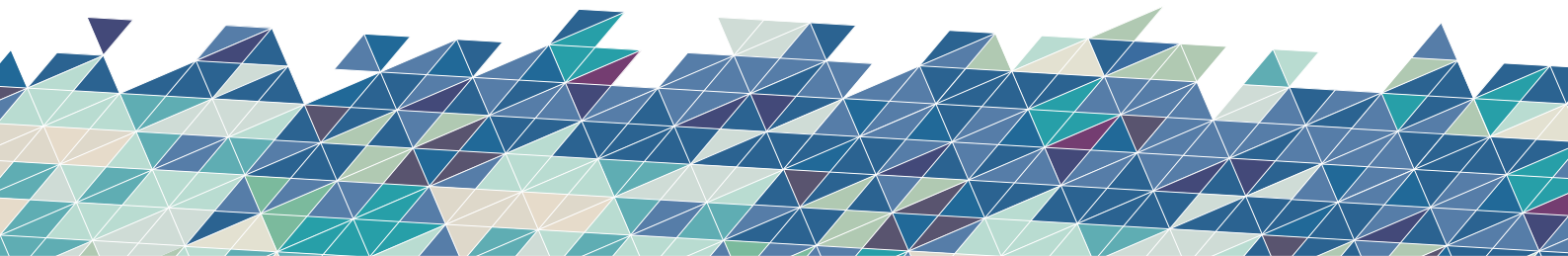


ALKIMOS COASTAL NODE LOCAL STRUCTURE PLAN

Appendix 9 Landscape Strategy



Landscape Strategy - Alkimos Coastal Node Local Structure Plan

Landscape Consultants Report



Landscape Strategy - Alkimos Coastal Node Local Structure Plan

Landscape Consultants Report

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Executive Summary

LandCorp (the proponent) on behalf of the Water Corporation proposes to develop Lot 9001 and parts of lots 9010, 9012 and 9501 Marmion Avenue as a mixed residential and commercial development. The Alkimos Coastal Node Local Structure Plan (ACNLSP) area is located approximately 40 km north of the Perth Central Business District, within the City of Wanneroo (CoW). The site is located west of Marmion Avenue, northwest of the Alkimos Beach development of Lend Lease | LandCorp and west of the relocated Waste Water Treatment Plant (WTP).

The site abuts foreshore reserve facing the Indian Ocean that will be the site of the future regional beach.

This Landscape Strategy has been prepared to support the Local Structure Plan (LSP) for the Alkimos Coastal Node and includes landscape planning and design aspects that address the following:

From *Alkimos Eglinton District Structure Plan* (December 2010):

- Create a liveable place
- Create a sustainable lasting landscape (principal issues – water and management)
- Create new diverse urban landscapes that reflect the site's unique characteristics
- Conserve representative landscapes of the area
- Retain vegetation wherever practical
- Promote the use of native, low water demanding plants
- Preserve topographic features and associated vegetation assemblages in Regional Open Space
- Establish landscape corridors, links and greenways
- Establish primary landscape character areas
- Establish primary infrastructure and development levels that maximise the potential retention of vegetation at more detailed planning
- Pursue water harvesting, passive irrigation and integrated urban irrigation
- Use of natives as a dominant species in Public Open Space and public realm infrastructure

The strategy also includes aspects to support the project vision taken from *Creating Communities* (2014):

Alkimos Coastal Node has it all: beautiful beaches, happening plazas, friendly neighbourhoods, canopied streetscapes, great attractions and green shrouded parklands. The West End hosts a thriving ocean marketplace attracting people of all ages and from all walks of life to live, work and play. From the celebrations during "Carnival" to afternoons on Alkimos beach, the good life finds full expression in Alkimos Coastal Node.

The proposed landscape strategy includes four landscape character areas conceived as landscape 'rooms':

1. Coastal Neighbourhood – primarily a residential area with an understated and informal landscape style.
2. Coastal Urban – a formal or 'urban' style of landscaping associated with medium to high density dwellings.
3. Dunal Hamlet – includes thick stands of trees to achieve a 'forest' effect as and a muted materials palette.
4. Beachside – includes a warm hardscape palette, vibrant public art and parking and robust planting.

Most parkland will be arranged along three main east west landscape corridors that provide storage for urban drainage, facilitate community connectivity and improve ecological linkage. Most landscape planting will be native, water wise and low maintenance. Street trees will be mostly native trees that conform to the City of Wanneroo Street Tree Master Plan. They will be arranged to provide shaded, canopied streetscapes with a natural feel. The Coral Tree (*Erythrina indica*), has been selected as a feature / urban identity tree that is able to be planted as a mature transplant in focal areas within the activity centre. It will immediately provide for necessary urban functions including shade, buffer from winds, land mark / way finding and enhancing the local identity. This tree is listed within the CoW Street Tree Master Plan. Irrigation demand has been minimised by reducing the amount of parkland that is permanently irrigated and to conform to the Department of Water's *North West Growth Corridor Licencing Schedule*.

1.0 Introduction

This report has been prepared by AECOM Australia Pty Ltd for the Alkimos Coastal Node Local Structure Plan (ACNLSP) area. A site boundary plan is included as **Appendix A**. This report summarises the proposed landscaping to streets and provides Public Open Space (POS) parkland typologies in relation to the ACNLSP site. The public domain landscaping will provide a diverse group of pocket-sized parks and local-sized parklands that connect the local community to their place, providing enhanced liveability whilst sitting comfortably within the coastal environment. Portions of many of the parks will also function as landscaped bio-retention areas and stormwater flood storage areas (FSAs). Turf areas will be minimised to reduce irrigation water demand and local native plant species will form the majority of the landscaped vegetation.



Figure 1 The Alkimos Coastal Node landscaping will feature shady native trees and plants that are suited to the coastal location.

1.1 Regional Context

The ACNLSP site is located approximately 40 kilometres north-west of the Perth CBD within the City of Wanneroo and the north-west sub-region of the Perth metropolitan region. It is located approximately 17 kilometres north of the Joondalup Strategic Metropolitan Centre and approximately 8 kilometres south of the Yanchep Strategic Metropolitan Centre.

1.2 District Context

The ACNLSP site is located in the western area of the Alkimos locality, directly abutting the coast. It is situated approximately 1.5 kilometres west of the future Alkimos Secondary Activity Centre and Marmion Avenue.

1.3 Local Context

The ACNLSP site directly abuts foreshore reserve and the Indian Ocean to the west. Immediately to the north the land is designated as Regional Open Space pursuant to the Metropolitan Region Scheme and as reflected on the Alkimos Eglinton District Structure Plan (AEDSP). The land further to the north and south of the ACNLSP site is being developed for urban purposes in accordance with the AEDSP. The land to the east is reserved for Public Purposes (Water Authority of WA) as it contains the Alkimos Waste Water Treatment Plant and its associated buffer.

1.4 Zoning

The majority of the ACNLSP site is zoned 'Urban' under the Metropolitan Region Scheme (MRS) and 'Urban Development' under the City of Wanneroo District Planning Scheme No.2. An area of land within the ACNLSP site is reserved for 'Public Purposes (Water Authority of WA)' under the MRS for the Alkimos Waste Water Treatment Plant ocean outfall site. In addition, the foreshore area and a portion of the site to the north east are reserved for 'Parks and Recreation' pursuant to the MRS.

1.5 District Structure Planning

The ACNLSP site is located within the south-west part of the Alkimos Eglinton District Structure Plan (AEDSP) area. The Agreed AEDSP was approved by the City of Wanneroo and endorsed by the Western Australian Planning Commission (WAPC) in 2010. The Agreed AEDSP nominates a mix of 'Urban' and 'Coastal Village Activity Centre' uses over the site and reflects the 'Regional Open Space' and 'Public Purpose' reserves in accordance with the MRS. The AEDSP also identifies a 'Secondary Public Transport System' traversing the centre of the site in a north-south direction.

1.6 Area and Land Use

The ACNLSP site covers a total area of approximately 86 hectares. The site is currently vacant and unimproved.

1.7 Legal Description and Ownership

The ACNLSP site comprises the following properties:

Table 1 Lot Numbers Making up the ACNLSP Site

Lot Number	Owner	Certificate of Title
9001	Water Corporation	Plan 69492 2771/785
Pt 9022	Western Australian Land Authority	Volume 2860/374 P403757
Pt 9017	Peet Alkimos Pty Ltd	Plan P403202 2860/681
Pt 9501	Western Australian Land Authority	Volume DP400279 ; Folio 2819/691

1.8 Landscape Principles + Strategies

The following landscape design principles and strategies aim to contribute to a coastal node with its own unique and individual identity, special assets and sense of place. These are as follows:

A Forest by the Ocean

Tuarts trees are the only significant tree species within the ACNLSP site which is dominated by low heath species. The proposed strategy is to replant this local coastal tree in dense stands as 'pockets' and 'belts' of forest that provide shade and shelter within the public domain along streets and in parks. Where space permits, each park will have a "curtain" of trees surrounding it to provide a sense of enclosure and shade.

Protected and Enhanced Dune Landforms and Coastal Heath

Dunes covered with coastal heath are the dominant landform and existing vegetation type on the site. These dunes contribute to the sense of place. They also do not require water beyond natural rain. As such, the proposed strategy for dune landforms is to:

- Protect surrounding dunes from degradation
- Restore the fringes to any dunes damaged by development and
- Design 'echoes' of the dune landforms into the parkland as small vegetated berms and swales sited to buffer strong prevailing winds and add undulating forms to the parkland.
- Preserve areas of highest conservation value and create ecological linkages
- Conserve or recreate examples of different natural areas on site and preserve biodiversity

Responsive, Natural Coastal Landscaping

Natural landforms including a high primary dune limit the views from the Coastal Node out over the Indian Ocean however the proximity to the coast will be expressed through the following strategies:

- Climate responsive landscape design including more than the usual amount of trees planted in streetscapes and POS to provide shade and shelter from strong wind
- Stage, locate and program each parkland to help create the vibrant community, centring on the coastal urban hub, and sea-side green heart and spanning out into smaller local parks
- Maintain the relaxed beachside look and feel by using natural landscape materials designed to express their natural weathering processes and age gracefully, providing a timeless quality to the public realm

Design for Recreation and Relaxation

The ACNLSP area has provided an informal recreation and relaxation setting for many years including access to adventuring and four wheel driving, surfing, fishing and just getting away from the 'big smoke'. The strategy to support relaxation includes providing multiple recreation experiences with a number of activity nodes including:

- Picnic facilities with BBQs
- Seating and shelters
- Sites for public amenities (pop up cafes etc.)
- 'Kick-about' green space
- Educational ecological zones of high environmental quality and value
- Protection/conservation of the quality natural vegetation

Design for Community Connectedness

The ACNLSP area will allow a diversity of choices and settings for getting around and access including:

- Shady promenades and footpaths
- Regional Coastal Walk Trail connections
- Cycling
- Links to/from beach and surrounding areas with inclusions of boardwalks, trails and dual use paths.

2.0 Master Plan

2.1 Public Open Space Locations

The arrangement of Public Open Space (POS) within the ACNLSP area is shown in the Master Plan (**Figure 2**).



Figure 2 Alkimos Coastal Node Master Plan. Source – Creative Design + Planning

3.0 Landscape Character Areas

3.1 Landscape Analysis

This section describes in broad terms the existing landscape setting of the ACNLSP area (**Figure 3**) as well as the Landscape Character Areas (**Figure 4**) derived from this analysis.

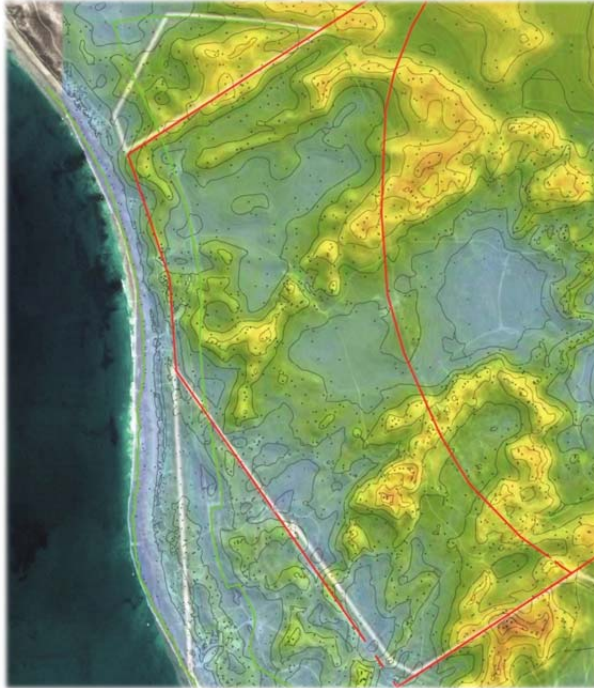


Figure 3 (a) Topography (site boundary shown as red line)

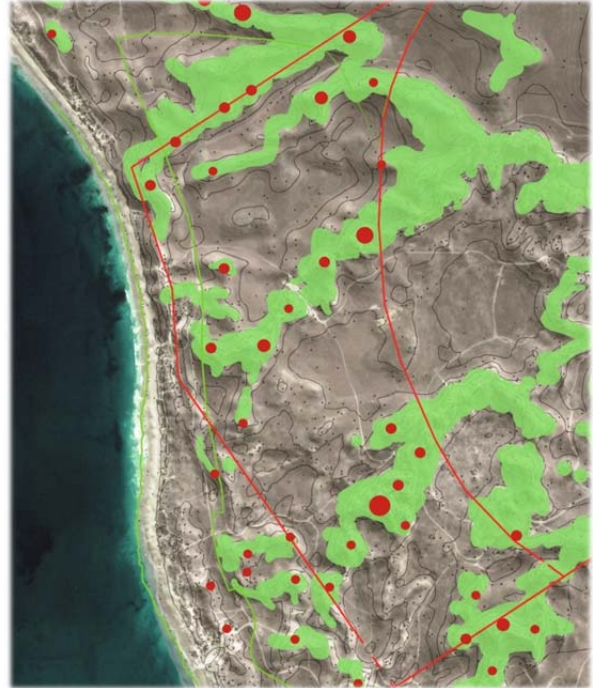


Figure 3 (b) High areas (green) and high points (red)

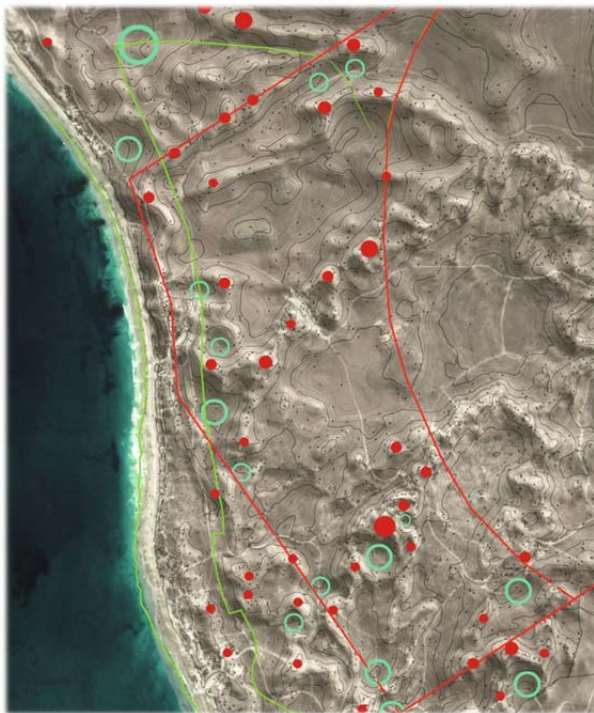


Figure 3 (c) Hills (red closed circles) and hollows (green open circles)



Figure 3 (d) Landscape Rooms (within blue oval areas)

The ACNLSP Area has a highly variable topography (**Figure 3a**) varying from 4 m Australian Height Datum (AHD) at the high points (**Figure 3b**) to 4 m AHD within the inter-dunal depressions or 'hollows' (**Figure 3c**). This topography, whilst broadly consistent with typical dune landforms of the Quindalup Formation of the Swan Coastal Plain presents as a locally complex and undulating landscape varying from low hills to moderate-relief dunes. Three broad 'landscape rooms' are formed by this arrangement (**Figure 3d**) and these rooms are the basis for the broad landscape character areas adopted.

3.2 Landscape Character Areas

Landscape character areas within the Alkimos Coastal Node are shown in (**Figure 4**).

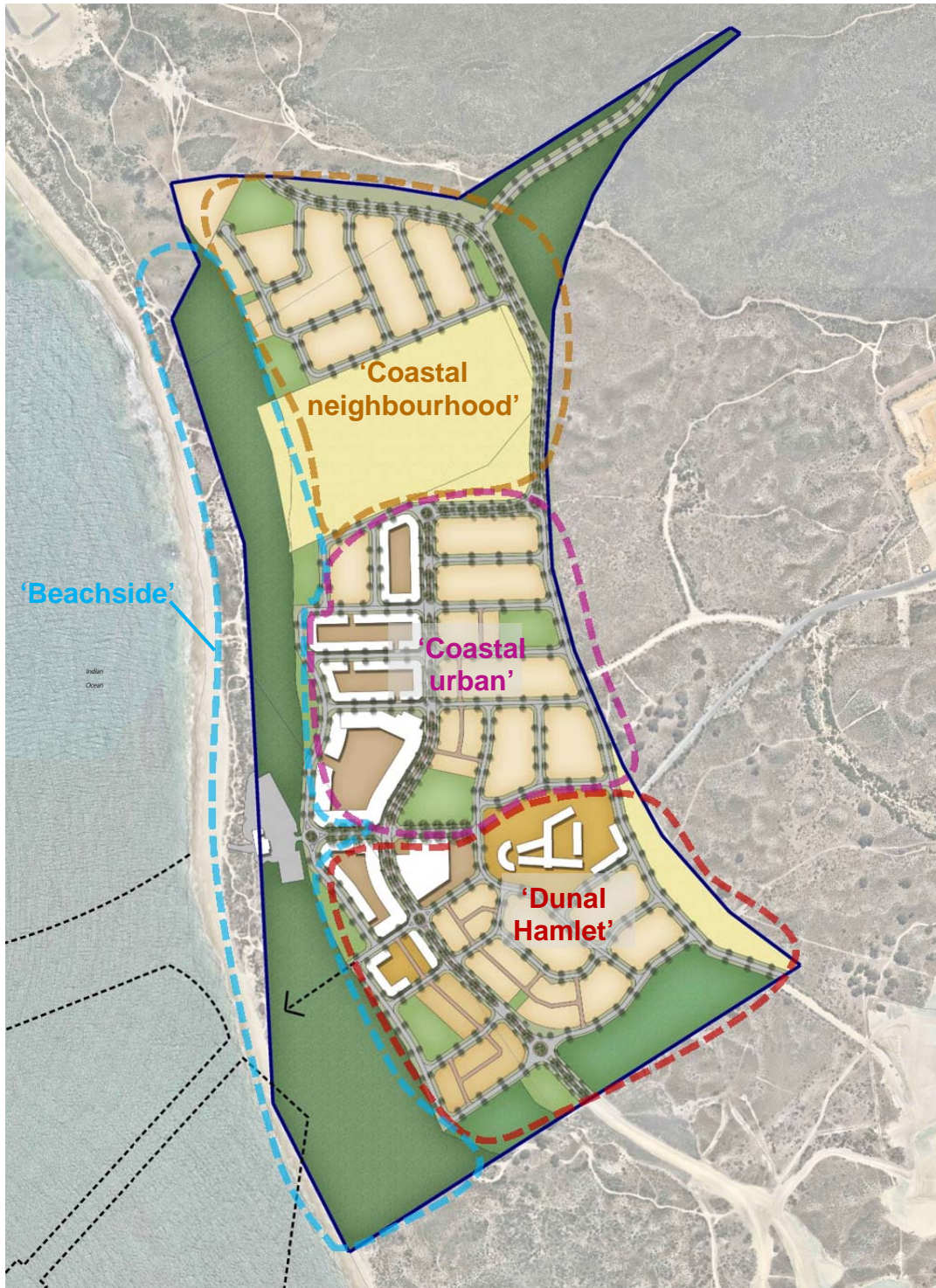


Figure 4 Landscape Character Areas: 'Coastal neighbourhood'; 'Coastal urban'; Dunal hamlet'; and 'Beachside'.

3.2.1 Landscape Character Area Descriptions

Landscapes will be designed as a diverse family of urban and coastal landscapes that reflect the sites unique characteristics. Landscapes will generally fall within one of four identified landscape character areas.

The four landscape character areas are described briefly below:

1. Coastal Neighbourhood – primarily a residential area with an understated and informal landscape style. Materials will include limestone block walls, timber seating, boardwalks and bollards and a grey to green palette of local coastal heath species.
2. Coastal Urban – this character area includes the Activity Centre with commercial activities and mostly medium-density dwellings and will comprise a generally formal or ‘urban’ style of landscaping. A palette of hard landscaping materials will include segmental pavers, formed concrete (with finishes ranging from broomed- to exposed-aggregate) as well as a selection of stabilised gravels and shell mulches.
3. Dunal Hamlet – a small component of the larger Coastal Node, the Dunal Hamlet character zone includes thick stands of trees to achieve a ‘forest-like’ effect as well as a palette of pale, ‘bleached’-looking hardscape materials to lend an intimate and comfortably weathered feel. It abuts the southern conservation area (Park F) and is bound to the north by a greenway / drainage corridor.
4. Beachside – this landscape character area includes the foreshore area and will include a warm palette of hardscape materials including walls of rammed local limestone, timber decking, vibrant public art and parking bays and areas of coloured asphalt. Soft landscaping will be low maintenance and robust, able to withstand the constant use by visitors to the regional beach.

An indicative materials palette for each of the Landscape Character Areas is included as **Appendix B**.

3.3 Landscape Corridors

Landscape corridors within the Alkimos Coastal Node are shown in **(Figure 5)**. The parkland arrangement provides for a range of functions and parkland types and includes two principal landscape corridors or greenway linkages between the Foreshore Reserve and the Water Corporation Waste Water Treatment Plant buffer area. These landscape corridors will provide for enhanced opportunity for shade-making trees to be planted and for wildlife movement as well as accommodating pedestrian and bicycle use.

It is intended to connect these corridors to the north-south coastal walking trail within the foreshore reserve as well as a future perimeter pathway around the Waste Water Treatment Plant buffer area.

The landscape corridors will provide opportunities to conserve and enhance representative landscapes of the area.

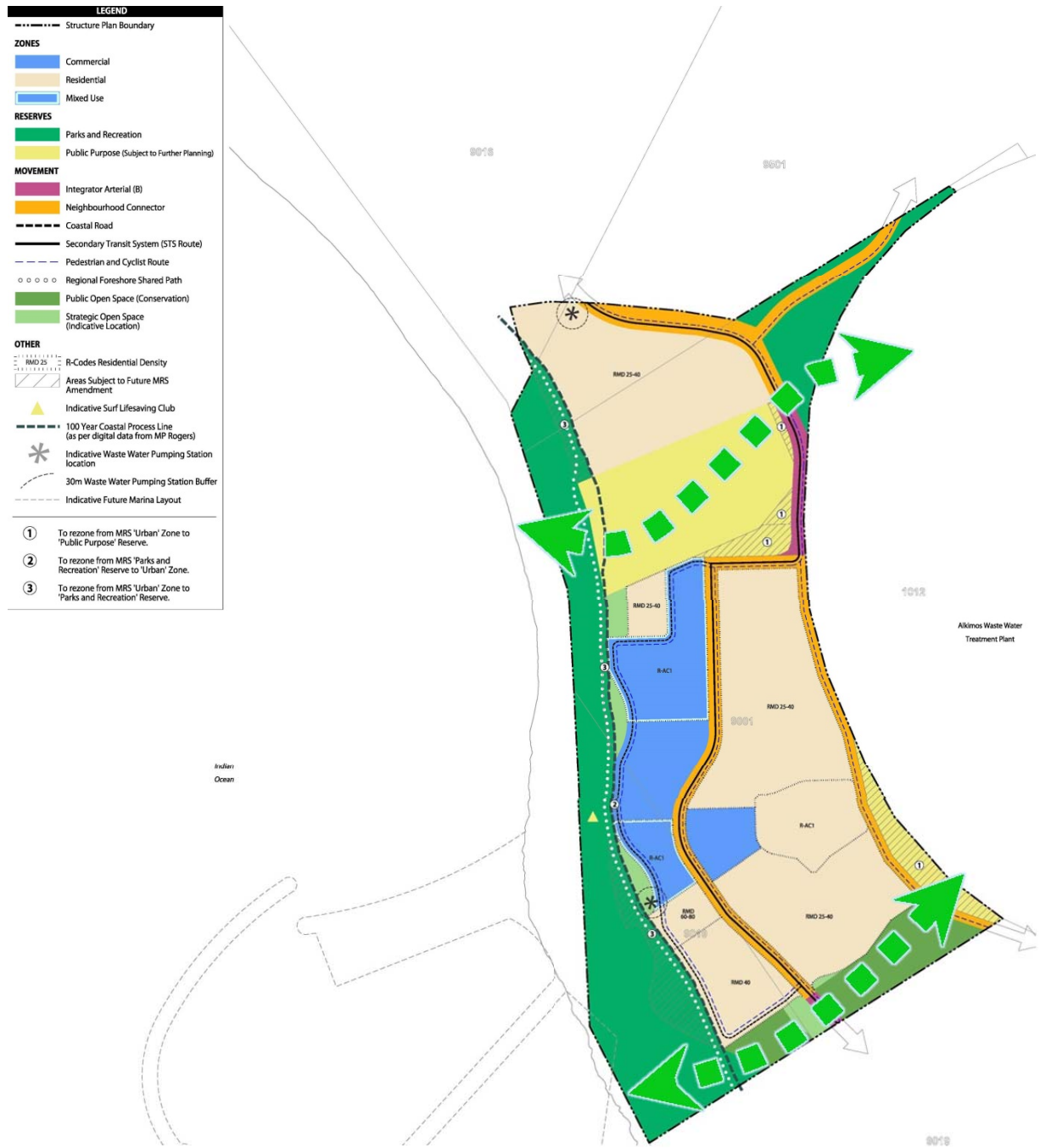


Figure 5 Landscape Corridors (shown as dashed arrow lines)

4.0 Public Open Space

4.1 Park Overview

A general overview of the park arrangement within the ACNLSP Area is shown in **Figure 6**.



Figure 6 Alkimos Coastal Node Park Overview.

A summary of the main classification and function of each POS is provided in **Table 2**.

Table 2 Parkland Types and Functions

Parkland ID	Name	Classification*	Function
A	Eco-Drainage Park	Local	Passive Recreation, Conservation + Drainage
B	PAW-1	Local	Passive Recreation
C	Village Park	Local	Passive Recreation + Drainage
D	Hillside Pocket Park	Local	Passive Recreation
E	Lookout Park	Local	Passive Recreation
F	Local Kick-About Park	Local	Passive Recreation + Drainage
G	Coastal Drainage Park	Local	Passive (Nature Play) Recreation + Drainage
H	Community Kick-About Park	Local	Passive (Play & Informal Active) Recreation + Drainage
I	Surf Lifesaving Park	Local	Passive Recreation + Drainage
J	Local Oceanside Park	Local	Passive Recreation + Drainage
K	PAW-2	Local	Passive Recreation
L	Eco Drainage Park	Local	Passive Recreation + Drainage
M	Bushland Park	Local	Conservation
N	Bushland Park	Local	Conservation

*City of Wanneroo Local Planning Policy 4.3 – Public Open Space

Land Zoned for Public Purpose (Ocean Outfall Site Easement) is not included in the above but the land will likely be used for a combination of compatible temporary land uses such as passive recreation, conservation and civic uses (temporary sporting ovals or other community uses) until the duplication of the Ocean Outfall pipe occurs (20 years plus planning timeframe). Once the Ocean Outfall pipe has been duplicated, it will be necessary to integrate the Ocean Outfall site with the surrounding area. At this point, future development will be subject to rezoning and normal planning requirements, including provision of a foreshore reserve as per State Planning Policy 2.6 or the applicable policy at the time.

4.2 Parklands and Recreation

The following diagrammatic plans indicate example spatial arrangements and recreation functions for the various open space typologies at the Alkimos Coastal Node.

4.2.1 Hillside Park

The hillside park typology is a local pocket sized park set out as linear open space to provide the community with a walking experience through an undulating landform. Thick stands of Tuarts, Rottnest Island Pines and Tea Trees will provide a forest-like canopy of shade throughout the open space. Elements may include teenage play such as a basketball half court and other nature based experiences. Planting within garden beds will be native and water wise species. Turf will be minimised.

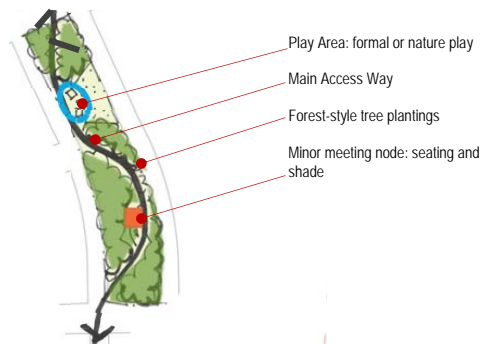


Figure 7 Hillside Park Typology. Approximate Scale 1:4000

4.2.2 Drainage in Parks (General)

Drainage within POS will be designed with 1 in 1 year 1 in 5 year and 1 in 100 year Average Recurrence Interval (ARI) flood storage areas (FSAs) integrated into the parkland design. Side slopes to the FSAs will be at a gradient of 1 in 8 side slopes and the 100 year ARI flood event will be retained within 1.2m (maximum) deep flood storage areas within the low point of the parkland. Minor rainfall event discharges into parks will be managed in bio-retention areas separated from the recreation spaces or managed at source where possible.

4.2.3 Local Drainage Park Typology

The typology for drainage in local parks builds in ecological functions that showcase water sensitive urban design (WSUD) features to treat the stormwater and improve the surrounding greenery. Flood storage will be integrated with areas of tree-fringed and sunken turf that can accommodate kick-about activities and nature based play. Surrounding the parks will be thick plantings of trees (Peppermints, Tuarts, Rottnest Island Pines and Tea Trees) to provide a forest-like feel, habitat for birdlife and positive contribution to the local sense of place.

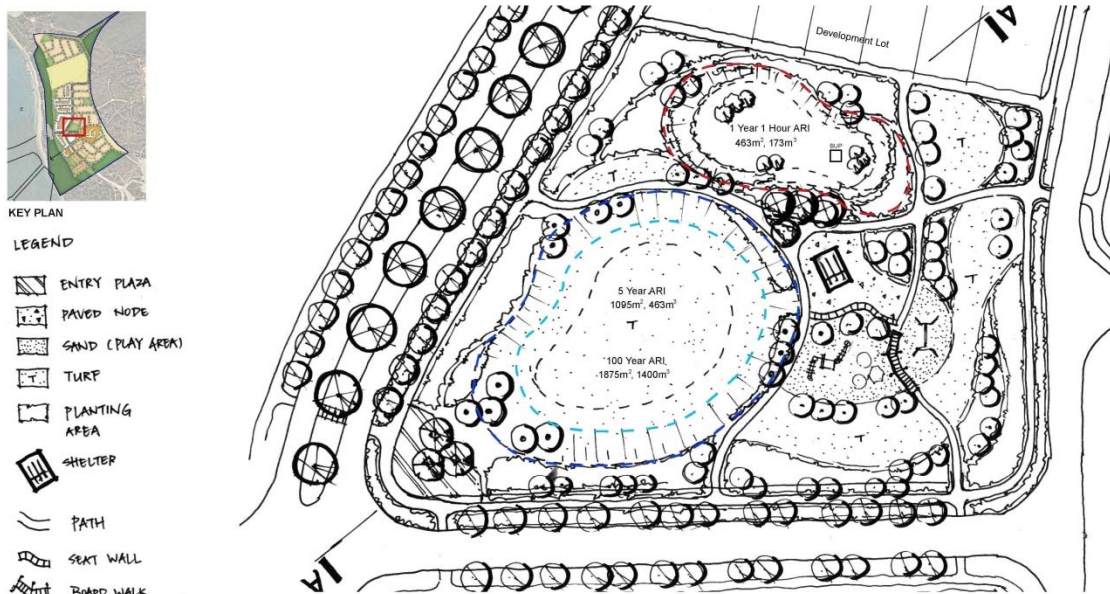


Figure 8 Drainage in Local Parks will integrate with legible connecting pathways, minimised turf area, continuous shade and abundant native planting.



Figure 9 Drainage Parks will feature legible connecting pathways, minimised turf area, continuous shade and abundant native planting.

4.2.4 Eco-Drainage Park Typology

The eco-drainage park typology features flood storage that is ‘moulded’ into the parkland together with habitat-style plantings to encourage small native fauna to establish homes. Surrounding the park will be thick plantings of trees (Peppermints, Tuarts, Rottneest Island Pines and Tea Trees) to provide a forest-like feel, avian flight corridors for birdlife as well as providing shade, protection from winds, adding vertical visual elements to the landscape and making a positive contribution to the local sense of place.

Eco-drainage parks can also have areas of hydro-zoned turf to accommodate local dog off-leash exercising. Some eco-drainage parks such as Park G will also provide a sculpted and sheltered landform that offers picnic nooks that are protected from the coastal wind and a pathway connection to the abutting foreshore area.

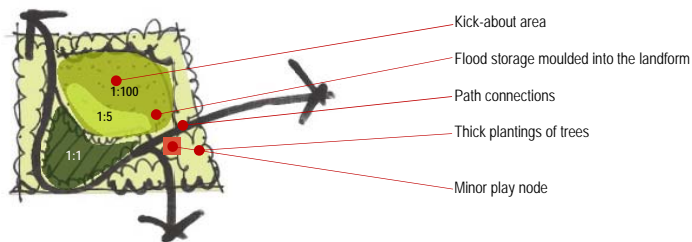


Figure 10 Eco-Drainage Park Typology. Approximate Scale 1:4000



Figure 11 Example drainage park combining high quality pedestrian linkage and ecological zones

4.2.5 Bushland Park Typology

The bushland park typology is preserved landform and vegetation that is enhanced by rehabilitation of prior tracks and erosion. The area will be fenced to control access and no development is proposed in this area apart from informal access pathway. Existing landform will be preserved including dunes and swales. Additional Tuart trees and Carnaby's Cockatoo food species will be planted to enhance the existing environment and improve ecological function, assisting the movement of wildlife to and from the coast through this corridor. Third party access, weeds, *Phytophthora* dieback and fire prevention will all be managed under an approved management plan.

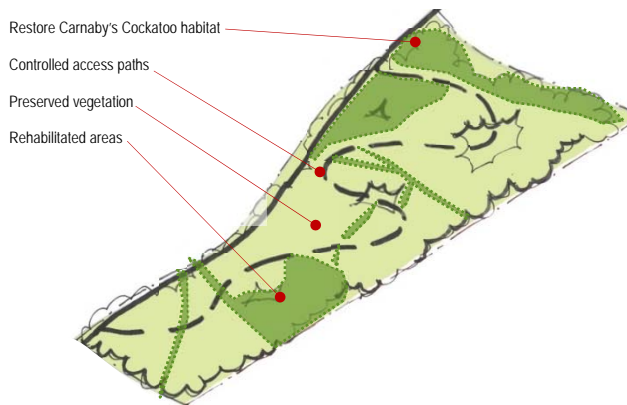


Figure 12 Bushland Park Typology. Approximate Scale 1:4000

4.3 Vegetation and Landform Retention

The ACNLSP area contains isolated groupings of naturally-occurring Tuart trees as well as pockets of potential Carnaby's Cockatoo Foraging Habitat (Figure 12). Dunal landforms also characterise the site in its present state.

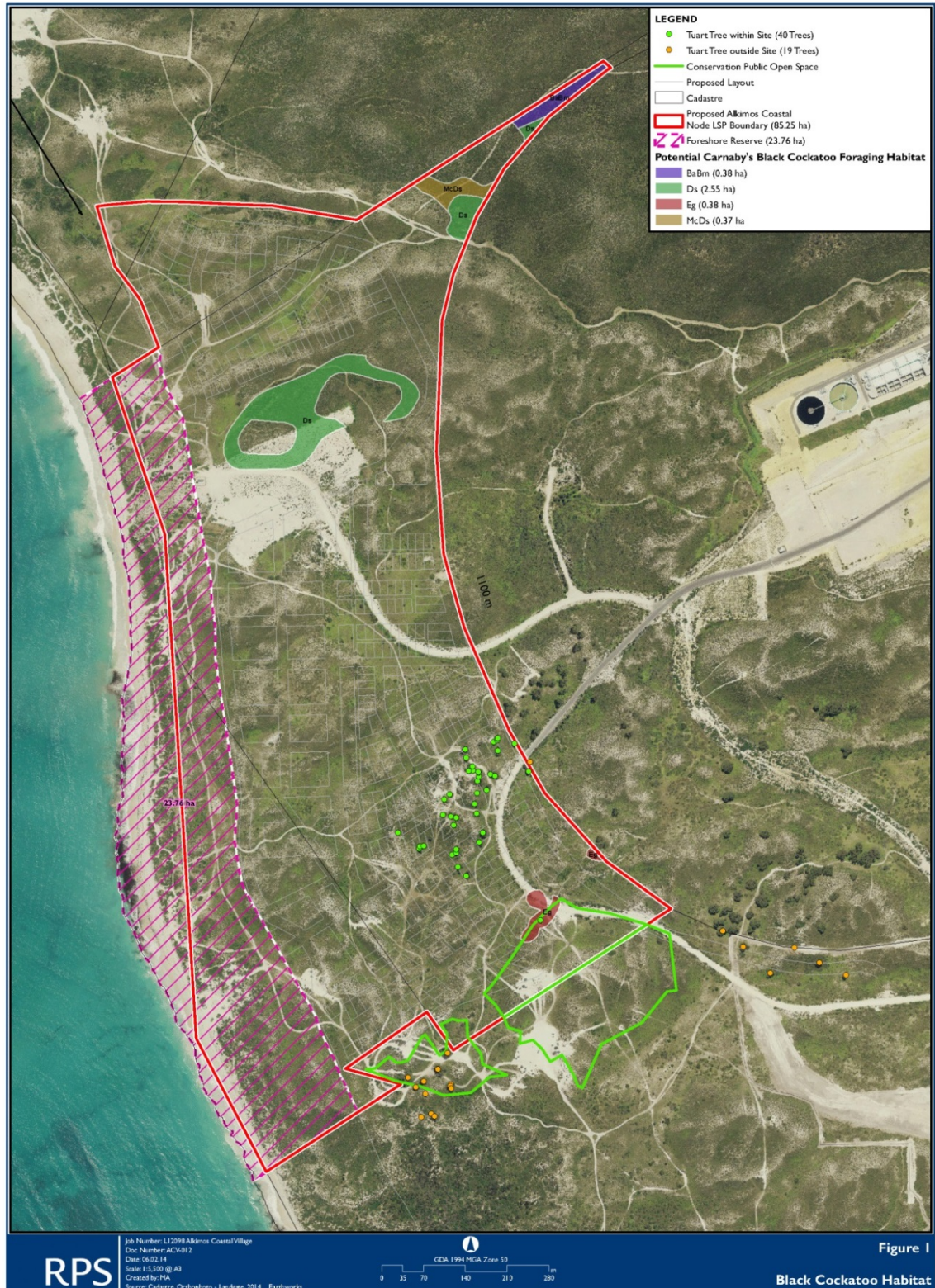


Figure 13 Black Cockatoo Habitat and Tuart Tree Locations. Source RPS.

Areas of potential Carnaby's Cockatoo foraging habitat are to be preserved and enhanced within some areas zoned Parks and Recreation and also within part of the Public Purpose zoned land.

Where feasible, micro-dunal landforms representing the existing site will be either conserved or re-made within some open spaces as styled berms, planted with belts of trees and sometimes be accompanied by drainage hollows. These features will provide shelter from strong coastal winds and help to re-establish a sense of place and a connection between the coastal landscape and the community (Figure 13).



Figure 14 Example dune-styled berms planted with belts of trees to help re-establish a sense of place

The two Bushland Parks will allow for the conservation and preservation of some landform and trees. Furthermore, land coded R-Code R160 allows provision for future building envelopes to avoid the existing mature Tuart trees, enhancing the potential for conservation of both Tuart trees and landform, allowing these features to contribute to the public realm of the future residential community (**Figure 14**).



Figure 15 The location of bush conservation parks and special zoning will protect and conserve both Tuart trees and landform, allowing these features to contribute to the public realm of the future residential community.

4.4 Foreshore Reserve

The foreshore reserve to the ACNLSP area will function as a regional beach and will host a Surf Life Saving Club, parking areas, play areas and both formal and informal access to the beach. The foreshore is subject to ongoing planning in order to meet the requirements of *State Planning Policy No. 2.6 State Coastal Planning Policy* (WAPC 2013).

4.4.1 Key Features

Key landscape and public realm features of the foreshore area include a Surf Life Saving Club, car parking, lookout areas, shelters, areas for play, garden beds, protected, enhanced and regenerated local native vegetation, walking access to the beach, north-south coastal walking trail and protected and enhanced natural rock formations (limestone outcrops). The ongoing planning for the foreshore reserve will be reported within a Foreshore Management Plan to be completed following the submission of the LSP report.

4.4.2 Connection of the Foreshore to the LSP area

The ACNLSP landscape will be designed to connect with the foreshore area at its interface by adopting a complimentary vegetation palette and materials palette that blends the urban realm with the natural realm. Built structures will be designed to minimise disturbance to the natural landscape and be visually unobtrusive.

4.4.3 Foreshore Landscape Principles

1. Control access via fenced paths and some elevated walkways through and over the dunes.
2. Stabilise and revegetate old and sundry access tracks no longer required.
3. Provide viewing access, seating and shade at strategically located areas (lookout points).
4. Locate the north-south Regional Shared path to minimise disturbance, to provide management access and as a management edge to control degradation of the foreshore vegetation at the urban edge.
5. Protect from degradation (wind and water erosion and sedimentation) all vegetation abutting car parking areas, showers, lawn areas, active play areas and pathways.
6. Locate picnic and shelter facilities adjacent to the Surf Lifesaving Club / Kiosk area.
7. Locate layered shrub and tree plantings as shelter belts that provide for views but protect from the wind.



Figure 16 Example boardwalk setting indicating the preferred vegetation palette and materials palette for use in the foreshore area.

5.0 Planting Guide

Tree planting within all streets will be ordered to display street hierarchy and create streets with a distinct coastal character. Regularly and closely-spaced tree planting will be used to create landscapes with a consistently shady quality and also help to ameliorate environmental impacts such as wind and the urban heat island effect. Street trees will conform to the *City of Wanneroo Street Tree Master Plan (Version 2 – September 2005)*.

5.1 Native Tree Preservation and Augmentation

As the subject area is vacant land with remnant bushland, including stands of Tuart trees (*Eucalyptus gomphocephala*), much consideration was given to preserving as many trees as possible. A proportion of the Tuarts will be preserved within the Conservation Open Space. Preserved Tuarts will be augmented with plantings of additional Tuart trees to compensate for those trees removed and to enhance the Conservation Open Space in accordance with the City of Wanneroo Local Planning Policy 4.8 – Tree Preservation Policy.

5.2 Trees – General

Streets and parks in the Alkimos Coastal Node will generally be planted with native trees including the following:

5.2.1 Local Native Trees

Agonis flexuosa (S)

Callitris preissii

Eucalyptus gomphocephala (S – large streets only)

Eucalyptus decipiens

Melaleuca lanceolata



Agonis flexuosa (S)



Acacia rostellifera



Callitris preissii



Eucalyptus gomphocephala (S)



Eucalyptus decipiens



Melaleuca lanceolata

(S) denotes use as a street tree

5.2.2 WA Native Trees

Callistemon Kings Park Special (S)

Casuarina obesa

Corymbia ficifolia (S)

Eucalyptus caesia

Eucalyptus utilis (S)

Hakea laurina (large shrub /small tree)

5.2.3 Australian Native Trees

Casuarina equisetifolia

Corymbia maculata

Ficus macrophylla

Ficus rubiginosa

Hymenosporum flavum

Melaleuca quinquenervia (S)



Hakea laurina

5.3 Specific Use Trees

A selection of exotic trees will augment the native tree palette to provide necessary urban functions including shade, buffer from winds, land mark / way finding and enhancing the local identity. Chief among these will be the Coral Tree (*Erythrina indica*), able to be planted as a mature transplant in focal areas within the activity centre.

5.3.1 Exotic Trees

Erythrina indica (S) – Local Feature / Identity Tree

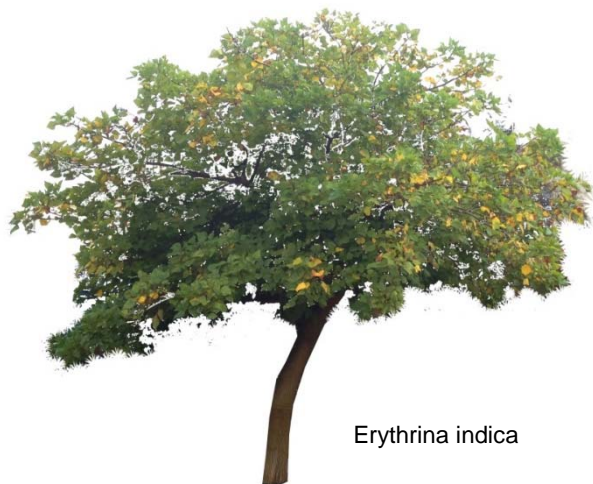
Delonix regia (S)

Metrosideros excelsus (S)

Aruacaria sp.

Phoenix canariensis (S)

Tipuana tipu (S)



Erythrina indica

5.4 Shrubs & Groundcovers

Native coastal groundcovers and grasses rather than turf in the verges are proposed as these are particularly appropriate in the less formal, local streets. Shrubs will be selected to provide seasonal displays of vibrant colours. A high proportion (at least 50% of the total tree count) will be native tree species to enhance the establishment of a place-specific, informal character. At least 50% of shrubs and groundcover species will be selected that are from the Carnaby's Black Cockatoo List www.dec.wa.gov.au/plantsforcarnabys including shrubs like Parrot Bush, hakeas and banksias to offset any plants of Cockatoo food value that are removed during development.

A limited palette of selected deciduous species and palms will be utilised to enhance urban focal points shared spaces and promenades. Indicative species include:

5.4.1 Local Shrubs (native to Alkimos Coast)

Acacia rostellifera

Banksia sessilis

Grevillea thelemanniana

Hakea laurina

Hakea lissocarpha

Hakea prostrate

Hakea trifurcate

Hibbertia hypericoides

Melaleuca huegelii

5.4.2 Local Dunal Vegetation

Carpobrotus viscerens

Lepidosperma gladiatum

Leucaphyta brownii

Melaleuca nesophila (Little Nessie)

Scaevola crassifolia

Spinifex longifolia

Spinifex hirsutus

Westringia dampieri



Carpobrotus virescens



Lepidosperma gladiatum



Leucaphyta brownii



Melaleuca nesophila (Little Nessie)



Olearia axillaris



Scaevola crassifolia

5.4.3 WA Native Dunal Vegetation

Acacia lasiocarpa

Acacia rostellifera

Atriplex insatidea

Carpobrotus virescens

Ficinia nodosa

Olearia axillaris

Rhagodia baccata

5.4.4 WA Native Shrubs

Adenanthos cuneatus

Agonis flexuosa (nana)

Chamelaucium sp

Chorizem cordatum

Conostylis candicans

Eremophila glabra

Hardenbergia comptoniana

Hemiandra pungens

Kennedia prostrate

Templetonia retusa

5.5 Swale & Bio-retention Basin Planting

The incorporation of water sensitive urban design (WSUD) features in some road reserves will also help define the appearance of streets. Swales (where grades permit) will assist with stormwater infiltration, while channelling stormwater directly to street trees to passively irrigate them. WSUD features will have an urban character within the main streets and an informal character in the local informal streets. Indicative species include:

Baumea articulata

Baumea vaginalis

Dianella revoluta

Frankenia pauciflora

Ficinia nodosa

Gahnia trifida

Hypocalymma angustifolium

Juncus kraussii

Juncus pallidus

Lepidospermum gladiatum

Melaleuca quinquenervia

Xanthorrhoea preissii



Xanthorrhoea preissii

6.0 Irrigation

Limited water for irrigation water will be available for the Alkimos Coastal Node LSP area based on the allocation made within the Department of Water's *North West Growth Corridor Licencing Schedule*. An irrigation water demand estimate is provided within the Local Water Management Strategy of this LSP. Most parklands will have less than twenty percent of their area as permanently garden beds or irrigated turf (**Table 3**). The majority of the landscaping will comprise hydro-zoned garden beds featuring plants with low water demand. Consideration will also be given to securing a diversity of alternative irrigation water sources such as stormwater.

Table 3 Permanently Irrigated Areas of Parkland

POS ID	POS name (indicative only)	Main Function	Total Area (ha)	Approximate % area to be irrigated
A	Eco-Drainage Park	Passive, Conservation + Drainage	0.4480	5%
B	PAW-1	Passive	0.0450	0%
C	Village Park	Passive + Drainage	0.4739	15%
D	Hillside Pocket Park	Passive	0.1566	15%
E	Lookout Park	Passive	0.3623	10%
F	Local Kick-About Park	Passive + Drainage	0.4651	20%
G	Coastal Drainage Park	Passive (Nature Play) + Drainage	0.3121	20%
H	Community Kick-About Park	Passive (Play & Informal Active) + Drainage	0.7531	20%
I	Surf Lifesaving Park	Passive + Drainage	0.2658	20%
J	Local Oceanside Park	Passive + Drainage	0.4656	15%
K	PAW-2	Passive	0.0487	0%
L	Eco Drainage Park	Passive + Drainage	0.3825	7%
M	Bushland Park	Conservation	0.9459	0%
N	Bushland Park	Conservation	2.8683	0%

Note: The areas shown in the table do not include the Public Purpose zoned land. Should temporary sporting ovals or other high irrigation demand functions be required on the Public Purpose zoned land, an alternative water source from the Waste Water Treatment Plant will be required.

7.0 References

Creating Communities (2014) Alkimos Coastal Node Community Development Plan.

Department of Water (2013) *North West Growth Corridor Licencing Schedule*.

Emerge (2014) Local Water Management Strategy Alkimos Coastal Node LSP.

Appendix A

Indicative Landscape Materials Palette

Appendix A Indicative Landscape Materials Palette

'Coastal neighbourhood' Landscape Character



'Coastal urban' Landscape Character



'Dunal Hamlet' Landscape Character



'Beachside' Landscape Character



Appendix B

Indicative Landscape Concept Design - Local Park

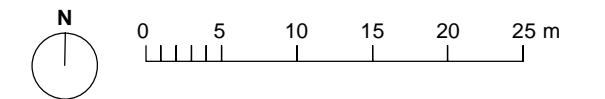
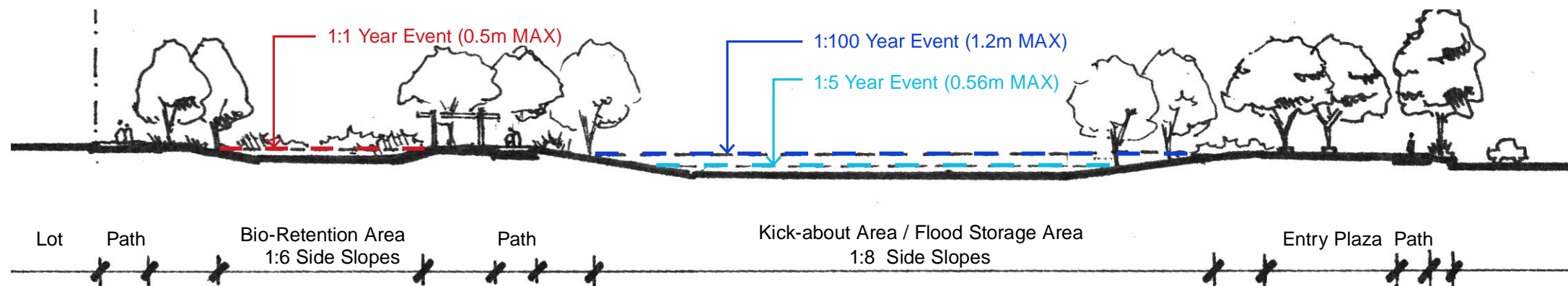
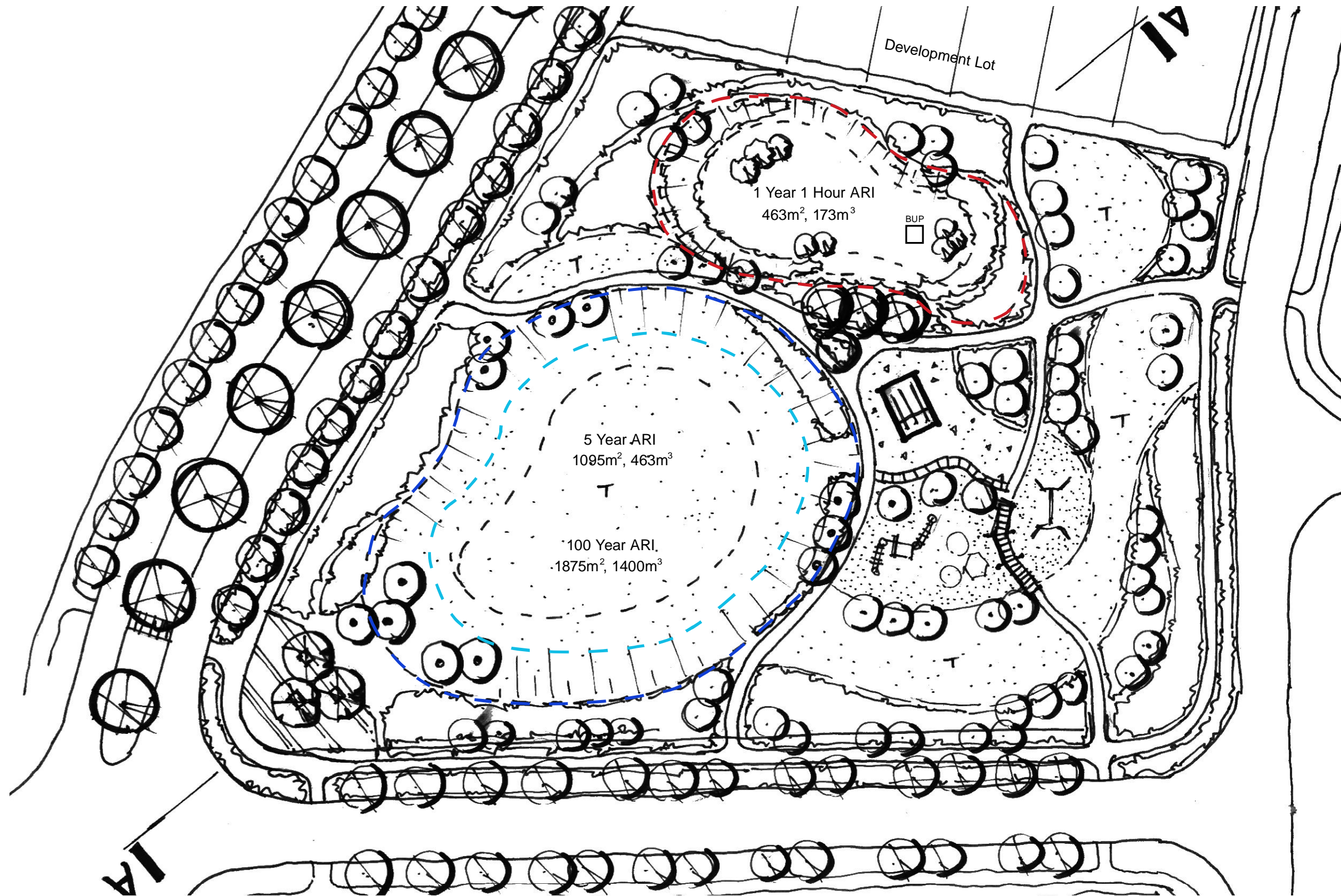
Appendix B Indicative Landscape Concept Design - Local Park



KEY PLAN

LEGEND

- ENTRY PLAZA
- PAVED NODE
- SAND (PLAY AREA)
- TURF
- PLANTING AREA
- SHELTER
- PATH
- SEAT WALL
- BOARD WALK



Landscape Concept Plan

Section A-A