the edge of the road reserve is recommended.



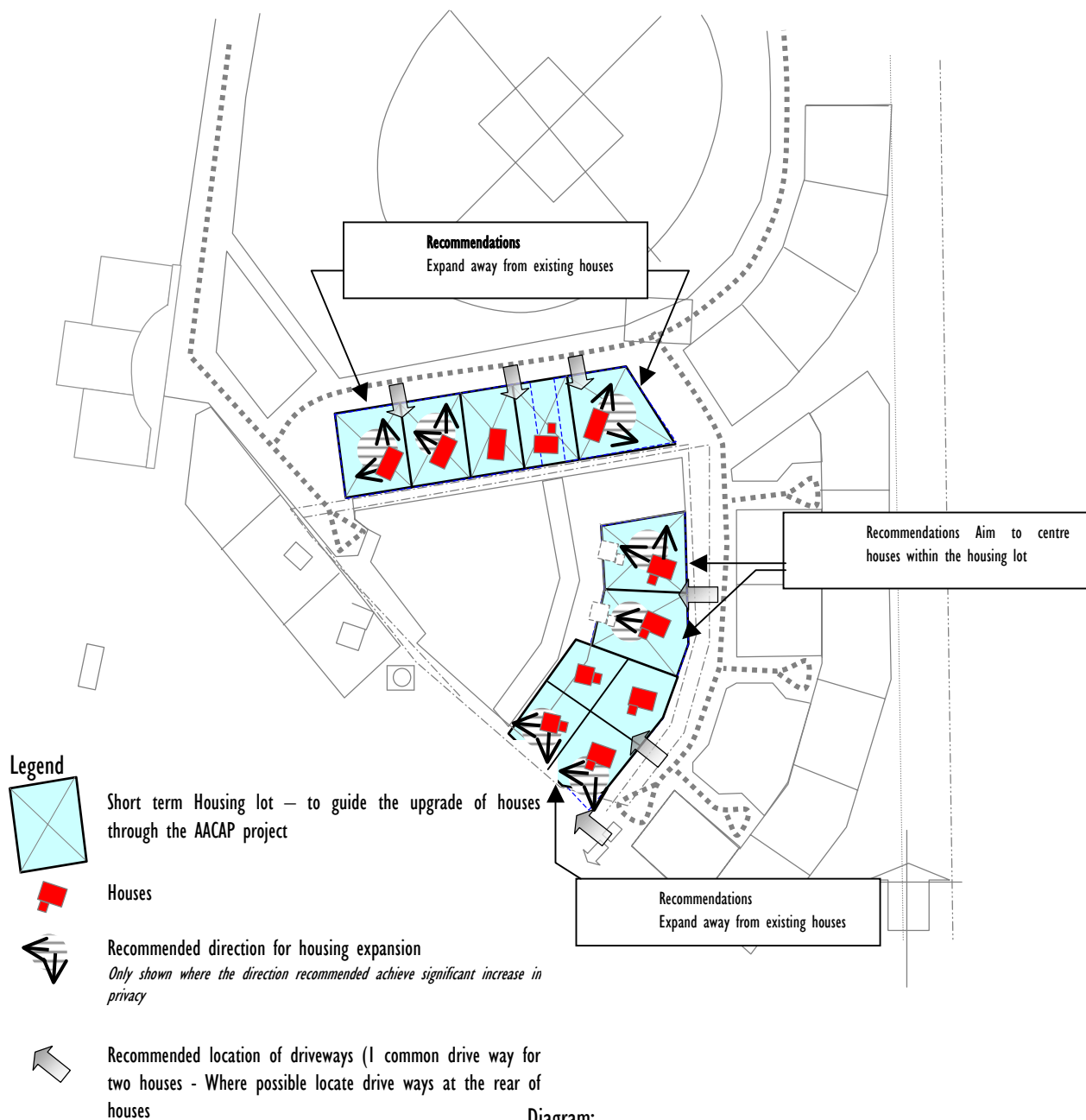


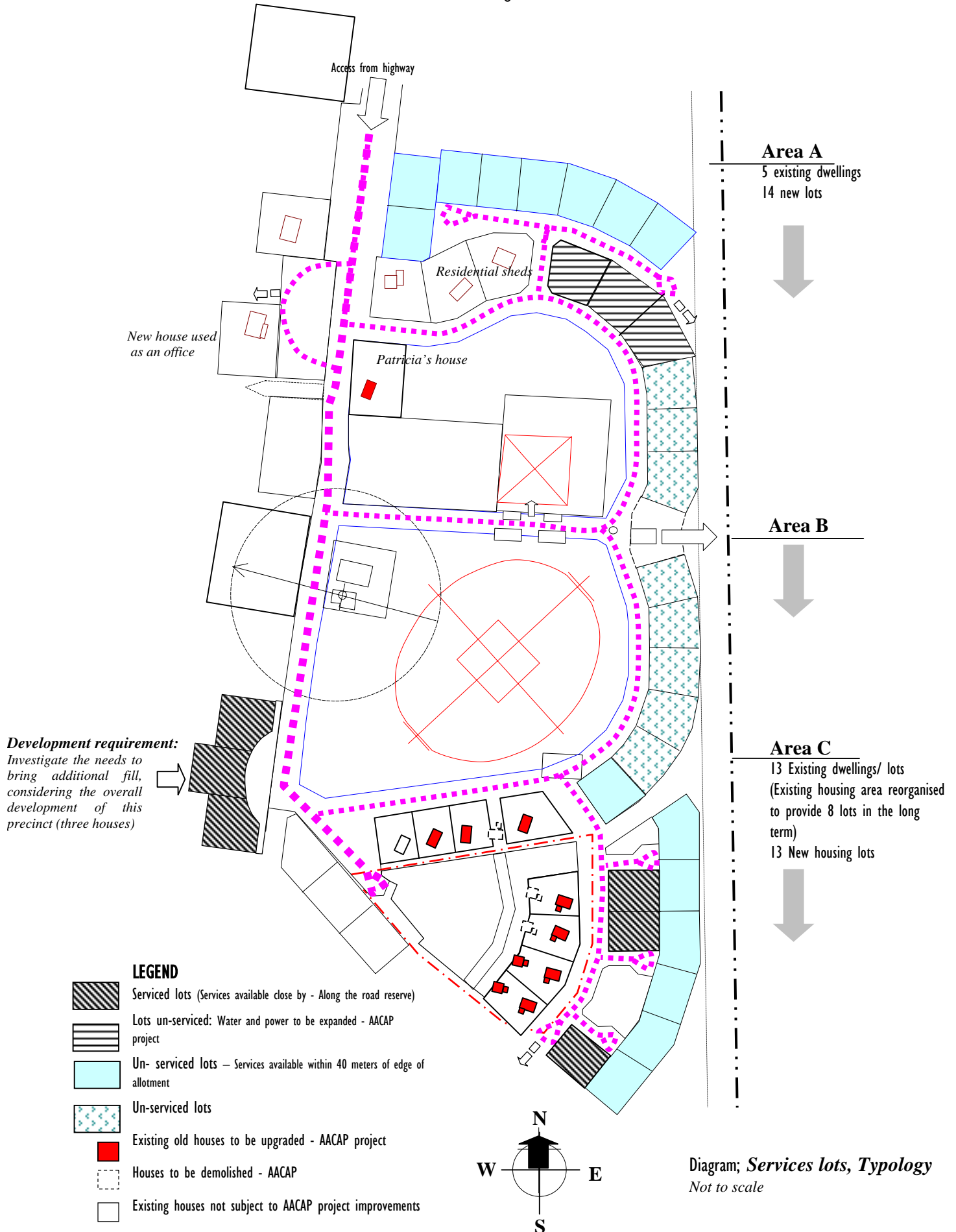
Diagram:

*Recommended direction for the expansion of houses- Housing area C*

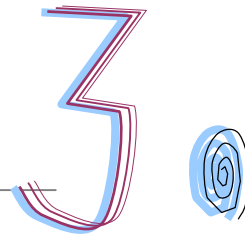


## Serviced lots

The layout below differentiates serviced housing lots (services are available or close by) from lots not-serviced. The selection of a serviced lot is recommended for the construction of AACAP housing.



# Section



## Infrastructure

<b>Roads and drainage.....</b>	<b>22</b>
<i>Existing circumstances and community aspirations.....</i>	<i>22</i>
Access road .....	22
Internal roads .....	22
<i>Road network developed in the plan.....</i>	<i>22</i>
Overview .....	22
Road hierarchy and traffic aspects .....	23
<i>Specific planning and development items .....</i>	<i>23</i>
Road options around the clinic .....	24
Road works through the AACAP project.....	24
<i>Drainage.....</i>	<i>24</i>
Drainage options and principles .....	24
Key design aspects .....	25
Drainage approach and recommendations for Pandanus Park.....	25

# Roads and drainage

A “road or track” is the area on which people drive. The width of roads accommodating two-way traffic generally varies between 5.5 to 6 meters.

A “road reserve” is an area of land set aside to locate the road or track, essential services (water- power sewerage and telecommunications), drainage, walkways and landscaping. The width of road reserves vary dependant on the type & level of traffic, and the scale of developments.

## Existing circumstances and community aspirations

### Access road

The main access to Pandanus Park, from the Great Northern Highway to the community gate, is approximately 700 meters long. A portion of the road is located on Main Roads “highway road reserve” and the remaining on community land. The access road is considered “Type I” using Main Roads standards and classification.

Main Roads classification is presented in attachment 4.

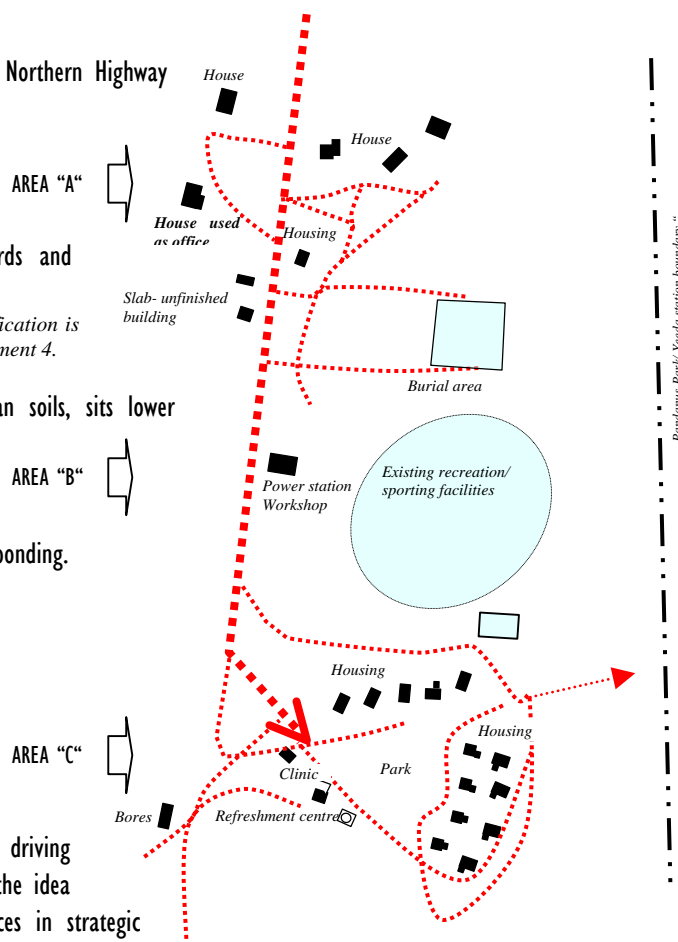
The running surface, constructed from in-situ pandan soils, sits lower than the surrounding ground levels suggesting problems with drainage during the wet season. The community confirmed that the first section of the track is subject to heavy corrugation and water ponding.

### Internal roads

Within the community existing roads are poorly defined and not sealed. Several tracks provide access to the same compound.

The community is concerned about dust, ad’ hock driving and speeding. During discussions people welcomed the idea of constructing roundabout and speed control devices in strategic locations.

To overcome dust and traffic issues Pandanus Park has erected traffic barriers and established lawn areas. Residents indicated that they would like to expand landscaping in the community and restrict traffic in the park located in area C.



Diagram; *Existing road networks*  
Not to scale

## Road network developed in the plan

### Overview

In the plan new “ring” roads are proposed to access the new housing areas and to later link both living centres. Generally, existing internal roads will remain in their current location and to rationalise the road network, their number has been reduced. Some were realigned to enable functional access to new and existing housing areas and community facilities and provide an optimum long term road network. Roundabouts are proposed at some intersections to reduce speeding.

## Road hierarchy and traffic aspects

Refer to the table below and diagram on the following page

Location	Type	Characteristics- comments
<b>Group 1- Width of road reserve 20 meters and above</b>		
Area A, B & C Main access road	From the High way through area A, B to area C	This road is a main traffic axis. Its width varies to reflect the location of existing service mains and buildings
Area C	Existing road realigned to provide additional space for the upgrade of houses	The width of this road is influenced by the location of existing services and housing (East- Cluster of 8 houses)
<b>Group 2- Width of road reserve 16 to 18 meters</b>		
Area A	Ring road to existing and new housing	In the long term it might link with additional housing areas (beyond the life of the plan) should the community gain additional land
Area B	Road to public facilities, including cemetery Ring road to new housing, around football oval	In the long term it might link with additional housing areas (beyond the life of the plan) should the community gain additional land
Area C	Existing road slightly realigned to provide access to existing houses	The width of this road is influenced by the location of existing services and housing to the East
<b>Group 3- Width of road reserve 11 to 12 meters</b>		
Area C	Provides access to a cluster of three future houses	Additional separate service corridors have been established behind housing to reflect engineering design options
<b>Group 4- Service access only – width of access varies between 6 and 7 meters</b>		
Area C	Service access to the rear of the clinic and refreshment centre and to the future childcare centre (Access way to the childcare facilities is located within a Park (land use).	Access ways will be used mostly for delivery and emergency. Access will be restricted and the community intends to erect removable traffic barriers. Specific considerations need to be given to the design and construction of the access way to the refreshment centre to avoid disturbances to a close by "area of cultural significance".

## Specific planning and development items associated with the Pandanus Park road network

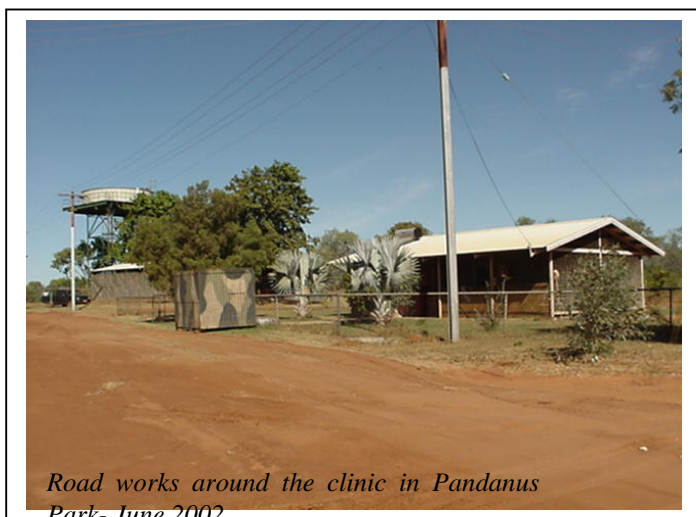
The following aspects should be considered when proceeding with road engineering, design and construction:

- Road drainage.  
*Refer to the following section*
- The existing basket ball courts are located within the future road reserve (Area C).  
*While a number of options were investigated to relocate the road away from the courts this has not been possible due to the concentration of housing and essential services in this area. A range of issues were identified with the current location of the basket ball courts. (These are presented in the section dealing with Public facilities.) The courts will need to be relocated.*
- Essential services- water mains  
*Existing water mains are located under the existing track (between Patricia's house and the workshop). New water mains should be installed through the AACAP project.*
- Strategic location of round about and speed controls and respect for established vegetation  
*Roundabouts are recommended at T or cross road- intersections.  
Large existing trees within the road reserve or planned road pavement should be considered in the engineering design and be preserved wherever possible. Constructed features around large existing trees are recommended to control speed and contribute to the beautification of the built environment*

Some of these aspects have been formalised in the Provisions to ensure that they are implemented appropriately.

## Road options around the clinic

A number of options were developed for the location of the road around the clinic in Area C. Options considered community aspirations to limit traffic in the park around the refreshment centre and future childcare the organisation of existing housing and services, the location of cultural areas as well as the future organisation of recreation facilities.



## Road works through the AACAP project

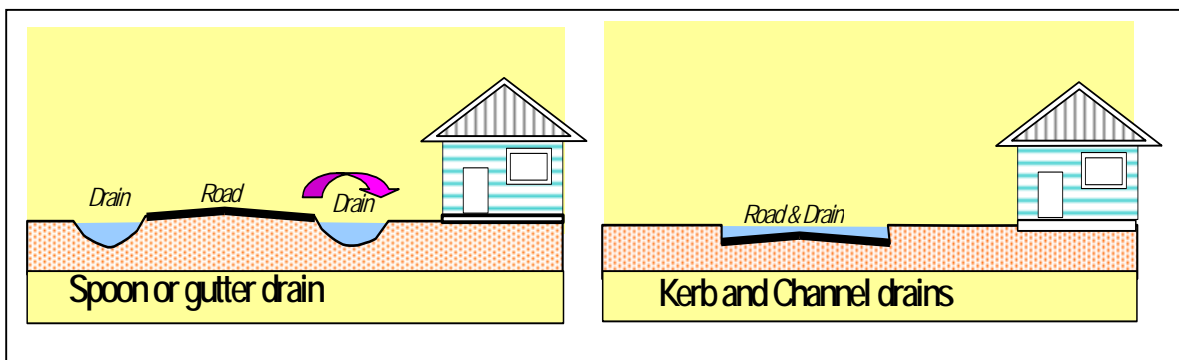
The AACAP project includes a component to upgrade internal community roads. Road improvement through AACAP is limited to the access road, existing internal roads- most are located in area A & C- and portions of roads to access houses that will be built as part of the AACAP project. Refer to Diagram on the following pages.

## Drainage

Poor drainage of community areas often poses concerns to residents and a major environmental health issue.

### Drainage options and principles

The most common road drainage options include the “Kerb and Channel” and the “Spoon or Gutter drain” options as shown schematically below.



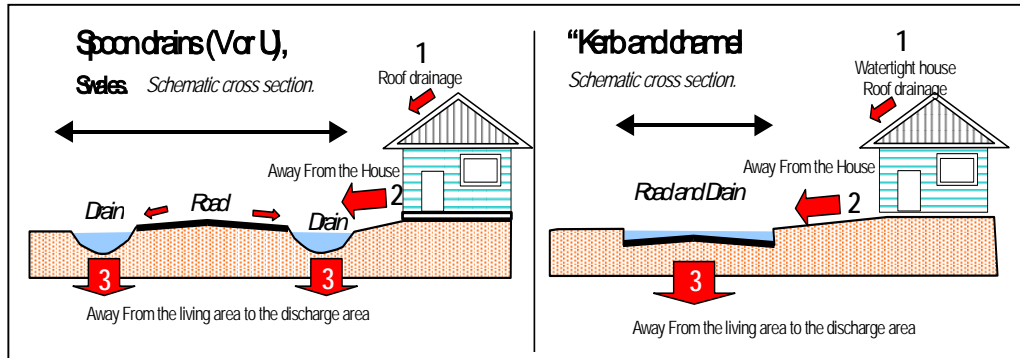
**Diagram:** Road drainage options

Drainage needs to be considered at any level of development whether it targets the construction of a single building or major infrastructure works such as roads and drains. In addition drainage needs to be appropriate and address issues specific to each community.



Effective drainage relies on considering and coordinating the three following key steps:

- ➡ *Making the house watertight: draining the roof and walls*
- ➡ *Draining the outdoor areas around the house or the housing lot: Away from the house to common drains (Spoon drains or channel drains dependant on option selected)*
- ➡ *Discharging the waters either away from the community facilities and living areas or to selected areas in the community or a combination of both.*



**Diagram:** *Drainage steps*

Overlooking one of the above steps will result in drainage problems.

## Key design aspects

To determine suitable drainage options and implement good drainage principles on Aboriginal communities, engineering designs shall have regards for the CLP which presents an overall perspective on developments. While it is acknowledged that projects are often bound by tight budgetary constraints, which can limit the extent of works performed, the following is critical to achieve sound drainage design:

- The selection of and consideration for appropriate design parameters recognising existing conditions and constraints (eg, the nature of the soils, rain falls, morphology or natural falls of the land, location of facilities etc.)
- The range of urban features (eg, walkways, bus stops, parking and access to buildings etc) and infrastructure (road and water, power, etc) to be developed within the road reserve.
- The long-term expansion of the community and the current and future location of roads and community areas for instance, football oval, parks etc, some of which might be appropriate as drainage discharge areas drainage channels, etc.
- Maintenance, particularly the community capacity to undertake regular maintenance of the drains
- Considering the selected drainage option (kerbed or spoon drain), additional drainage works necessary to achieve effective drainage and ensure the creation of a functional living environment, eg the construction of cross over to housing and other community buildings.
- “Kimberley and remote community” lifestyle and regular use of outdoor public and private facilities (eg, outdoor living areas)
- Safety
- Community projects associated with drainage, eg landscaping, horticulture, etc.

## Drainage approach and recommendations for Pandanus Park

Pandanus Park is characterised by a low gradient fall type morphology and soils test recently carried out by Murdoch University Remote Area Development Group state that pandan soils present a clay content. (Soil texture category 4: Clay Loam, weakly structured imperfectly drained)



The following aspects need specific attention when proceeding with drainage design and construction in Pandanus Park:

- Natural fall is East- West, and South around the new housing area to the South East..
- The main access road runs in an opposite direction to the natural ground fall and constitutes a barrier to the natural flow of storm water.
- Existing culvert in Area A needs maintenance and upgrading — refer to diagram on the following page.
- Generally areas along the road reserve need to be allocated for Landscaping and pedestrian access
- Disorderly location of essential services along the main access road reserve
- The football oval can potentially improve drainage and act as a drainage soak. Drainage design should incorporate landscaping of the land surrounding the oval

The layout on the following page presents areas identified for drainage including main drainage channels, secondary channels and recommended directions of drainage. This layout is indicative only.

It is recommended that drainage channels to discharge areas be constructed at all intersections with the main access road. These will need to be complemented by cross over or culverts as appropriate to discharge storm water towards the low laying areas of the Fitzroy river, or towards the south in the situation of the South East housing in area C.

### **Recommendations: Road and drainage**

It is recommended that:

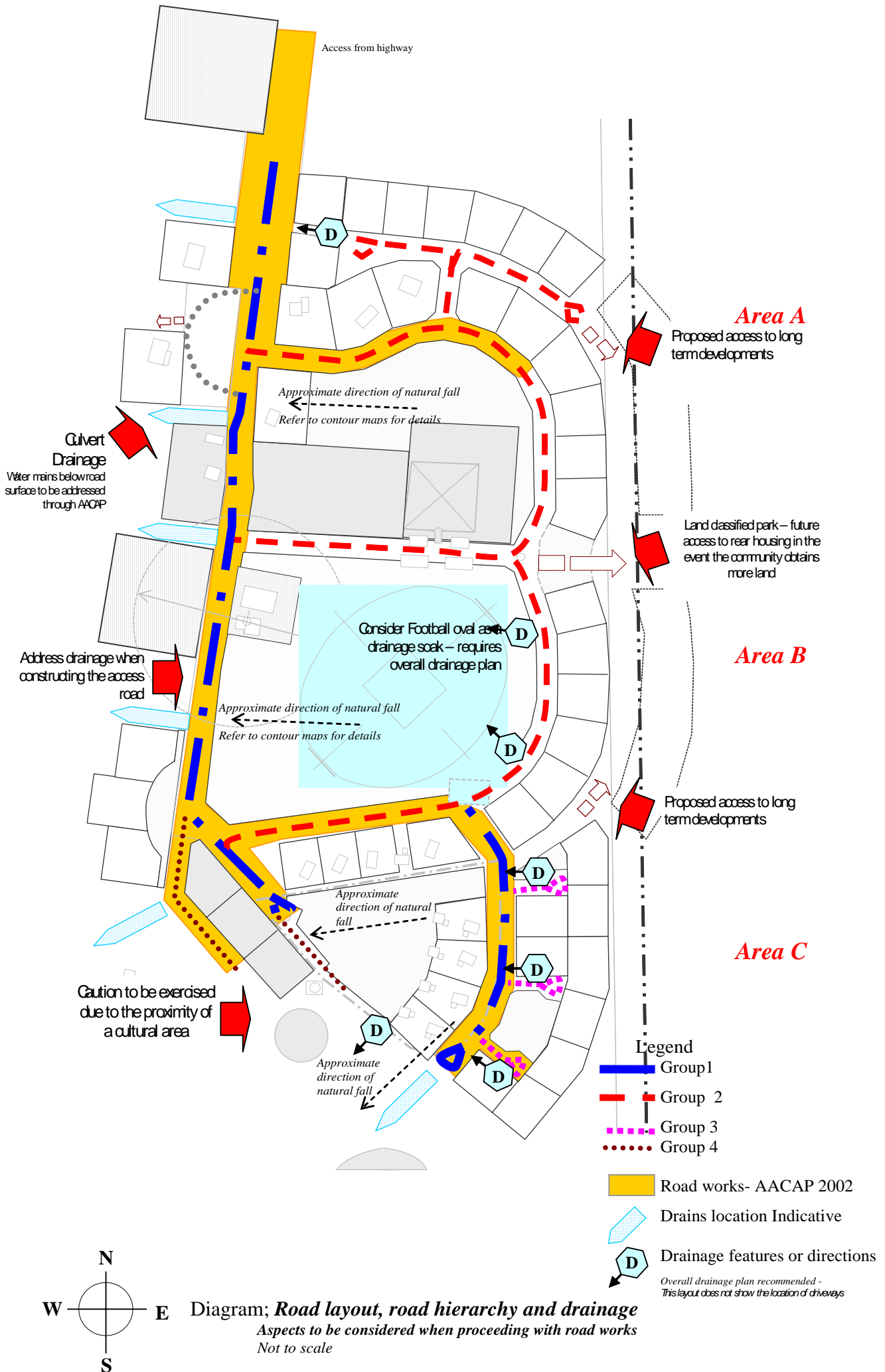
Funding be allocated to Pandanus Park to develop an “overall” drainage strategy. This will require engineering expertise.

The drainage layout and strategy should cover the entire community settlement including future developments .

The drainage plan might be implemented step by step as works are being undertaken on the land.

The drainage strategy should include a maintenance schedule and tasks allocation (who does what).

Engineering recommendations should include a costing for each option over a period of 10 years, to demonstrate budgetary constraints and opportunities associated with the Kerb & channel and Spoon drain options and assist community decisions.



# Section



## Essential services

<b>Essential services .....</b>	<b>28</b>
<b><i>Water .....</i></b>	<b><i>28</i></b>
Existing infrastructure and short term improvements .....	28
Capacity of the existing infrastructure to service future needs.....	30
Planning perspective.....	30
<b><i>Power.....</i></b>	<b><i>31</i></b>
Existing infrastructure, consumption and issues.....	31
Capacity of existing infrastructure to service future needs.....	31
Planning perspective.....	32
<b><i>Waste treatment.....</i></b>	<b><i>33</i></b>
Approach.....	33
Planning strategies .....	34
<b><i>Telecommunications .....</i></b>	<b><i>34</i></b>
Issues & planning strategies.....	34
<b><i>Rubbish Management.....</i></b>	<b><i>34</i></b>
Aspects investigated.....	34
Shire Environmental Health officers' recommendations.....	35
Department of Environmental, Water & Catchment Protection's recommendations.....	35
Planning strategies .....	35

# Essential services

A number of issues and needs were identified with the existing water, power, waste disposal & treatment and the Land fill site (tip) in Pandanus Park. Some issues will be addressed through the AACAP program while others will require new funding.

The AACAP project includes upgrading of water and power, specifically the upgrade of these services associated with the construction of new housing and improvements to the existing housing stock, as well as specific works to address immediate Environmental Health issues for instance the installation of a purification system for drinking water.

Details of the AACAP project scope of works and major improvements and new works required to improve existing services and fulfil anticipated community needs are presented below.

*Technical/ engineering information collected from the GHD report on the capacity of existing infrastructure to service appropriately upgrade and new AACAP housing. Sections of the 25% GHD report and tendering documents are enclosed in attachment 5.*

*Additional information has been collected from the Shire of Derby, KRSP, Pandanus Park, The Waters and Rivers Commission, The Water Corporation, ATSIC, KAESP, Western Power, Water Corporation, etc.*

## Water

### Existing infrastructure and short term improvements

*Information regarding the age and type of water infrastructure has been difficult to collect.*

*KRSP undertook maintenance of water and power in Pandanus Park only approximately a year ago.*

*The community indicated that prior to KRSP carrying out the maintenance, a local private contractor maintained the water infrastructure.*

*Until 1995 the Water Corporation assumed responsibility over maintenance of community water infrastructure.*

Drinking water is supplied to Pandanus Park by separate bores and tank system, located in area C. The two bores provide water to a storage tank. The tank supplies both living area A and C. An additional independent water system is installed for reticulation purposes.

The Water and Rivers Commission indicated that the drinking- water bores are not registered. Two additional bores located in area A and B, used previously for garden reticulation were decommissioned in 1993. One of these bores is still used for reticulation & garden purposes.

The following characteristics in regards to water infrastructure were investigated and identified:

### Water consumption, usage and pressure

KRSP provided the following figures:

<i>Quarter</i>	<i>Overall consumption/ Litres</i>	<i>Daily average</i>
• July to end September 2001	• 26809 litres	• 291 (litres per day)
• April to 30 <sup>th</sup> June 2001	• 20567 litres	• 226 (litres per day)

The AACAP project engineer (Graeme Harris, GHD) reported the following:

*... The existing supply pressure is reportedly very low, with some houses unable to run two taps simultaneously at greater than a dripping flow rate. As a result, the Community records show unrealistically low domestic water consumption which cannot be used as a guide to calculate future demand. Even with a DN50 reticulation system, flow and pressure at the houses should be very much greater than reported....*

Community residents indicated that low water pressure affects equally new and old houses. A range of factors could be at the origin of this issue including the small or varying size of the mains (which the community indicated could be around 50 mm diameter), crushed pipes resulting from vehicular traffic over mains, leakage, the age and state of the infrastructure, blockage at the tank or house connections , etc.

## Bores and pumps

### EXISTING

- Both bores are operational and configured on a Duty/ Standby arrangement.
- Pumps are operated manually (& supplied with an automatic switch). Bore 1 pumps water continuously and the tank is supplied with an overflow system.
- Bore 1 operates at 3.6 L /seconds or 200 litres / 55 seconds (RE/ GHD site inspection)
- Bore 2 pump was replaced by KRSP end of 2001- The community raised concerns as the capacity of the new pump is inferior to the previous one-
- Pump is about seventy meters deep. (RE/ KRSP)

### IMPROVEMENTS - AACAP 2002-

- Automatic level controls will be installed as part of the AACAP project. These include float switches at water tank and hard wired bore pump control connected to the float switches at the water tanks.

## Storage capacity -

### EXISTING

- The tank provides a nominal capacity of approximately 60kL and is located on a 12 m stand , East of the refreshment centre.
- The storage infrastructure is in good condition and the tank site fenced with a lockable gate.
- The tank inlet, outlet and overflow pipe work is 150mm diameter.

## NO IMPROVEMENTS PLANNED

## Water purification system

Nick Alford, Shire Environmental Health Officer forwarded the following comments:

*... "Water has tested positive for coliforms. Coliforms are indicators that other pathogenic bacteria may be present in the water supply. I believe that a water treatment system has been 'earmarked' for Pandanus in the near future. Until then, it is Pandanus' responsibility to regularly dose their supply with chlorine as per the RAESP contract with KRSP.  
A UV treatment system may be a safer solution to chlorine gas - because of issues of storage and buffer zones for chlorine gas (the alternative)..."*

### EXISTING:

- No purification system. Chlorine is hand fed into the tanks by the community.
- Responsibility for water monitoring is shared by KRSP and Pandanus Park.

### IMPROVEMENTS- AACAP 2002-

- The installation of a purification system forms part of the AACAP project- Capacity 390 litres/minute. The proximity of housing to existing tanks has lead to the selection of a UV system. (The provision of a chlorine system was considered however in view of safety aspects associated with the storage and handling of gas chlorine, it would have to be located at the tanks to preserve a minimum buffer of 80 meters (storage 1 x 32 litres gas chlorine tank) between housing and the storage area.

## Water mains and reticulation

### EXISTING:

- Existing mains are believed to be 50 mm diameter or 100 mm diameter dependant on source of information.
- Issues identified with low water pressure throughout

### IMPROVEMENTS- AACAP 2002-

- New water mains will be laid between area A and C (approximately 360 meters linear) and to service new housing lots.
- The 90 mm and 100 mm “Medium Density Polyethylene” pipes will be aligned at 2.1 meters from the centre of the pipe to the road reserve boundary

## Other aspects, eg, fire protection

### EXISTING:

- Existing hydrants are located in Pandanus Park.

### IMPROVEMENTS — AACAP 2002

- Minor upgrade to hydrants is included in the AACAP project.

## Capacity of the existing infrastructure to service future needs

Daily average consumption figures used by the Water Corporation are 1000 litres (1KL) per person per day. The 1KL figure however comprises a range of usage which is not relevant to Indigenous communities on the same frequency basis or not relevant at all. This for instance includes garden reticulation, car wash, etc. In most situation a consumption of 300 to 400 litres / person per day is considered appropriate and realistic.

The issue of malfunction of some facilities or negligence resulting in higher water usage has not been accounted for in these calculations, however regular maintenance and monitoring can overcome these problems.

Considering a nominal water storage capacity of 60 000 litres, bore pumping capacity estimated at 216 litres/minute (bore 1), purification capacity of 390 litres/minute and daily water consumption of 400 litres per person it seems that the water infrastructure is adequate to service current needs of a resident population estimated at 100. To ensure reliable supply and cater for future needs and population increase the following is likely to be required:

- Additional storage.
- The capacity of Bore 2 might need to be increased to ensure additional pumping capacity — KRSP -
- In the event water pressure is insufficient a pressure boosting pump might be required.
- Provision of adequate fire infrastructure (hydrants or stand pipe to match the community fire fighting equipment)
- Size of water mains extension recommended at DN 100 PVC for the main branches and DN 63 polyethylene pipe for the shorter dead end branches

Further engineering investigation into works required to ensure that water infrastructure will meet future needs are recommended.

## Planning perspective

Existing sites where the water tanks and bores are located were formalised in the plan and utility / service reserves created.

To protect the “area of cultural significance” identified behind the existing water tanks in area C (shown on the layout) with potential future water upgrade in the vicinity of the refreshment centre and existing water infrastructure recommendations have been inserted in the provisions.



Diagram

Water tanks

## ***Power***

### **Existing infrastructure, consumption and issues**

#### **Power Generation**

---

##### **EXISTING**

- Pandanus Park power generation consists of three power generators of a capacity varying between 60 and 80 KW. The private diesel-fuel generators are located in area B within an acoustic enclosure.

##### **IMPROVEMENTS- AACAP 2002-**

- Improvements to power supply include minor works to make efficient the overall operations of the power generation, eg, increase the size of the circuit breaker to 160 where applicable.

GHD report based on site information and community discussion indicates that the community currently operates on a single generator due to faults identified with the two remaining generators. Consumption peaks at around 60 KW with day time loads ranging from 30 to 60 KW.

#### **Power distribution**

---

##### **EXISTING**

- Power is transported & distributed by overhead low voltage power lines.
- Aerial power circuit consists of two circuits Circuit 1 supplying the northern part of the community and circuit 2 the southern section.

##### **IMPROVEMENTS / WORKS - AACAP 2002-**

- Extension of aerial power lines (circuit 1 and 2) to service new housing lots, combined with;
- Upgrading of existing power lines servicing North- East housing lots and relocation of a portion of the power lines and poles along the road reserve proposed in the plan (Planning recommendations early 2002).

#### **Quarterly records for power usage**

---

- 117,130 kilowatt with a fuel consumption of 14,636 litres and a generator usage of 2077 hours for the 1<sup>st</sup> July to 30<sup>th</sup> September 2001 quarter.
- 133,380 kilowatt with a fuel consumption of 14,024 litres and a generator usage of 1753 hours for the 1<sup>st</sup> April to 30<sup>th</sup> June 2001 quarter.

### **Capacity of existing infrastructure to service future needs**

The capacity of the power infrastructure to supply future community housing and facilities requires engineering investigation.

Based on existing information it is however anticipated that existing power generation system could service up to 8 additional houses or low consumption public facilities (based on consumption varying between 5 to 10 KW per building) providing it is upgraded and maintained appropriately.

The community indicated that the batteries for the ignition system overcharge and need to be replaced regularly. One of the generators is not operational and the other can not sustain high loads. Two power generators need upgrading to ensure an operational power back up supply.

KRSP is responsible for maintenance and upgrading of power generation in Pandanus Park and these issues should be referred to KRSP for action.

It was also noted that street lighting was operating during the day. This could be addressed by either a higher level of community awareness aiming to build an improved community based monitoring capacity or the provision of automatic start or stop system.



Additional power circuits (lines & poles) might be required to service future facilities located north, east and south east. Further investigations in the best way to set up the circuits will require engineering input. These should consider long term directions for the physical expansion of the community.

## **Planning perspective**

Generally power lines are located in an ad' hock manner in area A and in an orderly manner in area C. As much as possible the roads were kept along the power lines to create standard street reserves and service alignment.

The power generator is centrally located. A site outside the built environment would be preferable however in consideration for the cost to relocate this infrastructure and the proximity of the workshop (considered a single "light industrial" compound) the existing site has been formalised as a power reserve.

It is advised that in the future the community reconsider its relocation, particularly in the event the workshop is relocated. The preferred site is where the new workshop option I is proposed at the entrance of the community (Area A) - West. The compound selected for the construction of sewerage ponds could also accommodate the future power house.

*Refer to layout showing a minimum buffer of 80 meters from buildings of a non- industrial nature. Buffer to the bulk of housing is approximately 200 meters*

## Waste treatment

*The Army has contracted Murdoch University "Remote Area Developments Group" to undertake a Waste water disposal option study. June 2002*

The waste system in Pandanus Park currently consists of "on site" septic systems for each household. The community has experienced ongoing problems with the septic systems due partly to the raise of water tables during the wet season, the poor standard of septic systems, overcrowding and difficulty with maintenance. Murdoch University estimates that water tables rises within 1 meter of the housing finished floor levels during the wet season.

The malfunction of the septic systems is a high Environmental Health problem. Murdoch University has identified a range of possibilities to improve waste water disposal in Pandanus Park. The following options were assessed against assessment criteria including hygiene (public health), environmental performance, community preferences, convenience, construction, operation and maintenance, cost, regulatory standard:

- Septic Tank and leach drains systems upgraded to comply with relevant regulations
- Septic tanks and Mound systems
- Septic tanks and constructed wetlands
- Aerobic Treatment Units
- Reticulated sewerage to packaged treatment plant
- Reticulated sewerage to waste stabilisation ponds (treatment lagoons)
- Upgrade each of the above options to include urine separation.

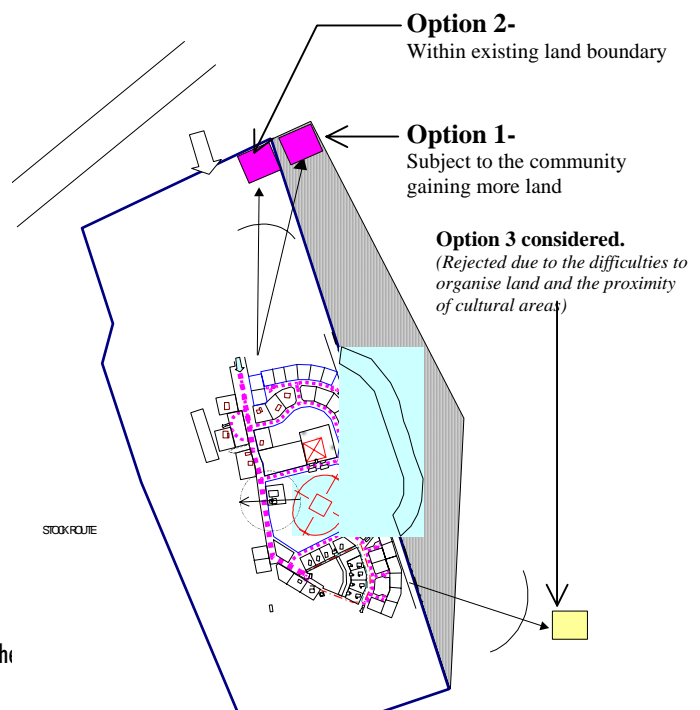
Recommendations were forwarded to Murdoch University to consider planning considerations, particularly landscaping, functionality, location, traffic and impact on the built environment, etc.

Sewerage treatment lagoons or waste stabilisation ponds are considered costly to install however are cost effective for a large population, reliable and low maintenance. Settlements with a population above 100 are considered a priority for the installation of a form of common effluent disposal and treatment system.

### Approach

The selection of a possible site for the construction of sewerage evaporation ponds was progressed with the community. A number of criteria were considered in the selection of a location for the ponds including:

- Minimum buffer of 500 metres between sewerage ponds and housing (Regulation Department of Environmental, Water & Catchment Protection).
- Long term directions for future community developments
- Wind directions
- Type of soils, water tables and flood prone areas
- Preferable option is a gravity fed system
- Access for maintenance
- Appearance (community expressed concerns about the general appearance of sewerage ponds)
- The possibility to recycle some waters for horticultural purposes.



**Diagram**

*Options considered for the location of sewerage evaporation ponds*

## Planning strategies

Three sites were considered and preselected considering community development parameters over the whole of the land. These, shown in the diagram above are as follow:

- The first two locations (option 1 & 2) are sited North of Pandanus Park (towards the highway) one being within the land excision and the other outside within the old stock route.
- The third location (Option 3) is sited south, outside of the existing boundary. This option was not retained as it might be difficult to acquire land from the neighbouring pastoral lease. The proximity of cultural areas, access & maintenance, flood aspects & the nature of the soils were also considered.

*For additional details on land aspects associated with the location of sewerage ponds, refer to section 1 OVERVIEW- Specific aspects of the plan; Land for future developments*

Option 1 relies on the community gaining more land. The land acquisition process has been initiated. In consideration for the uncertainty of the community gaining an additional area of land the plan has formalised both sites for the construction of sewerage evaporation ponds; the preferred option being site 1 where the 500 metres buffer with housing can be achieved.

## Telecommunications

### Issues & planning strategies

The main concern with respect to telecommunication infrastructure is the lack of public phones. Telstra Country Wide officer provided the following information regarding Pandanus Park service:

*...Regarding the phone services at Pandanus Park, we have capacity fed from a unit at Willare and a 30 pr cable into the community. There are no payphones so the telecommunications expansion would be on a need be basis in line with Telstra service obligation's...*

Telecommunication investigations and strategies to address identified issues are as follow:

- The delivery of a public phone will be negotiated with Telstra.
- Sections of telecommunication lines are centrally located within the main access road reserve (Area B and C). Caution will need to be exercised when undertaking works on the road reserve. Information regarding the location of telecommunication infrastructure can be accessed through the "Dial before you dig" service.

## Rubbish Management

Improvements to the rubbish tip and general rubbish management are considered in the AACAP project. The Army surveyed the location and contours (site levels) for the rubbish tip on their recent visit. With sound management systems in place, the tip is considered to have a life span of approximately 30 years

### Aspects investigated

- The proximity of areas of cultural significance.  
*The community indicated that the previous tip site was close to cultural areas. The current one is not believed to affect areas of cultural significance*
- Distance between the bore and the tip  
*Investigate pollution of underground water tables- This aspect is being researched and preliminary information indicates that the tip will not impact on the Pandanus Park water supply*
- Access to the tip  
*The community indicated that access to the tip was possible year round. It is to be noted that the track consists of sand and present boggy patches*

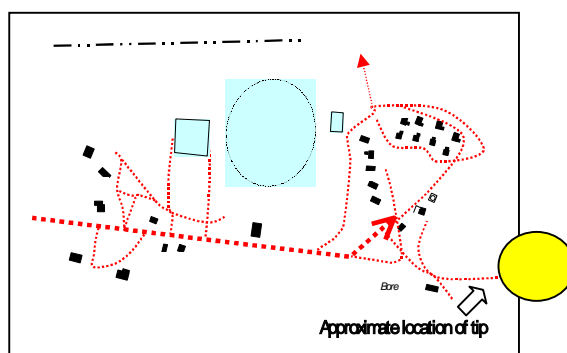


DIAGRAM Tip location

- The Fitzroy river flood level  
*Refer to the Department of Environmental, Water & Catchment Protection (DEWCP) recommendations below.*
- Department of Environmental, Water & Catchment Protection guidelines requires relevant buffers between housing and tips  
*The distance between the tip and existing housing is below 500 meters  
The tip site however is sited on lower ground, which increases protection from odours.  
No developments are planned closer to the existing tip.*

### **Shire Environmental Health officers' recommendations**

Shire Environmental health officers (Nic Alford and Ken O'Donnell) undertook an inspection of the rubbish tip. Nic Alford made the following comments.

*The current tip site at Pandanus need not be relocated. The site is located as high as possible to avoid ground water contamination. The site has perimeter fencing; firebreaks, good fill, established trench, and year round access road*

*The buffer distance of 500 meters between the tip site and the community is not achieved, however the distance is such that the community will not be exposed to any adverse health effects. There is not a large volume of waste going into the site.*

*With adequate management - the site should have a lifespan in excess of 20 years.*

*The current site is a credit to Pandanus community.*

### **Department of Environmental, Water & Catchment Protection's recommendations**

*... "Based on the tip being at 16.50 m AHD it would appear that the area was not affected by flooding in March 1993 which is considered to be a,1 in 40 year event. Consequently our thoughts are to leave the tip as is"...*

### **Planning strategies**

In consideration of the outcomes of the investigation and recommendations provided by the Shire Environmental Health Officer and the Department of Environmental, Water & Catchment Protection it is recommended that the tip remain in its current location. The tip location has been formalised in the plan and the site is classified as Utility / Service Reserve.

### **Recommendations:**

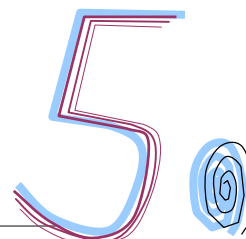
#### **Bore registration**

Pandanus Park Community Council to proceed with the registration of the bore to assist monitoring water bores and tables

#### **Waste treatment**

Pandanus Park Community be considered for the provision of common effluent treatment system. A number of Options were investigated by Murdoch University as part of the AACAP research into waste disposal.

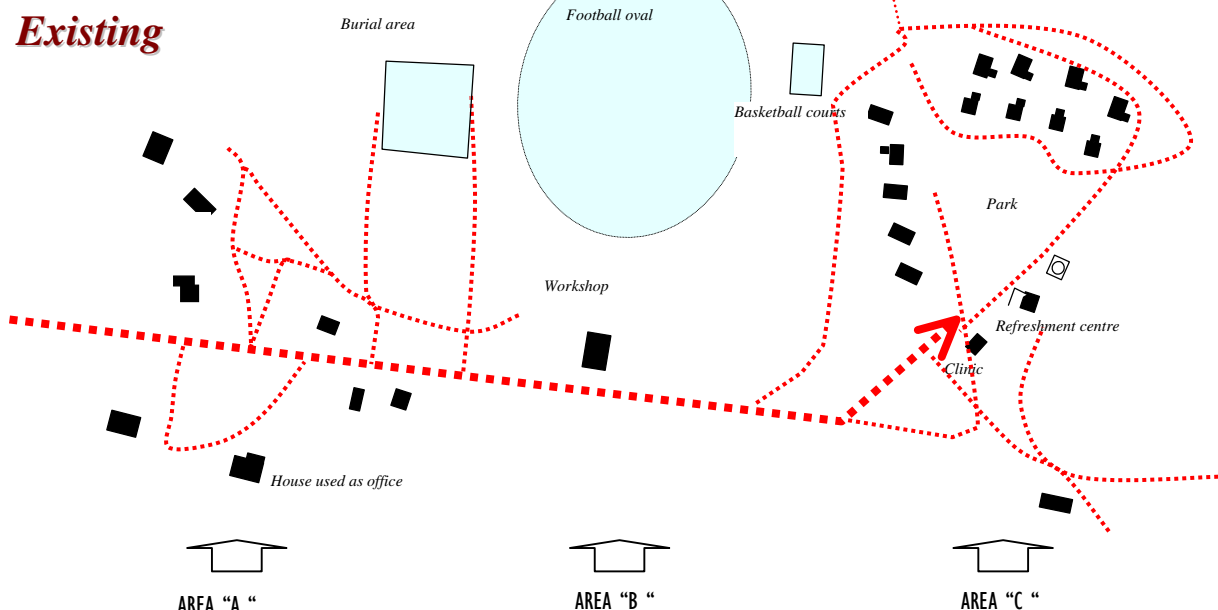
# Section



## Public facilities

Public facilities.....	36
<b>Existing.....</b>	<b>36</b>
<b>Sport and recreation .....</b>	<b>36</b>
Issues & aspirations.....	36
Re-organisation of the Recreation area.....	37
<b>Administrative, health, education.....</b>	<b>37</b>
Planning approach.....	37
Short term projects - AACAP 2001- 2002.....	38
Location of the office.....	38
<b>Workshop.....</b>	<b>38</b>
Needs & limitations.....	38
Planning approach.....	38
<b>Parks and Gardens.....</b>	<b>39</b>
<b>Cemetery– grave yards .....</b>	<b>41</b>
Site assessment (needs, proposal) .....	41
Planning strategies .....	41
Usage and development aspects.....	41
Cemetery registration or Delegation of authority for the burial ground.....	42

# Public facilities



Public facilities in Pandanus Park consist of civic & administrative (including ancillary buildings / conveniences for upkeep & maintenance purposes), Health, recreation and cultural & religious facilities. Existing developments include:

Location	Administration/ health/ education/ meeting	Sport & Recreation	Maintenance operations / storage/	Cultural / Religious
Area A	A house used as the office			Burial area
Area B		Football oval Basketball courts	Workshop	
Area C	Clinic & Refreshment centre		Refreshment centre	

## Sport and recreation

### Issues & aspirations

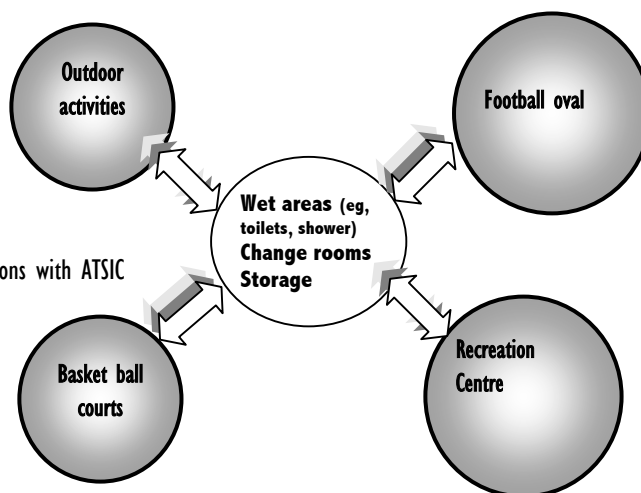
Facilities	Issues & needs, aspirations, projects
Basket ball courts (Full court, includes lighting)	<ul style="list-style-type: none"> <li>The courts were built approximately 2 years ago, and are located close to existing housing to the South East. They are open air and not covered</li> <li>They are used regularly during the dry and wet season.</li> <li>The proximity of the courts to housing creates disturbances to living activities. Residents have complained about the noise and lighting aspects.</li> <li>The existing basketball court location impacts on the organisation of the road layout to existing &amp; new housing &amp; community facilities</li> <li>The courts fall to one direction, which affects playing.</li> <li>When queried about the need to cover the courts, the People in Pandanus Park did not consider it was a priority.</li> </ul>
Football oval	<ul style="list-style-type: none"> <li>During the development of the layout plan Pandanus Park representatives suggested that the football oval could be reorientated to establish new housing area to the North- East.</li> <li>The oval is cleared, but not grassed. The Army might be upgrading the reticulation system to assist with greening of the oval.</li> </ul>

Needs Additional facilities	<ul style="list-style-type: none"> <li>Pandanus Park associates some of the issues the community is facing with the youth to the lack of recreation facilities.</li> <li>The community aspires to the construction of a Recreation centre to cater equally for the youth and elderly population. It is felt that the centre would increase people's interaction and could be used for multipurpose activities.</li> </ul>
	<ul style="list-style-type: none"> <li>The location of change rooms was discussed with Pandanus Park and it was agreed that change rooms and wet areas should service a number of facilities including the oval and basket ball courts – Refer to organisational diagram below</li> </ul>

## Re-organisation of the Recreation area

Investigations into the provision of recreation facilities was undertaken to address identified issues, to establish the recreation area the following will need to be undertaken:

- The construction of a new basketball court or the relocation of the existing.  
The community decided to lodge funding submissions with ATSIC early 2002 to secure finances to this effect. The submission was unsuccessful. This issue was also referred to the Ministry of Housing. The current location of the courts however will need to be considered in the road design, particularly when the road will need to be constructed to access to the new housing lots around the football oval.
- Reo-orientation of the football oval to rationalise and enable the establishment of the internal road to the housing surrounding the oval in area B & C, and keep aside the site for the future recreation centre.



*Organisational diagram;  
Wet areas for the organisation of the recreation area  
– For guidance only*

## Administrative, health, education

### Planning approach

The location of public facilities was debated with the community considering two options:

- The creation of a centralised administrative / service centre or
- Separated facilities in function of their nature and anticipated usage

The community opted for the second option and sites to locate future administrative facilities (classified community purpose in the Provisions) are shared between Areas A and C.

The proposed land organisation formalises the location of existing facilities (with new facilities proposed in the continuation of existing, eg, the cemetery in Area A and the clinic in Area C). It recognises the linear shape of the community (along the access road) and the separation between the two residential compounds, and incorporates privacy aspects.

Public facilities in Area A will accommodate buildings accessed by the broader public including non- community members, for instance the office, shop etc. The community purpose site in Area C will accommodate facilities used mostly by the community. This will include the future child-minding centre, and existing refreshment centre and clinic.

This approach enables the preservation of private community areas (Area C) and will limit intruding traffic in residential precincts. Wherever possible access to community purpose sites was separated from access to residential precincts.



## Short term projects - AACAP 2001- 2002

ATSIC has set aside funding for the construction of a new office in Pandanus Park.

Two houses identified for demolition will be relocated and upgraded to set up child-minding facilities. Pandanus Park has preselected an area for the construction of the childcare centre, which has been formalised in the plan.

### Location of the office

Pandanus Park considered a number of locations for the office. The community indicated the following preferences:

- To the West of the Main road, using existing block-work building. Structural assessment of the block-work building will be required.
- Or East of the access road directly opposite

Both sites present existing vegetation of interest that should be kept as a feature (West — a boab tree- East a cluster of bloodwood trees) and for shading purposes, and the community opted for the Eastern location. The construction of the new office will free an existing house (used as the office) and contribute to alleviate overcrowding.

## Workshop

### Needs & limitations

Workshop	CDEP shed/ workshop might need to be expanded in the future Specific consideration related to traffic / access, noise, residents' safety as well as securing equipment stored.
----------	---

### Planning approach

On a planning perspective there are a range of issues associated with the existing location of the workshop. These are linked with issues affecting the powerhouse and are presented under section "Roads & Essential services" - Power.

Two possibilities were initially presented to the community, involving either the selection of a new area for the establishment of a new workshop outside the main living area or the selection of a suitable area for the expansion of the existing workshop within its precinct.

Pandanus park representatives initially indicated that they would like to keep it in its current location (next to the power house) for security purposes. Diverging opinions emerged from discussions and following additional community consultation it was agreed that the two options

would be shown in the plan (opposite the existing Workshop in the community and at the entrance of the community). This will enable flexibility for the selection of an appropriate site when and if the community obtain funding to build a new workshop.



*Existing workshop*

It is strongly recommended that when funding is available for the construction of a new workshop heavy machinery, noisier activities as well as equipment storage be located on the site at the entrance of Pandanus Park. This would limit heavy vehicle traffic in the living compound.

*Should the community elect to build a new workshop at the entrance eof the community, the existing building could remain for CDEP activities*

## ***Parks and Gardens***

In the eighties Pandanus Park had a prosperous horticultural / garden venture. Mango plantations remain in some areas (around houses in Area A).

*Initially some housing was proposed in places shown as park in area A. Recent community consultation indicated that this area is likely to host the long term cemetery expansion (This option will be reconsidered by the community in due course)*

The strategic location of Parks and Gardens within the built environment aims to keep existing trees (Area A), provide separation between housing and public facilities (eg, cemetery), respect community requests for privacy (each house oversees a park or portion of vacant land (Area C), and support Pandanus Park greening project.

The community indicated its intention to establish new horticulture areas north of the built precinct

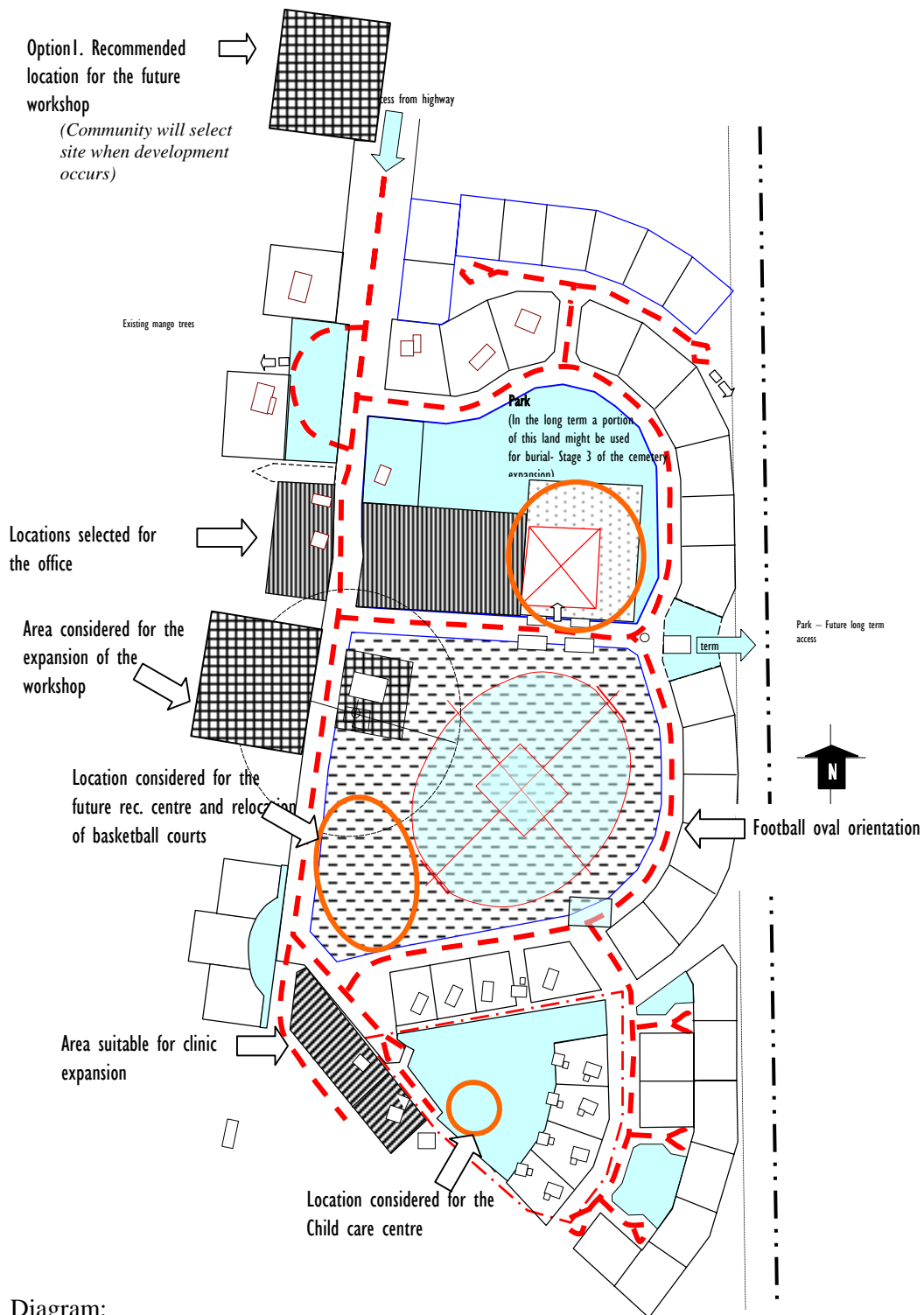


Diagram:  
New public facilities & parks



## Cemetery– grave yards

Pandanus Park community has expressed interest in developing strategies for the development and management of the burial area. The burial area is located close to existing community facilities and will be centrally located within planned community expansion. Refer to location diagram opposite page.

*The Cemeteries Board of WA, provided information and guidance to advance planning and classification of the graveyards as well as anticipate future needs*

*Cemetery aspects will be developed with support from the Department of Indigenous Affairs and Cemeteries Board that proposed to provide technical assistance for the development of a cemetery layout*

*Design criteria to estimate the size or area of a cemetery include projected population growth (birth and mortality rate, population mobility, etc.). Cemetery planning generally considers a section of 25 years and can extend up to 50 years.*

### Site assessment (needs, proposal)

While the burial ground exists a preliminary assessment of its suitability is as follows:

Criteria	Assessment	Proposal
Not located within flood-prone areas.	The Pandanus Park burial area is located on high ground and is not considered flood prone	NA
Ground water tables to be below 3 meters.	In the process of investigation	Pandanus Park to determine type of burials (whether one or more people will be buried in the same grave)
Type of soils. (Recommend: Clay compound-not too sandy)	Soils are a mix of pindan and sand (with a high sand component)	
Specific cultural requirements		Will be discussed with the community (eg, Aboriginal Burial rituals- The provision of pathways).

In consideration of the central location of the Pandanus Park graveyard and community aspirations, the plan proposes two stages for the expansion of the Pandanus Park burial area estimated to cover for over 100 years. At the December meeting Pandanus Park agreed on the area dedicated to the burial grounds.

*Refer to diagram on the following page.*

### Planning strategies

Classification of the area will be developed as follows:

- Area dedicated to the “cemetery” “burial ground” will be shown in the overall Pandanus Park layout plan. The layout will show the existing burial area and proposed stage 1 of its expansion.
- A detailed layout will be developed for the existing graveyard area including stage 1 of its expansion. The drawing will show graves, pathways (ordered and designed considering hierarchy of usage), entrances, public places (eg, for benches and landscaping), vehicular access (if required). The “cemetery” layout will be developed with the assistance of the Cemetery Board of Western Australia.

### Usage and development aspects

- Stage 1 of the graveyard expansion will be amalgamated within the fenced burial area (existing) or temporarily used as a park (No buildings allowed).
- The land considered for Stage 2 of the cemetery expansion is shown and will be used as a park (Indicating its potential usage for cemetery in the long-term). Special classification in the plan. The need for additional land for the expansion of the cemetery (Stage 2) should be reviewed on a 10 to 15 years basis to anticipate future land use and ensure land will be available for burial when relevant.

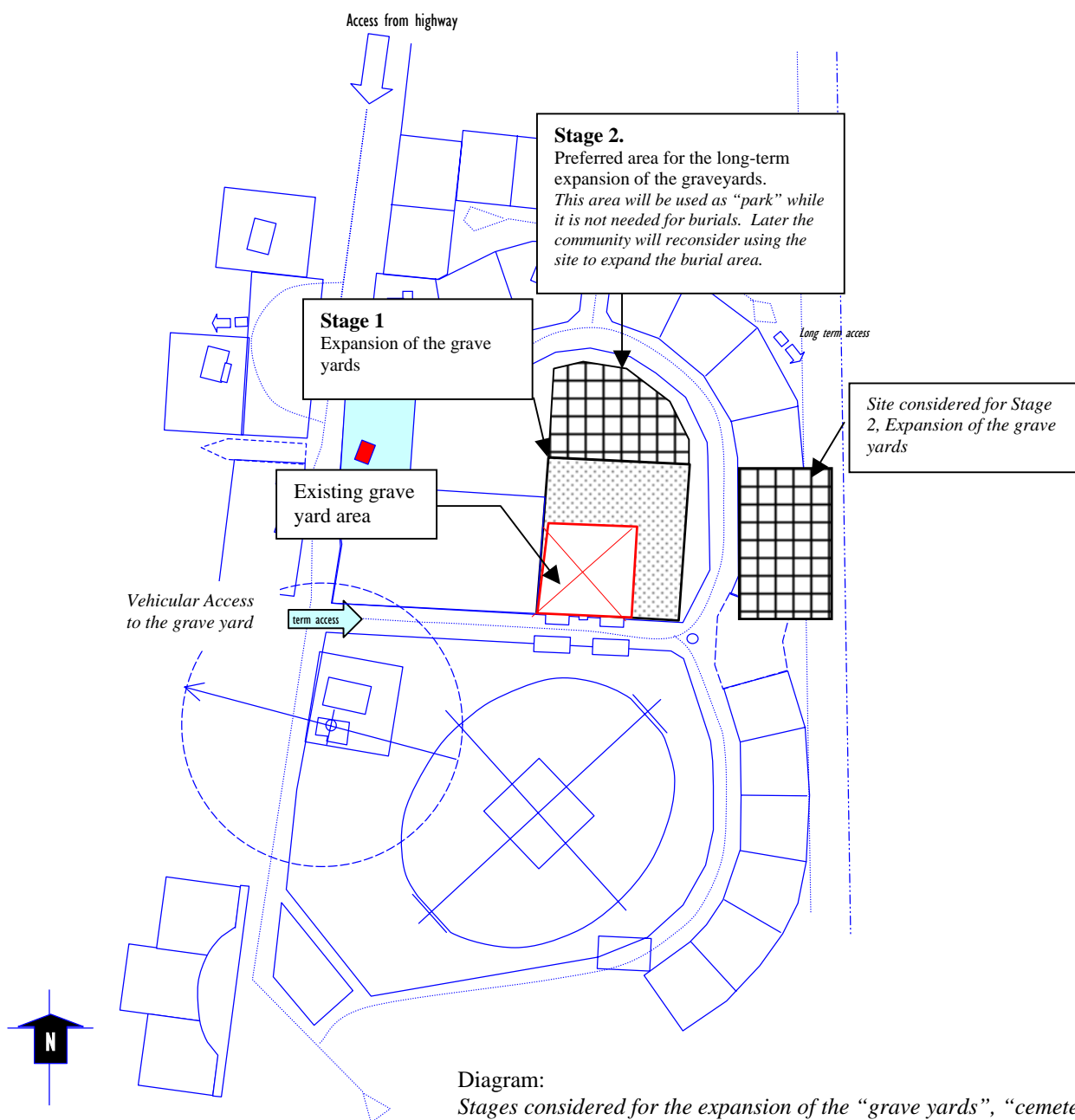
## Cemetery registration or Delegation of authority for the burial ground

The community indicated that the graveyard site had been registered.

Inquiries by Garry Ventris, Department of Indigenous Affairs, revealed that the community applied for a delegation of authority from the Minister for its use as a burial ground. This process was initiated but not finalised.

The community agreed on the boundaries of the burial area to be registered. These include the exiting perimeter as well as stage I- “expansion of the grave yards” refer to diagram below.

The community will need to consider whether it is preferable to set aside the area as a ‘burial ground’ (with delegation of authority from the Minister) or ‘cemetery’ (registration). The latter is subject to complex reporting procedures and record keeping.



## AMENDMENTS

---

**Details of the Amendment**

The intention is to modify the community layout plan endorsed by the WA Planning Commission in September 2003 to generally upgrade the spatial data to match existing features and development.

**Approved / Noted:**

Amendment is considered minor. As such no endorsements are required. Nevertheless, the WAPC endorsed the amendment on:

- 18 December 2007

**Other Information:**

**This CLP does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environment & Conservation, Aboriginal Cultural Materials Committee, Environmental Protection Authority, Department of Consumer & Employment Protection and Department of Water.



**Details of the Amendment**

The intention is to modify the community layout plan endorsed by the WA Planning Commission in September 2003 to change the use of the denotation over the area shown as 'Lot 60' from 'orchid' to 'aquaculture'. The land will remain as 'rural' in the Layout Plan map-set.

The proposal was submitted by the Shire of Derby West Kimberley and the Pandanus Park Aboriginal Corporation. See letters over.

**Approved / Noted:**

Amendment is considered minor. As such no endorsements are required. Nevertheless, the WAPC endorsed the amendment on:

- 2 November 2008

**Other Information:**

**This CLP does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environment & Conservation, Aboriginal Cultural Materials Committee, Environmental Protection Authority, Department of Consumer & Employment Protection and Department of Water.



**Shire of Derby /  
West Kimberley**

# SHIRE OF DERBY/WEST KIMBERLEY

P.O. Box 94, DERBY, WESTERN AUSTRALIA 6728

ABN 99 934 203 062

Telephone: (08) 9191 0999 Facsimile: (08) 9191 0998

Email: [sdwk@sdwk.wa.gov.au](mailto:sdwk@sdwk.wa.gov.au) Web: [www.sdwk.wa.gov.au](http://www.sdwk.wa.gov.au)

ALL COMMUNICATIONS TO BE ADDRESSED TO THE CHIEF EXECUTIVE OFFICER

OUR REF.

YOUR REF.

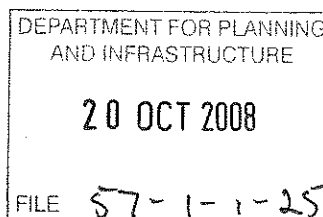
LE/33  
012491  
X122394

16<sup>th</sup> October 2008

Department for planning and Infrastructure  
Planning for Aboriginal Communities Project  
Albert Facey House  
469 Wellington Street  
**PERTH WA 6000**

Attention: Mr Simon Davis

Dear Sir



## **AMENDMENT No.2- PANDANUS PARK ABORIGINAL COMMUNITY LAYOUT PLAN No.1**

The Shire of Derby/West Kimberley has recently received a request from the Pandanus Park Aboriginal Community to effect a minor amendment to the endorsed Community Layout Plan.

The amendment involves a change in land use, whereby the area to the north of the community adjacent to the Great Northern Highway that is currently designated as an "Orchid" is to be amended to note the future use of the area is to be used for "Aquaculture".

A letter confirming the request has been received from the Community and is signed by Chairperson of the Community. A copy is attached for your information. The Council is aware that some of this area is currently utilised for aquaculture purposes and an application for a Building licence has recently been lodged for the construction of a new shed that will be used to house some of the associated equipment used in their aquaculture project.

*The True Kimberley*

The Council raises no objection to the amendment proceeding and requests that you undertake the necessary actions to amend the CLP. Please do not hesitate to contact me if you require any further information or assistance.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Noel Myers', written over a circular stamp or seal.

Noel Myers  
**SHIRE PLANNER**

6E/33  
I 22394

15 OCT 2008

Loc 69 Great Northern Highway  
PMB 308, Derby W.A 6728  
Tele: 08 91914778/08 91917522  
Fax: 08 91917555  
E-Mail: pandanuspark@bigpond.com.au

# Pandanus Park Aboriginal Corporation

October 3, 2008

To: Mr, Noel Myers  
Town Planner  
Shire of Derby West Kimberley

Subject: Change of land use on CPL/Pandanus Park

Dear Sir,

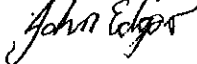
We would like to take this opportunity to request a change of use for the area shown as "Lot 60" on our Community Layout Plan (CPL).

This area is currently shown as being set aside for the purpose of "Orchard". We would like to change it's future use to that of "Aquaculture", as for some time we have been using the area as a temporary aquaculture facility and are now ready to further develop this area with the construction of a permanent building to facilitate our aquaculture project.

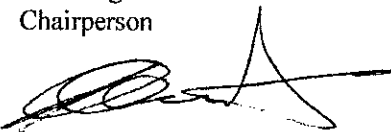
This request has been discussed by the Management Council and has been approved. The community has been canvassed for comment and has received unanimous endorsement. On this basis may we also request that you forward our request onto the relevant authority at the WA Planning Commission for their comment and approval?

We look forward to your response.

Yours truly,



John Edgar  
Chairperson



Peter McCumstie.  
Community Coordinator

.....

## Pandanus Park Community Layout Plan No.1

### Amendment No.3

**Date** : 23 March 2011

**WAPC** : 23 September 2003

**Officer** : Brianna Sharp

**Endorsed  
Requires  
Endorsement** : No

#### Details of the Amendment

The intention is to modify the community layout plan endorsed by the WA Planning Commission on 23<sup>rd</sup> September 2003.

Development Intention	Changes required to CLP
1. Add lot numbers	Add lot numbers 22 & 68 - 74 to plan.
2. Change tenure details	Change tenure details of community to Lot 353 Crown Reserve 40277 - Pandanus Park (Aboriginal Corporation)
3. Add boundary	Insert boundary between Lots 39 & 36 and 38 & 34.

#### Approved / Noted:

Amendments considered minor. As such no endorsements are required.

- 23 March 2011

#### Other Information:

**This CLP does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environment & Conservation, Aboriginal Cultural Materials Committee, Environmental Protection Authority, Department of Consumer & Employment Protection and Department of Water.

**Pandanus Park Community Layout Plan No.1****Amendment No.4**

**Date** : **WAPC** : 23 September 2003  
**Officer** : Brianna Sharp **Endorsed**  
**Requires** : No  
**Endorsement**

**Details of the Amendment**

The Intention is to modify the community layout plan endorsed by the WA Planning Commission on 23<sup>rd</sup> September 2003.

<b>Development Intention</b>	<b>Changes required to CLP</b>
<b>1. Remove lots</b>	1. Remove 'industrial' SL-lot 60a. 2. Remove 'recreational' SL-lot 73 and amalgamate with SL-lot 65. 3. Remove 'residential' SL-lot's 5-7, 9, 11, 13, 15, 17, 19 and 'long term expansion area'.
<b>2. Add lots</b>	1. Add 'recreation' SL-lot for 'future bike track'. 2. Add 'public utility' SL-lot 73 for water tank. 3. Expand 'industrial' SL-lot 61 for workshop.
<b>3. Move lot</b>	1. Move SL-lot 71 to include aquaculture shed.
<b>4. Change Land Use</b>	1. Change SL-lot 71 from 'rural' to 'commercial'. 2. Change SL-lot 63 from 'community' to 'commercial'.
<b>5. Move Road Layout</b>	1. Realign road layout adjacent Lot 59 to avoid intersecting current basketball court.
<b>6. No Go Area</b>	1. Amend current 'no go area' to polygon that surrounds hilly area to area south of Lot 68.

**Approved / Noted:**



**Yurmulun Aboriginal Corporation**

*PATRICIA RILEY*

*[Signature]*

Date 17 / 04 / 2012

please sign and print name

**Shire of Derby West Kimberley**

Date / / 2012

please sign and print name

**Western Australian Planning Commission**

*[Signature]*  
Ashley Randell  
Planning Manager, Aboriginal Communities  
Regional Planning & Strategy  
PN: 15151.1

11/09/2012

Date / / 2012

please sign and print name

**Other Information:**

This CLP does not constitute development approval.

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environment & Conservation, Aboriginal Cultural Materials Committee, Environmental Protection Authority, Department of Consumer & Employment Protection and Department of Water.



Plan Date : 10 July 2003 WAPC Endorsed : 23 September 2003  
Proponent : Department of Planning Requires : WAPC only – minor amendment  
Endorsement

### Reason for the Amendment

The Department of Planning, on behalf of the Western Australian Planning Commission (WAPC), is the custodian for Layout Plans prepared under State Planning Policy 3.2, including the Pandanus Park Layout Plan 1.

Since the publication of that Policy in August 2000 all Layout Plan map-sets have been prepared using a variety of computer-aided-design (CAD) formats. All Layout Plan map-sets have now been converted to a common user geographic information systems (GIS) format, including the Pandanus Park Layout Plan 1.

This conversion process has required a comprehensive re-development of the map-set and includes a number of data and content upgrades. This may include the establishment of new Settlement Layout lots (SL-lots), the inclusion of recommended settlement zones, modification to ensure land-use areas accord with Aboriginal Settlements Guideline 1, inclusion of drinking water source protection areas, incorporation of updated cadastre, and many other general improvements.

### Approved

This is a minor amendment as the myriad changes made to content and illustration are of a technical nature. As such, under provision 6.14 the endorsement of the WAPC only is required.

### Western Australian Planning Commission



please sign and print name

Rosa Rigali  
Planning Administration Team Leader  
Perth, Peel Planning - Department of Planning

Date 12/9/2012

RESOLVED & RECORDED MINUTES  
OF THE STATUTORY PLANNING  
COMMITTEE MEETING

11 SEP 2012

### Other Information:

**This Layout Plan does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environment & Conservation, Aboriginal Cultural Materials Committee, Environmental Protection Authority, Department of Consumer & Employment Protection and Department of Water.



**Proponent** : Housing Authority

**Date** : 11 October 2016

### Reason for the Amendment

The Housing Authority proposes to extend the existing public utility site for the construction of a water tank.

Land Identification		Amendment description
1.	SL-lot 67	<p>Realign the SL-lot boundaries of SL-lot 67 to extend the SL-lot to the north, south and west.</p> <p>Change the land use classification of the new portion of SL-lot 67 from 'Open Space' to 'Public Utility'.</p>

### Endorsement:

In accordance with Planning Bulletin 108/2013 this amendment is minor in nature. As such, the endorsement of the Western Australian Planning Commission is solely required.

Determined on behalf of the Western Australian Planning Commission in accordance with the *Instrument of Delegation – Delegation to officers of certain powers and functions of the Western Australian Planning Commission*.

 12/10/2016  
 Ashley Randell  
 Determination of Regional Planning Policy  
 Regional Planning  
 PN: 15151

### Other Information:

**This Layout Plan does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environmental Regulation, Aboriginal Cultural Materials Committee, Environmental Protection Authority and Department of Water.

## Pandanus Park Layout Plan No. 1

### Amendment No. 8

**Proponent** : Housing Authority

**Date** : 12 April 2017

#### Reason for the Amendment:

The existing Layout Plan for Pandanus Park requires spatial re-arrangement of SL-lots to accurately portray what is on the ground within the community.


Initiated by the Housing Authority, Amendment 8 to Pandanus Park Layout Plan No.1 proposes to re-align the SL-road reserve First Street so it does not cut across the community football oval (SL-lot 59). Re-alignment of will also ensure essential infrastructure runs through the SL-road reserve and not the residential SL-lots.

Land Identification		Amendment description
1.	SL-road First Street	Re-alignment of SL-road First Street to run adjacent to the eastern side of the community football oval and align with essential infrastructure (underground water pipe).
2.	SL-lots 23, 24, 25, 26 and 27	Re-alignment of residential SL-lots to match SL-road re-alignment.

#### Endorsement:

In accordance with Planning Bulletin 108/2013 this amendment is minor in nature. As such, the endorsement of the Western Australian Planning Commission is solely required.

Determined on behalf of the Western Australian Planning Commission in accordance with the *Instrument of Delegation – Delegation to officers of certain powers and functions of the Western Australian Planning Commission*.

 19/04/2017  
Ashley Randell  
Director, Regional Planning Policy  
Determination Regional Planning date  
PN: 15151

#### Other Information:

**This Layout Plan does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environmental Regulation, Aboriginal Cultural Materials Committee, Environmental Protection Authority and Department of Water.

**Proponent** : Department of Planning

**Date** : 21 April 2017

### Reason for the Amendment

The Department of Planning proposes to make changes to the Pandanus Park Layout Plan 1 to include data from the recent Drinking Water Source Protection Plan (February 2017) undertaken to show a Priority 1 Drinking Water Source Protection Area (P1 area). The P1 area identified lies outside of the existing Recommended Settlement Zone (RSZ) and as such this RSZ needs to be amended to ensure the protection of the P1 area into the future.

Land Identification		Amendment description
1.	Recommended Settlement Zone	Extend the existing RSZ, predominantly to the south and east, to include the P1 area identified in the Drinking Water Source Protection Plan (February 2017).
2.	Area to the south of the existing RSZ	<p>Include the Priority 1 Drinking Water Source Protection Area in Layout Plan 1.</p> <p>Add the Drinking Water Source Protection Area as identified in the Drinking Water Source Protection Plan (February 2017) onto LP1. Classify as Drinking Water Source Protection Area (DWSPA).</p>

### Endorsement:

In accordance with Planning Bulletin 108/2013 this amendment is minor in nature. As such, the endorsement of the Western Australian Planning Commission is solely required.

Determined on behalf of the Western Australian Planning Commission in accordance with the *Instrument of Delegation – Delegation to officers of certain powers and functions of the Western Australian Planning Commission.*

 28/04/2017  
 Determined by Peter Handell  
 Director, Regional Planning Policy  
 Regional Planning  
 PN: 15151

### Other Information:

**This Layout Plan does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environmental Regulation, Aboriginal Cultural Materials Committee, Environmental Protection Authority and Department of Water.



Proponent	: Department of Planning
Date	: 26 May 2017


**Reason for the Amendment:**

The existing Layout Plan for Pandanus Park requires spatial re-arrangement of existing SL-roads and SL-lots to accurately portray what is on the ground within the community. Initiated by the Department of Planning, Amendment 10 to Pandanus Park Layout Plan No.1 proposes to re-align a number of SL-road reserves and SL-lots to match a recent air photo of the settlement. An accurate representation of land use at present will ensure coordinated growth and development of Pandanus Park in the future.

Land Identification		Amendment description
1.	SL-lots 34-39	Spatially upgraded to match existing fences.
2.	Fifth Street	Re-aligned by 18 metres.
3.	SL-lots 47-50	Spatially re-aligned to match re-alignment of Fifth Street.
4.	Sixth Street	Re-aligned by 18 metres.
5.	SL-lots 43-46	Spatially re-aligned to match re-alignment of Sixth Street.
6.	Seventh Street	Re-aligned by 18 metres.
7.	SL-lots 40-43	Spatially re-aligned to match re-alignment of Seventh Street.
8.	SL-lot 54	Re-aligned to match existing fence lines.
9.	SL-lots 29-33	Re-aligned to match existing fence lines.
10.	SL-lots 51-53	Re-aligned to match existing fence lines.
11.	Second Street	Re-aligned to match underground power with 2.5m offset.
12.	SL-lots 61 and 74	Re-aligned to match existing fences.
13.	SL-lot 64 (cemetery)	Re-aligned to reflect position as shown in air photo.
14.	SL-lots 4,8,10,12,14,16,18,20 and 21	Re-aligned to match existing fences.
15.	SL-lot 69 (rubbish tip)	Re-aligned to reflect position as shown on air photo.

**Endorsement:**

In accordance with Planning Bulletin 108/2013 this amendment is minor in nature. As such, the endorsement of the Western Australian Planning Commission is solely required.

Determined on behalf of the Western Australian Planning Commission in accordance with the <i>Instrument of Delegation – Delegation to officers of certain powers and functions of the Western Australian Planning Commission.</i>	 Ashley Randell Director, Regional Planning Policy Determination PN: 15151 29/05/2017 date
---	--

**Other Information:****This Layout Plan does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environmental Regulation, Aboriginal Cultural Materials Committee, Environmental Protection Authority and Department of Water.

## Pandanus Park Layout Plan No.1

### Amendment No.11

Proponent : Department of Planning

Date : 30<sup>th</sup> June 2017

#### Reason for the Amendment

Amendment 11 to Pandanus Park Layout Plan 1 proposes to change the current LP1 map-set to create a new SL-road on the current and change the spatial arrangement of other SL-roads within the community to represent what is currently on the ground whilst providing existing houses with improved access to the road network.

Land Identification		Amendment description
1.	SL-road First Street	Extend First Street at the southernmost part of the community to the west to depict the location of the existing track.
2.	Add SL-road to the south-eastern area of community	Create new SL-road to accurately depict the location of the existing track within the community.
3.	SL-road Third Street	Reduce the length of SL-road Third Street from the east and extend the road south to wrap around SL-lots 56 and 55 to accurately depict the location of the existing track within the community.

#### Endorsements:

##### Pandanus Park Aboriginal Corporation

please sign and print name *P. Riley* PATRICIA L. RILEY Date: 10/7/2017

##### Shire of Derby-West Kimberley

please sign and print name *Stephen Gash* STEPHEN GASH Date: 31/8/2017

##### Western Australian Planning Commission

please sign and print name

Date: A/

*Ashley Randell*  
Director, Regional Planning Policy  
Regional Planning  
PN: 15151

JUSTIN ABBOTT

05/10/17

#### Other Information:

This Layout Plan does not constitute development approval.

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Department of Environmental Regulation, Aboriginal Cultural Materials Committee, Environmental Protection Authority and Department of Water.

4. Intersection of SL-roads  
First Street and Fourth Street.

Realign intersection of First Street  
and Fourth Street at the request  
of the Local Government.



## Pandanus Park Layout Plan No. 1

### Amendment No. 12

**Proponent** : Department of Planning, Lands and Heritage

**Date** : 3 July 2018

#### Reason for the Amendment

The Department of Planning, Lands and Heritage (DPLH) proposes Amendment 12 to Pandanus Park Layout Plan 1 (LP1). Amendment 12 is in response to the latest air photo of Pandanus Park captured in April 2018 by Landgate, on behalf of DPLH. The amendment proposes minor spatial upgrades to improve the accuracy of LP1 by matching the SL-lot and road framework with the existing development footprint shown in the air photo.

Land Identification		Amendment description
1.	SL-lots 16, 18, 20, 21 and 23-27	Spatially upgrade the boundaries of nine residential SL-lots to match the 2018 air photo.
2.	First Street	Spatially upgrade a portion of First Street to match the 2018 air photo.

#### Endorsement:

In accordance with Planning Bulletin 108/2013 this amendment is minor in nature. As such, the endorsement of the Western Australian Planning Commission is solely required.

Determined on behalf of the Western Australian Planning Commission in accordance with the <i>Instrument of Delegation – Delegation to officers of certain powers and functions of the Western Australian Planning Commission</i> .	 Ashley Randell Director, Regional Planning Policy Regional Planning PN: 15151 Determination date
--	--

#### Other Information:

**This Layout Plan does not constitute development approval.**

It is the responsibility of the developer to ensure that all relevant consents, approvals, licences and clearances are in place prior to commencing physical works on site. Organisations responsible for such matters may include landowner, local government, incorporated community council, native title representative body, Aboriginal Cultural Materials Committee and Department of Water and Environmental Regulation.