

SORRENTO ACTIVITY CENTRE

Sorrento, WA

June 2021

Landscape Concept
Development Application

DEPARTMENT OF PLANNING, LANDS
AND HERITAGE

DATE
13-Jun-2022

FILE
SDAU-049-21

ASPECT Studios

Project Overview

The landscape design for the Sorrento Activity Centre has been prepared by ASPECT Studios in collaboration with MJA Studios. The landscape design includes the public and communal external spaces of the development at ground floor and podium levels as well as landscape treatment to the generous private terraces.

The design is intended to create an attractive and high quality landscape for the amenity of residents, visitors and contribute a landmark building to the local area.

The design responds to the scale and geometry of the unique architectural expression in order to create a dynamic and engaging landscape experience that flows seamlessly from internal to external spaces, whilst enhancing views to the coast and surrounding park areas.

The landscape design will create a cohesive and seamless connection with the architecture which is influenced by the natural character and qualities of the adjacent coastal foreshore area as well as the adjacent parkland.

The articulation and stepping of the building's terraces provides opportunities to integrate landscape to enhance the outlook and amenity for residents as well creating a compelling and iconic composition from street level, particularly as the site occupies a landmark corner.



THE SITE

Landscape Context Summary

- The most dominant natural features along the coast are the white dunal sands and low lying dunal/shrub vegetation, which are exposed along much of Perth coastline.
- Geology & Soil - Quindalup Dunal System (Creamy white calcarous sand fringing the coast)
- Topography - Variation of dunal system (1-13m AHD) from steep to flatter.
- Vegetation - Coastal Dune (Cottesloe) Complex including succulent, grass, heath and shrub communities. Comprises heaths on limestone outcrops and a mosaic of Tuart woodlands and Tuart-Jarraah-Marri open forests on deeper sands.
- Noongar significance - Known as Mooro territory to the Whadjuk Noongar people, the area of present day Sorrento and Marmion was previously used for the fishing and gathering of abalone and other shellfish in large numbers off the reef.



SITE LOCATION

Ecological Context

GEOLOGY AND SOIL COMPLEX

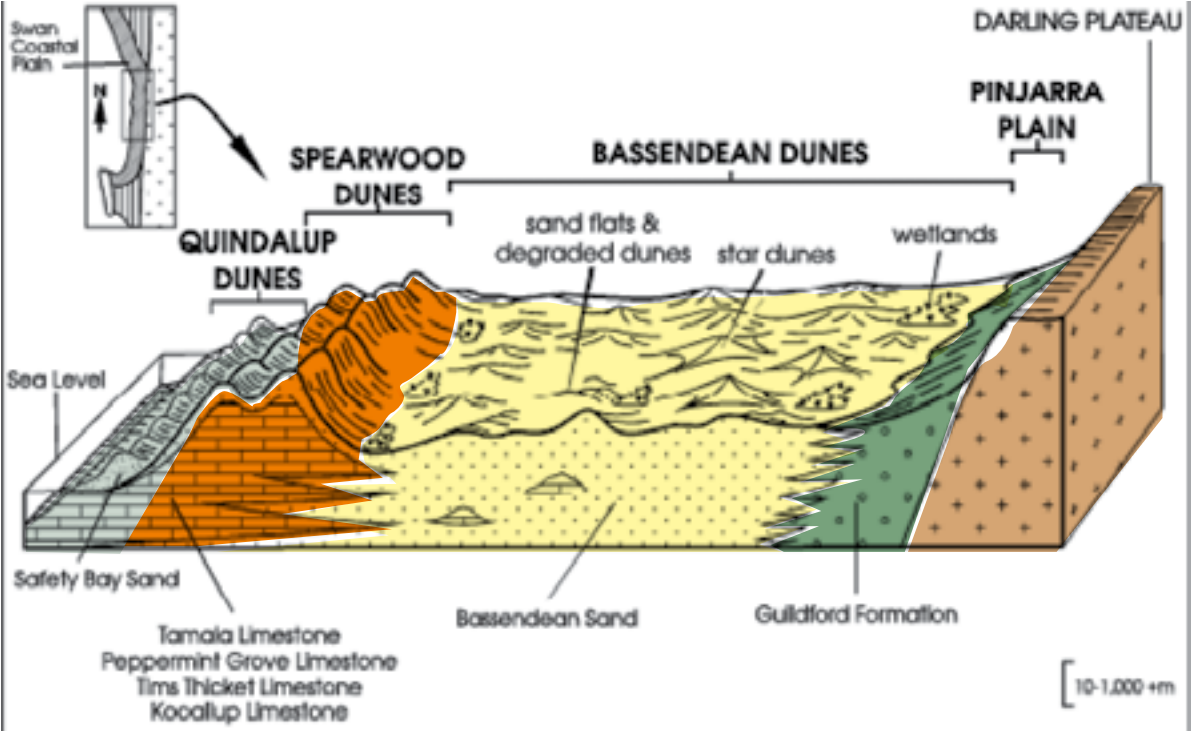
The Sorrento Coastal Reserve is situated within the Swan Coastal Plain. The majority of the soils of were formed by material deposited by rivers and wind, creating a series of dune systems with the youngest being the Quindalup Dunes nearest the coast, followed by the Spearwood Dunes and the Bassendean Dunes (adjacent).

The Site is located on the youngest formation, the Quindalup Dune System, approximately 6,000 years old during a period of rising and falling sea levels, which is still being actively formed. It is characterised by unconsolidated white calcareous sands that form a series of parabolic and nested parabolic dunes and relict cusate beach-ridge plains.

The soil type that occurs is the Quindalup Dunes S2 Phase soil (Qu_S2) which is described as white, fine to medium grained, sub-rounded calcareous sand, with quartz and shell debris, of aeolian origin. Sometimes referred to as Safety Bay Sand.

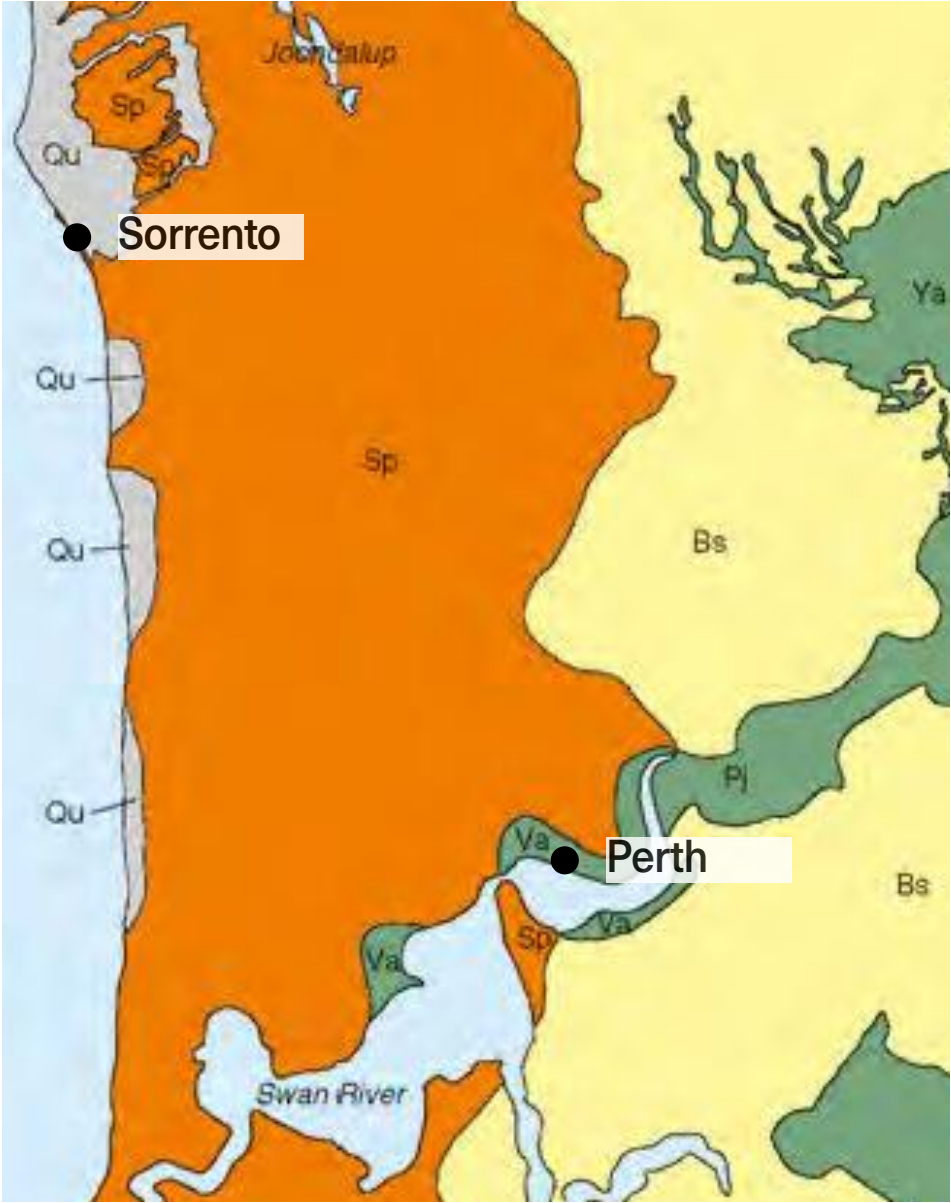
Quindalup Dunes - These are found as a series of elongated dunes running parallel to the coastline in a narrow coastal strip. The landform unit within the Spearwood Dune system is characterised by yellow to toffee coloured sands that overlay belts of pale limestone. The parabolic dunes found along the coast form crescent recesses at the foundation of the dunes resulting in an unpredictable dune landscape.

SWAN COASTAL PLAIN GEOLOGY - SECTION



- Legend
- Coastal Soils - Quindalup (Qu)
 - Western Coastal Plan - Spearwood (Sp)
 - Central Coastal Plain - Bassendean (Bs)
 - Eastern Coastal Plain - Pinjarra (Pj) and Vasse (Va)

SWAN COASTAL PLAIN GEOLOGY - PLAN



QUINDALUP JUNES - WITH SPINIFEX GRASSES, MARMION BEACH

Ecological Context

VEGETATION COMPLEX

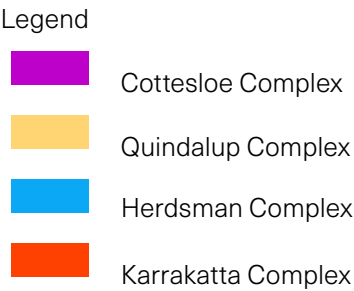
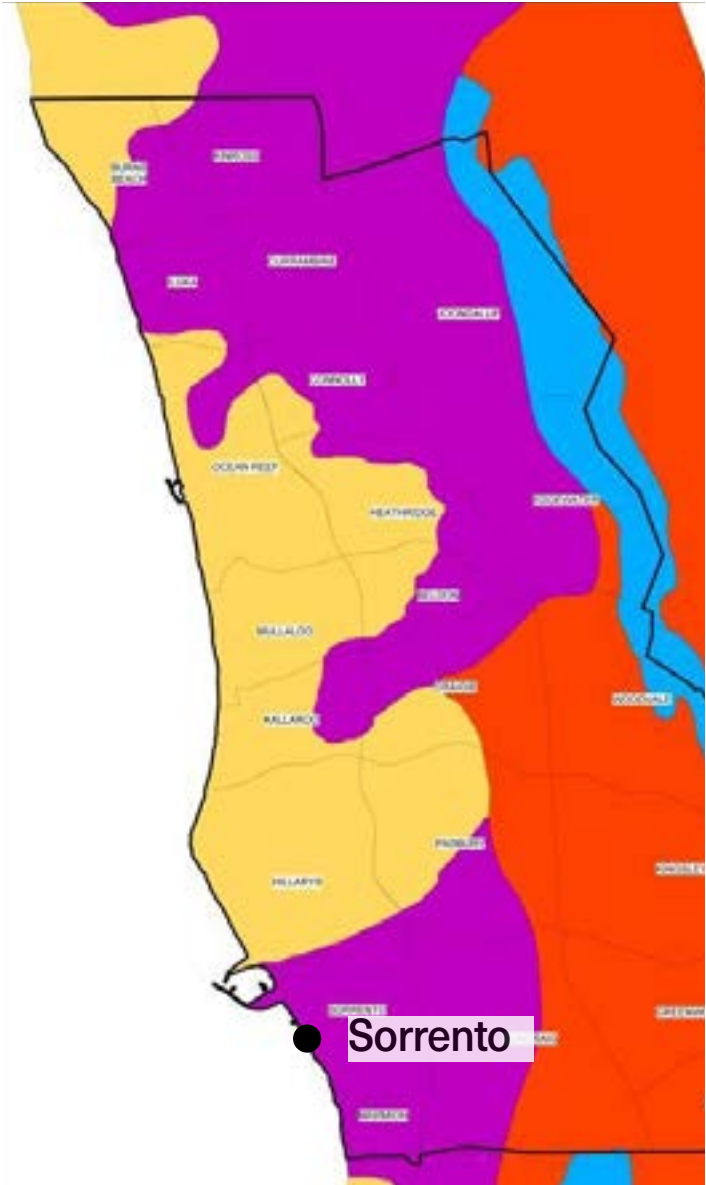
The main types of vegetation in the area derive from the Cottesloe & Quindalup coastal complexes that range from low lying grasses to dense Tuart woodlands. These plants are usually found in a sequence, from the beach foredune landward. Salt-tolerant grasses such as Spinifex occur at the back of the beach face. Further back from the beach these are replaced by ground cover plants, other grasses and low shrubs such as Olearia. Behind these, taller shrubs of different genera such as Scaevola, Spyridium and Melaleuca are able to grow as soil fertility and moisture increases. Still further back, or in more moist swales and depressions, small trees such as Banksias and Eucalypts may appear.

Below is a list of some of the coastal plants found in the region:

- Melaleuca systema
- Melaleuca cardiophylla
- Melaleuca huegelii
- Olearia
- Scaevola crassifolia
- Spinifex longifolius

Below is a list of some of the species found adjacent to the Site:

- Scaevola crassifolia - Open low heath
- Acacia rostellifera - Open heath
- Spinifex - Open Grassland
- Mixed Open Heath, consisting of:
 - Acacia rostellifera,
 - Scaevola crassifolia,
 - Spinifex hirsutus
 - Olearia axillaris,
 - Rhagodia baccata,
 - Spyridium globulosum,
 - Myoporum insulare and
 - Acanthocarpus preissii)



Site Appreciation



Coastline

layering
topography
lookouts



Dunal Landscapes

materiality
texture
colour
vegetation



History / Lifestyle

recreation
health & wellbeing
leisure



Between Ocean & Park

coastal ecology
coastal lifestyle
green amenity

Landscape Qualities and Character



Culture

informal
relaxed
recreation
lifestyle

Ocean

coastal processes
sea breezes
sunsets
shifting sands

Flora / Fauna
local landscape character
texture and contrast
coastal and parkland

Community
surf life saving
social catchups
sport and recreation

Site Context

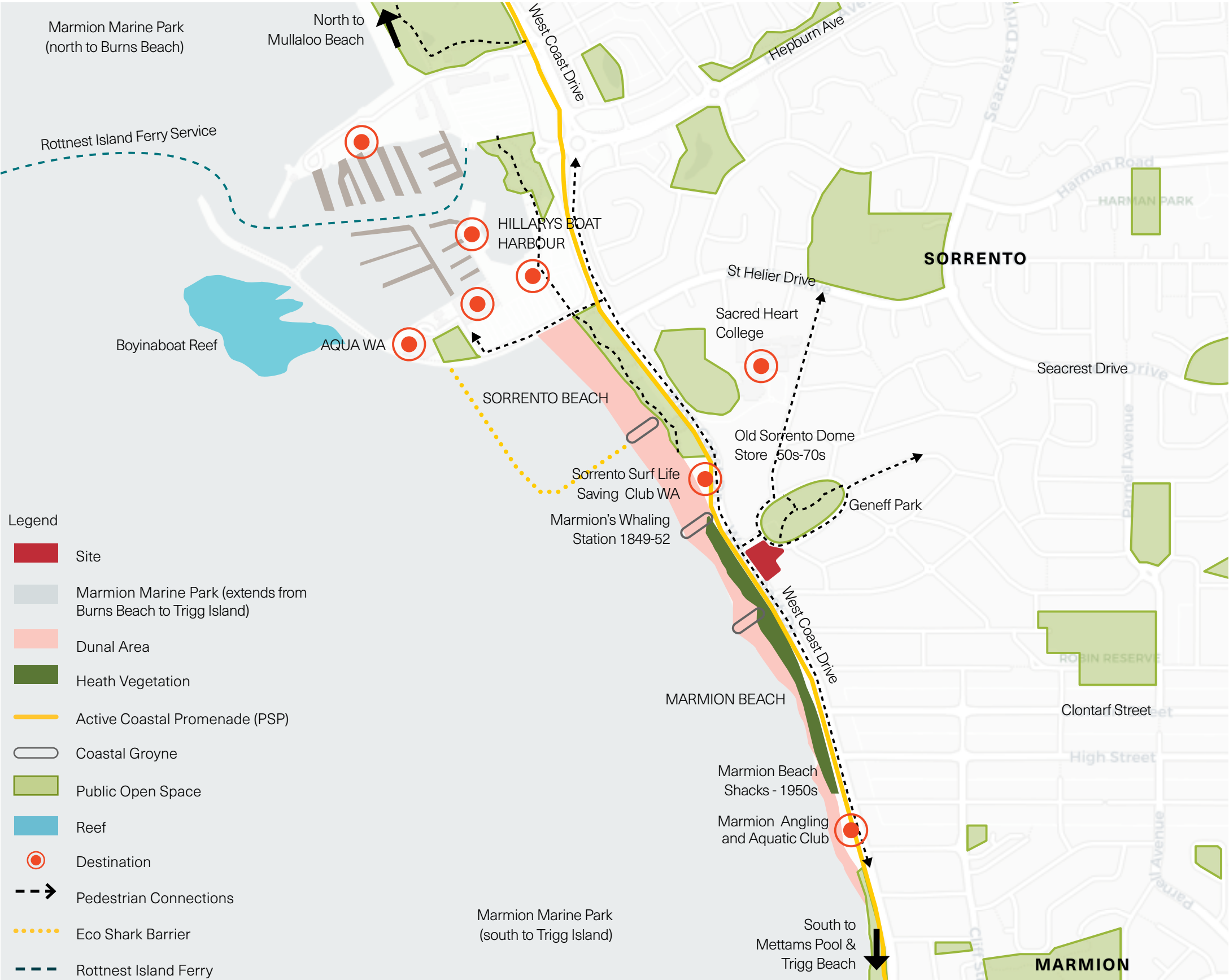
Traditionally the area has been used for fishing and recreation purposes, and was once considered a coastal getaway from the City prior to the establishment of residential homes between the 1950s to 1980s. Prior to the establishment of residential communities, the neighbouring suburbs began as farms and fishing shacks in the 1840's. There was even a whaling station just south of the current SSLSC which operated between 1849-1852, which was established by Patrick Marmion.

Prior to the suburb of Marmion being establish in the 1950s, beach and boat shacks began to pop up along the coast from the 1930s onwards. At the time West Coast Drive terminated at the current site of the Sorrento Surf Life Saving Club (SSLSC). It wasn't until the 1970's that Hillarys and Ocean Reef were developed. When the first residents moved into their homes they often had no electricity, no phones, no mail service or deep sewerage.

The character changed over time with residential developments in the area. The area is uniquely located between the ocean and a string of parklands which contribute to the wider green network of the Joondalup area.

Today, the cultural character of the sites locality can be defined by the convergence of coastal and residential lifestyles, with nodes of active food and beverage precincts scattered along West Coast Drive.

With its close proximity to Hillarys Boat Harbour and an abundance of open space, parklands and beaches it presents as an increasingly desirable location to live.



Site Context - Aboriginal Significance



Map of the Whadjuk Noongar area (Source: After Green, Broken Spears, 1984)

- Legend
- Current Site
 - Registered Sites (AHIS Database)
 - ⌈ Shellfish Gathering Area

Archaeological evidence reveals the Whadjuk Noongar people have inhabited the area (known as Mooro Territory) and around Yellagonga Regional Park (Joondalup Lake) for at least 40,000 years. Before Europeans arrived in Western Australia, Noongar Elder, Yellagonga and his family, led a nomadic life from the Swan River along the north-west corridor and east to Joondalup Lake. Joondalup Lake provided a rich supply of food as well as inspiration for Noongar spiritual and ritual beliefs and practices, embodied in the 'Dreaming'. The Dreaming recounts the myths and origins of life and explains the affinity Aboriginal people have with the land (Brittain 1990). The areas of present day Sorrento, Marmion, Hillarys and further north in Mullaloo, were previously used for the fishing and gathering of abalone, crayfish and other shellfish in large numbers off the reef. Goollelal Lake, to the sites east, was traditionally used for camping and hunting. Nearby registered sites are approximately 6-9km north (Mullaloo Desert North), north east (Joondalup Lake), east of the site (Lake Goollelal) and south east (Lake Gwelup). It is likely that Yellagonga and his people, frequented the Sorrento and Marmion Coast from their camp sites to fish and hunt for shellfish.

Reference:

1. *Aboriginal Heritage Inquiry System, Department of Planning, Lands and Hertiage, 2021.* <https://www.wa.gov.au/service/aboriginal-affairs/aboriginal-cultural-heritage/search-aboriginal-sites-or-heritage-places-ahis>
2. *City of Joondalup History, City of Joondalup. 2021.* <https://www.joondalup.wa.gov.au/kb/resident/city-of-joondalup-history>
3. *Coastal Historical Timeline, Student Activity Sheet, City of Joondalup, 2018.* <https://www.joondalup.wa.gov.au/kb/resident/adopt-a-coastline-resources>
4. *Joondalup Mooro Boodjar: Aboriginal Cultural within Mooro Country, City of Joondalup. 2014.* <https://www.joondalup.wa.gov.au/kb/resident/mooro-boodjar>



Mullaloo Beach North



Goollelal Lake



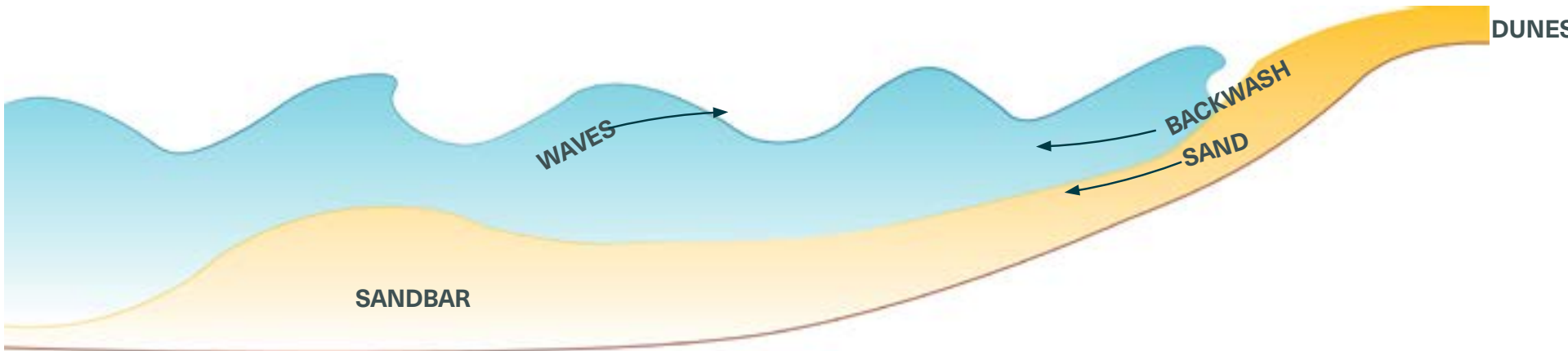
Yellagonga Regional Park



Lake Gwelup

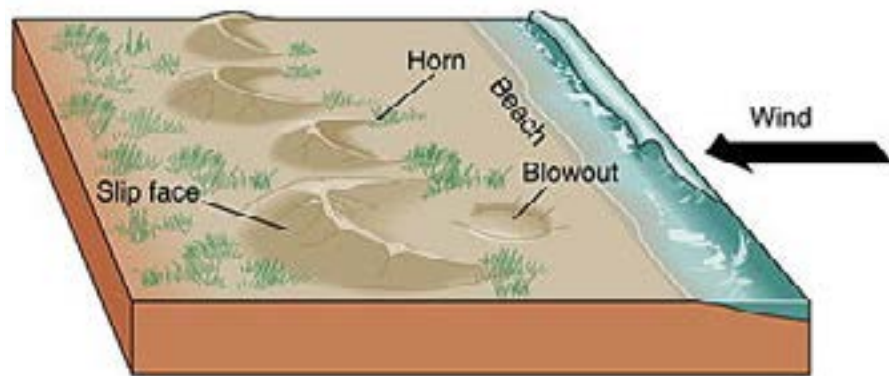
Coastal Form Explorations

COASTAL SYSTEM FORMS



LIMESTONE / ROCK

Shoreline Patterns on Sorrento Beach



Parabolic Dune



Parabolic Dune Interpretations

HYDRO FORMS



Deflected wave collides with surf swell

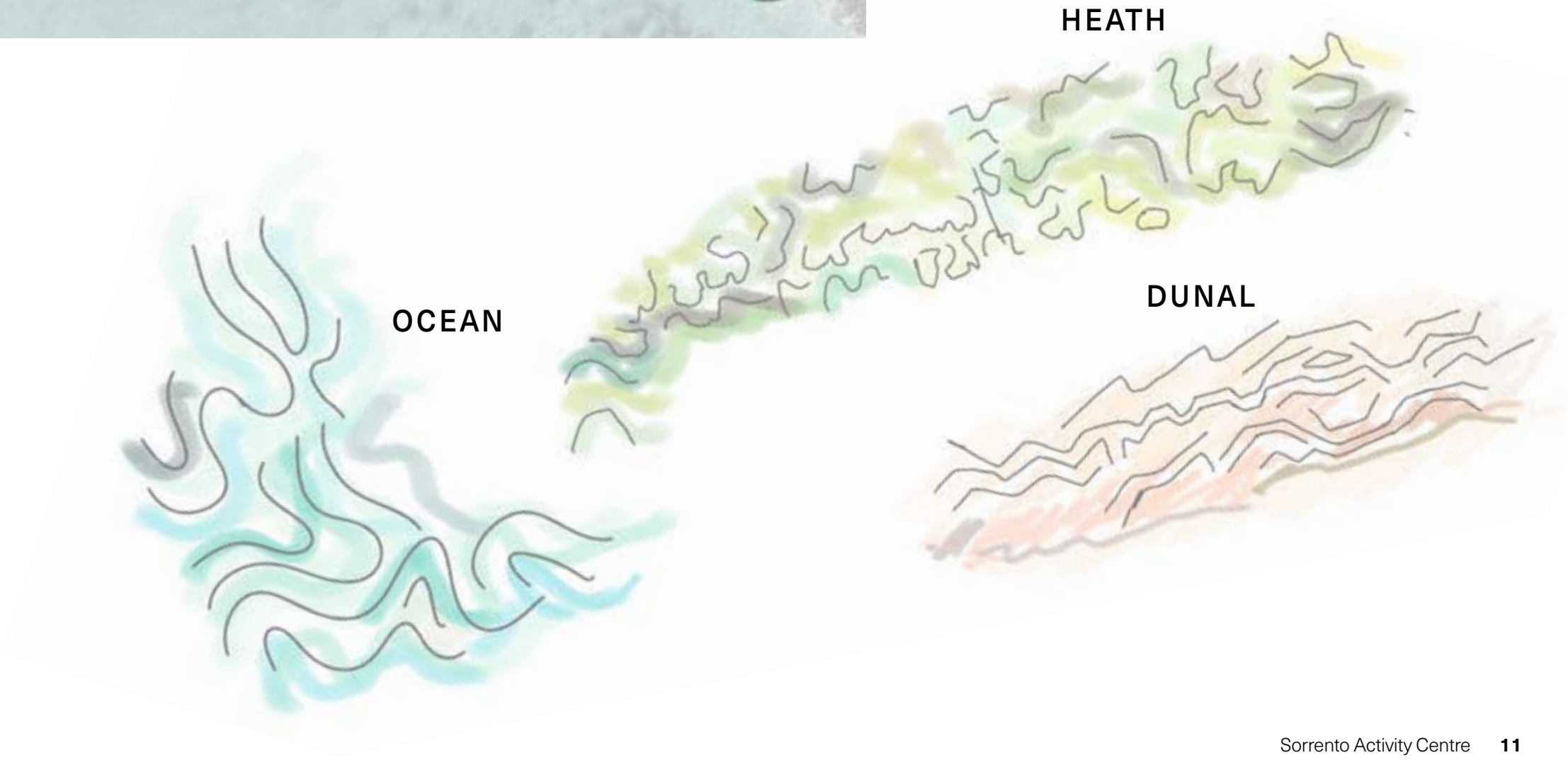
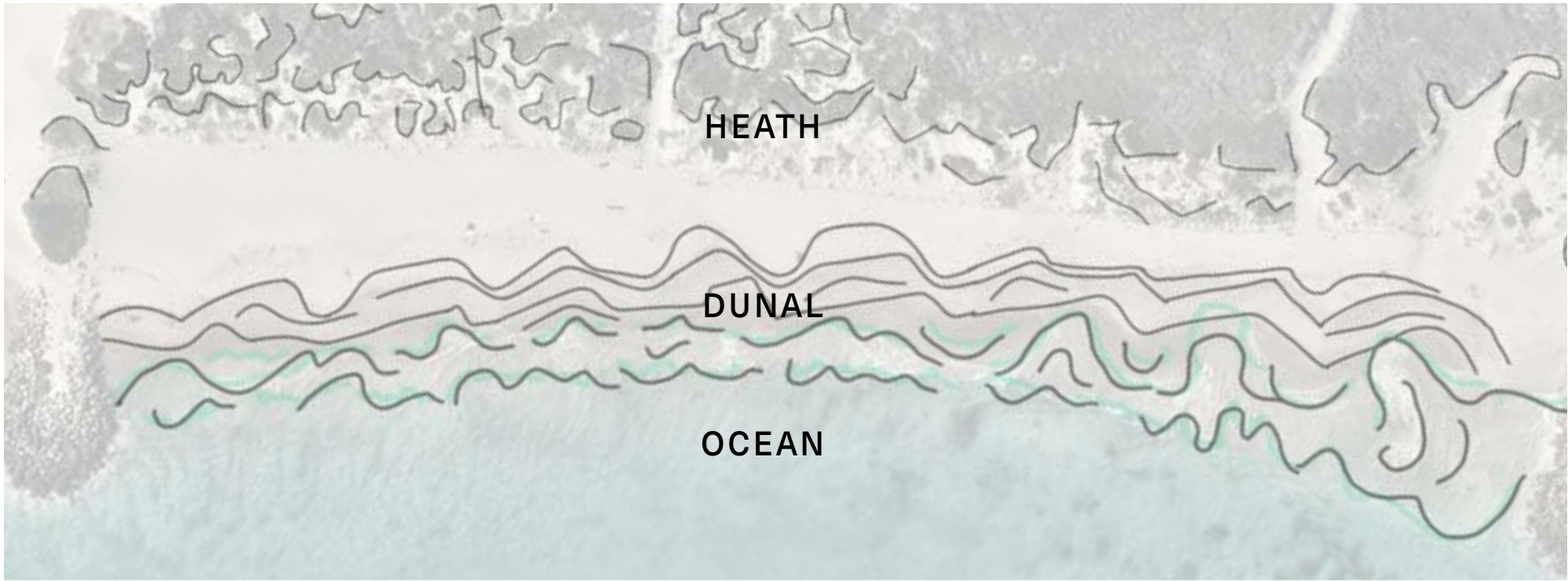


Ordered Swell Lines & Turbulent Rips



Coastal Form Explorations

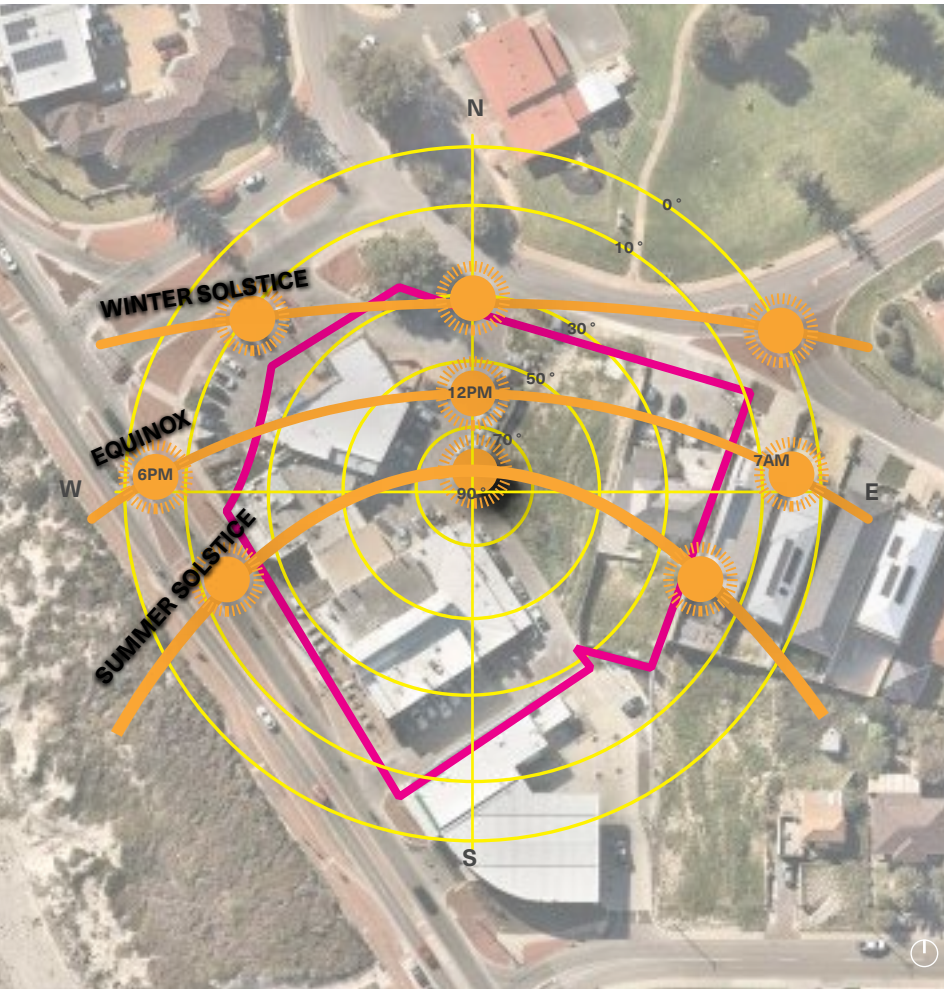
A LANDSCAPE SHAPED BY COASTAL TYPOLOGIES



Environmental Character

Sun and Shade Analysis

The site is bordered by roads on three sides, so won't be significantly affected by overshadowing. There is existing low scale development on the northern and eastern perimeters.



Wind

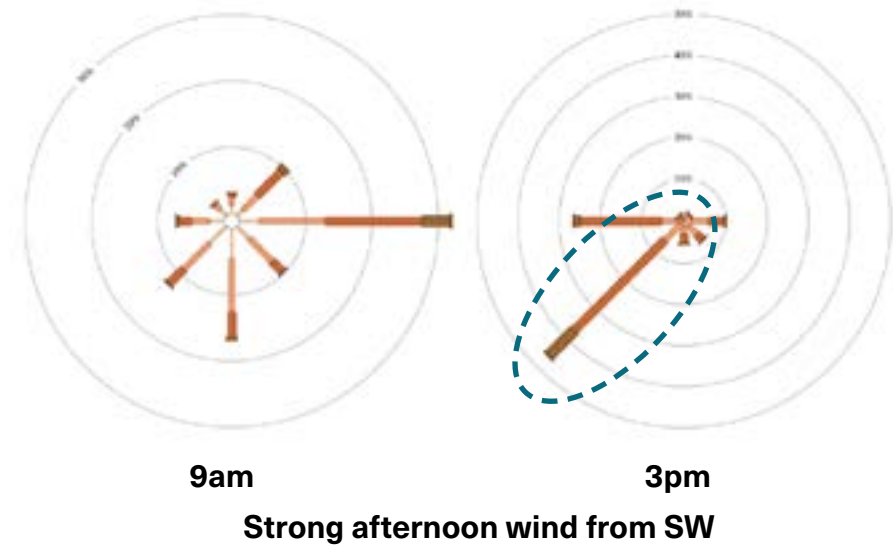
Located in close proximity to the coast, the site is open to the prevailing, SW winds. The ground floor and first floor receive shelter from the foreshore development and associated topography. The site is located in a low point and subsequently receives wind relief at street level.

LEGEND



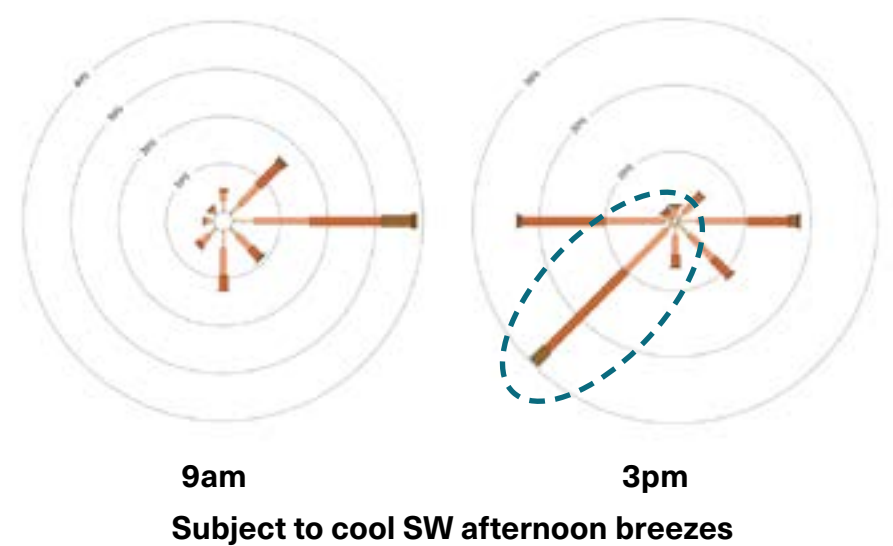
21 December

Summer Solstice



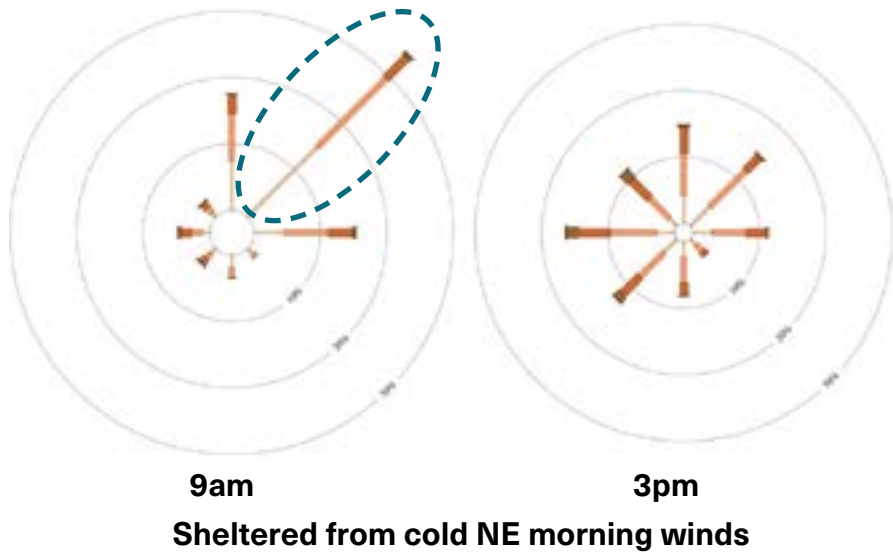
20 March

Autumn Equinox



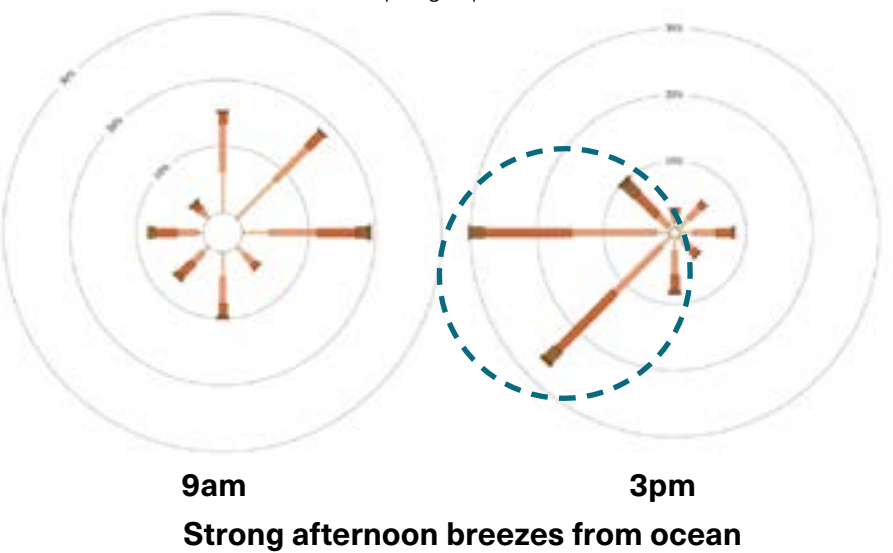
21 June

Winter Solstice



22 September

Spring Equinox



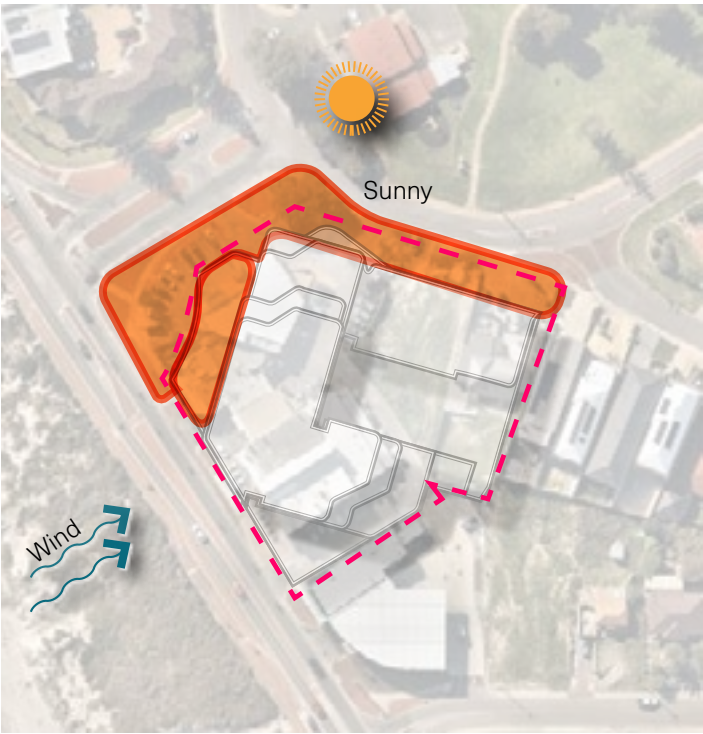
Human Comfort

The following diagrams highlight areas of the site that are subject to particular climatic conditions which will effect human comfort. This analysis will be utilised in the zoning of public and private spaces/uses.

The massing used in the diagrams is indicative only and will be subject to change through the design process.

Sunny & Shelter

The area's highlighted below have a northerly aspect and will receive increased hours of sunshine whilst also being protected from the prevailing winds. Refer to architecture package for detailed shade analysis.



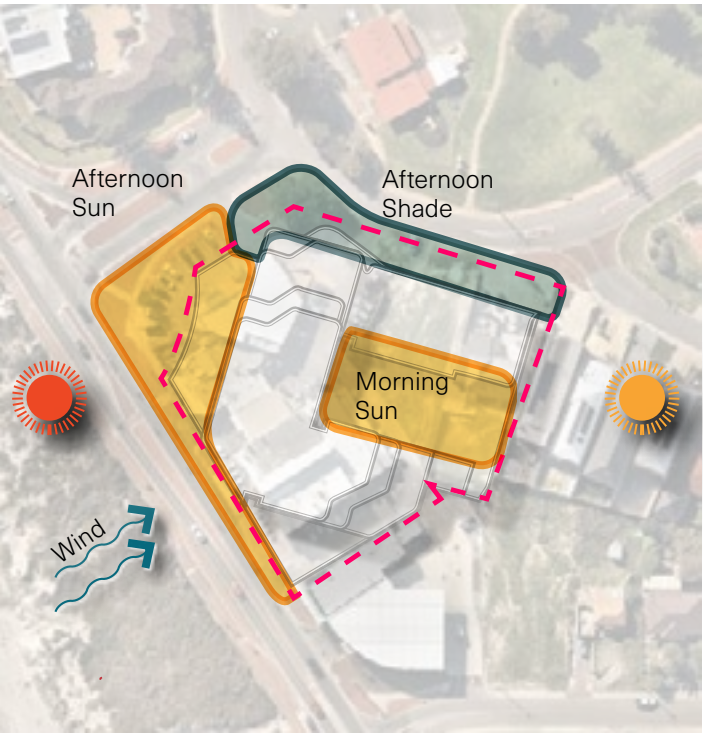
Shaded & Protected from Prevailing Winds

The area's highlighted below will be primarily shaded throughout most months but are protected from prevailing winds.



Adapt Lifestyle to the Climate

In summer, the afternoon heat is often unpleasant and can be harmful to the skin. Afternoon uses should be provided in the shade. The people of Perth search for the morning sunshine to either warm up in winter or take advantage of the sunshine before it gets too hot in summer.



District Contextual Approach

Landscape Approach

The landscape architectural design aims to create a contemporary, functional and aesthetically pleasing landscape that provides residents with high quality outdoor amenity. The following general principles form the landscape approach to the site:

- Use high quality landscape design to integrate the proposed development with the surrounding streets and neighbourhood;
- Develop a legible network of spaces that fully integrate with and connect to the surrounding context;
- Create spaces with varying characters and identities;
- Design spaces that will become activated and vital;
- Theme the landscape, coastal adjacent to the coast and parkland adjacent to the park, these two will converge at a gateway corner.
- Ensure that communal open spaces have access to sun light whilst also providing adequate shade and wind protection;
- Maximise opportunities for social interaction through arrangement of new spaces, seating and views;
- Create a robust landscape made from simple materials, proven planting and bold forms that can be managed and maintained;
- Provide clear and integrated access;

The design of landscape considers the architectural design by MJA Studios in both concept and materiality, with the intention of creating a cohesive transition from internal to external spaces.

A NEW COASTAL DESTINATION

An significant community destination to support active lifestyles, recreation and social interaction along the coast.



A PLACE FOR LOCALS

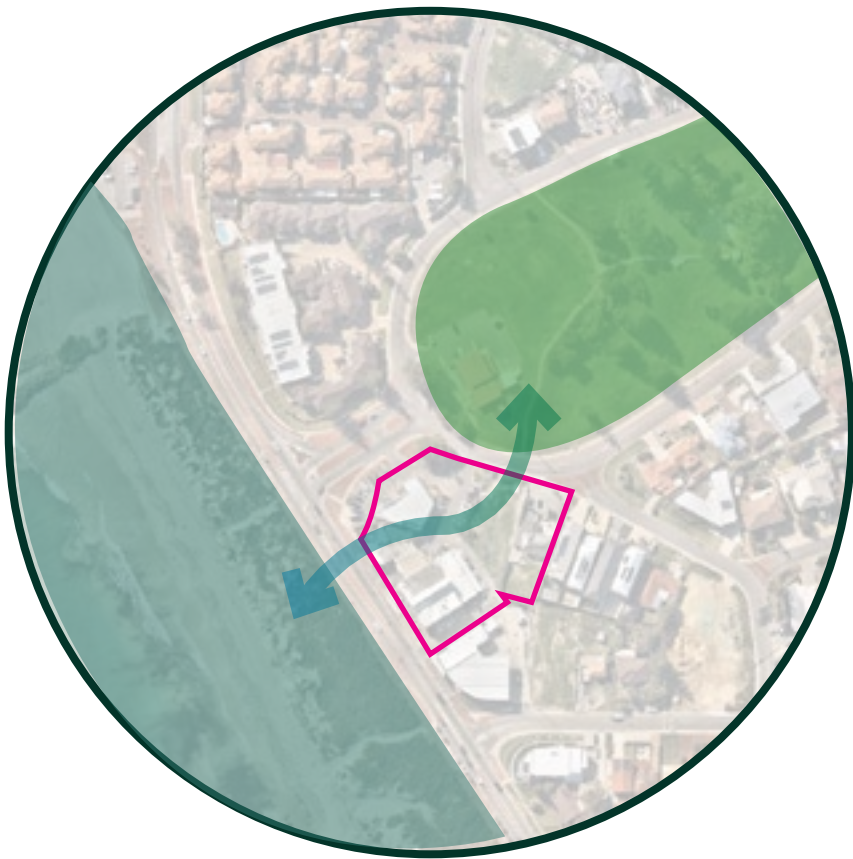
Creating a cultural and social destination for the surrounding residential communities



Local Contextual Approach

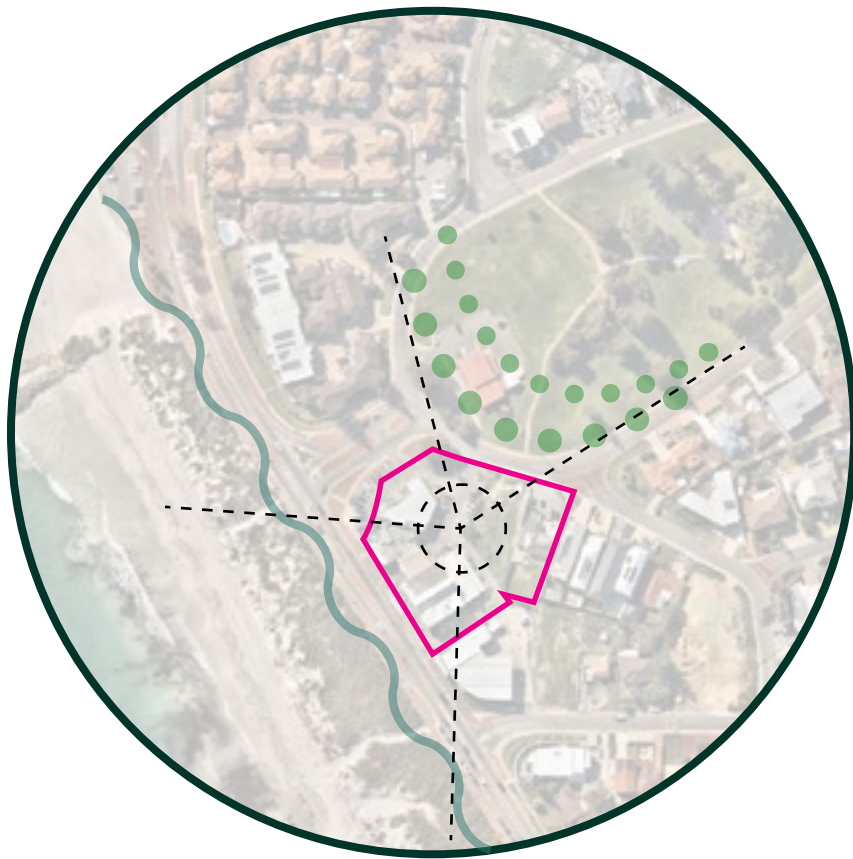
BETWEEN THE BEACH & PARK

Celebrate the convergence of two distinct landscape typologies: coastal ecology & parkland open space



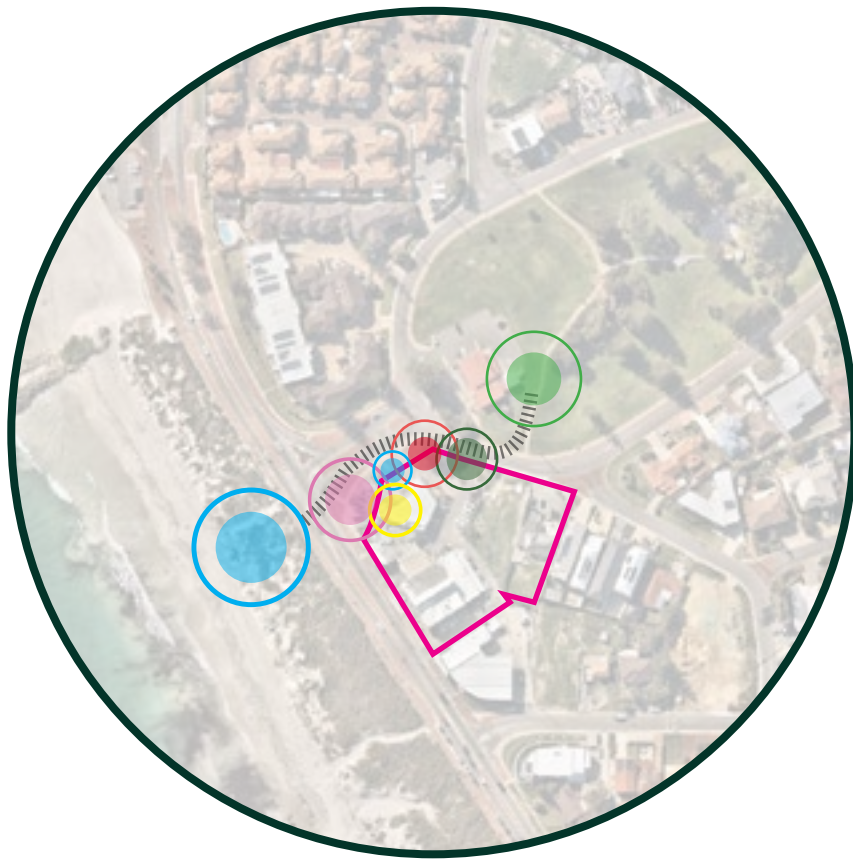
LEVERAGE OFF UNIQUE SITE QUALITIES

creating ocean & park views, building on the sites prominent location, high amenity and key vistas

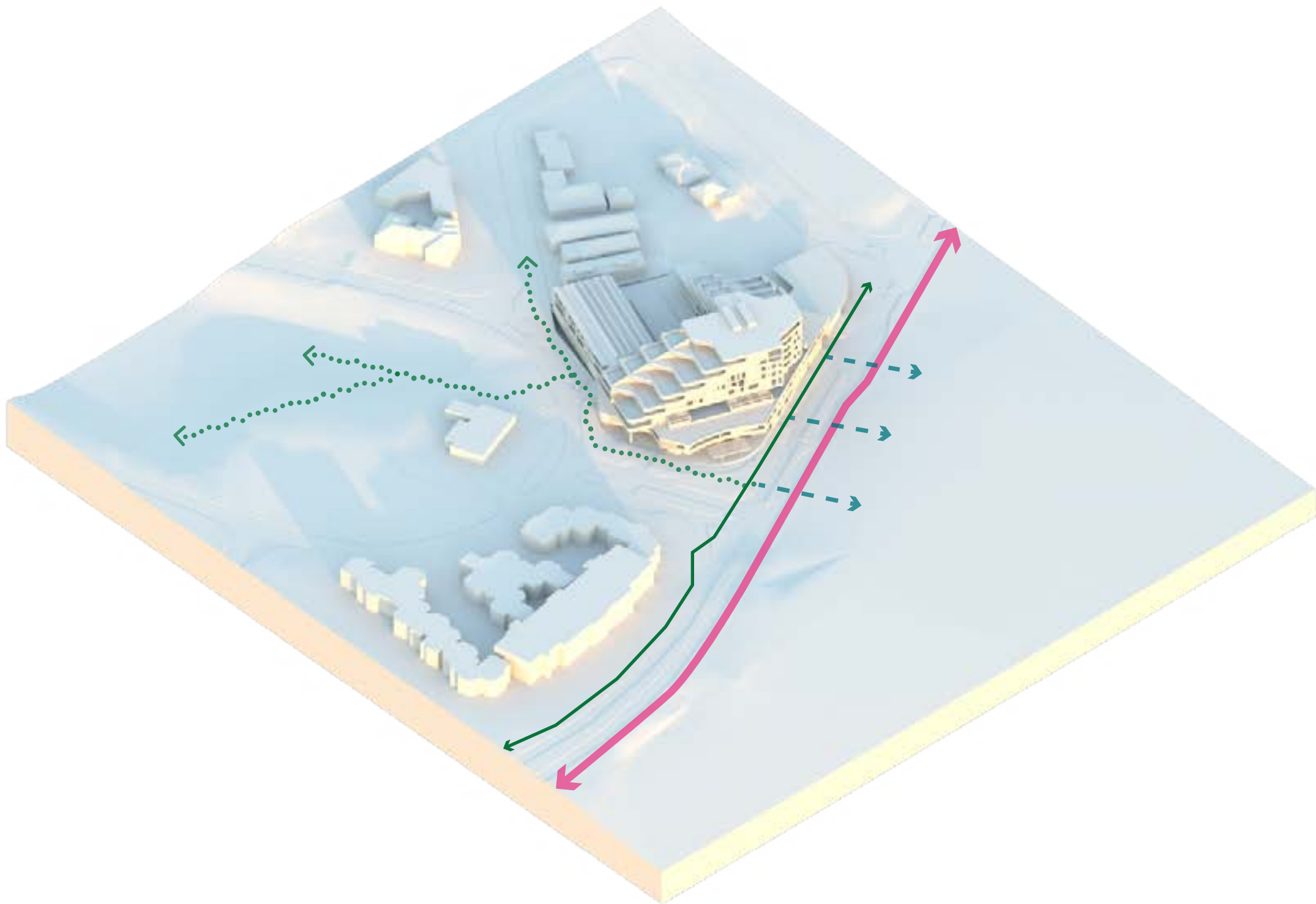


A RANGE OF COMMUNITY SPACES

A series of connected places for people, connecting the local community with the Park and Beach



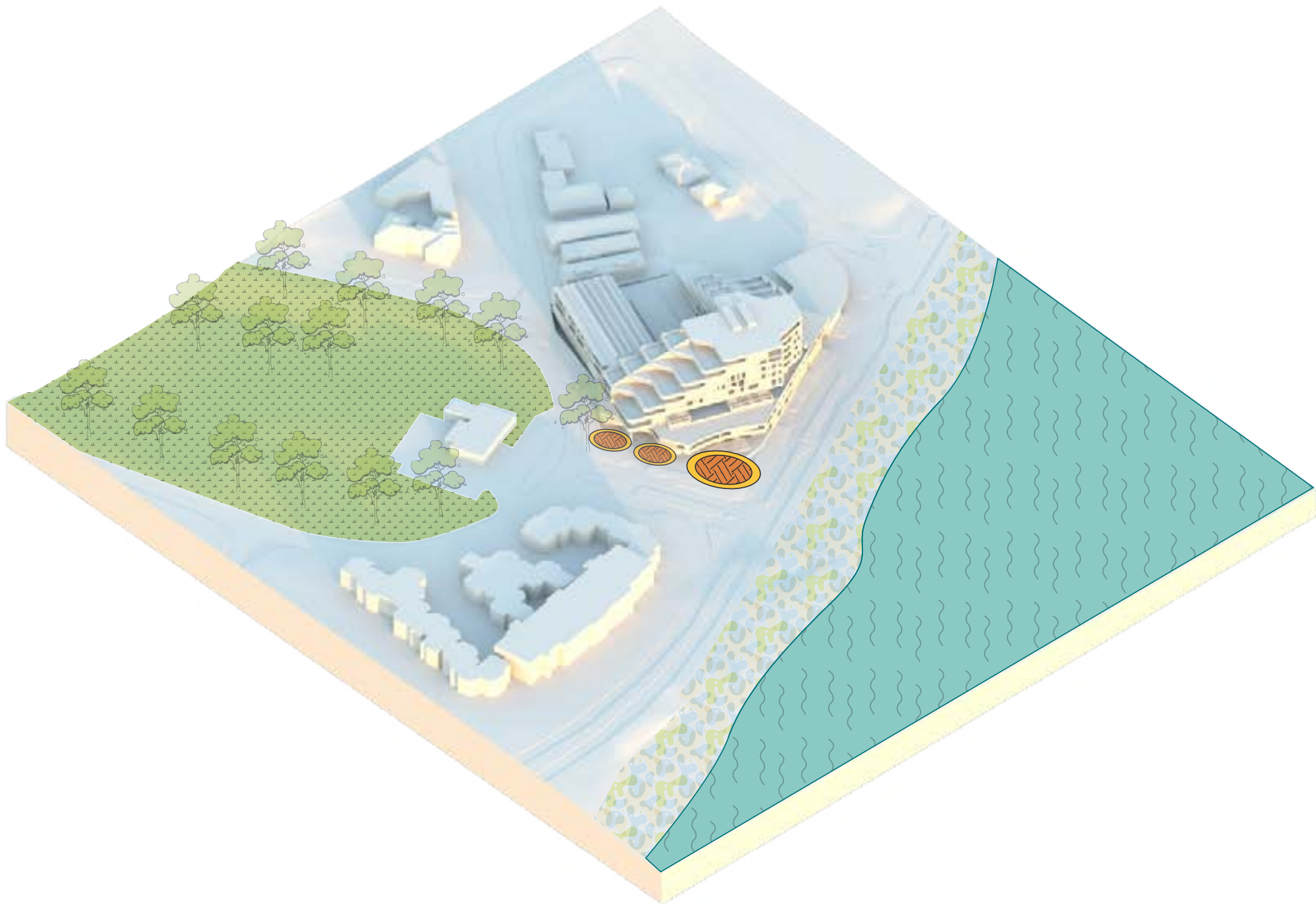
Landscape Concept: Key Moves



Enhancing local connections and movement

Note - Built form is indicative only for the purposes of high level contextual analysis. For detail refer to Architectural drawings.

Landscape Concept: Key Moves

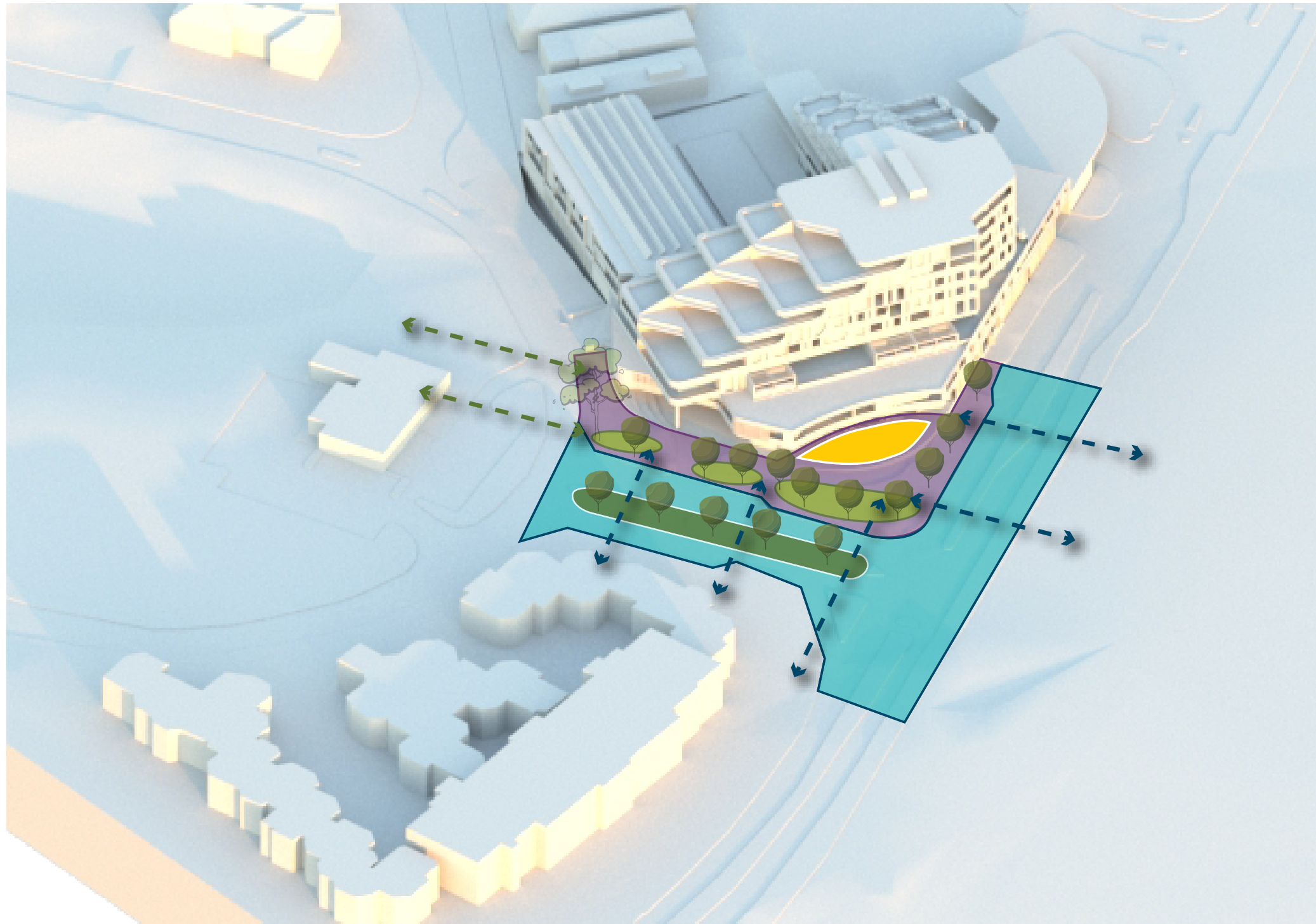


Note - Built form is indicative only for the purposes of high level contextual analysis. For detail refer to Architectural drawings.

Connecting existing open spaces and creating new ones



Landscape Concept: Key Moves



Note - Built form is indicative only for the purposes of high level contextual analysis. For detail refer to Architectural drawings.

**A safe pedestrianised precinct
integrated into the surrounding public
realm**

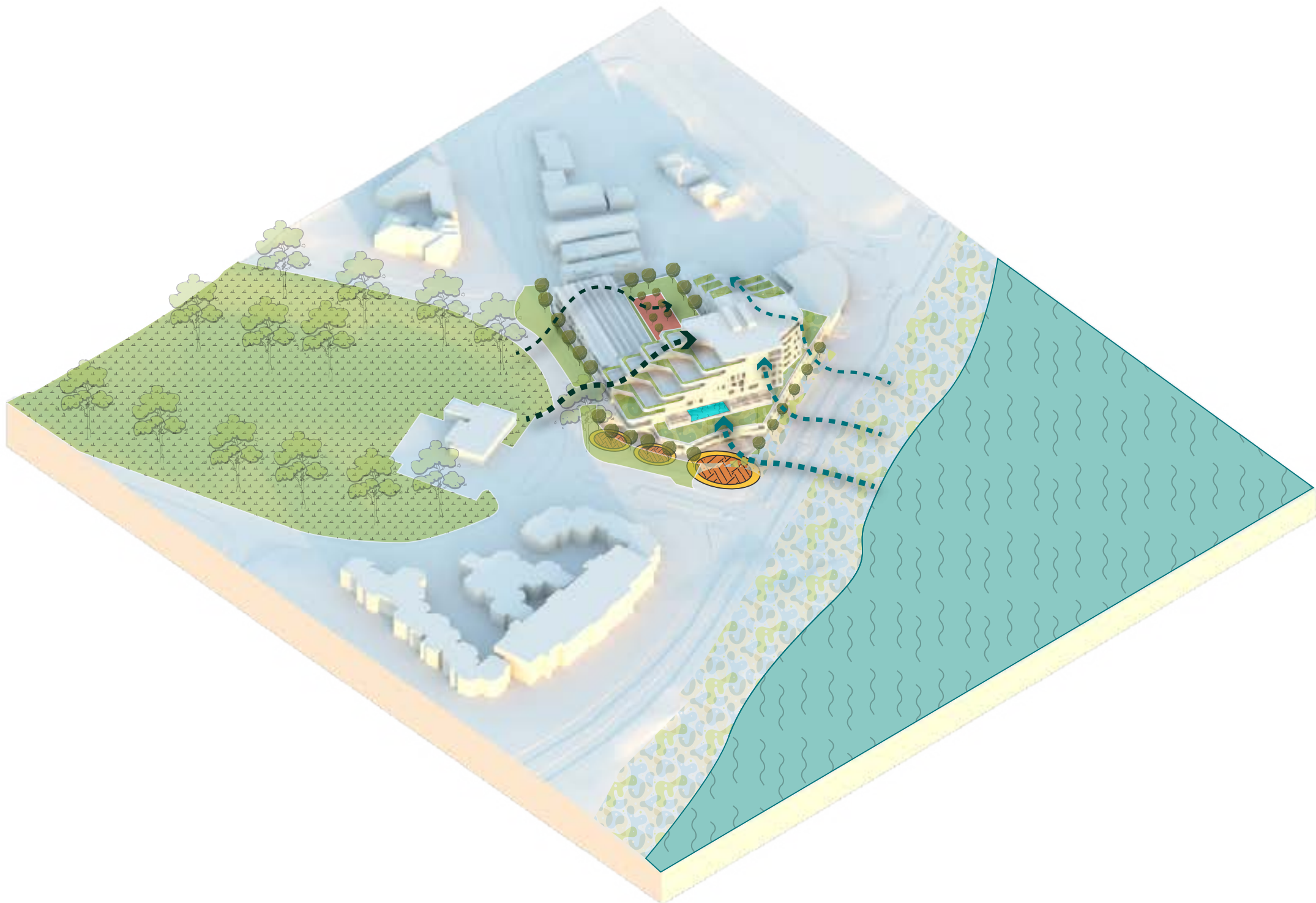
Landscape Concept: Key Moves



Designing for climate

Note - Built form is indicative only for the purposes of high level contextual analysis. For detail refer to Architectural drawings.

Landscape Concept: Key Moves

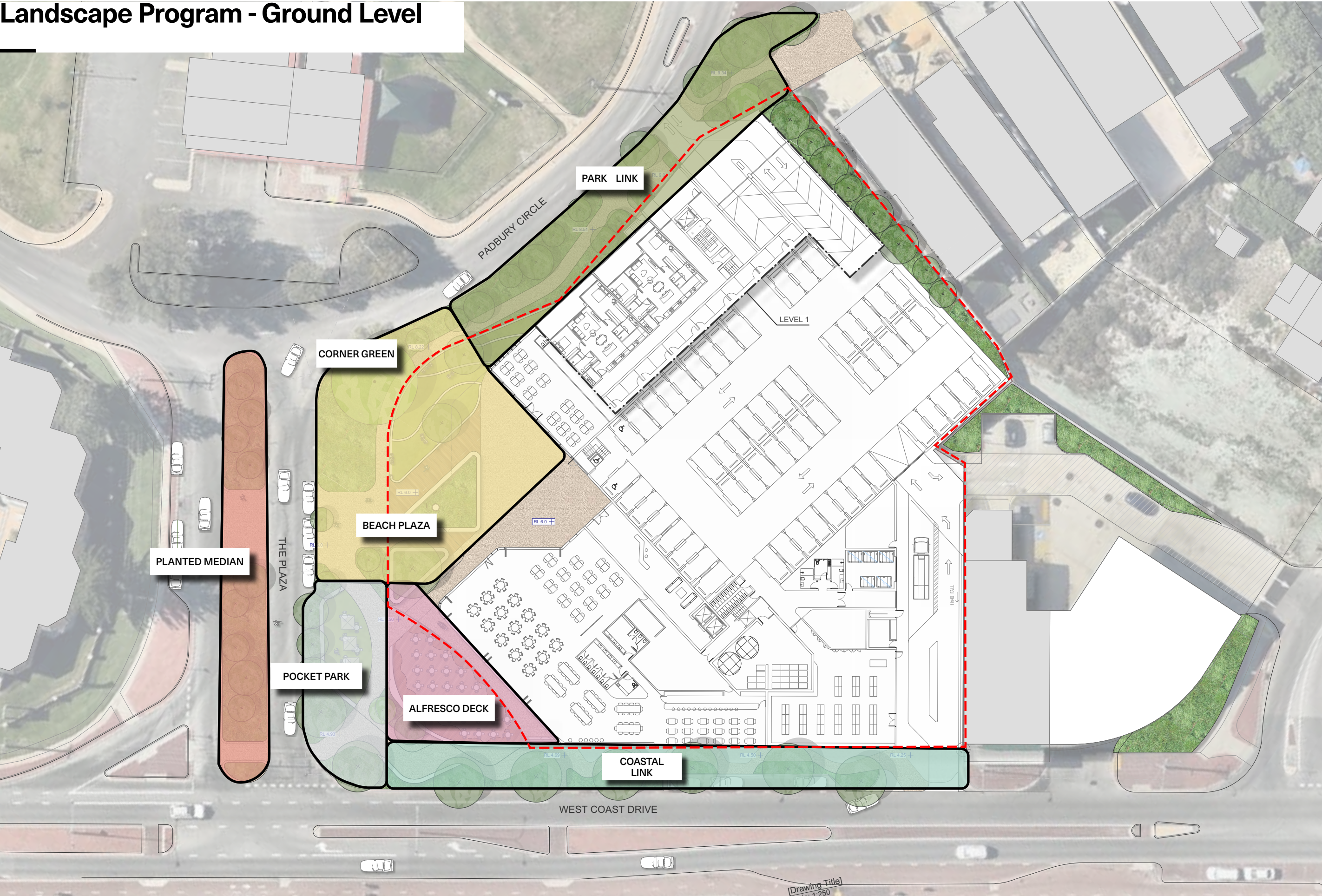


Note - Built form is indicative only for the purposes of high level contextual analysis. For detail refer to Architectural drawings.

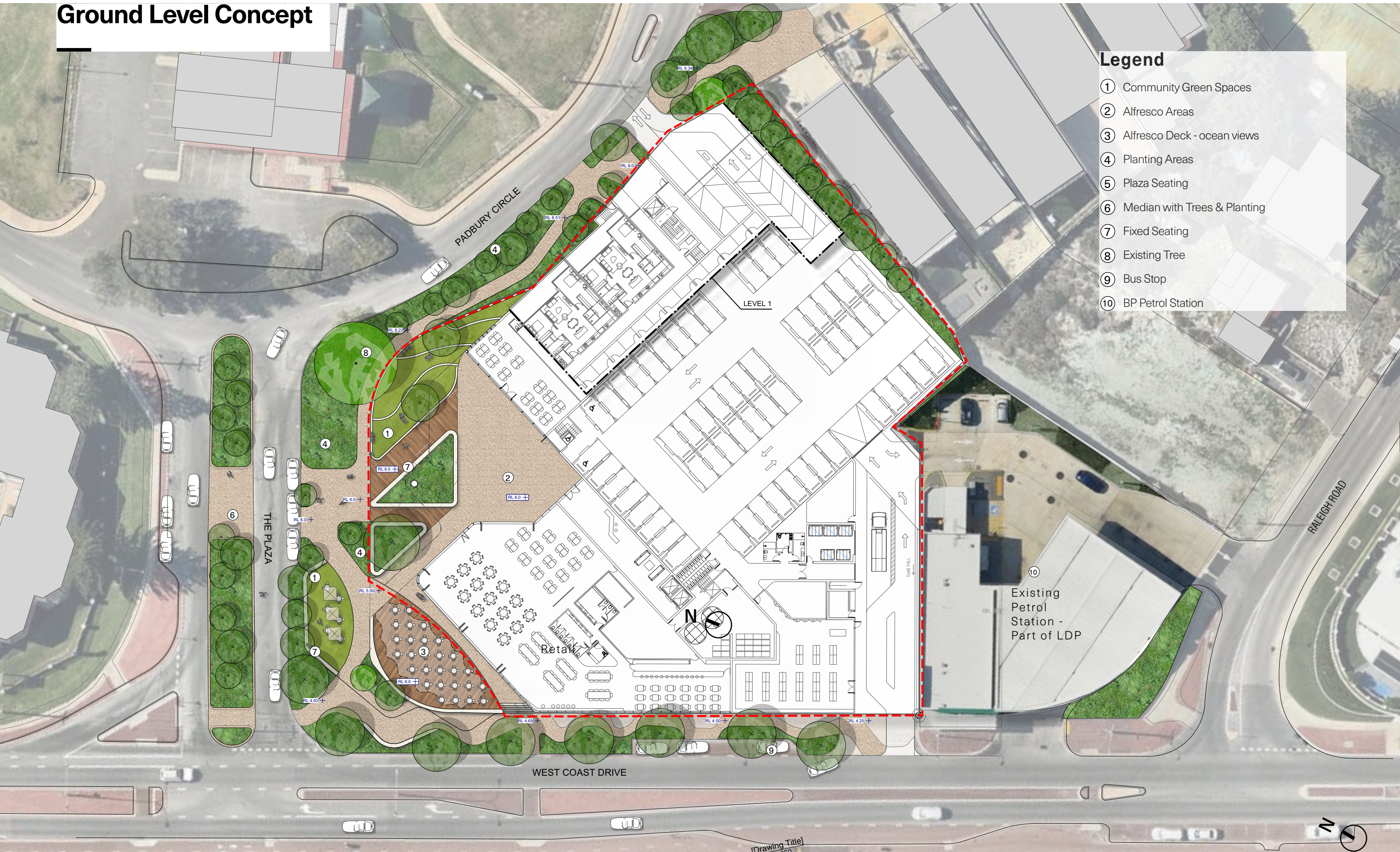
Reflecting the character of the surrounding environment into a layered landscape



Landscape Program - Ground Level



Ground Level Concept



Legend

- ① Community Green Spaces
- ② Alfresco Areas
- ③ Alfresco Deck - ocean views
- ④ Planting Areas
- ⑤ Plaza Seating
- ⑥ Median with Trees & Planting
- ⑦ Fixed Seating
- ⑧ Existing Tree
- ⑨ Bus Stop
- ⑩ BP Petrol Station

Ground Floor Landscape Program

BEACH PLAZA

- ① Alfresco Seating (Covered)
- ② Coastal Garden
- ③ Stepped Plaza Lawn
- ④ Existing Sheek Tree



Ground Floor Landscape Program

COMMUNITY POCKET PARK

- ① Recreation Lawn
- ② Seating Edge
- ③ Street Crossing
- ④ Coastal Trees and Planting



Ground Floor Landscape Program

PARK LINK

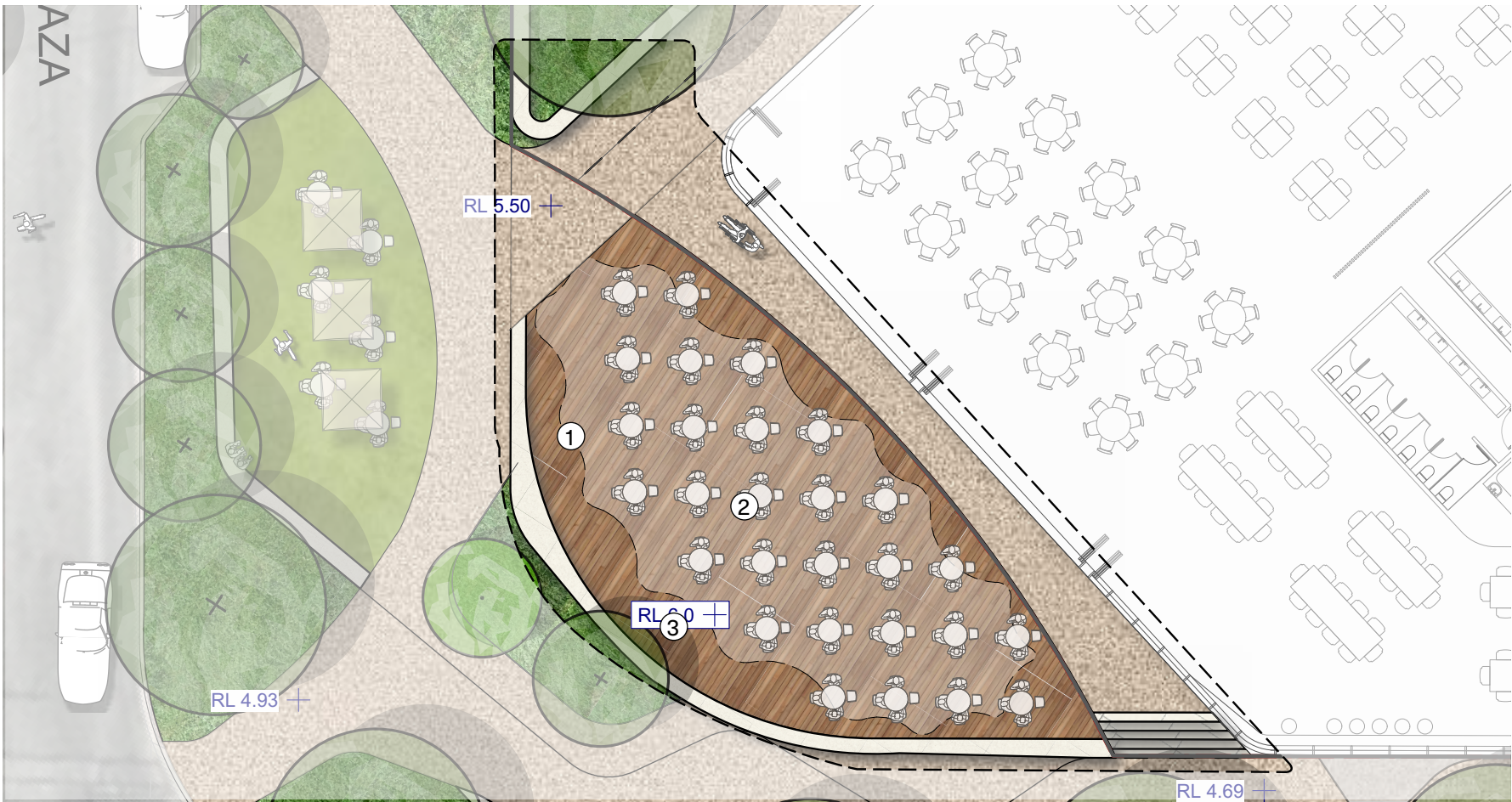
- ① Street Crossing
- ② Exposed Agg. Footpaths
- ③ Trees and Planting
- ④ Vehicle Crossover



Ground Floor Landscape Program

ALFRESCO DECK

- ① Shade Canopy
- ② Alfresco Seating
- ③ Elevated Deck with Ocean views



Ground Floor Landscape Program

COASTAL LINK

- ① Coastal planting
- ② Raised Garden Beds
- ③ Safe Crossing



Ground Floor Landscape Program

PLANTED MEDIAN

- ① Tree Canopy
- ② Underplanting
- ③ Safe Crossing



Concept Option to be explored with the City of Joondalup:



Landscape Program - Podium Level (L2)



Podium Level (L2) Concept

POOL AREA

- ① Pool
- ② Pool Deck and Cabana Lounge
- ③ Ballast Roof
- ④ Beach Lookout Node
- ⑤ Outdoor Lounge

ROOF GARDEN

- ⑥ Central Gardens
- ⑦ BBQ Communal area
- ⑧ Lawn Area
- ⑨ Sunset lookout
- ⑩ Seating Nooks
- ⑪ Bocce Lawn



Podium Landscape Program

POOL DECK

- ① Beach Lookout - Seating Node (& firepit)
- ② Pool Lounges
- ③ Deck
- ④ Outdoor Lounge
- ⑤ Lap Pool
- ⑥ Feature Tree



Podium Landscape Program

ROOF GARDEN

- ① Central Garden & Feature Tree
- ② BBQ Communal area and Outdoor Kitchen
- ③ Seating Nooks



Podium Landscape Program

THE LAWN

- ① Lawn Area
- ② Seating Edges around Firepit
- ③ Perimeter Tree Canopy and raised garden planters

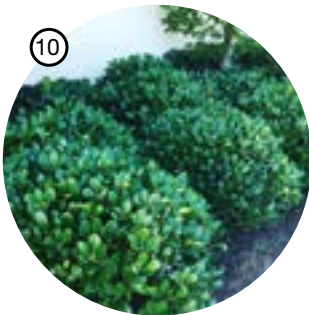


Indicative Planting Palette - Ground Floor



Trees

- Araucaria columnaris* (1)
- Melaleuca lanceolata* (2)
- Agonis flexuosa* (3)
- Metrosideros excelsa*
- Eucalyptus platypus*



Groundcovers and Shrubs

- Dianella revoluta* (4)
- Hemiandra pungens* (8)
- Acacia cognata* 'Waterfall' (6)
- Raphiolepis* 'Oriental Pearl' (10)
- Westringia dampieri* (9)
- Acacia lasiocarpa* Benth. Panjang
- Acanthocarpus preissii*
- Banksia sessilis*
- Calothamnus quadrifidus*
- Carpobrotus virescens* (13)
- Conostylis candicans* (11)
- Eremophila glabra dawes* (15)
- Ficinia nodosa*
- Grevillea crithmifolia* (5)
- Grevillea preissii* (12)
- Hemiandra pungens*
- Hibbertia subvaginata*
- Kennedia prostrata* (14)
- Lepidosperma calcicola*
- Leucophyta brownii*
- Melaleuca huegelii*
- Olearia axillaris*
- Rhagodia baccata*
- Scaevola crassifolia*
- Templetonia retusa*

Indicative Planting Palette - Terrace Levels



Indicative Local & Native Shrub and Groundcover Planting

- Alpinia caerulea*
- Alyxia buxifolia*
- Conostylis candicans*
- Correa backhouseana*
- Dianella revoluta* 'Little Rev'
- Dianella tasmanica* 'Tasred'
- Ficinia nodosa*
- Frankenia pauciflora*
- Grevillea crithmifolia prostrate*
- Leucophyta brownie*
- Lepidosperma calcicola*
- Lepidosperma gladiatum*
- Lomandra hybrid* 'Lime Tuff'
- Lomandra longifolia* 'Tanika'
- Olearia axillaris*
- Rhagodia baccata*
- Westringia dampierii*



Local and Native Indicative Planting



Indicative Trailing/Spreading/Climbing Plants

- Bougainvillea glabra* 'Alba'
- Acacia cognata* 'Limelight'
- Carpobrotus virescens*
- Casurina glauca* 'Cousin It'
- Cissus antarctica*
- Cissus* 'Ellen Danica'
- Dichondra* 'Silver falls'
- Eremophila glabra*
- Ficus pumila*
- Hedera canariensis*
- Hibbertia scandens*
- Myoporum insulare*
- Myoporum parvifolium*
- Pandorea pandorana*
- Pyrostegia venusta*
- Rosmarinus officinalis prostratus*
- Trachelospermum jasminoides*
- Threlkeldia diffusa*



Indicative Trailing/Spreading/Climbing Plants

Deep Soil Plan

Given the highly urban context of the development a ‘hybrid’ approach has been taken to achieving the provision of landscape amenity. The landscape design consists of deep soil zones and planting on structure (As defined in DesignWA) to create a landscape approach which is respectful of the surrounding urban context and architectural form.

The table below summaries the extent of landscaping provided across the various levels of the building.

Lot Area: 5,780m2

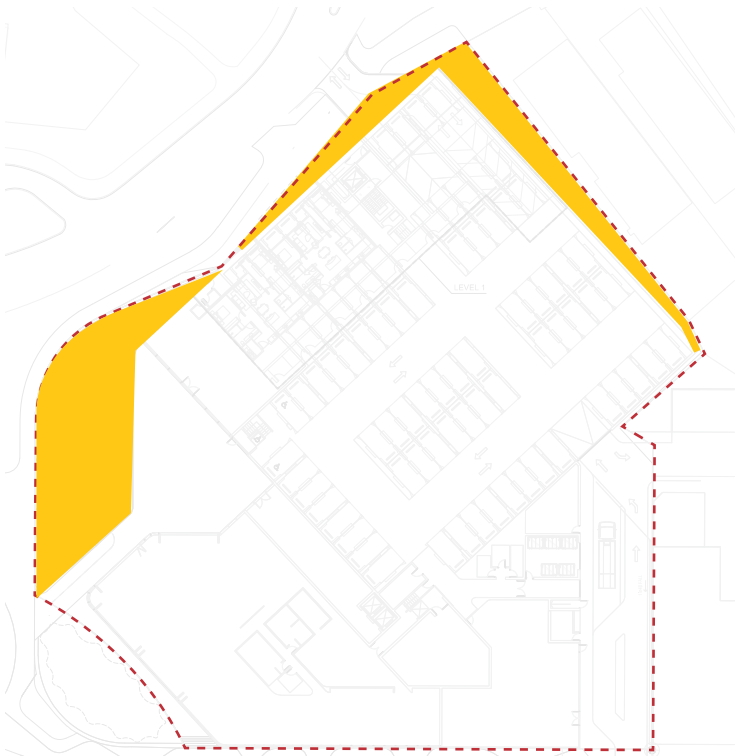
Deep Soil Requirement (10%): **578m²**

Level	MEETING REQUIREMENT		EXCEEDING REQUIREMENT
	Deep Soil (m2)	Deep Soil on Structure*	Deep Soil on Structure **
Ground Level	610	0	0
Level 2 Podium	0	0	480
Level 4	0	0	38
Level 5	0	0	38
Level 6	0	0	38
Level 7	0	0	38
Level 8	0	0	76
Subtotal	610	0	708
DSA TOTAL	610m ²		708m ²

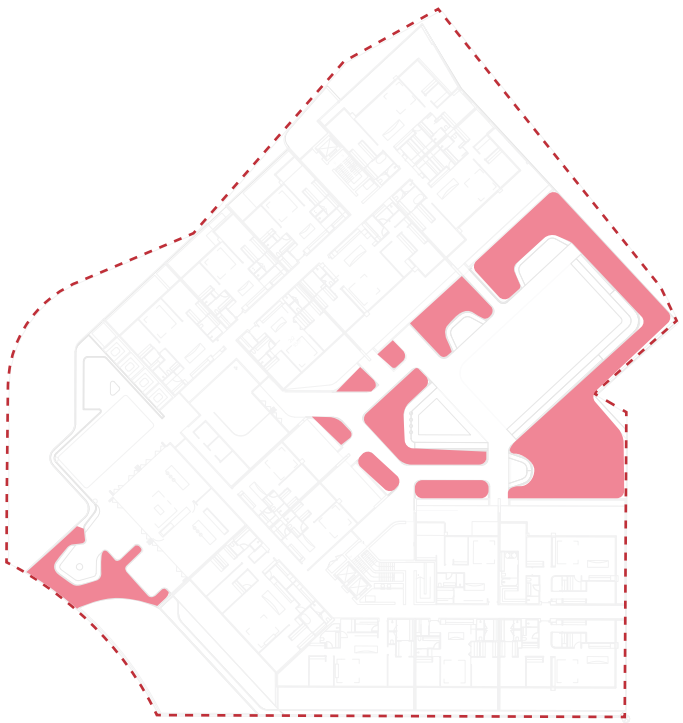
* Deep Soil Equivalent on structure in lieu of deep soil (Item 1). Counted at 50%

** Deep Soil Equivalent on structure in lieu of deep soil Counted at 100%

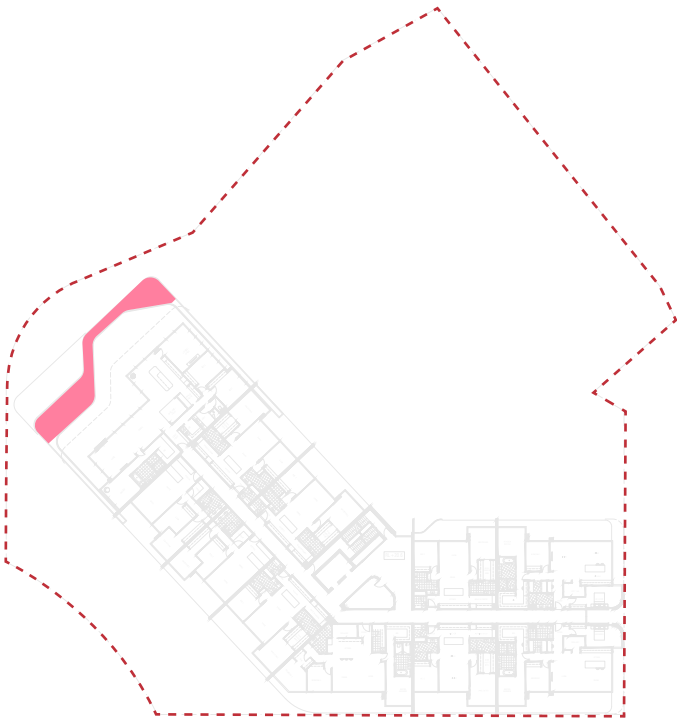
- Legend
- Deep Soil Planting
 - Deep Soil Planting On Structure
 - Site Area



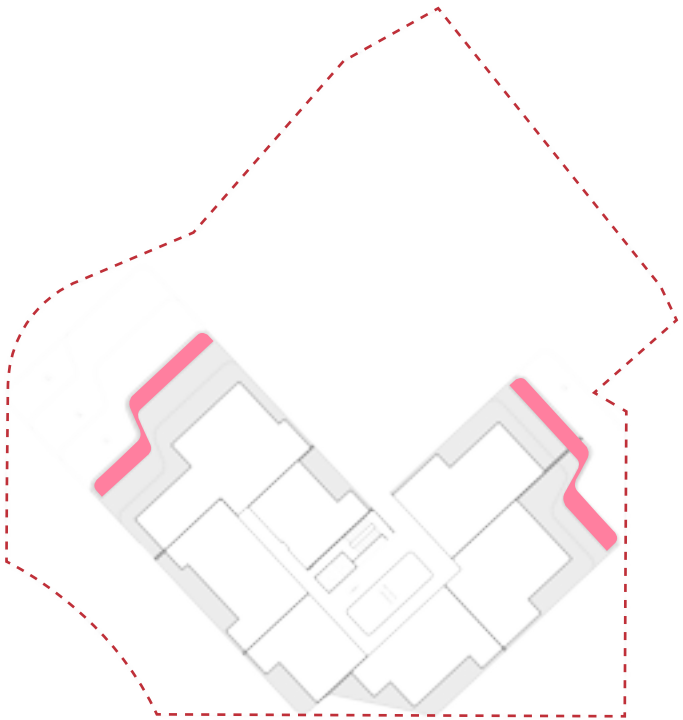
GROUND FLOOR



LEVEL 2 - PODIUM



LEVEL 4 - 7 (TYPICAL)



LEVELS 8

Tree Canopy Calculations

As per the DesignWA objectives the project seeks to improve tree canopy coverage of the site. In addition trees are included within the development to:

- Provide shade to amenity areas
- Reduced temperatures of external areas through evapotranspiration
- Mitigation wind within the development
- Noise Mitigation & Habitat Creation

As per State Planning Policy 7.3 Volume 2 - Element Objective 3.3.2 the tree canopy requirement are as follows:

Lot Area	5780m2	DevWA Policy	Requirement
WAPC Tree Canopy requirements	>1,000m2	1 large tree and 1 medium tree for each additional 400m2 in excess of 1000m2	1 Large Trees (64m2 each) and 12 Medium Trees (36m2 each)
		OR 1 large tree for each additional 900m2 in excess of 1000m2 and small trees to suit area	OR 496m2 of Canopy

In lieu of “Large Trees” we have provided an mix of “small” and “medium” trees to meet and exceed the canopy requirements of EO3.3.2

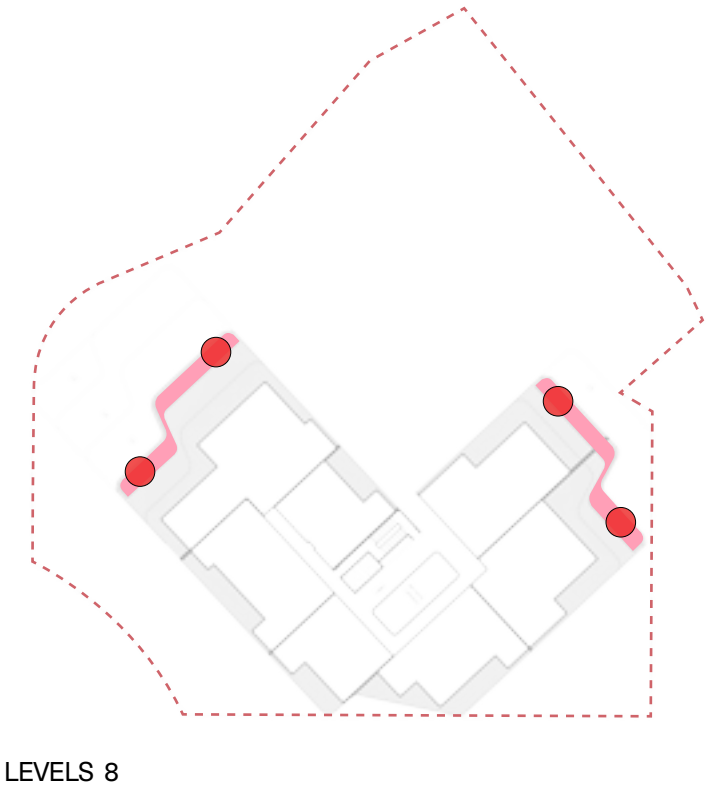
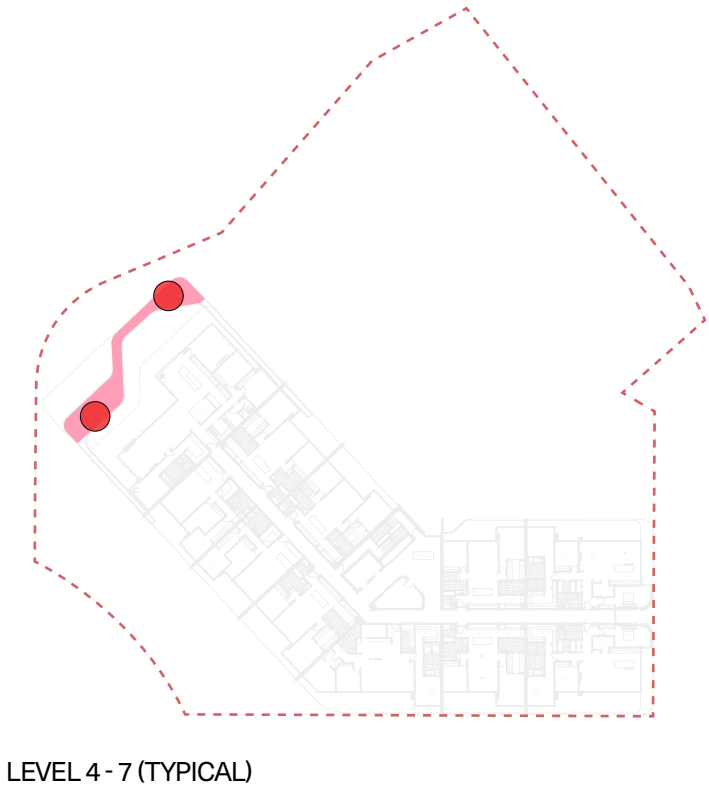
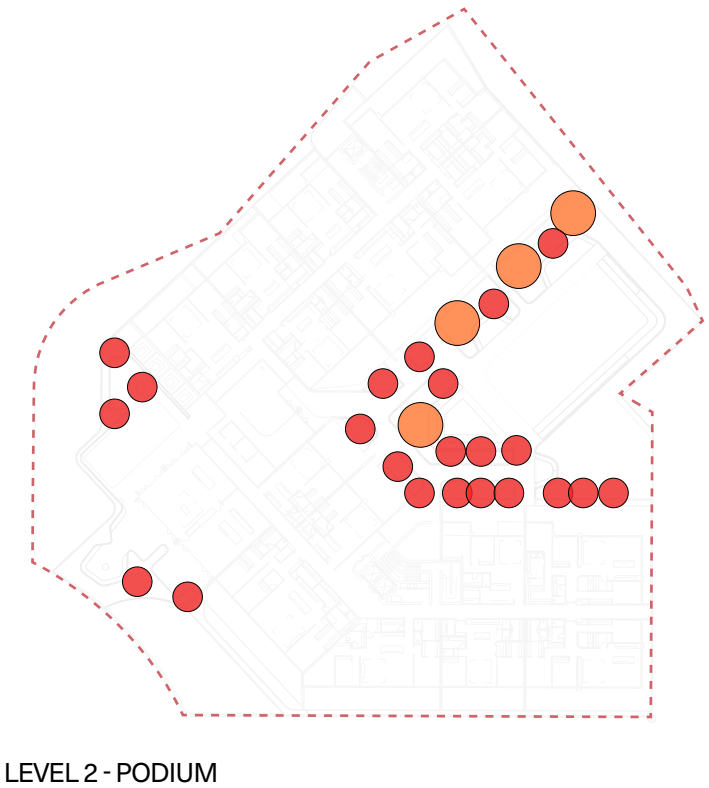
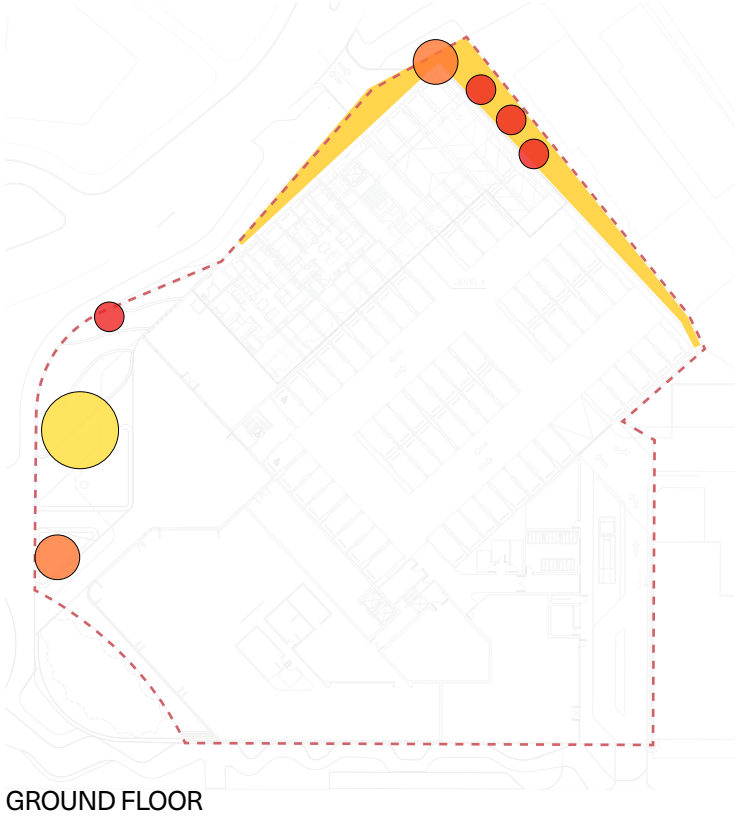
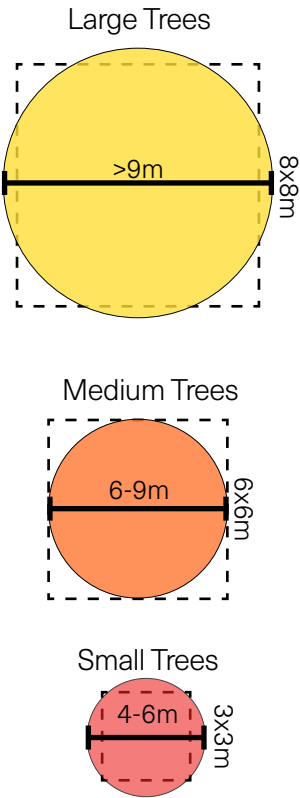
The table below summaries the extent of landscaping provided across the various levels of the building.

Tree Size	Large (>9m dia)	Medium (ie 6-9m Dia)	Small (4-6m Dia)
Canopy Area	64m2	36m2	9m2
Ground Floor	1	2	4
Level 2 (Podium)	0	4	22
Level 4			2
Level 5			2
Level 6			2
Level 7			2
Level 8			4
Total Trees	1	6	38
TOTAL TREES			44
Tree Canopy (m2)	64	216	342
TOTAL CANOPY (m2)			622

Legend

-  Large Trees
-  Medium Trees
-  Small Trees

TREE REQUIREMENTS



Indicative Material Palette - Ground Level



PREMIUM ENGINEERED STONE



DUNE PLANTING



PAVING - ART OPPORTUNITIES



TIMBER AND CONCRETE



FEATURE STONE COBBLE



COASTAL PLANTING



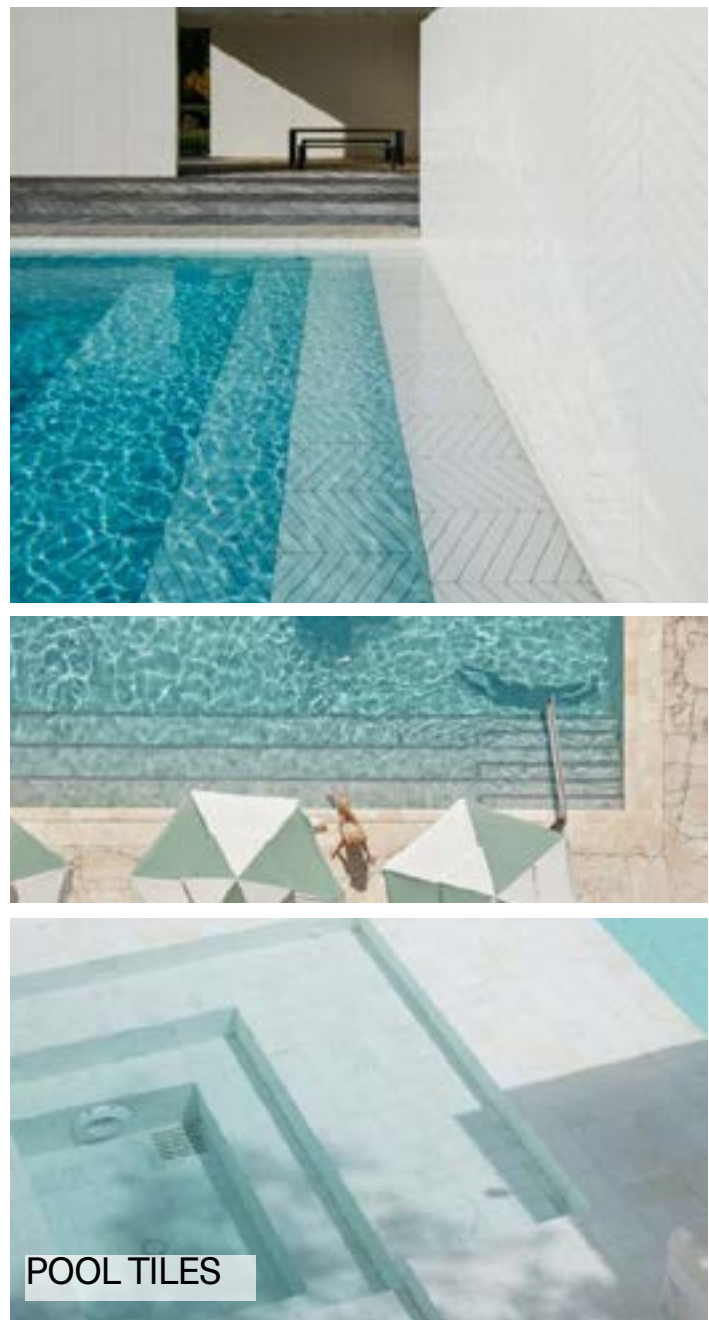
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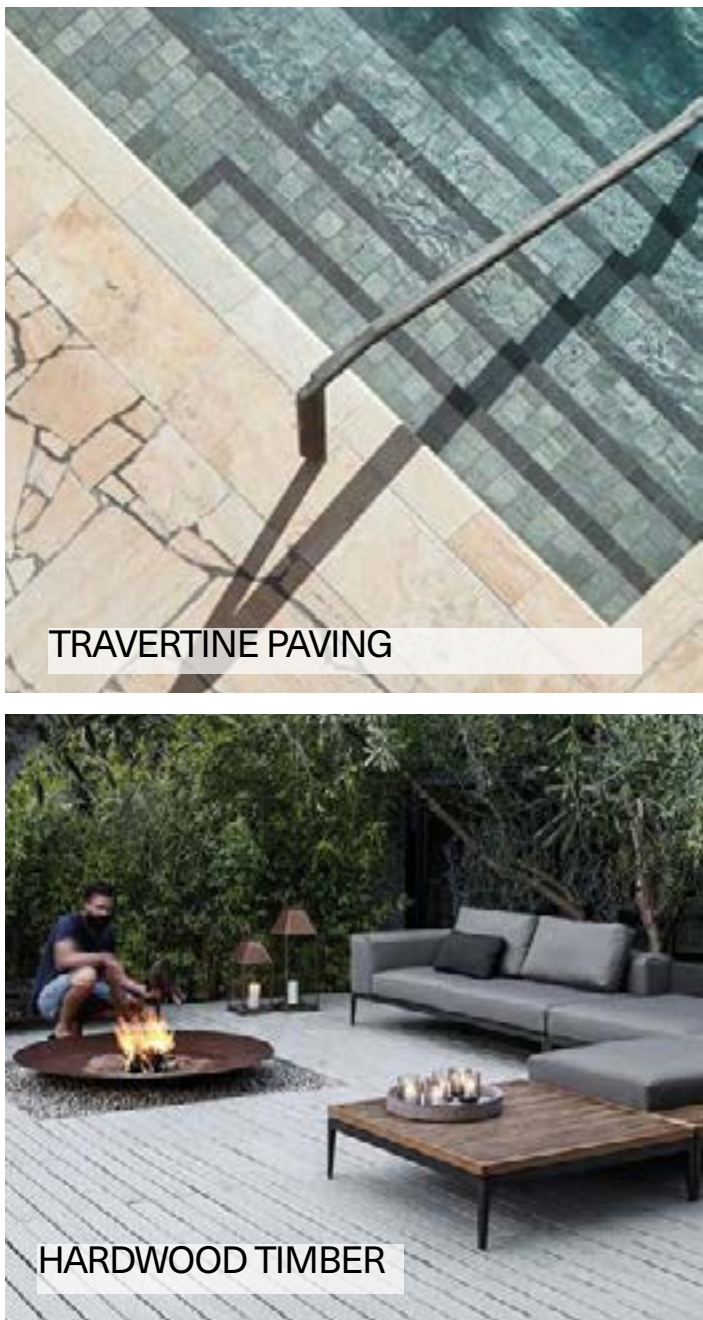
TIMBER & CONCRETE

Indicative Material Palette - Podium Level

POOL



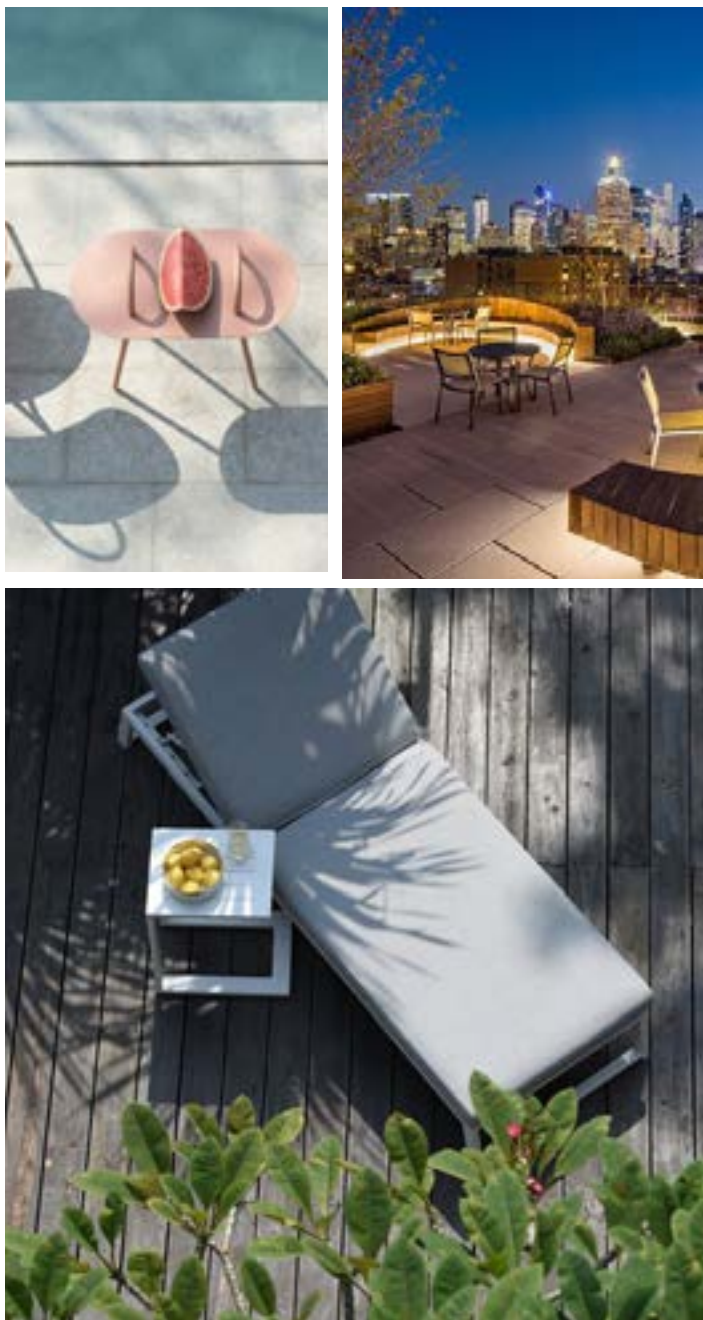
PAVING / TIMBER



WALLING



FURNITURE



Ground Level Concept - A Pedestrianised Precinct (Option)

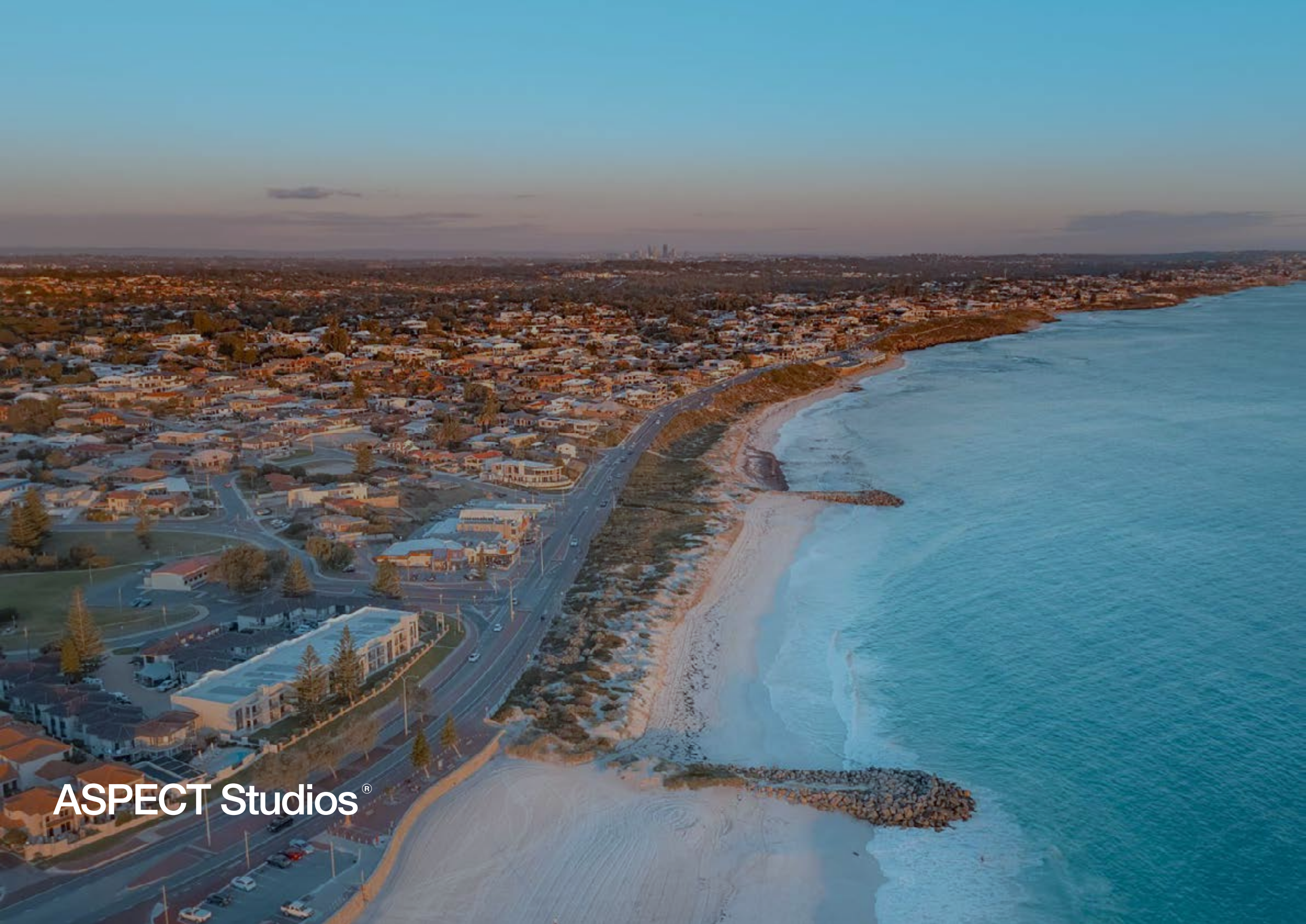
Concept Option to be explored with the City of Joondalup:

- Enhance pedestrian and user safety by creating a shared space and differentiated road surface and other traffic calming measures to slow vehicles.



Legend

⑩ Street Mural - Traffic Calming - Safer Crossing



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