



THE KINGSCLIFF RESORT

LOT 490, CASUARINA WAY, KINGSCLIFF
ARCHITECTURAL AND MASTER PLANNING REPORT
DECEMBER 2009



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EXECUTIVE SUMMARY

The following report has been prepared by JMA Architects to provide details on design and architectural elements of the proposed Kingscliff Resort and to support the Environmental Assessment Application to be assessed by the New South Wales Department of Planning.

Leighton Properties were the successful proponent for the NSW Department of Lands tender to develop the subject site on the basis of a development lease. The subject site is 43.4Ha in area and it consists of **Lot 490** DP1095234, part of **Lot 489** DP47021 and part of **Lot 500** DP1095235 (see Figure 3).

The proposed tourist resort development consists of 180 bungalows/units, a conference centre, a restaurant, bar, a retail offering and pool facilities. As part of the development there is a substantial amount of assets offered back for the use of the community. The community facilities include an interpretive centre, a public amenities building including toilets, showers and change rooms, a children's playground, a pontoon, beachside and creekside car parking, a tennis court, a half basketball court and picnic shelters.

The development has been designed as a low key, low impact one to two storey integrated resort dispersed within future and existing endemic landscaping. The overall site cover of the subject site is very low with the main intention to keep the current perception of the undeveloped site as green belt (Basic elements see figure 5).



Figure 1: The subject site (nts)



Figure 2: The resort site showing low impact footprint (nts)

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1.0 INTRODUCTION

1.1 Report Purpose

This report outlines the philosophical, design, material and sustainable intent for the Lot 490 Resort proposal.

1.2 Lot 490 Brief History

- *December 2004 – March 2005*: Draft Plan of Management (POM)
- *May 2006*: Closing date for Expression of Interest
- *July 2006*: Group briefing session for short listed proponents
- *October 2006*: Closing date for proposals
- *May 2007*: Leighton Properties selected as successful tenderer
- *February 2008*: Lease plan accepted and lease signed with the Department of Lands
- *June 2008*: Preliminary EA submitted
- *August 2008*: Director General's Requirements issued by New South Wales, Department of Planning



Figure 3: Aerial view circa 2003 before road re-alignment

2.0 Site Description and Location

To the south of Tweed Heads on the far North NSW Coast, Lot 490 sits between the old Township of Kingscliff and the new developments of Salt and Casuarina to the South. While the total subject site is 43.4Ha in size and includes Lot 490 and parts of Lot 500 and 489, the location of the resort premises is limited to the eastern portion of Lot 490 which is 11.67ha in area.



Figure 4: Regional Location Map

The subject site and surrounds are typical east coast sand dune formations between open beach and estuary which runs parallel with the ocean. The site had previously been mined for beach sand minerals. As such, the flora is primarily regrowth, with many of the original species no longer there. This has set clues for the landscape architect. However, many of the banksias are substantial and the buildings have been designed to weave around these trees where possible.

The subject site is bisected by Casuarina Way. To the east of the site lies the Old Tweed Coast Way road. In accordance with the Plan of Management for the site, this discussed road is incorporated into the design of the resort as the basis for community parking and access to the beach. The severity of the linearity of this road has evolved into a slightly curved or serpentine geometry. Between this car parking zone and the beach there are a number of access paths, public amenities, shelters, a children’s playground and circuit training stations which are all within close proximity to the existing concrete path that links Casuarina, Salt and the Kingscliff Township.

There is still a certain amount of undulation throughout the subject site and it is proposed to use “lightweight” buildings elevated off the ground to reduce the amount of site disturbance imposed by the development. Flooding dictates a minimum of RL AHD 3.1 metres for habitable spaces and RL AHD 2.6 for escape paths and decks. The lowest level RL AHD 1.5 occurs near the drainage culvert to the west of the site and RL AHD 8 at the eastern boundary. Generally 25% of the site will be below the RL AHD 3.1 habitable floor level and by using post and beam “stilt” construction extensive earth work will be avoided. In some situations in various pockets throughout the site minimal cut and fill is necessary for car parking and roads. This is shown in preliminary earthworks / road layouts in the Engineering Infrastructure Report.

3.0 ENVIRONMENTAL AND SUB-URBAN CONTEXT

3.1 Visual and Green Belt

The visual amenity issue and the circumjacent of the greenbelt separating the recently constructed Salt / Casuarina conurbation and Kingscliff / Cudgen Estuary township are the most important overarching factors of the “Lot 490” project.

Traversing across Cudgen Creek Bridge one is very conscious of the subject land being part of a green belt that jumps across the estuary separating old and new settlements. One also has the sense that Lot 490 is part of the southern spit of Cudgen Estuary.



Figure 5: Aerial view looking north Separating Riparian and Estuarine Greenbelt

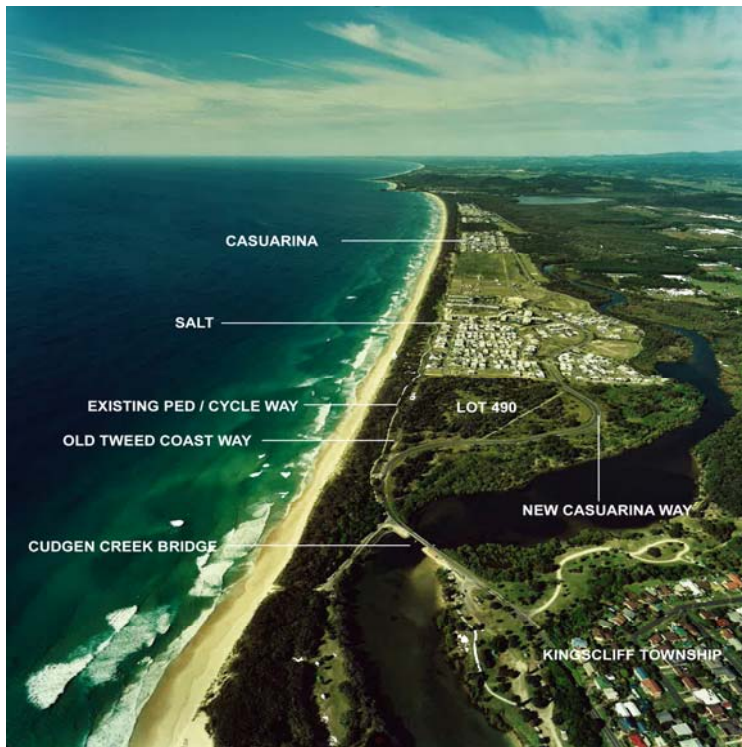


Figure 6: Aerial view looking South (Before)



Figure 7: Aerial view looking South (After: “Camouflaged”, dispersed proposal super imposed onto site demonstrating continuity of green belt principle- dark roofs and environmental colour palette to contrast neighbouring whites and pastel colours)

A significant aspect therefore is that the proposed development will contrast the neighbouring Salt development by retaining the intertexture of the green belt physique.

3.2 Values

The proposal develops and reinforces the ecological, scenic, social and cultural values of the site. Essentially, the scheme addresses accessibility, connectivity, character, recreation, built form, community involvement, water and flood management.



Figure 8: Master Plan showing Serpentine Internal Circulation Roads and Pathways

Early ideas for patterning of the Master Plan were inspired by Australian paintings which depict markings and shapes within the landscape. This more free form, wave patterning or contouring contrasts the neighbouring grids and cul de sacs of the Salt development. The serpentine nature of the internal circulation roads and paths integrates well into the landscape and allows a more holistic approach including fauna corridors.



Figure 9: A visual example of the land paradigm Marsupial Mouse Dreaming 1986
by Australian artist Jampalwarnu Paddy Jaalijarri Gibson Janganpa Jukurpa

4.0 SITE ANALYSIS AND DESIGN PROCESS

With careful scrutiny of the Lot 490 Plan of Management, the Tweed Shire Planning Scheme, relevant State Environmental Planning Policies for sites in coastal zones, the Building Code of Australia, accessibility and bushfire provisions the project has evolved from its beginnings as a low impact development with sound ecological, socio-economic principles, design and management principles.

The proposed project reflects the State significance of this coastal site, particularly in terms of environmental planning, urban design, ongoing management and compatibility with recent development to the south. The master plan allows for integration with the dunal ecosystem to the north and east, as well as the riparian corridor to the west.

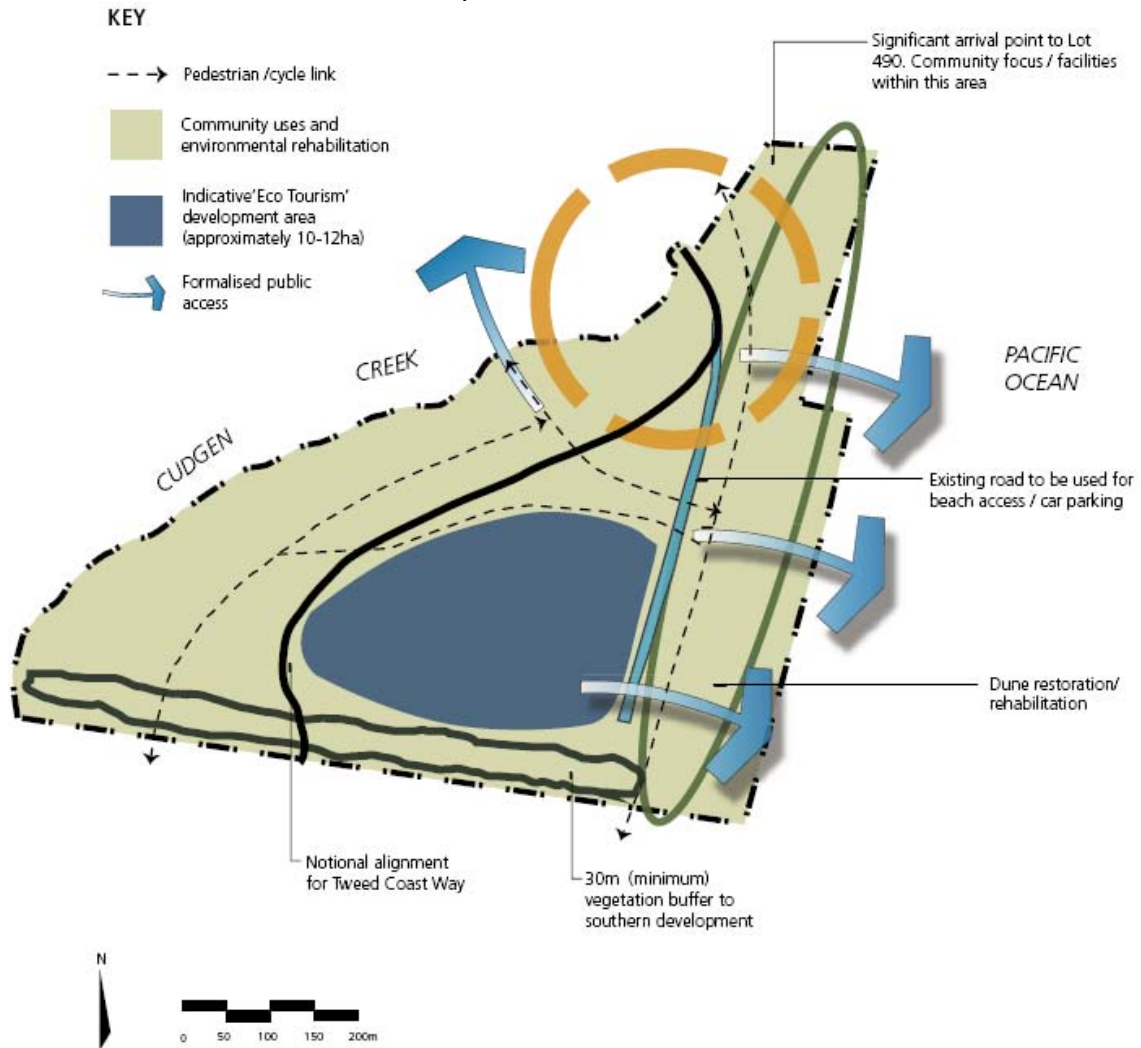


Figure 10: Department of Lands, Plan of Management (POM), Design and Management Principles

4.1 Community consultation

As a requirement of the development lease, Leighton Properties undertook a six month community consultation process. During the consultation process, the community provided feedback on the proposed resort layout and the proposed community facilities. The feedback from the community also helped to shape the architectural design and layout of the resort.

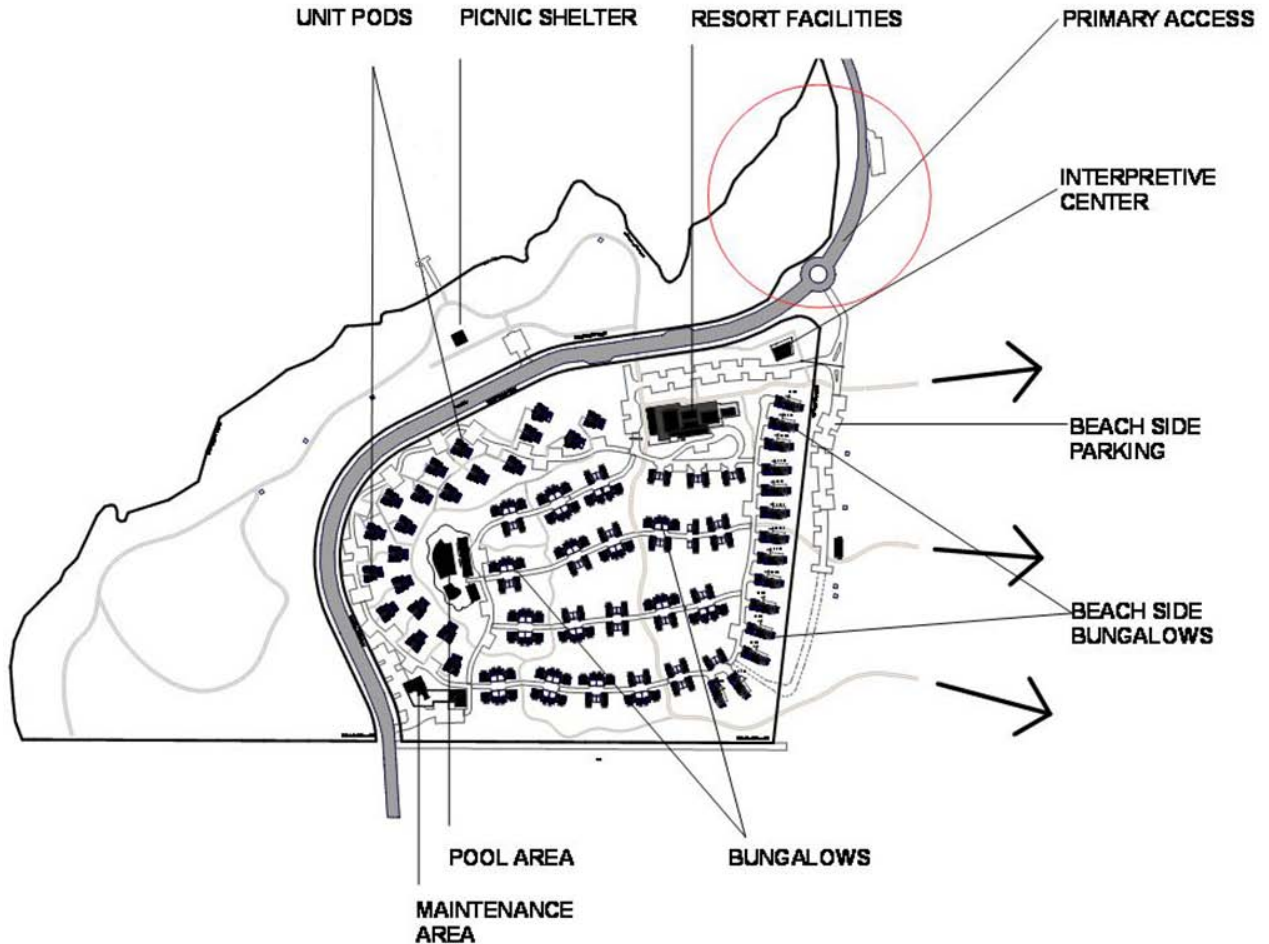


Figure 11: Footprint and main elements of the proposal responding to POM

4.2 Site Morphology

Lot 490 and surrounds are typical east coast sand dune formations between open beach and estuary which runs parallel with the ocean. The site had previously been mined for beach sand minerals. As such, the flora is primarily regrowth, with many of the original species no longer there. This has set clues for the landscape architect. However, many of the banksias are substantial and the buildings have been designed to weave around these trees where possible.

4.3 Arterial Roads

The subject site is basically divided in a north/south direction by the new Casuarina Way. The land between the road and the estuary is a riparian corridor and it is proposed that

minimal impact facilities be placed in this zone. These include a tennis court, half basketball court, picnic shelters and pedestrian / bike paths.

To the east of the site lies the Old Tweed Coast Way and is the basis for community parking and access to the beach. The severity of the linearity of this road has evolved into a slightly curved or serpentine geometry. Between this car parking zone and the beach there are a number of access paths, public amenities, shelters and play ground- all within access to the existing concrete path that links, Casuarina, Salt and the Kingscliff Township.

4.4 Levels

There is still a certain amount of undulation throughout the subject site, and it is proposed to use “lightweight” buildings elevated off the ground reducing the amount of site disturbance. Flooding dictates a minimum of RL AHD 3.1 for habitable spaces and RL AHD 2.6 for escape paths and decks. The lowest level RL AHD 1.5 occurs near the drainage culvert to the west of the site and RL AHD 8 at the eastern boundary. Generally 25% of the site will be below the RL AHD 3.1 habitable floor level and by using post and beam “stilt” construction extensive earth work will be avoided. In some situations in various pockets throughout the site minimal cut and fill is necessary for car parking and roads. This is shown in preliminary earthworks / road layouts in the Engineering Infrastructure Report.

4.5 Height

The POM calls for “building height not to exceed two storeys or a maximum of 8 meters, or could adversely impact on significant view corridors”. The development consists of both single and double storey buildings. Five of the unit pods sit within a depression of low lying land to the north of the site. There is a possible height range of approximately 100 – 300mm above 8m. However, the buildings sit approximately 1.5m below the abutting level of Casuarina Way as the impact of this on the view corridors is not adversely affected (see the Visual Impact Assessment prepared by LVO).

4.6 Master plan

The master plan was developed taking into account the delicate balance of all restricting environmental constraints resulting in layouts that optimise the desired outcomes for each zone relative to each other and to the immediate surrounds.

After analysis of the relevant policies and prescriptions, the various suggested positions for the precinct zones emerged. Vistas, existing vegetation, clumps, noise, traffic, bushfire management, pedestrian movement, public amenity, services and sustainable infrastructure being some of the key features and considerations that shaped the proposal of the master plan.

The following plan in section 5 delineates the various precincts codes which are provided within the resort area and are cross referenced in the architectural documents.

5.0 DEVELOPMENT OUTLINE

The proposed development consists of 180 accommodation units/bungalows, a conference facility, a restaurant, a bar, a retail offering and community facilities to be provided within the POM total site area of 43.4 Ha. The resort facilities building and resort accommodation buildings are located within the eastern portion of Lot 490 which is 11.67Ha in size. Resort guests and visitors to the site access the development from the proposed roundabout which will create the main arrival point for the resort facilities.

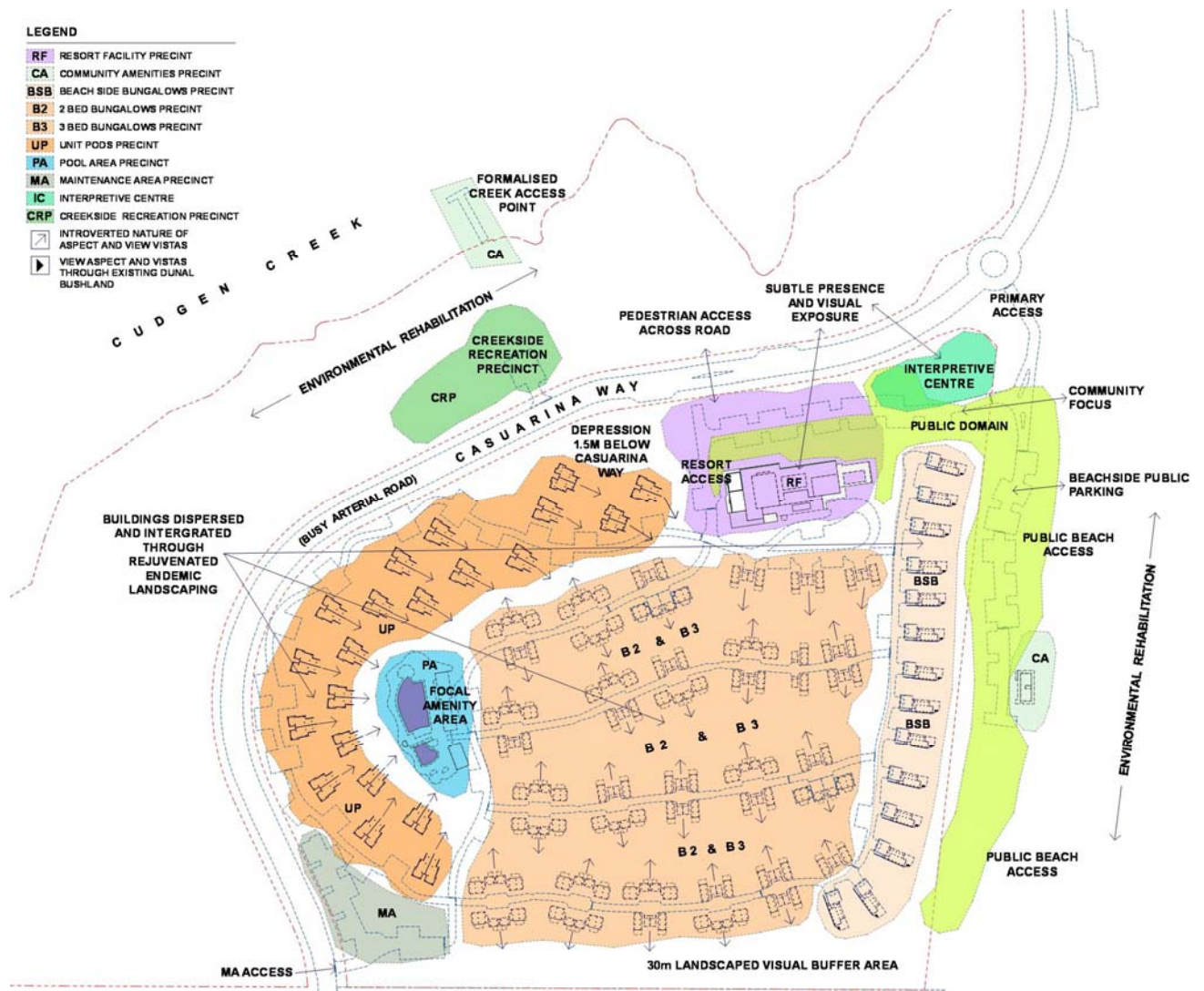


Figure 12: Precincts Master Plan

5.1 Resort Facilities Precinct

The Resort Facility **RF** precinct is well set back from Casuarina Way and remains nestled between vegetation. The facility offers a 215 seat conference hall, a restaurant, a bar, resort reception, an administration/office area, the resort kitchen to service the restaurant, bar and conference facility, a retail offering and a storage area. All spaces have sailing roofs with wide verandas which provide generous outdoor covered areas for patrons to enjoy the ocean breezes and views.

The reception and admin offices are located at half a level lower to the west of this building as one passes through the drop off area under the 'Porte Cochere' to enter the resort accommodation proper.

Landscaping will be provided adjoining Casuarina Way to provide a buffer between the road and the parking area provided for the Resort Facilities buildings.

5.2 Community Amenities Precinct

The Community Amenities precinct **CA** consists of four picnic shelters, a large children's playground and sport circuit training facility and a public amenities building and is serviced by 60 public car parking spaces. The buildings and facilities are nestled between the car park and the existing bike path. The public amenities incorporate universal access and a robust design to deter vandalism. Three new pathways through the vegetation to the beach will provide safe and unrestricted access to the foreshore for the public as well as resort patrons alike.

5.3 Interpretive Centre

The first structure creating a focal point as people enter the resort is the interpretive centre which will celebrate local beach culture and promote community well-being. The centre will have a high level of architectural style similar to the architecture of the resort with high levels of cross ventilation.

5.4 Unit Pod Precinct

The Unit Pods **UP precinct** consists of 21 unit pod buildings with each building accommodating 4 units within two storeys totalling 84 x 2 bed units. Each of the individual units contains two bedrooms, a self contained kitchen, ensuites and balconies overlooking the resort.

The two bedroom units will be provided under a dual key arrangement to allow for more flexible accommodation options. This arrangement will allow each two bedroom unit to cater for either 1 or 2 tenants. In the event that the accommodation is split and two keys are let, a two bedroom unit will become two separate 1 bedroom units.

Guests will enter a vestibule which has a separate door to each accommodation option. The 1 bed hotel unit will include a bedroom, an ensuite, a kitchen, laundry facilities, a living room and a deck and the 1 bed hotel room will include a bedroom and an ensuite. When the unit is let to a single tenant, the separating doors can be unlocked allowing both rooms to be used.

Each Unit Pod building offers sufficient privacy and amenity between each other via screens and strategic natural landscaped buffers. Car parking is provided for guests and visitors along an internal road adjacent to Casuarina Way. Some of the unit pods have ramps access walkways and stair access, as all the pods ground floor levels are generally 1m above natural ground. In some instances this is to achieve minimum flooding levels and become also part of the fire management strategy.

Four ground floor apartments have been designed for universal access.

5.5 Bungalow Precinct

Within the middle of the site there are four internal roads providing access to the second bungalow precinct. All internal roads are to be shared between pedestrians and vehicular traffic with adequate traffic calming devices.

Within the Bungalow Precinct there are two different bungalow types. A single story two bedroom bungalow **B2** and a two storey three bedroom bungalow **B3**. There are 34 and 44 of each respectively with four additional of the two bed type being designed to be universally accessible. These dwellings are also 1 metre off the ground and with ample setback distance from each intended to provide sufficient privacy and surveillance from other bungalows and guests walking through the site.

Similarly to the two bedroom units, the two bedroom bungalows will be provided under a dual key arrangement allowing each bungalow to cater for either 1 or 2 tenants. The bungalows will be separated by a common corridor which has a separate door to each accommodation option. The larger tenancy will include a bedroom, an ensuite, a kitchen, a living room, a dining room and a deck and the other tenancy will include a bedroom, an ensuite and a deck. Laundry facilities will be provided in the common corridor area. A double carport has been provided for each two bedroom bungalow.

When the bungalow is let to a single tenant, the separating doors can be unlocked allowing both rooms to be used.

The three bedroom bungalows have a single key and a single carport with all bedrooms provided on the upper floor. The lower level accommodates a kitchen, a dining room, a living room, a toilet and a covered deck with a semi-external laundry provided between the unit and the carport.

The bungalows predominantly face north south and are separated by lush re-vegetated nature alleys.

5.6 Beachside Bungalow Precinct

Along the eastern boundary of the site is the Beach Side Bungalow precinct. This precinct consist of 14 x 3 bedroom beachside bungalows located along the eastern boundary of the resort. The lower level of each of the bungalows accommodates two bedrooms, a bathroom, a family room and a north east facing deck which features a plunge pool. On the second level is the master bedroom, an ensuite, a kitchen, a dining room, a living room, a toilet, a large deck and stairs to the upper roof deck which catches glimpses of the ocean through the vegetation. Each bungalow includes a double enclosed garage.

Within the Beachside Bungalow Precinct informal pedestrian pathways intersect with internal roads and connect all precincts with each other providing access to activity nodes as well as encouraging exercise and enjoyment of natural surrounds.

5.7 Pool Area Precinct

The Pool Area precinct **PA** forms the focal point of the resort. This facility comprises of a main pod with a universal access ramp and a shallow children's pool as well as a shared heated spa. The building adjoining the pool is essentially a long structure running north south and split in half forming an external entry courtyard. The building provides change rooms, amenities, a health centre, a small gymnasium and play room as well as store room and pool plant room. South of the pool facility there are three picnic shelters and a small playground to be used by resort patrons.

5.8 Maintenance Area Precinct

On the south west corner of the site hidden between the vegetation and with its own access of Casuarina way is the Maintenance Area Precinct **MA**. This service access will be used by staff and utility vehicles for maintenance and refuse collection purposes. There are 45 car spaces provided for staff with two one storey buildings in this precinct. The first is for house keeping, laundry, covered cool storage for refuse and recycling collection/ sorting points as well as gardening equipment storage. The second is for offices and all staff facilities including amenities with showers and lunch room.

5.9 Creekside Recreation Precinct

This precinct is situated across Casuarina Way on the Cudgen Creek riparian banks and it comprises of a large Picnic Shelter **PS**, a tennis court, basket ball court and 6 smaller picnic shelters **SH** spread along the nature trails in the midst of the native flora.

The land between the road and the estuary is a riparian corridor and it is proposed that minimal impact facilities be placed in this zone. Connecting the tennis court, basketball half court, riparian parking area and the picnic shelters is a pedestrian / bike path network which links into the wider pathway network surrounding the site.

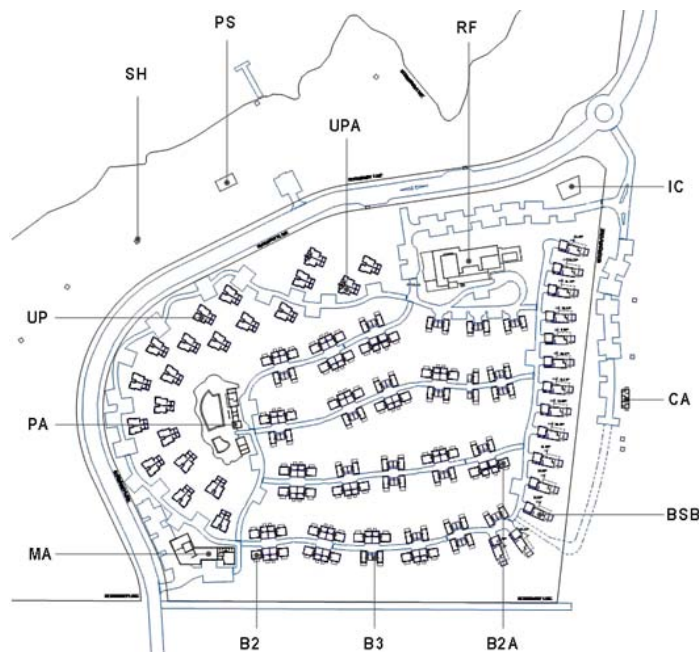


Figure 13: Precincts reference key plan

6.0 RELEVANCE OF PRECINCTS TO DESIGN OUTCOMES

The Unit Pods are designed according to the curvature of the road. The pattern of the unit pods acts as an outer “skin” to the conurbation with the units aspecting internally towards the pool area.

The proposed Unit Pod buildings take an introverted approach to view and aspect within the site, taking advantage of the coastal endemic landscaping and the pool area. The 2 and 3 bedroom bungalows enjoy views of their heavily vegetated surrounds. The beachside bungalows have views through the dunal bushland and a roof deck for ocean glimpses.

Located adjacent to Casuarina Way the western zone of the resort site is positioned furthest away from the beach. To provide a focal amenity and community area the pool area is located in this quadrant of the site.

The beachside bungalows positioned adjacent to the beach have been designed as a more upmarket product. Towards the centre of the site bungalows have been designed to cater for various demographic and conference situations.

Resort facilities and interpretive centre have been positioned to give a subtle presence and resort identity to Casuarina Way at the northern quadrant of the site, whilst keeping many of the existing banksias. The silhouette of the floating roofs mimics the distant mountains and creates a plane of interest embedded within the resort which is basically camouflaged and dominated by endemic landscaping.

The primary access to the site as per the POM is located near the interpretive centre, resort facilities and Cudgen Creek Bridge, giving a discrete yet legible entrance to the resort. Appropriate landscape treatment at the northern part of the site including the roundabout enhances the natural setting and coastal character.

The north east quadrant provides a public domain for community access to resort facilities, amenities, interpretive centre, and beach-side car parking.

A vegetated 30m landscape visual buffer to the south of the site provides a strong separation between the resort buildings and the existing Salt development. Elsewhere generous setbacks are determined by bushfire Asset Protection Zone (APZ) requirements.

Within the resort there is a legible layout of internal circulation roads that act as shared zones for cyclists, pedestrians and vehicles with high levels of traffic calming. Resort patrons can drive their cars directly to the different types of accommodation facilities. There is also a separate cycle/pedestrian path system that connects the cycleway between Kingscliff and Casuarina.

A Pedestrian crossing with an island refuge area in the middle of Casuarina Way links the resort site to the Lot 490 riparian zone adjacent to Cudgen Creek Estuary.

6.1 Setting and Colour

A detailed photographic analysis both from an elevational context point of view and colour has been carried out. The colours for various materials will be derived from detail photographs that have been taken of subject matter from estuary to ocean.



Figure 14: Site colour pallet from beach to estuary

6.2 Resort Buildings

The resort buildings consist of separated one and two story individual dwellings including a diverse range of bungalow and unit accommodation as well as resort, pool and maintenance facilities. The spaces between the buildings create an integrated built form and flora environment with a continuous pattern of fauna corridors. Unlike the neighbouring Salt development, the landscape will dominate the built form rather than visa versa.



Figure 15: An example when the landscape integrates with built form

6.3 Traditional coastal villages

A series of winding kerbless laneways will connect the buildings more like the traditional coastal villages of Fingal to the North and Suffolk Park to the South of the subject site. This avoids the use of cul de sacs which are often used in coastal subdivisions that do not encourage resident activation and connectivity. Vehicles can be driven within the resort to carports within the bungalows or adjacent to the unit pods. Visitor parking is also available.



Figures 16 and 17: Kerb less paths and laneways blurring into landscape plane with shadow patterns created by tree canopies

6.4 Historical Beach House Typology

The colours, materials and forms of the buildings are contemporary versions of the coastal beach house intermingling with endemic flora and fauna. The vision is a built form that coexists in harmony with the natural setting to have minimal impact. It takes interpretation from the local vernacular while incorporating regional design practices.



Figures 18 and 19: Award Winning Modica Residence, Sunshine Beach, JMA Architects - simplicity and elegance inside / outside relationship to surrounding dunal vegetation

Spaces are light and breezy with materials reflecting the location and culture of the casual coastal environment. Windows of adequate cross sectioned area have been placed on all elevations to provide cross ventilation.

The bungalows are self contained with full facility kitchens so there is a choice of dining inside or outside. They are also equipped with independent laundry facilities. The 2 bed bungalows give flexibility for various user groups with the laundry located in the breezeway which can be used by sharing groups.

6.5 Proposed Schedule of finishes

The selected finishes are derived from and will blend in with the natural colours of the site in order to camouflage and blend in the existing surrounds. See Appendix 1.

6.6 Roofs

The facility buildings mimic the silhouette of the distant mountains of the Macpherson Ranges. Smaller separate residential buildings have been given varied angled skillions producing a simple streetscape rhythm.

Roofs are to be colour bond with natural grey tones which will meld the building “roof tops” into the canopy of the surrounding landscape. This is particularly pertinent for the viewing of the project from surrounding high ground and passing traffic.



Figure 20: North Elevation of resort facilities buildings



Figure 21: Mountain and tree line silhouette suggesting roof form



Figure 22: South Elevation of resort facilities Buildings



Figure 23: Simple roof planes integrated into tree canopy's providing shade to outdoor spaces



Figure 24: Dispersed 2 and 3 Bed Bungalows



Figure 25: Dispersed Unit Pods and Bungalows

6.7 Building Area Schedule

The following scheduled contains a summary of all buildings and their areas.

Accommodation	Unit Numbers	Area coverage m ²	Total Area Coverage m ²
UP UNITS PODS	19	167.8	3188.2
UPA UNITS PODS ACCESSIBLE	2	181.1	362.2
B2 2 BED BUNGALOW	34	134.8	4583.2
B2A 2 BED BUNGALOW ACCESSIBLE	4	152.7	610.8
B3 3 BED BUNGALOW	44	88.3	3885.2
BSB BEACH SIDE BUNGALOW	14	195.6	2738.4
SUBTOTAL BUNGALOWS AREA COVERAGE			15368
RF RESORT FACILITIES	1	2180	2180
PA POOL AREA	1	302	302
MA MAINTENANCE AREA	1	515	515
IC INTERPRETATIVE CENTRE	1	150	150
SUBTOTAL AREA COVERAGE			18515
CA COMMUNITY AMENITIES	1	180	180
PS LARGE PICNIC SHELTER	1	100	100
PS PICNIC SHELTERS	9	9.6	86.4
TOTAL AREA COVERAGE			18881.4
RESORT AREA LOT 490			116718
POM SITE AREA TOTAL			431000
SITE COVERAGE RESORT AREA		0.162	16%
SITE COVERAGE TOTAL		0.044	4%

NOTE* - Calculation includes out door covered areas but does not include roof eaves

* The resort facilities which include the conference facilities (250m²), reception (100m²), administration / office (90m²), bar (100m²) amenities (60m²), a la carte restaurant (156m²), retail (75m²), kitchen (200m²), storage area (86m²)

Figure 26: Accommodation Schedule

7.0 SUSTAINABILITY

When designing the buildings of the resort, sustainable design practices have been incorporated where possible. The following sections outline how sustainability principles have been incorporated into the design.

7.1 Ecological Values

- As a previous sand mining location with the associated flora and fauna degradation, the entire creek-side and dunal areas will be rehabilitated with the reinstatement of coastal vegetation.
- The layout of the buildings, pathways and roadways has been to minimise impact on the vegetation.
- The habitat for the local Blossom Bat population will be improved by strategic planting.
- A buffer zone with the adjacent Salt development will be created using a rehabilitation of that zone.
- Minimal cut and fill earthwork applies to the resort facilities, accommodation buildings and recreational buildings areas.
- Generally, all buildings associated with the resort are to be set above ground on posts to reduce the site disturbance.
- Overland flow will be directed to the detention basin which will act as a sediment control device prior to discharge to the creek. Pollution caught in overland flow will be arrested prior to the detention basin.



Figure 27: Viridian Residences, Noosa Heads, JMA Architects – An example of the built form blending with nature

7.2 Social Values

- Pathways will be added into the creek-side and dunal areas for the social benefit of public access. Access will also be gained to the creek and beach as well as the rehabilitated coastal vegetation areas.
- The social benefits of creating new public beach access and facilities will be delivered. The facilities will include public toilets, showers and parking as well as access pathways and dunal fencing with erosion control in mind.
- A range of diverse recreational activities including walking, cycling, surfing, swimming, canoeing, kayaking, fishing, bird watching and other water / nature based activities are possible onsite for guests and members of the community.
- The resort has been designed to accommodate people from a wide range of economic levels. There is provision for various levels of different sized dwellings ranging from one, two or three bedroom options.
- The development includes accommodation, resort and recreational facilities for all ages and access requirements. Specially designed accessible accommodation bungalows for wheel chair accommodation access have been incorporated into the design.
- The acoustic design of the bungalows will observe the importance of noise control and its impact on enjoyment of the spaces.

7.3 Transportation

- The development is bicycle friendly with the inclusion of extensive bicycle pathways and bike racks. The bungalows will include facilities for securing bicycles.
- Access to bus public transport services is available within a short walking distance.
- Pedestrian access is available through the extensive use of pathways.

7.4 Water Conservation

- Each bungalow will include a rainwater capture tank for use in toilet flushing. The tanks will include a tap for other uses such as hand irrigation.
- Tapware, toilets, shower heads and similar hydraulic devices will be AAA rated or better. Similarly, appliances such as dishwasher units will be AAA rated or better.
- Landscaping and plant species have been selected to avoid the requirement of irrigation.

7.5 Energy Efficiency

- Appliances such as fridges and dishwashers will be 3 star energy rated or better.
- Hot water on the bungalows will be generated with high efficiency heat pumps.
- The bungalow indoor and perimeter lighting will be done with high efficiency fittings. The pathway and roadway lighting will be subtle but with a focus on safety.
- Outdoor Clothes Drying Facilities will be provided to allow for the natural drying of clothes and towels rather than excessive use of dryers.

7.6 Passive Design

- The bungalow designs incorporate significant attention to passive energy efficiency. The designs achieve excellent performance in terms of natural ventilation and natural lighting. The following are the proposed features:

- Strong achievement of natural ventilation by orientation of the bungalows and openings to capture prevailing breezes. The living areas and bedrooms will be provided with air conditioning to deal with climate extremes, however it is intended the spaces will be naturally ventilated much of the time.
- Ceiling fans will be included with high ceiling heights to enhance with natural ventilation performance of the spaces.
- Light weight construction with strong attention to thermal resilience of the building fabric.
- To encourage people to enjoy the natural environment of the site and area, there is generous shaded space for outdoor living with minimum dimensions of 2.5m and 3m for bungalows and 4m for resort facilities.
- A combination of sun shading depending on façade orientation to achieve optimum sun penetration control and diffuse natural light intrusion.
- A reasonable amount of façade shading will occur with the natural vegetation
- Glazing selections will consider optimum tint for glare control and diffuse natural light intrusion.

7.7 Materials

- Final material choices will focus on the recycled content of those materials as well as the recyclability of the materials.
- Low VOC paints and carpets will be sourced.
- PVC in such location as floor coverings and plumbing will be minimised.
- Material choices will focus on durability.
- Materials such as the selection of insulants and refrigerants will deliver zero ozone depleting potential.

7.8 Construction

- Environmental management will be controlled through construction phase by an environmental management system (i.e. Environmental Management Plan)

7.9 Waste

- Recycling stations will be provided in the development.
- Construction waste minimisation will be considered.

APPENDIX 1: PROPOSED EXTERNAL SCHEDULE OF FINISHES

SUBSTRUCTURE GENERALLY

Conc. Footings & pile footings to structural eng spec	Reinforced Concrete	Grey conc.
Subfloor supports	SHS steel posts	Galv finish
Beams and bearers	PFC & UB Steel beams	Galv finish
Floor support	Timber joists on backing board	Treatment to AS
Tanking Membrane & Termite proofing	Termite proofing to AS	n/a
Selected colour concrete walls	Selected exposed formwork finish	Selected Colour(ref Land Arch)
Masonry block retaining walls	Horizontal raked joints @400 cts	Render finish

STRUCTURE GENERALLY

General columns	Steel CHS & SHS posts	Galv finish
Main floors Suspended floors	Treated Timber	Timber flooring
Cantilevered balconies	HW Timber	Hard wood decking
Balcony roof supports	Steel support	Galvanized finish
Stair structure	Steel supports	Galvanized finish
Stair threads	Steel support Timber threads and handrail	Galvanized finish
Exposed clerestory structure	Timber	Painted black

EXTERNAL PAVEMENT SURFACES

Decks	Selected HW Supports HW timber decking	Selected decking finish
Conc. Slab on ground	Concrete	Exposed Ag (ref Land Arch)
Main access Pathways	Colour concrete	Broom finish (ref Land Arch)
Secondary pathways	Deco with timber edging	Natural colour
Ramps and Walkways	Reinforced concrete	Colour Trafficable membrane
Roads car-park spaces (Design & drainage by civil eng)	Bitumen- Reinforced Concrete structures	TBA

EXTERNAL WALL CLADDING

F.C vertical cladding	Expressed Alum extrusion vertical joint	Paint finish
F.C vertical cladding with HW timber battens	HW Timber Battens	Paint finish
F.C horizontal cladding	FC Horizontal wide board Cladding	Paint finish
Metal Cladding	Various profile corrugated cladding	Selected Colorbond colour
Clerestory clear cladding	Glass	Grey tint
Clerestory Corrugated metal cladding	Corrugated profile	Colorbond finish
Masonry walls	Sponge finish	Selected applied render finish
Vapour Barrier	Standard permeable building paper	

Thermal insulation	Min 75mm insulation batts	R 2.5
Fire rated walls	Fire rated plasterboard underlay to BCA	Extent to be ascertained

BALUSTRADING, PRIVACY & SHADING SCREENS

Western sun-shading	Steel frame	Colorbond finish
Horizontal shading awnings	Steel frame	Anodised finish
Horizontal fire rated awnings	Steel frame	Paint finish
Sliding timber louvered screens	Stained finish	Clear finish
Sliding Aluminium operable louvered screen	Aluminium frame	Anodised finish

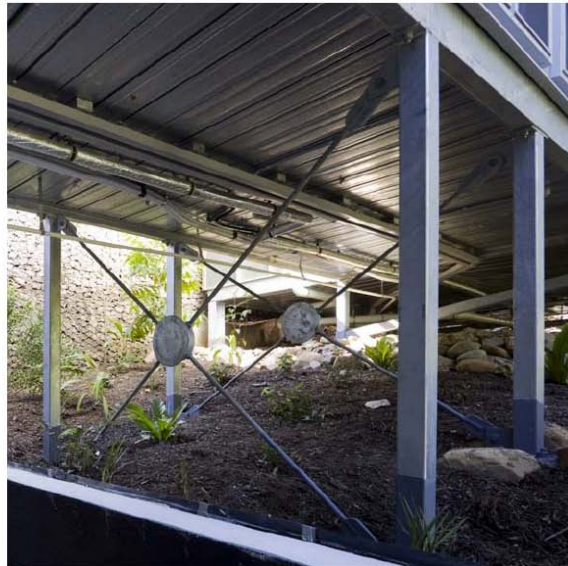
ROOFING

Main Roof	Corrugated Profile	Selected Colorbond finish
Selected decks	Corrugated Polycarbonate	Apollo Platinum
Awning roofing	Corrugated Polycarbonate	Apollo Platinum
Roof plumbing Barge, flashings & capping	Custom folded metal	Zincalume finish
Gutters & down pipes	Half-round and circular	Zincalume finish
Vertical shade screens & shade awnings	Perforated customorb	Powdercoat Finish

WINDOWS & DOORS

External Front Doors	Aluminium frame custom design with glass insert	Clear finish
External Balcony sliding & French glazed doors	Aluminium frame topmount track system	Clear finish
General Door Hardware	S.S finish	S.S. tubular
Timber framed windows timber reveals	Sash less double hung	Clear finish
Alum framed windows plaster reveals	Aluminium Frame	Anodized finish
General Louvre windows	Selected manufacturer	Clear Glass
Privacy prone areas translucent glass	Acid etched	Obscure Glass
Clearstory high level louvre windows	Louvres & fixed glass	Tinted Glass

APPENDIX 2: PROPOSED EXTERNAL FINISHES IMAGES







Colourbond Metal Sheeting on Timber Trusses - Colour 1
 Custom Folded Metal Barge Capping and Roof Plumbing- Zincalume Finish
 Hardwood Timber Batten Screen
 Timber and Platinum Polycarbonate Privacy Screens - Colour 2
 Vertical Custom Orb Metal Cladding - Colour 3
 FC Hardies Scyon Stria
 Galvanised Steel Structure
 Hardwood Timber Deck and Stair
 Painted Butt Jointed FC
 Grey Tinted Glass Balustrading

Beach Side Bungalows Side Elevation

Beach Side Bungalows Front Elevation



LEGEND

1	Roof	Corrugated Colourbond "Woodland Grey" Rooves	6	Balustrading	Powdercoated Uprights/Frame with Grey Tinted Glass Inserts
2	Privacy Screens	Combination of Clear Finish Timber Screens with Grey Tint Polycarbonate Cladding	7	Blockwork	Rendered Blockwork Murobond "New Zealand Charcoal"
3	Vertical Metal Cladding	Colourbond "Woodland Grey" Vertical Custom Orb Cladding	8	Butt Jointed FC	Painted Butt Jointed FC Cladding Dulux "Mali"
4	Horizontal FC	Hardies Scyon Stria "Light Grey"	9	Hardwood Timber	Stained Hardwood Timber Decking and Stairs
5	Roof Soffits	Corrugated Colourbond "Woodland Grey"	10	Vertical FC	Painted Vertical FC with Cover Battens



Kingscliff Resort Beach Side Bungalows External Elevations

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LEIGHTON PROPERTIES

