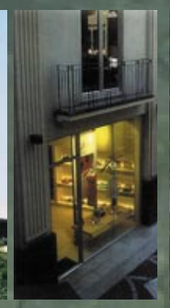


Moonee Waters

COASTAL VILLAGE PRELIMINARY ASSESSMENT

LOT 66 DP 551005
PACIFIC HIGHWAY
MOONEE BEACH

Prepared By:
Annand Alcock Urban Design

December 2005

Prepared for:
Hillview Heights Pty. Ltd.

VISION

"To create a high quality, active, integrated and sustainable coastal community whereby its character is informed by the unique setting and undulating topography and where ecological values are fundemental."

contents

SUBCONSULTANTS

This document was produced by Annand Alcock Urban Design on behalf of Hillview Heights Estate Pty. Ltd., in consultation with the Coffs Harbour City Council, the Department of Planning and relevant State agencies. The following consultants were involved in preparation of development of the Master Plan and relevant background studies.

Owner	Hillview Heights Estate Pty. Ltd.
Master Planning	Annand Alcock Urban Design
Bushfire	Peter Fisher Forestry Services
Ecology & Biodiversity	Gunninah Environmenatal Consultants
Traffic and Transport	Dobinson and Associates Project Planning Associates
Geotechnical	Coffey and Associates
Indigenous & Non Indigenous Heritage	Umwelt Australia Pty Ltd
Water Management/ Coastal Processes	Patterson Britton
Statutory Planning	Mike George Planning Services, Smyth Maher Planning
Hydrology	Patterson Britten
Engineering	GHD
Surveyors	Blair Lanskey

INTRODUCTION

This document sets out a preliminary assessment for the development of a landholding South of Moonee Beach at Coffs Habour (Lot66 in DP551005). The total site area is approximately102Ha, of which approximately 70Ha is to be dedicated to habitat conservation including a series of wetlands, riparian corridors, parklands and asset protection zones. A number of restricted and controlled access trails are proposed through these areas (exact routes subject to more detailed research) to permit community access to the beach and controlled environmental interaction.

The proposal will permit an ongoing management regime to an approved management plan using community title as a management vehicle. The intention is to provide a model for coastal village development (approximately 378 lots). It will provide for the subdivision of the site in a manner which enables a mix of residential, holiday, tourist & retirement housing within an integrated village framework. This development derives amenity from, and provides a management regime for an extensive coastal conservation area (70% of the site). The development will demonstrate how sensitive development can facilitate conservation objectives at no cost to the public purse while providing varied development opportunities.

The investigations thus far have been based on detailed ecological surveys and assessment which have enabled a distinction to be made between those parts of the site zoned 2E that are capable of development without significant effects on flora, fauna or habitat, and those parts that are constrained and should therefore be conserved.

This Preliminary Assessment accompanies a project application for this site in response to the confirmation by the Director General that this is a project to which the provisions of Part 3A of the Act apply.

This Preliminary Assessment is provided to assist the understanding of the site and the project so that the Director General can prepare environmental assessment requirements for the project. The proponent wishes to lodge a concept plan for the project.

The adjoining land to the south (North Sapphire Beach) has recently been approved for development. Part of that proposal involved deferred development of land adjacent to the beachfront reserve. The subject site includes land zoned 2E in a similar situation. It is proposed that the future development of the immediate coastal part of this site be deferred (as well as issues associated with access to it), thus enabling scope for a coordinated response to both sites.

context

PLANNING HISTORY

PLANNING CONTEXT

LOCAL CONTEXT

SITE CONTEXT

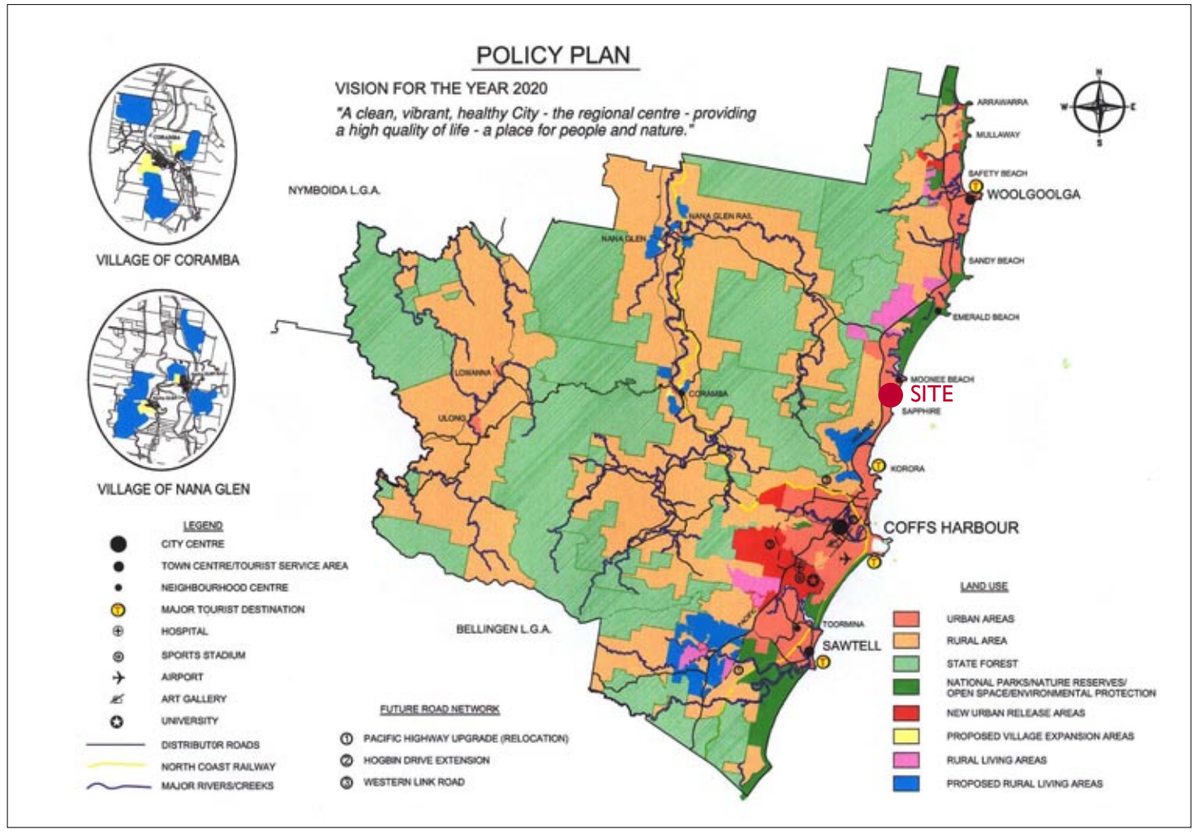
PLANNING HISTORY

The Coffs Harbour LEP (2000) zones the site as both
- Residential 2E Tourist Zone in the higher lands above flood liable / wetland areas and;
- Environmental Protection 7A Habitat Catchment Zone in low lying areas and SEPP No 16 wetlands.

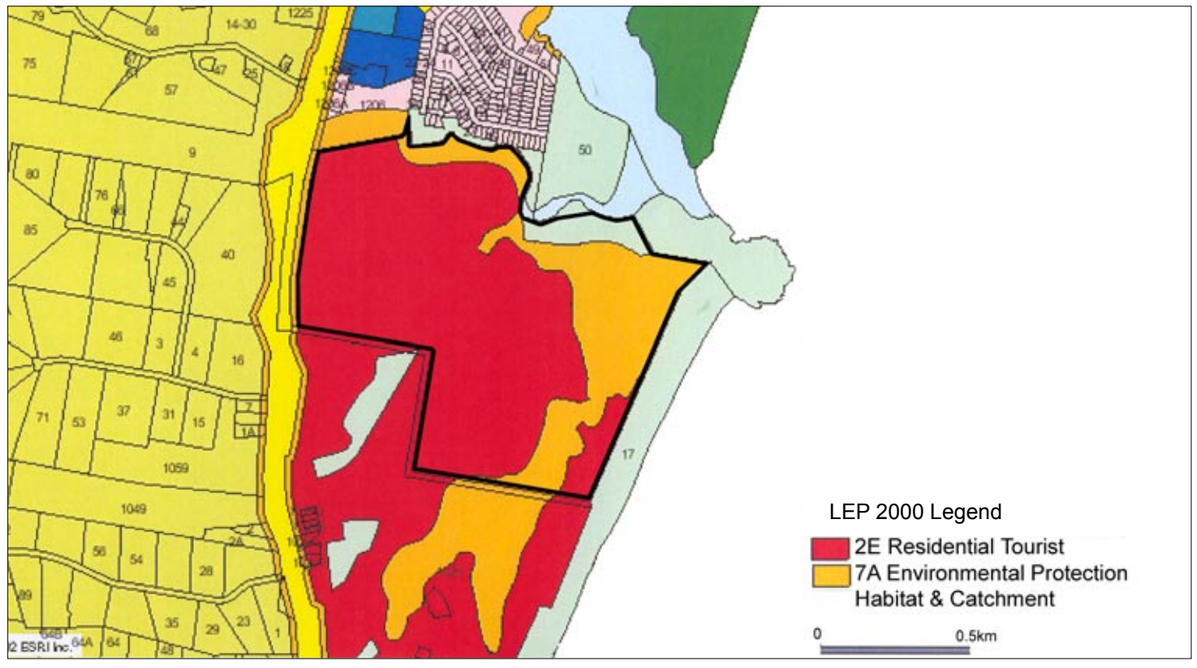
In recent times, Council has prepared a vegetation / conservation management DCP which suggests that the whole site be conserved. Environmental studies prepared by the landowners suggest that this DCP is overly conservative and difficult and expensive to implement.

The owners of the site thus propose a mixed residential/tourism/ conservation scheme which will conserve 67% of the site funded by strategic and environmentally responsible development of the remaining 33%.

Negotiations with Coffs Harbour City Council in this regard have been under way since early 2004.



Coffs Harbour LEP 2000 Policy Plan Identifying Site as "Urban" Land Use



Coffs Harbour LEP 2000 Plan Identifying site as zones 2E and 7A

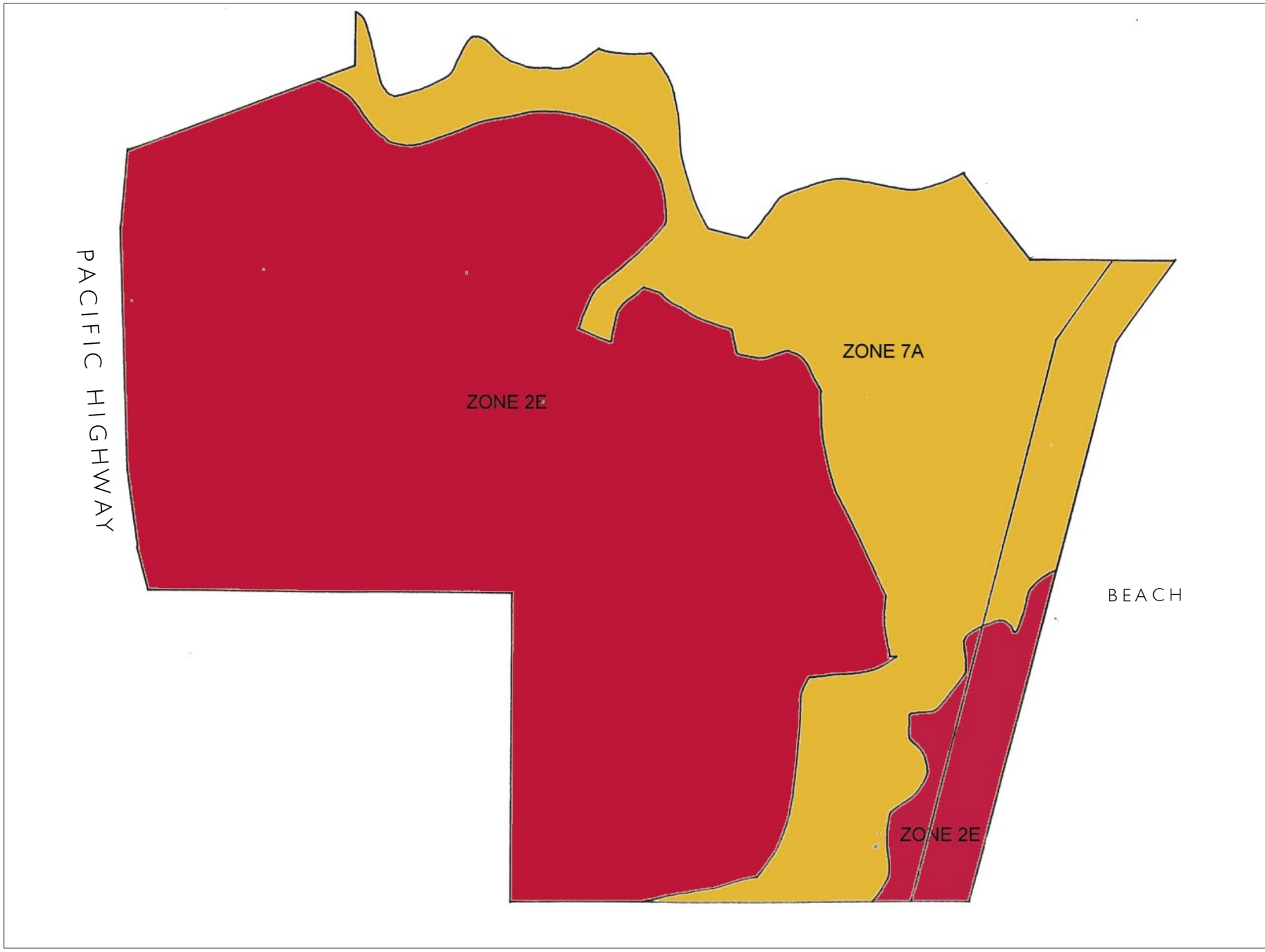
PLANNING CONTEXT

Due to the complexity and sensitivity of the area, the proposed development of the site will need to address to the requirements of a number of planning instruments and government acts including:

Section 79c(1) Of The Environmental Planning And Assessment Act;
Moonee Development Control Plan 2004;
Moonee Subdivison DCP;
Moonee Residential Tourist Lands DCP;
Moonee *Council's Car Parking DCP;*
NSW Threatened Species Conservation Act 1995 (TSC Act);
Community Land Development Act, 1989;
North Coast Regional Environmental Plan;
Coffs Harbour Local Environment Plan 2000;
Landform Modification Information Sheet;
Potentially Flood Prone Land Information Sheet;
Fire Hazard Information Sheet;
Contaminated Land Information Sheet;
Koala Habitat Information Sheet;
NSW Coastal Policy 1997;
Coastal Design guidelines;
Sustainable Urban Settlement Guidelines;
Coffs Harbour Subdivision DCP;
Low Density Housing DCP;
Residentail Tourist Land DCP;
Coffs Harbour Contribution Plan.

The major part of the site that is the subject of this applicaiton is zoned 2E Residential Tourist under Coffs Harbour LEP 2000. The proposed development is permissible with consent under that zone. The site also includes land zoned 7A – Environmental Protection Habitat and Catchment, which is not affected by this application, apart from provision to ensure appropriate land management, and to provide for pedestrian paths. Other parts of the site within the 2E zone have been assessed as being less suitable for development, and are also excluded from the application.

On 16th September 2004 Council resolved to prepare an LEP for the Moonee area. This was subject to negotiation with the owners of the subject site regarding potential dedication of part of the site in exchange for housing on other parts. These negotiations are still underway and are non-conclusive at this time (December 05). At the same meeting the Council adopted Moonee Development Control Plan 2004.



Site Zoning Plan

LOCAL CONTEXT

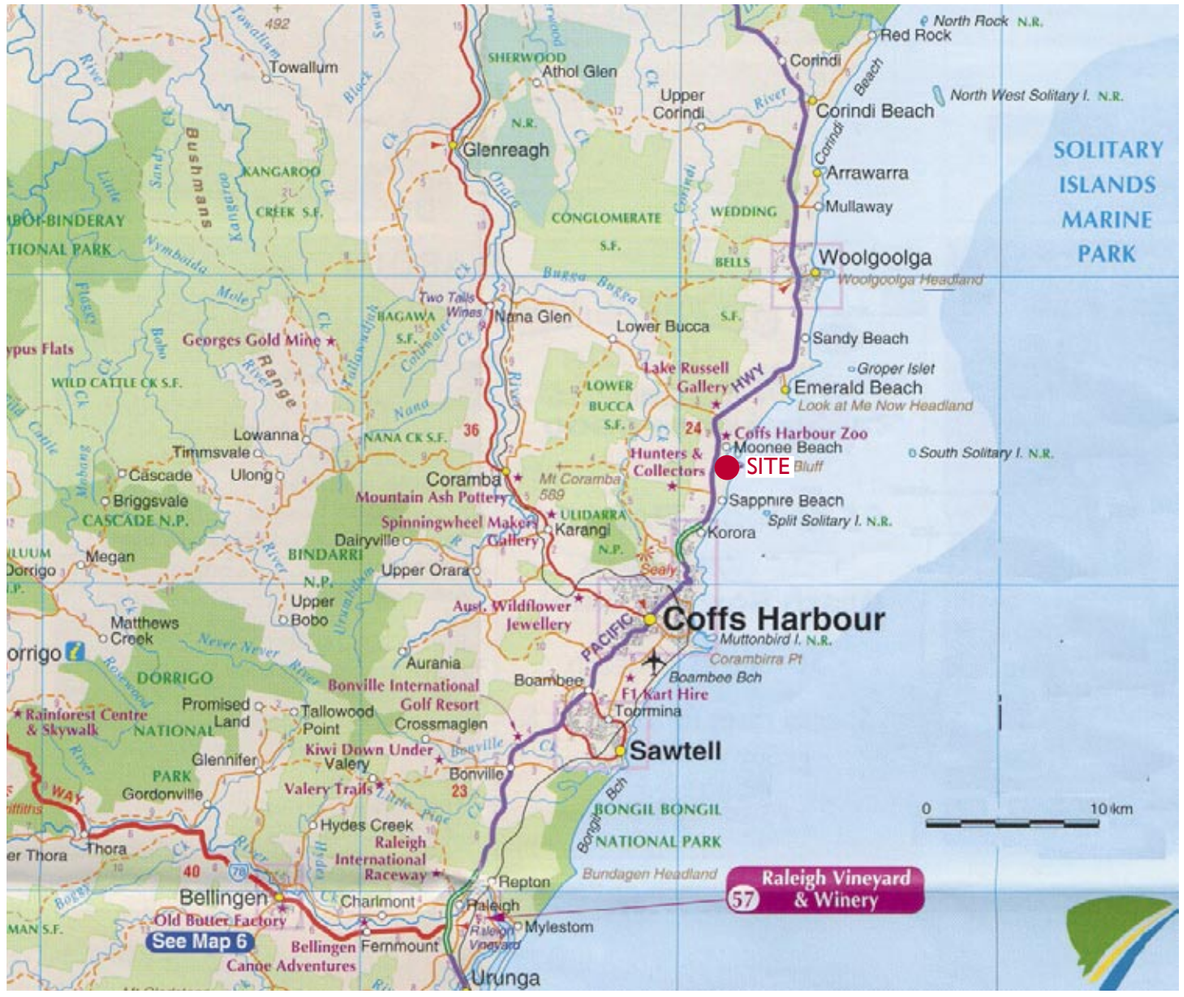
The site is located approximately 10km North of Coffs Harbour, situated between the Coastal Village of Moonee Beach to the North and Sapphire Beach to the South.

The overall site comprises Lot 66 in DP 551005 and fronts the Pacific Highway at Moonee Beach. It is irregular in shape and has an area of approximately 102ha and a frontage of approximately 575m to the Pacific Highway. It is bounded by the Pacific Highway to the west, Moonee Creek to the north, a public foreshore reserve to the east and unmade public roads to the south.

The site is currently vacant and contains a mixture of heavily vegetated areas of varying quality, wetlands and dune systems. The site features substantial changes in level and topographical articulation.

An existing road reservation connects with the Pacific Highway on the Southern edge of the site which could provide access to the proposed southern village. A further access point is proposed to the northern village. These access points can alternatively connect with a proposed link road connecting Highway access to the north at Moonee Beach with access to the south, at Sapphire Beach.

The proposed development areas are generally confined to the upper parts of the site closest to the Highway, with an area closer to the beach behind the dunes, proposed to be dealt with as a deferred matter. The proposal has no negative impact on surrounding land uses or activities.



Regional Context

Notional Concept for the site in context

SITE CONTEXT

The site includes the following landscape and environmental attributes:

Coastal Dunes and Beach running North South and separating the ocean from the wetlands.

Coastal Wetlands which lie behind the dunes and extend inland creating a low, flood liable area which drains to Moonee Creek

Potential Development Areas which have increased elevation and sit out of the wetlands. These are extensively covered with coastal forest which is a common vegetation species both locally and regionally and has been selectively cleared for redevelopment along the coast.

Moonee Creek

Coastal forest

Coastal creek

Adjacent cleared area

Moonee Creek

Coastal dunes

Wetlands

Beachfront and Coastal dunes

Background Studies

BIODIVERSITY

GEOTECHNICAL

COASTAL PROCESSES

ARCHAEOLOGY

BUSHFIRE

WATER MANAGEMENT

SERVICES

SUSTAINABLE DESIGN

TRAFFIC /TRANSPORT

OPPORTUNITIES & CONSTRAINTS

BIODIVERSITY

The definition of that part of the site proposed for urban development was based on detailed surveys and analyses carried out by Gunninah Environmental Consultants. The subject site supports a mosaic of vegetation and plant communities including:

- sedgelands and estuarine wetlands in the eastern and northern parts of the land;
- swamp forest communities in low-lying portions of the land;
- moist forest and riparian communities on the lower slopes and in some drainage lines; and
- dry forest and woodland communities on the plateaus and upper slopes.

The subject land is essentially fully vegetated, with the exception of the cleared electricity transmission line. Most of the vegetation on the site is in relatively good condition, although there has been some formation of tracks, disturbance by mining, vehicular access, and the dumping of urban refuse, and long-term timber harvesting. Nevertheless, weed infestations are generally low (except along tracks and adjacent to the Pacific Highway).

Several of the plant communities on the subject site (the wetlands and swamp forest communities) have recently been listed as "endangered ecological communities" on the NSW Threatened Species Conservation Act 1995 (TSC Act). Whilst other vegetation on the site is regarded of having regional conservation value, none is particularly restricted in distribution or regarded as of high conservation value.

Only one threatened plant species has been recorded on the subject site, despite intensive surveys over a substantial period. The Rusty Plum was recorded as scattered individuals in the northern part of the subject site, in areas of Dry Blackbutt Forest.

A number of threatened fauna species have been recorded on the site, including:

- the Osprey, Square-tailed Kite and Glossy Black Cockatoo;
- the Grey-headed Flying Fox, Regent Honeyeater and Common Blossom Bat;
- the Eastern Freetail Bat, Little Bent-wing Bat, Common Bent-wing Bat and Large-footed Myotis; and
- the Yellow-bellied Glider.

As the majority of threatened fauna species recorded on the subject site are highly mobile and wide-ranging (ie the microchiropteran bats, megachiropteran bats and birds), the site only constitutes a small part of the available habitat for these species within their home ranges and in this location generally.

The site represents only moderate value habitat for the Yellow-bellied Glider (if present) and most of the suitable forest habitat is to be retained.

The proposed residential and tourism development of the subject site has been considered with respect to Section 5A of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). With regard to those threatened flora and fauna species which have been recorded on the subject site, there is not likely to be a "significant effect" imposed as a consequence of the development, because of:

- the retention of substantial areas of habitat and resources both on the subject site and in the general locality;
- the extent of suitable resources and habitats in the locality and region;
- the mobility and distributional range of the relevant threatened species; and
- the impact amelioration and environmental management measures proposed.

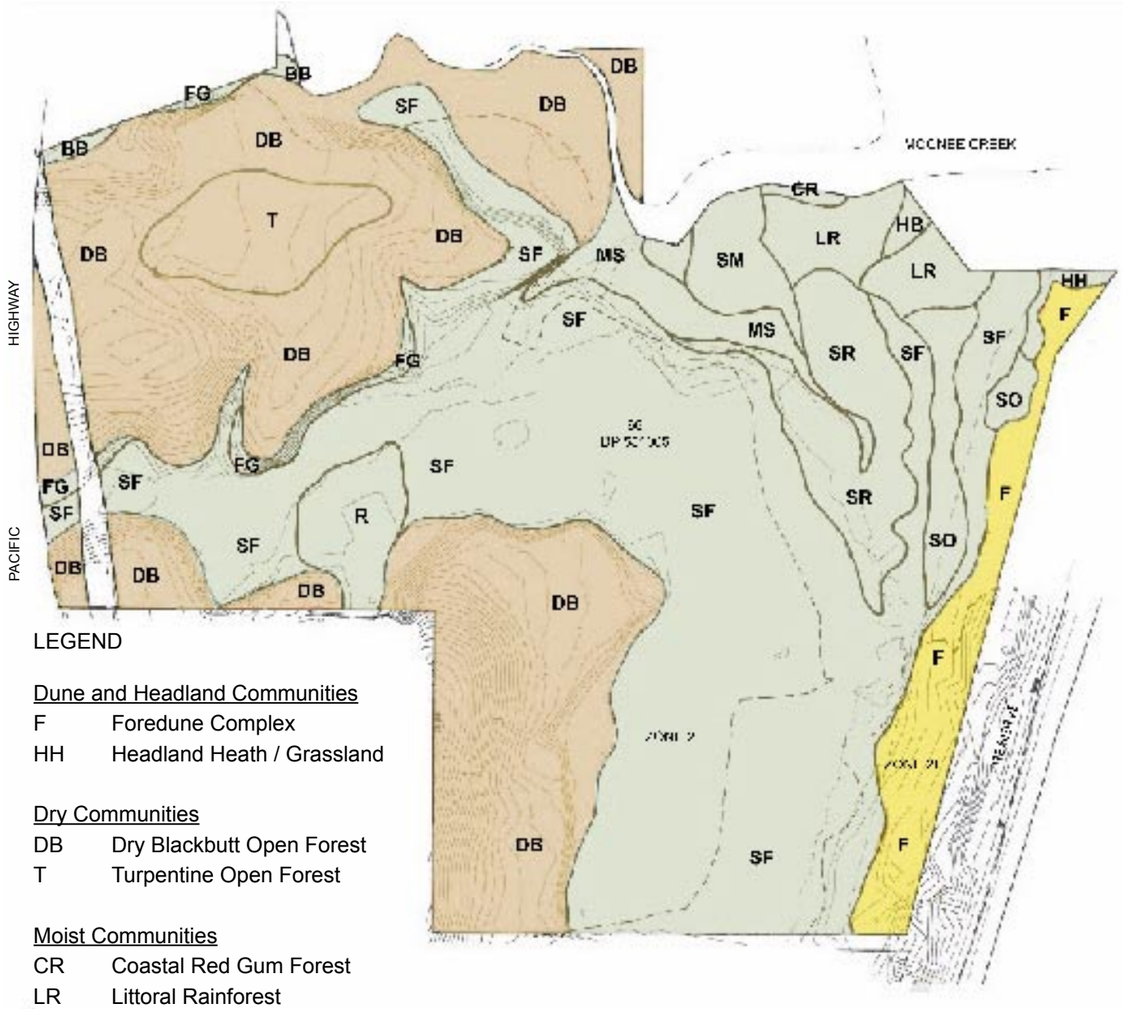
Similarly, the proposed development is not likely to impose a "significant effect" upon any of the swamp forest, estuarine or wetland communities, which have been listed as endangered ecological communities on the TSC Act. The majority of those plant communities are to be retained, and development can be designed, to protect areas of those retained plant communities on the site.

Consideration of the proposed development with respect to s79C of the EP&A Act leads to the conclusion that the proposed development is both appropriate and reasonable with respect to impacts generally on the natural environment.

The proposal involves development of those portions of the subject site which are of lower biodiversity conservation value (involving only 30% of the total site or 44% of the land which is zoned 2e for development purposes) and the retention and protection of approximately 70% of the total site (71.75ha) for biodiversity conservation purposes. That result represents an appropriate, reasonable and sustainable outcome on the subject site in terms of biodiversity, economic and social outcomes.

The site has been assessed in terms of SEPP No 44 – Koala Habitat, SEPP 71 – Coastal Protection and SEPP No. 14 – Coastal Wetlands. None of these policies are incompatible with the general thrust of the proposal. The vegetation is mostly secondary habitat for Koalas and there are few koala records in the vicinity. However primary good trees are to be retained.

With respect to the "Coffs Harbour City Vegetation Strategy", it is noted that the majority of the subject site is mapped as High Value Vegetation or Very High Value Vegetation. However, the proposed development retains most of the vegetation on the subject site, and constitutes an appropriate compromise between development opportunities and conservation goals whilst proposing a realistic and economic management regime.



GEOTECHNICAL

The ground conditions of that part of the site that is proposed to be developed are addressed in the report by GHD (in Volume 2). That report concludes –

Topography Description

The site topography can be described as moderately undulating with slopes grading from flat areas to 5 to 10% or more. In the vicinity of the natural drainage gullies covering the site, the gradients become steeper over short lengths.

Reduced levels across the site range from RL 1.5 AHD in the drainage paths to RL 15.0 AHD on the hills. The majority of development is proposed to occur on the land that lies between RL 5.0 AHD and RL 10.0 AHD. The hills and their gentle side slope provide excellent opportunity for allotments that are well drained, and generally without the requirement of extensive site earthworks.

Soil Conditions

The Dorrigo / Coffs Harbour 1:250,000 geological map indicates that the site is on the boundary of the Coramba Beds comprising of mudstone, siltstone and greywacke with minor volcanic intervals and quaternary alluvium comprising of sands and clays.

In brief the site comprises residual sandy clay soils, clay soils and extremely weathered rock, and alluvial sandy soils in the low areas.

Soil strength testing has been undertaken and indicate that the site soils have a soaked CBR of between 2%(low strength) and 6%(moderate strength).

Site Contamination Issues

A search of Council's register revealed no record of banana cultivations occurring within the site. Given the natural state of the site, it is considered unlikely that soils within the site have been contaminated.

GHD considers that there is no need for further investigation of the site. However, during development of the site, if soils appear to be significantly different to those described in this report or appear to be visually contaminated, it is recommended that an experienced environmental consultant be engaged to assess, validate and remediate (if necessary) suspected impacted soils.

Acid Sulphate Soils

Reference to the Moonee Beach Acid Sulphate Soils Risk Map published by the Department of Land and Water Conservation indicates that the proposed subdivision development is located generally in an area which has no known occurrence of acid sulphate soils between 1m and 3m below the ground surface.

Samples from test pits were screened for the presence of actual potential Acid Sulphate Soils. On the basis of the screening results, it is considered that the soils to 3m depth are not actual acid sulphate soils, but may be potential acid sulphate soils.

On the basis of the preliminary assessment, it is recommended that further assessment be carried out prior to excavation of site soils once the location and depth of excavations are known in more detail. The assessment should target alluvial soil areas below about RL5m AHD.

Bulk Earthworks

It is considered that the proposed development will generally conform to the natural contours of the site, and that the bulk earthworks will be generally limited to the proposed road reserves.

All bulk earthworks will be undertaken in accordance with an approved Soil and Water Management Plan. Any fill imported to the site will be approved by an engineer prior to the import of the fill to the site, and shall be of a sound clean, material, reasonable standard, and free from large rocks, stumps, organic matter and other debris. Where ever possible, material having similar properties to the in-situ site material shall be sourced.

COASTAL PROCESSES

Coastline hazards were determined by Patterson Britton & Partners (see Volume 2), based on the cumulative effects of the 100 year average recurrence interval (ARI) coastal storm erosion, long term recession due to net sediment loss, and long term recession due to sea level rise (over immediate, 50 year, and 100 year planning periods).

From a coastal engineering perspective, the proposed development would not be expected to adversely affect, or be adversely affected by, coastal processes. This is because the Coastline Hazard Line, representing the landward limit of the Zone of Slope Adjustment, is seaward of the subject property for all planning periods up to 100 years, that is at 2105.

In 2105, a Zone of Reduced Foundation Capacity (ZRFC) was predicted to the seaward subject property boundary. Therefore, there are no particular foundation requirements for the proposed development from a coastal engineering perspective.

There are no minimum habitable floor level requirements for the proposed development from a coastal engineering perspective, given that the coastal inundation hazard was expected to be negligible for the 100 year ARI coastal storm.

However, it is important that dune vegetation coverage and dune crest levels are maintained seaward of the subject property into the future, between formalised access areas.

This shows the coastline hazard lines at the subject property for immediate (2005), 50 year (2055) and 100 year (2105) planning periods. Given that the 2105 Coastline Hazard Line is seaward of the subject property, coastline hazards are not expected to directly impact on the property in the next 100 years.

The shows the 2105 Zone of Reduced Foundation Capacity (ZRFC) at the subject property. Given that this line is just seaward of the property, there are no particular foundation requirements (from a coastal engineering perspective) for any structures built on the property in the next 100 years. However, there may be geotechnical issues to consider.

ARCHAEOLOGY

A brief assessment of archaeological sites in the broader area, reveal a number of mythological and ceremonial sites. Three sites adjacent to the proposed development were located. There archaeological significance is summarised here and described in more detail in Volume 2:

These sites are designated as Sugar Mill Creek 1 (SMC1). Sugar Mill Creek 2, (SMC2) and 22-1-0198 located just outside the site to the south east on Lot 6 DP238651.

The Aboriginal significance of the project area has been assessed by Coffs Harbour and District LALC and Gumbala Julipi Elders, as high, and further consideration of the sites will be provided once we have received written comment from CH&DLALC and Gumbala Julipi Elders Group.

The three sites that were identified have been assessed for their scientific and cultural significance as: SMC1, moderate to high archaeological significance; SMC2, low archaeological significance; and site 22-1-0198, low archaeological significance.

Site SMC1 is located within this conserved area, but would require some work to prevent further disturbance from pedestrians crossing the site to access Green Bluff or from indirect impacts from the proposed development. The Aboriginal community has requested the construction of a retaining wall in front of the eroding bank. Thus 'Conservation' is appropriate for site SMC1.

Scattered artefacts on sites SMC2 and 22-1-0198 would be best managed by, 'Destruction with salvage', addressing cultural heritage significance.

Summary of recommendations for the proposed development of the project area are as follows:

- The proponent should apply for a cultural heritage salvage to be granted in advance of the commencement of any ground disturbance works, to ensure Coffs Harbour and District Local Aboriginal Land Council and Gumbala Julipi Elders Group can conduct a surface salvage of the sites SMC2 and 22-1-0198.

- In addition, the proponent allow a representative from Coffs Harbour and District Local Aboriginal Land Council and Gumbala Julipi Elders Group to visit the SMC2 and 22-1-0198 after ground disturbance works to salvage any artefacts that may have been uncovered.

- 30 metre buffer zone either side of Sugar Mill Creek will protect the area identified as a PAD by the Aboriginal community.

- Any trails/walking tracks designated for the residents to access Sapphire Beach or Green Bluff are to follow existing tracks to prevent any unnecessary clearing, and should be controlled to limit the areas impacted by traffic.

- Representatives from Coffs Harbour and District Local Aboriginal Land Council and Gumbala Julipi Elders Group should be consulted regarding the construction of a retaining wall to protect SMC1.

- In the event that any skeletal material is uncovered by the proposed development, works would be required to cease immediately and NSW Police Department, DEC, Coffs Harbour and District LALC and Gumbala Julipi Elders group contacted and appropriate management options identified.

FIGURE 6.1

Area Identified as Important to the Aboriginal Community

Combined Map showing 'Important Areas' and "Cultural Area of PAD', within project boundary. Resourced from Aboriginal Archaeology Report.

BUSHFIRE

A Bushfire Risk Assessment report prepared by Peter Fisher Forestry Services is included in Volume 2. The report concludes –

The land is designated as bushfire prone in terms of the Rural Fires and Environmental Assessment Legislation Amendment Act, 2002 and any proposed development thereon is affected by s100B of the above Act. This report addresses the issues relevant to this consideration.

Climate is subtropical with a strong moist maritime influence and a relatively benign bushfire history.

The development proposal is for two residential subdivisions totalling about 28.7 ha on the western part and a beachfront allotment totalling about 4.2 ha in the south-east part of the lot. (deferred matter).

The proposal results in the retention of a residual area, predominantly naturally vegetated, between the developments and the seafront.

As the lot is bounded by the Pacific Highway and predominantly cleared agricultural/horticultural land to the west, by Moonee Waters to the north and cleared pastures to the south, the external bush fire threat is low. The principal potential bushfire threat arises from the natural residual vegetation internally within the wetlands. The predominant vegetation affecting the residential developments is swamp paperbark open woodland, bounded to the east by open grassland and foredune complexes. This predominantly easterly situated vegetation represents only a moderate threat to the proposed residential developments.

The residential development proposals are planned to be provided with external perimeter roads and with excellent internal access roads with several egress points to the west.

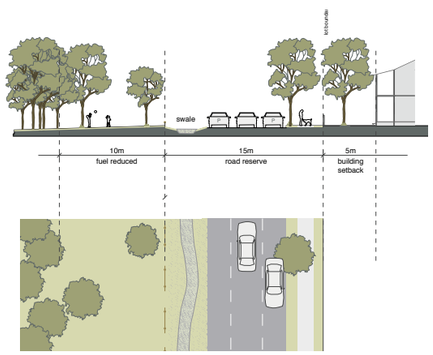
Adequate setbacks from the residual area vegetation should be provided by the establishment of 30m Asset Protection Zones. These will be comprised of a 10m Outer Protection Area, and a 15m road reserve and a 5m building set back from the road reserve making up the 20m Inner Protection Area.

As a remnant strip of natural vegetation within and adjoining the Pacific Highway easement represents a very low bushfire hazard, a minimum 20m Asset Protection Zone on the western perimeter of the residential developments should be adequate. For the most part this is likely to be provided by the existing power line clearing.

Vegetation adjoining the proposed beachfront development meets the description of Group 3 vegetation as described in Planning for Bushfire Protection, 2001. The provision of a 20m Asset Protection Zone will therefore be adequate for this development.

Residences on the perimeter of the residential developments should be constructed to Level 2, AS 3959-1999. Those on the next line inward should be constructed to Level 1. Similarly those on the western (Pacific Highway) perimeter should also be constructed to Level 1 as a precautionary measure. No particular building construction standard is required for the protection of buildings in the beachfront development (deferred).

Reticulated water supply should be adequate for the protection of all developments but hydrants should be provided to public/ community buildings in the beachfront development.



WATER MANAGEMENT

A detailed drainage and water management strategy for the site has been undertaken by engineering consultants Patterson Britton, whose report is contained within Vol 2. Key proposals include –

Water Management Strategy

The proposed Water Management Strategy has been designed to meet the following objectives implementing the principles of Water Sensitive Urban Design (WSUD) and Ecologically Sustainable Development (ESD).

- Minimise Potable Water Demand
- Minimise Impacts on Water Quantity; and
- Minimise Impacts on Water Quality.

Minimising Potable Water Demand

It is expected that a 43% reduction in potable water demand can be achieved through implementation of the following measures:

- Rainwater re-use tanks (3000 litres per lot)
- Flow restrictors in the kitchen and bathroom
- AAA rated washing machines; and
- AAA rated dual flush toilets; and
- AAA rated shower heads and dishwasher.

This exceeds the 40% reduction required by the State government (BASIX).

Minimising Impacts on Water Levels

Flooding

The topography of the site is such that the Moonee Waters development will not be affected by elevated water levels within Moonee Creek.

Detention

Because the Moonee Waters development discharges directly to Moonee Creek, it is not necessary to detain stormwater runoff to alleviate impacts on Council's downstream drainage system. In practice, however, the use of rainwater re-use tanks and bioretention swales would reduce the peak flow rates from the site.

Volumetric Runoff Coefficient

The average annual runoff co-efficient for the existing site was determined to be 0.28. It has been shown that the runoff co-efficient for the developed site can be reduced from 0.61 to 0.53 (i.e. 13%) through implementations of the following measures:

- Installation of rainwater re-use tanks;
- Installation of bio-retention swales; and
- Maximisation of pervious area within the development.

Minimising Impacts on Water Quality

Runoff water quality is to be managed through a combination of treatment measures in a treatment train, with special emphasis on source control. The proposed stormwater treatment strategy will consist of rainwater re-use tanks, bioretention swales in the road reserve, gross pollutant traps and a bio-retention swale around the whole perimeter of the development area. The swale area would occupy approximately 7% of the development area and include approximately 12 gross pollutant traps.

The implementation of the various treatment measures would satisfy the water quality objectives set for the site.

Stormwater Drainage Concept Plan

A major/minor drainage philosophy has been adopted. All flows generatted as runoff are proposed to be directed to rainwater tanks and bio-retention swales. These will maximise the runoff treatment and minimise runoff volumes.

All piped drainage infrastructure would be designed to convey the 5yr ARI flows generated on site. Flows in excess of the 5yr ARI (up to the 100yr ARI) event would be conveyed within the internal roadways and swales.

SERVICES

Water Supply

Council have advised that a new water trunk main will be required to service the potable water requirements for the proposed development.

Reuse Water Main and Irrigation

A reuse water main used for irrigation purposes is currently aligned along the service road corridor and is sourced from the WWTP near Moonee. Council use this main generally for their own irrigation purposes, and there are no plans at this time to bring this service onto the development site.

Council may determine to extend a service from the existing main if the public open space areas planned for the site are to be irrigated and maintained by Council.

Trunk Service

Council have advised that the new trunk water main should connect into an existing 300 dia main located adjacent to the Moonee Beach Tavern to the north. This will require extension of the new trunk main along the service corridor to the east of, and running generally parallel to the Pacific Highway.

Council have advised that a second water reservoir adjacent to the Moonee Reservoir is planned for construction in 2007. The final route selection will depend upon Council's requirements, and Council's future program for the augmentation of the Moonee Reservoir and ancillary trunk services.

Internal Infrastructure

A preliminary water reticulation system to service the proposed development has been prepared, and analysed to determine that the proposed development can be provided a suitable water supply system.

The layout provides water service to all allotments and is looped for security of supply and optimisation of flows and pressure.

Final sizing of the internal water main network and trunk main will be undertaken during the detailed design for each stage and after confirmation from Council as to their preferred connection point to the reticulation system, and details of their proposed augmentation of the existing reticulation system.

Sewerage Reticulation: Existing Sewer Infrastructure

The development site is not serviced by Council's existing sewerage infrastructure.

Coffs Harbour City Council has advised that sewer is to be directed to an existing gravity sewer main located within the property of the Moonee Beach Tavern.

Planned Sewer Infrastructure: Trunk Service

Due to the undulating nature of the site, and the low lying watercourses within the site, a number of sewer pump stations will be required to service the full development.

A sewer rising main will be required from the development site to the Council connection point, a length of approximately 300m.

Internal Services and Staged Development

The ultimate development has four distinct sewerage zones as dictated by the undulating topography, plus the possible eco-resort site (deferred). For this reason there will be required a system of gravity collection mains, sewer pump stations and rising mains to be connected either in series or delivering into a common trunk rising main to be constructed to the existing gravity sewer infrastructure 300m to the north of the site.

Electrical Infrastructure

There currently exists an 11kV overhead electricity supply line within the power easement adjacent to the eastern boundary of the site.

Country Energy is also planning the construction of an overhead 66kV supply line adjacent to the existing supply line.

The electrical services to be constructed as part of the development works will comprise electrical transformers, distribution pillars and underground cabling in conduits.

The detailed design, and construction timing will be required to be co-ordinated as the development evolves.

Telecommunications Infrastructure

The main Sydney to Brisbane optic fibre cable traverses the site, generally adjacent to the site's western boundary. A second traditional main line is also located at the western edge of the site

Prior to any works on the site a Dial Before You Dig search will be undertaken to determine the current extent and location of services on the site. During construction works, care will be taken to ensure that these lines are not disturbed.

All headworks including conduits, cabling, pits and distribution pillars will be supplied and installed by Telstra at their cost, during the construction of the civil works.

TRAFFIC AND TRANSPORT

A detailed assessment of the access and traffic implications of the proposed development has been undertaken by traffic consultants Project Planning Associates with Dobinson and Associates (see Volume 2). The conclusions of their report are:

- Capacity analysis has shown that the proposed new intersections on the Pacific Highway will not have any unacceptable traffic implications in terms of roadwork network capacity
- The proposed new intersections satisfy the relevant driver sight distance/visibility criteria as specified by AUSTROADS
- The proposed subdivision road network is compatible with the RTA planning strategy for the future upgrading of this section of the Pacific Highway which assumes that the new intersections on the Pacific Highway will be closed and local traffic redirected to new interchanges proposed at Sapphire and Moonee Beach Road via a "service road" to be constructed along the eastern side of the Pacific Highway.

In the circumstances, it is clear that the proposed subdivision will not have any unacceptable traffic implications.

OPPORTUNITIES & CONSTRAINTS

The significant opportunities and constraints relating to the site are set out below based on the background studies carried out and summarised in this section.

Constraints include:

- Some minor acid sulphate soil issues
- Need to respond sensitively to Aboriginal archaeology sites adjacent to development areas
- Need to protect development from fire and flood risk
- Need to protect wetland and water quality
- Need to conserve rare and endangered species and endangered ecological communities particularly swamp forest, estuary and wetland communities
- Need to conserve habitat
- Need to regulate highway access
- Need to provide utilities

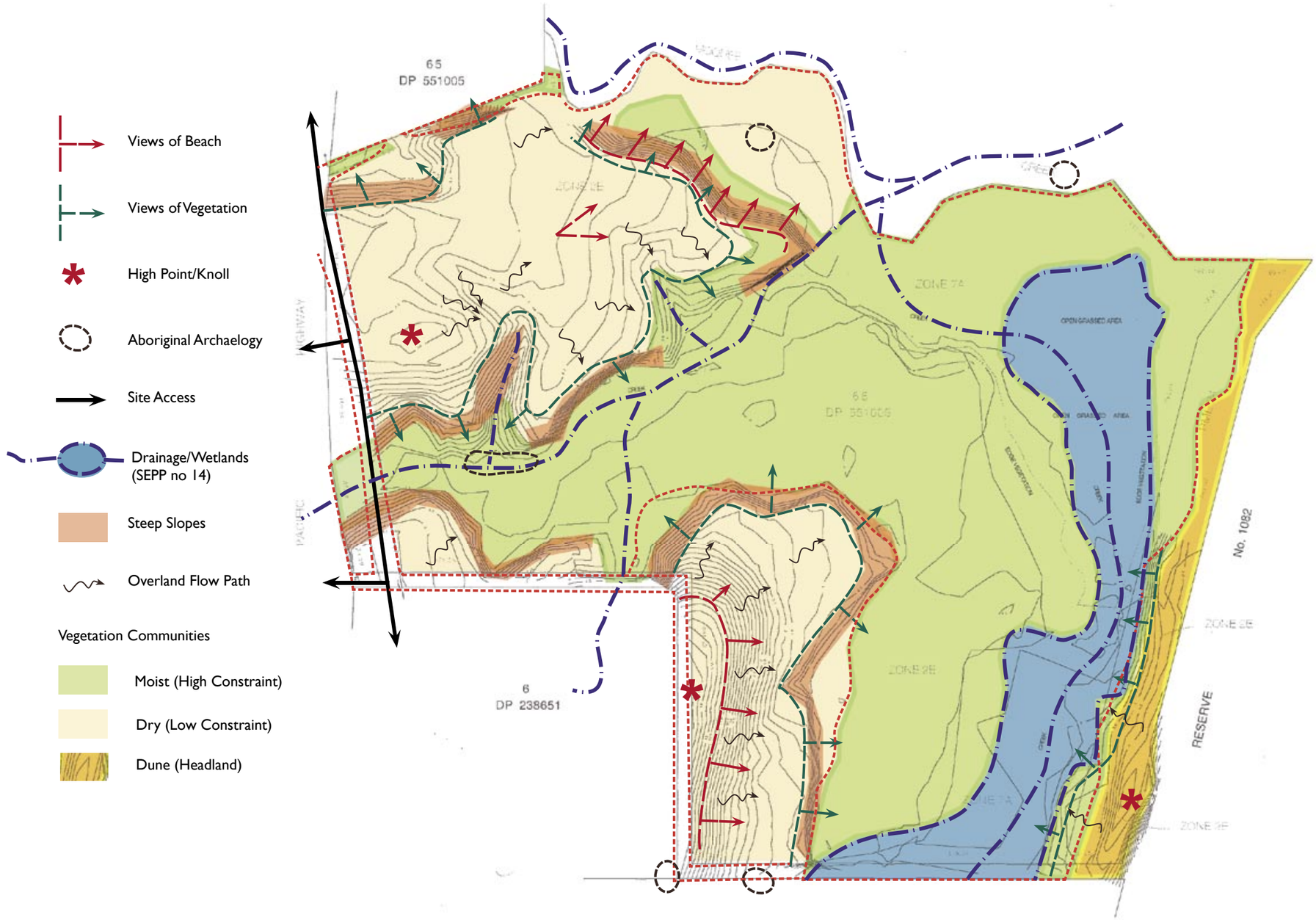
Opportunities include:

- Conserving 70% of the site (principally the high value swamp forest, estuary and wetland communities) and providing a sustainable ongoing management regime at no cost to the public
- Provision of diverse housing types in an area of high quality and amenity
- Potential to create a model coastal development combining development and conservation objectives
- Capacity to create a "community" in a prime coastal location with excellent access to beach and conserved/maintained coastal environment

In general, the area proposed for development (33% of the site) was informed by the background studies. The precise edges of development were made in direct consultation with consultant biologists and reviewed in order to improve environmental performance.

Site development and management processes were also informed by background studies leading to very high standards of Water Sensitive Design (WSD), landscape conservation and building design control in order to deliver the vision.
The attached figure sets out the site analysis, which informed the Master Plan.

SITE ANALYSIS



CONCLUSION

A review of the development constraints indicates that it is possible to develop certain areas of the site which are not severely constrainted and in the process conserve the highest value areas and establish an ongoing and sustainable management regime over the areas to be conserved.

This will result in a residential development area of about 30ha (about 30%) and the consevation of about 72ha (about 70%) of the 102ha site.

The proponent wishes to move forward with the project and will submit a Concept Plan based on the environmental assessment requirements provided by the Director General.

LEGEND

Potential Development Areas

DEVELOPMENT OPPORTUNITIES