MAJOR PROJECT APPLICATION
PRELIMINARY ASSESSMENT

LOT 5 DP 252223, PACIFIC HIGHWAY
MOONEE BEACH

SEPTEMBER 2008

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Reference No: 05010.4

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ATTACHMENTS

A. Plan of subdivision

B. Extract from Moonee DCP

C. Flora and fauna study - Impacts and Amelioration

1 APPLICATION FOR PROJECT APPROVAL

1.1 Major Project Status

This Preliminary Assessment accompanies a request for the Director General's Environmental Assessment Requirements for a Major Project approval of a proposed residential subdivision of land at Moonee Beach, in the Coffs Harbour City Council area.

Approval is sought from the Minister under Part 3A of the Environmental Planning and Assessment Act (1979) for a Major Project as defined by State Environmental Planning Policy (Major Projects) 2005.

The property is within the "coastal zone" and is in a "sensitive coastal location" as defined in SEPP 71. The land is within 100 metres of the high water mark in Moonee Creek and has the sufficient land area for subdivision into more than 25 lots though only 20 lots can physically be achieved.

1.2 Master Plan Waiver

The Minister is requested to waive the need for a master plan to be adopted because of the adequacy of planning controls that apply to the land.

Coffs Harbour City Council has prepared a detailed development control plan for Moonee. The DCP is based on an environmental assessment and evaluation of traffic and social requirements. It specifies where development may be located, connecting roads and a cycleway, environmental protection and density that can be served by proposed utilities and community facilities. The proposed subdivision is for less lots than Council had anticipated.

1.3 Key Issues

This is a highly constrained site, only part of which is suitable for residential development. The key issues have been identified as:

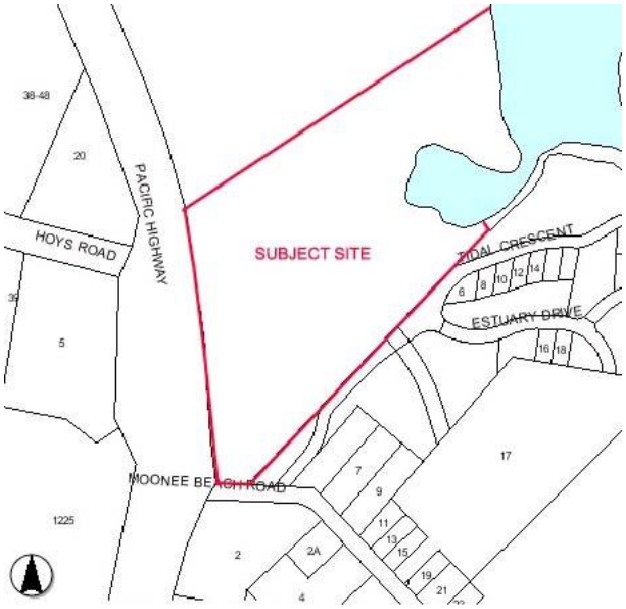
- Whether the proposal supports the regional and local planning strategies for Moonee Beach.
- The potential impact on the ecology of the site and Moonee Creek.
- Coastal processes.
- Requirements for infrastructure.
- Cultural heritage
- Whether the proposal reflects the characteristics and constraints of the site.

LOCATION PLAN

2 THE SITE

2.1 Location

The property description is Lot 5, DP 252223, Pacific Highway, Moonee Beach. It is located in the northern part of Moonee Beach, on the eastern side of the highway.



SUBJECT SITE

Land to the south-east has been developed for residential subdivision. Shopping and community facilities are located to the south of the subject site, on the southern side of Moonee Beach Road. Land to the north is not developed. Council plans show an area adjoining the north-west corner of the subject site for future residential use.

2.2 Topography

The site is shown on the aerial photograph on the following page.

Lot 5 has an area of 11.17ha, extending east from the Pacific Highway to Moonee Creek. The site is generally level with a slight slope to the east. The north western section, the location of the proposed development, is the highest area up to 5.5m AHD.

Cunninghams Creek cuts across the north of the site, isolating the north-eastern corner from the rest of the property. An intermittent watercourse also crosses the site, flowing from south-west to north-east.

2.3 Vegetation

Wetlands and riparian areas are associated with Cunninghams Creek and Moonee Creek. A significant area of remnant bushland, identified by Council as of high ecological value is located in the low land of the intermittent watercourse.

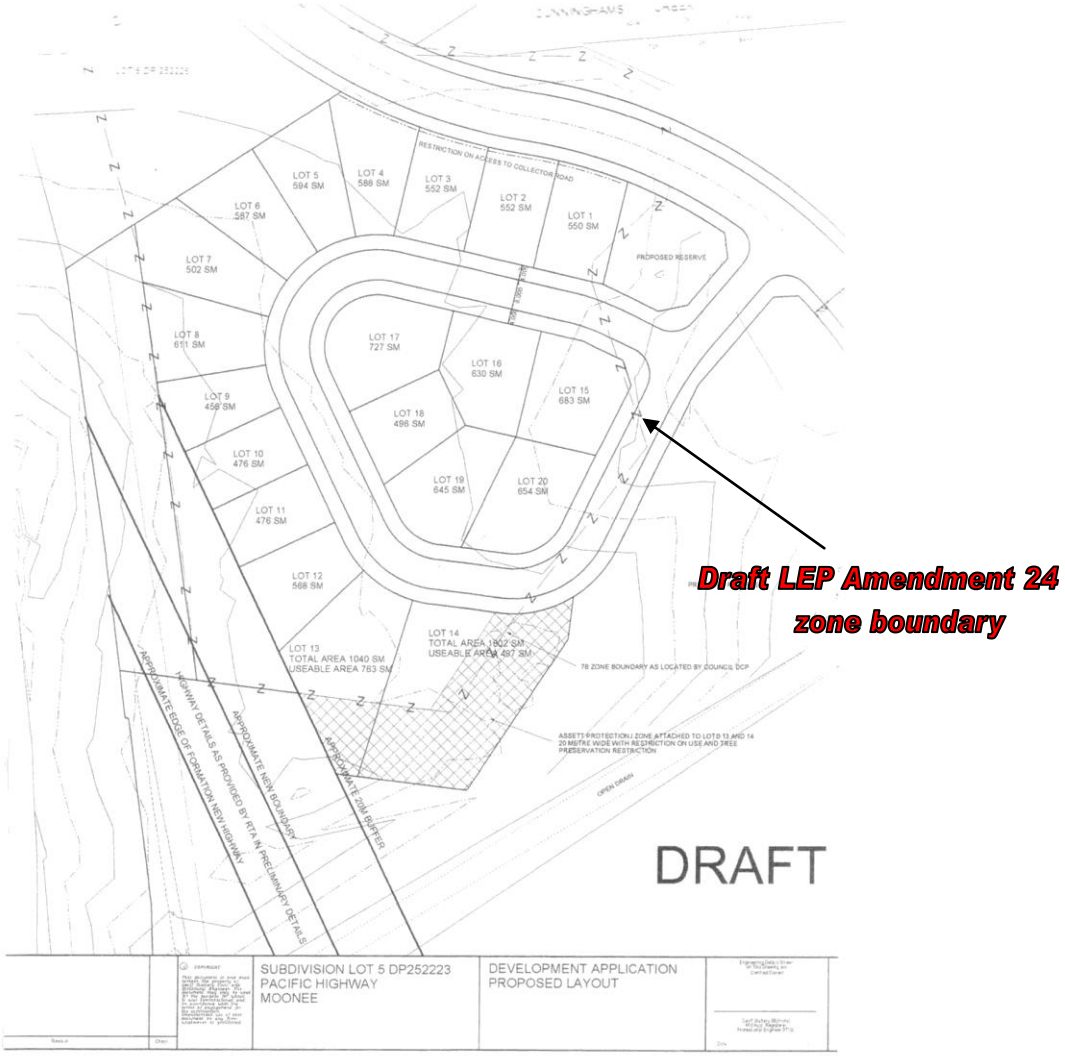
The north-western section of the land was cleared for grazing. Some regrowth of native species has occurred. A section on the south-eastern boundary was also cleared at one time.


CUNNINGHAMS CREEK
MOONEE CREEK
ESTUARY D
MOONEE BEACH ROAD
Legend
Subject Site
N
0
100m
DRAFT 28.07.08
SOURCE: Coffs Harbour City Council (July 2008)
SCALE: 1 : 3000 @ A4
JAMES WARREN & ASSOCIATES PTY LIMITED
Environmental Consultants
CLIENT
G. Slattery
PROJECT
Lot 5 DP252223
Moonee Beach Road, Moonee, NSW
Coffs Harbour City Council LGA
FIGURE 4
PREPARED: BW
DATE: 28 July 2008
FILE: N08002_Aerial.cdr
TITLE
AERIAL PHOTOGRAPH

3 THE PROPOSAL

3.1 Proposed Subdivision

The application proposes a residential subdivision located in the north-western section of the site.



Details of the subdivision are shown at attachment 1. The subdivision provides for:

- A collector road required by the Moonee DCP.
- 20 residential lots linked to the collector road by a service road.
- Public reserves.
- Servicing by reticulated water, sewer, electricity and tele-communications.

3.2 Environmental Protection

The plan of subdivision, superimposed on the aerial photograph is shown on the following page.

The development is proposed to be located on that part of the site with the least ecological value. The north-western area has been previously cleared. It is set slightly higher and is well away from Moonee and Cunninghams Creeks and the intermittent water course.

Public reserve is proposed over land identified as of higher ecological value.

3.3 Development Options

The subdivision design is largely predetermined by the limited residential potential of the land, the Moonee DCP requirement for a collector road through the land and protection of the areas of ecological significance.

The proposal represents the maximum density reasonable given the constraints of the site. A reduction in density would be contrary to regional and local strategies for Moonee Beach.

4 KEY ISSUES

4.1 Regional and local planning strategies

Relevant plans and policies are:

- SEPP 71 Coastal Protection
- SEPP Major Projects
- North Coast REP
- Coastal Design Guidelines for NSW
- NSW Coastal Policy 1997
- Sustainable Urban Settlement Guidelines
- Coffs Harbour City LEP 2000
- Coffs Harbour City LEP 2000 draft amendment 24
- Coffs Harbour City - Moonee DCP
- Coffs Harbour City – Subdivision DCP
- Coffs Harbour City – Low Density DCP

This proposal is consistent with these plans and polices. It is consistent with the objects of the *Environmental Planning and Assessment Act 1979*.

Moonee Beach has been designated for residential purposes under the Moonee Beach Development Control Plan. This Development Control Plan fits within a strategy that complies with the vision for coastal development as set out in State Environmental Planning Policy No 71, the New South Wales Coastal Policy, Coastal Design Guidelines, the North Coast Regional Environmental Plan and relevant Development Control Plans.


CUNNINGHAMS CREEK
MOONEE CREEK
ESTUARY D
MOONEE BEACH ROAD
Legend
Areas subject to Revegetation
Areas subject to Assisted Regeneration
Subject Site
0
100m
N
DRAFT 08.08.08
SOURCE: JWA Site Investigations; Coffs Harbour City Council (July 2008)
SCALE: 1 : 3000 @ A4
JAMES WARREN & ASSOCIATES PTY LIMITED Environmental Consultants
CLIENT
G. Slattery
PROJECT
Lot 5 DP252223
Moonee Beach Road, Moonee, NSW
Coffs Harbour City Council LGA
FIGURE 16
PREPARED: BW
DATE: 08 August 2008
FILE: N06002_Regen.cdr
TITLE
REVEGETATION & REGENERATION AREAS

SEPP 71

This proposal complies with the relevant aims of the Policy, in particular: management of the attributes of the coast in accordance with the principles of ecologically sustainable development; ensuring that the subdivision is appropriate for its location; protecting scenic values and significant vegetation; and promoting the strategic planning for the area set out by the Council and the Department of Planning.

The subdivision site is not located on the foreshore. Appropriate measures to conserve animals and habitats are proposed. Land near the creeks will be dedicated as public reserve. However, in view of the ecological significance of the site and alternative constructed public access to Moonee Creek, public access should be restricted.

It is not anticipated that the development of this land will impact on, or be affected by, coastal processes and coastal hazards.

No evidence has been found of historic camps or surface relics that may require protection.

North Coast REP

The relevant issues for consideration in the REP relate to:

- Urban Housing Objectives
- Development control - wetlands and fishery habitats
- Development control - residential development
- Development control - adequacy of community and welfare services.

The proposed subdivision is consistent with relevant policies.

Vegetation that should be protected will be in a public reserve. Studies indicate objectives for better water flow and quality can be achieved.

The proposed lots offer scope for subsequent dwellings to comply with to the design guidelines. The density of development suits the land capability.

The roads are not of excessive width. The techniques set out in the storm water management plan will be adequate to combat site erosion. Council has in place a Contributions Plan to ensure adequate and timely provision of community services and facilities.

Coastal Design Guidelines

The proposal promotes the Guidelines. It builds on the settlement's existing structure and will support the village centre. There will be no adverse impact on the watercourses. Development is well set back from areas affected by coastal processes. The proposal does not conflict with the Coastal Policy.

Coastal Policy

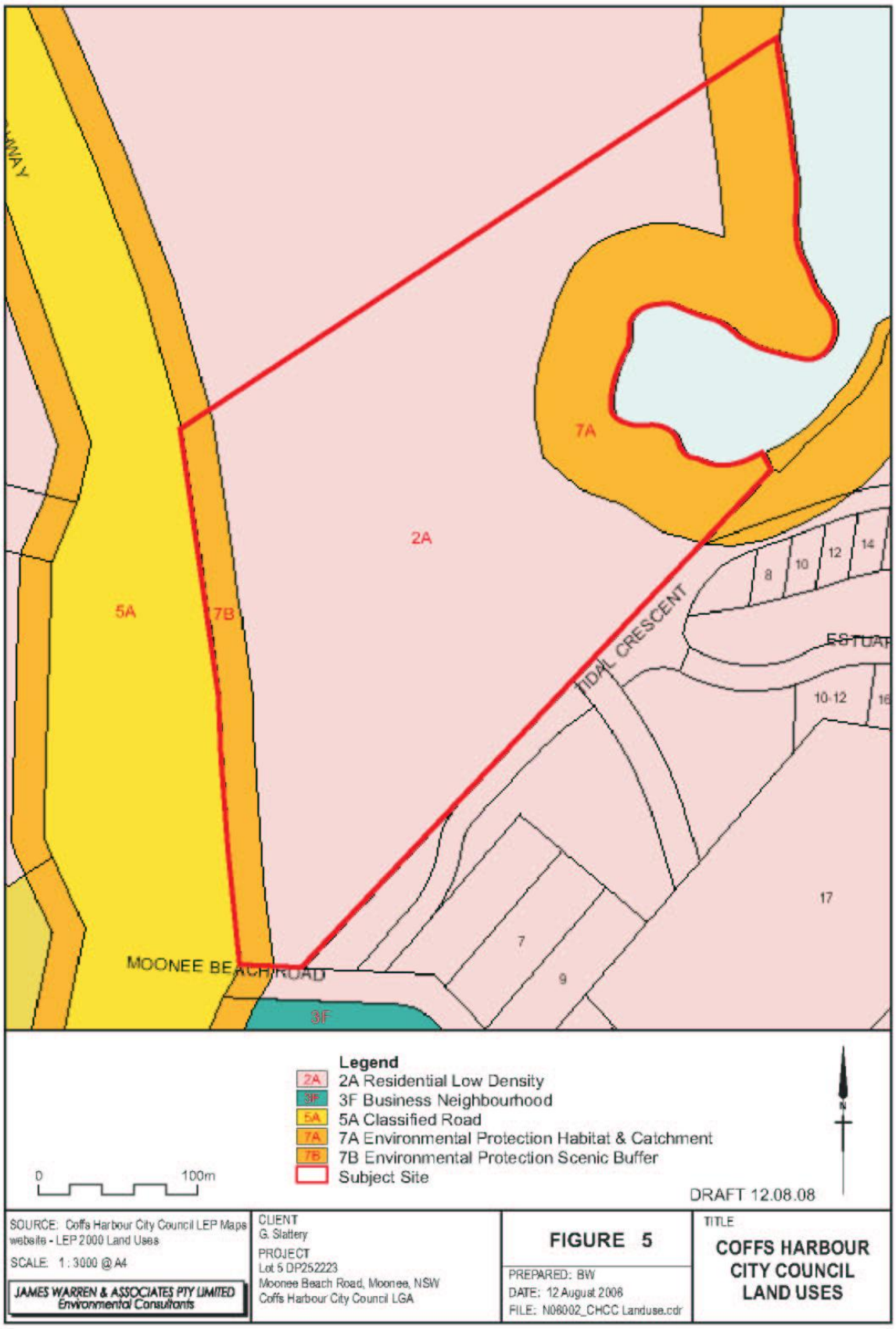
Coffs Harbour City Council planning strategy for Moonee is consistent with the coastal policy.

Coffs Harbour City LEP 2000

The zoning is shown on the following page.

LEP intends this precinct in Moonee to be a low density residential environment, developed within the environmental capability of the land. The proposed development complies with the zoning of the land.

The subdivision is permissible under the zoning, the 7A land is to become a public reserve and the Highway frontage zoning is respected.


7A
2A
5A
7B
TIDAL CRESCENT
MOONEE BEACH ROAD
3F
8
10
12
14
10-12
17
7
9
Legend
2A 2A Residential Low Density
3F 3F Business Neighbourhood
5A 5A Classified Road
7A 7A Environmental Protection Habitat & Catchment
7B 7B Environmental Protection Scenic Buffer
Subject Site
0
100m
N
DRAFT 12.08.08
SOURCE: Coffs Harbour City Council LEP Maps website - LEP 2000 Land Uses
SCALE: 1 : 3000 @ A4
JAMES WARREN & ASSOCIATES PTY LIMITED
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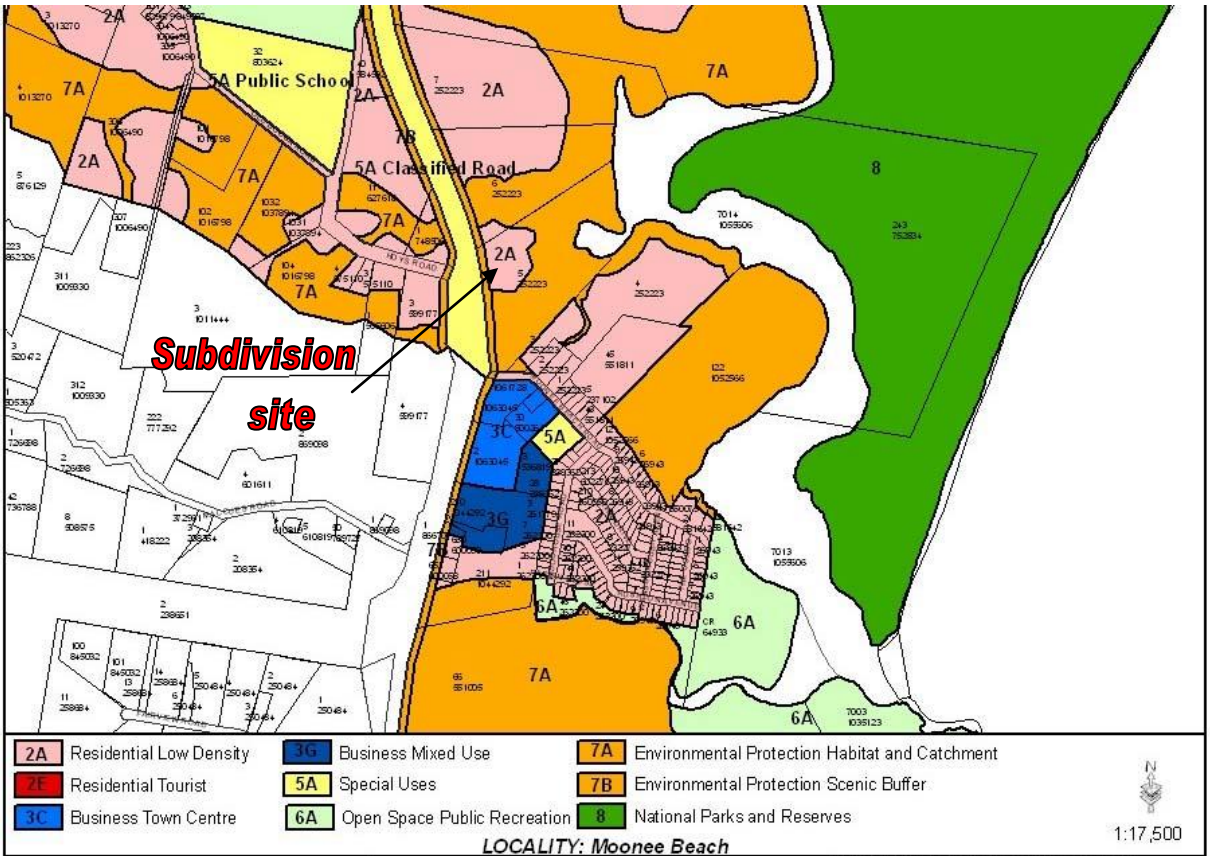
Lot 5 DP252223
Moonee Beach Road, Moonee, NSW
Coffs Harbour City Council LGA
FIGURE 5
PREPARED: BW
DATE: 12 August 2008
FILE: N08002_CHCC Landuse.cdr
TITLE
COFFS HARBOUR CITY COUNCIL LAND USES

Coffs Harbour LEP 2000 – Draft Amendment 24

Council has deferred (14 August 2008) consideration of the draft amendment 'until the major review of Coffs Harbour City Local Environmental Plan 2000 is undertaken in accordance with the Department of Planning's Standard Local Environmental Plan Template."

Under the proposed amendment 24, the land is zoned part Residential 2A low density; part Environmental Protection 7A Habitat and Catchment; and part Environmental Protection 7B Scenic Buffer.



The proposed zoning boundary is shown on the plan of subdivision on page 3. Residential development is retained in the residential zone. The 7A area is to be dedicated as public reserve.

Coffs Harbour - Moonee DCP

The Moonee DCP indicates a collector road and cycleway to be located through the subject site. Connection is also required from this collector road to the subdivision.

The desired local character of the residential area is for low density housing. The DCP indicates a target yield of 22 dwellings for the total site. Due to the Highway proposals, the need to provide asset protection and public open space dedication the maximum reasonable residential lot yield is 20.

Coffs Harbour - Subdivision DCP

Sets out design and performance standards. The merit and performance criteria of this Development Control Plan have been complied with for this proposal.

Coffs Harbour - Low Density DCP

Sets out design of performance criteria for dwellings. The proposed satisfies the density requirements of the DCP.

4.2 Potential ecological impact

James Warren and Associates have prepared a Flora and Fauna Assessment for Lot 5 DP 252223 Pacific Highway, Moonee.

The summary and conclusions are as follows. A more detailed assessment of impact and required amelioration is included as an attachment.

The site covers an area of approximately 11.3 hectares. Open areas of grassland and scattered trees occur in the central western and north-western portions of the site. Grassland occurs in the south-eastern corner of the site. Denser areas of vegetation occur in association with the central, south-western and north-eastern portions of the site. The subject site is bordered by Moonee Creek to the east and the Pacific Highway to the west.

The subject site is zoned 2A Residential Low Density over the majority of the site. A small fringe of 7A Environmental Protection (habitat and Catchment) land occurs along the south eastern border adjacent to Moonee Creek. A small fringe of land between the Pacific Highway and the site is Zoned 7B Environmental Protection Scenic Buffer.

The proposed development consists of a twenty (20) lot residential development. The development areas occur in the central western portion. The road enters the site from the north-western and south–east of the subject site.

A flora and fauna survey was completed at the subject site between the 14th and 18th of July 2008. The site was comprehensively surveyed and a plant species list was compiled.

One hundred and forty three (143) flora species were recorded at the subject site. None of these are Threatened or ROTAP (Briggs & Leigh 1995) species.

Four (4) broad vegetation types, consisting of twelve (12) distinct vegetation communities were identified on the subject site.

Two (2) Endangered Ecological Communities (EECs) occur on the site and include:

- *Swamp sclerophyll forest on coastal floodplain*
- *Coastal saltmarsh*

A number of forest ecosystems (CRA Unit 1999) occur on the site, and include:

- Forest Ecosystem 72 (Low Relief Coastal Blackbutt).This ecosystem is considered to be **Rare**, and has been identified as a priority for conservation on private land. The conservation status of this community on the subject site is relatively high.
- Forest Ecosystem 20 (Clarence Lowland Needlebark Stringybark). This ecosystem is not considered to be Vulnerable, Rare, or Endangered. The conservation status of this community is considered to be moderate.
- Forest Ecosystem 147 (Turpentine). This ecosystem is not considered to be Vulnerable, Rare, or Endangered. The conservation status of this community is considered to be moderate.

- Forest Ecosystem 142 (Swamp mahogany). The ecosystem is considered to be **Rare**. This community has a high conservation value. This community is representative of the Endangered Ecological Community (EEC) Swamp sclerophyll forest on coastal floodplain.
- *Forest Ecosystem 112 (Paperbark). The ecosystem is considered to be **Vulnerable**. Paperbark communities have been identified as a priority for conservation on private land. The conservation value of this community is considered to be high. This community is representative of the Endangered Ecological Community (EEC) Swamp sclerophyll forest on coastal floodplain.*
- *Non-Forest Ecosystem 77 (Mangrove). The ecosystem is considered to be **Rare**. The conservation value of these communities is considered to be high. Coastal Saltmarsh (which occurs in tandem with parts of this community) has been classified as an Endangered Ecological Community (EEC) by the NSW Scientific Committee (NPWS 2004).*

Additionally, several of the vegetation communities on the site are considered Regionally Significant, Locally Significant, or of Ecological Significance (Communities which comprise tree species utilised by Koalas) under vegetation mapping for the Coffs Harbour LGA by Fisher et al. *(1996).*

The vegetation communities with the highest conservation value occur primarily on the eastern side of the site flanking Moonee Creek. The Blackbutt community covers much of the southern to central portions of the site.

The survey recorded six (6) reptile species, four (4) amphibian species forty nine (49) bird species and twenty-two (22) mammal species. The following threatened species were recorded:

- Glossy black-cockatoo (*Calyptorhynchus lathami*)
- Little bent-wing bat (*Miniopterus australis*)
- Common bent-wing bat (*Miniopterus schreibersii*)
- Large-footed myotis (*Myotis macropus*)
- Koala (*Phascolarctos cinereus*)
- Grey-headed flying-fox (*Pteropus poliocephalus*)

The Proposed development will result in the loss of vegetation for the construction of houses, access roads, driveways and associated infrastructure. There are potential associated impacts on flora, fauna (including Threatened species), Moonee Nature Reserve, and Moonee and Cunningham's Creeks adjacent to the site.

In total 2.45 hectares of vegetation will be lost to the proposed development, the majority of which is grasslands with scattered trees. The proposed development will result in minor loss of foraging, sheltering and breeding habitat for native fauna occurring in the locality.

Impacts of the proposed development on most Threatened species recorded on the site are not considered to be significant. However, there are potential impacts for the Wallum froglet (not recorded), Koala and Squirrel glider (not recorded).

Koala habitat on the site has been mapped by CHCC, and occurs as 6 hectares of Secondary habitat in the southern and central portions of the site. It should be noted that some of the mapped Secondary Koala habitat consists of scattered eucalypts within grasslands on the site. The proposed development will contribute toward the loss of some Secondary Koala Habitat on the site, as scattered trees in the north-west of the site.

Other impacts on Koalas include:

- Fragmentation of Koala habitat on the site
- Potential for injury or death from vehicle strike

- Potential for drowning in swimming pools
- Potential for harassment, injury or death from straying dogs

Loss of scattered trees within grasslands will result in a reduction of forage habitat for the Squirrel glider and diminish movement corridors. There is potential for increased disturbance to Squirrel gliders feeding and roosting in vegetated areas proximate to the development, and the further possibility of predation from cats. There is also some limited potential for direct mortality during construction.

The Proposed development will contribute towards a reduction in the overall effectiveness of the site as a corridor due to habitat loss and fragmentation and a reduction in the width and length of the corridor value of the site due to edge effects.

The proposed development has the potential to result in impacts on habitats within Moonee Beach Nature Reserve as a result of increased visitation to the reserve. Impacts associated with increased visitation may include trampling of vegetation, picking of wildflowers, increased disturbance of fauna, increased risk of fire, increased potential for dumping of rubbish and increased potential for invasion of exotic flora and fauna.

The proposed development has the potential to result in impacts on habitats within Moonee Creek and Cunningham's Creek related to:

- Impacts on water quality and hydrology as a result of stormwater runoff from the proposed development.
- Increased visitation, with potential for trampling of intertidal vegetation, dumping of rubbish or refuse in creek habitats (particularly discarded fishing line, bait bags etc.), disturbance of fauna.
- Erosion of topsoil and disturbance to creekbank vegetation from construction of bridges and fishing platforms.

A number of amelioration measures have been recommended in this report. While vegetation clearance for the proposed development will result in some loss of habitat for fauna utilising the site, this will be relatively minimal, with the best quality habitat on the site being retained. The following amelioration measures apply:

- Landowners should control dogs on the site. All animals should reside within fenced enclosures and be on a leash when outside of the enclosure. Cats should be banned under the Companion Animals Act (1998) to reduce likely impacts on local fauna.
- Appropriate disposal of rubbish and food scraps reduces opportunities for non-native predators and disturbance adapted competitors.
- Landscape and landfill materials should be sourced from a supplier where Cane toads do not occur.
- Mature habitat trees should be retained where possible.
- Compensatory Koala habitat trees to be planted in the north-west corner of the site and outside the development envelope for any Koala habitat trees removed.
- A qualified fauna handler should be on site when clearing occurs.
- 40 km/hr speed limit to be imposed on internal access roads.
- Planting of suitable feed trees (*A. littoralis*, *A. torulosa*) around retained areas of the site for Glossy black cockatoos utilising the site.

General Amelioration measures and amelioration measures to reduce impacts on Moonee and Skinners Creeks and Moonee Beach Nature Reserve include:

- *Stormwater management aim to achieve no significant net change in runoff into wetland areas on the site, and Moonee and Skinners Creeks.*
- *Restrictions should be placed on the use of fires during extended dry weather periods.*

- *Suitable measures (e.g. Siltation fencing) be taken to prevent erosion of topsoil into Moonee and Skinners Creeks during construction of Fishing platforms, Canoe jetties and bridges.*
- *Signage encouraging responsible fishing practices (i.e. Disposal of rubbish in appropriate facilities.)*

A Section 5A assessment (Assessment of Significance) was undertaken for twenty-five (25) Threatened fauna species considered a possible occurrence at the subject site over time, and two (2) Endangered Ecological Communities (EECs) recorded on the site. The assessment concluded that the impacts of the Proposed development would be unlikely to result in the local extinction of any of these species, and that there would be no significant impact upon any of the Endangered Ecological Communities occurring on the site. A Species Impact Statement is not required.

An assessment under the *Commonwealth Environment Protection and Biodiversity Conservation Act (1999)* concluded that the Proposed development will not have a significant impact on any matters of National Environmental Significance. Commonwealth assessment of the proposal is therefore not required.

A stormwater management plan has been prepared and measures recommended to ensure that development of the site is likely to have a neutral or beneficial affect on the flow and quality of water leaving the site.

The water quality study has examined the impact of the development on stormwater discharges from the site and recommends current best practice in water sensitive urban design for application to the development.

Key components of the water quality management plan are the control of stormwater from road surfaces, provision of detention ponds and provision of rainwater tanks.

4.3 Coastal processes

It is not anticipated that the development of this land will impact on, or be affected by, coastal processes and coastal hazards. The land is outside the indicative 100 year regression line.
Dwellings will be above anticipated sea level rises. Sites are also at least 4m above the local creek. Additional rainfall predicted from climate change should not adversely impact dwelling sites.

4.4 Requirements for infrastructure

The size of the land will be reduced by the RTA requirements for widening of the Pacific Highway. This has been taken into account in the subdivision design.

The Moonee DCP indicates a collector road and cycleway to be located through the subject site. Connection is also required from this collector road to the subdivision.

There are no other infrastructure corridors required.

4.5 Cultural heritage

An archaeological assessment of the site was carried out by Bonhomme Craib. No elements of Aboriginal culture have been found on the site. Of European cultural interest was a cricket pitch (concrete in the vicinity of proposed Lot's 12 and 6.

4.6 Response to site characteristics and constraints

The subdivision design is largely predetermined by the limited residential potential of the land, the Moonee DCP requirement for a collector road through the land and protection of the areas of ecological significance.

The subdivision is restricted to that part of the land identified as being of least ecological significance. Work will be implemented to protect the ecological communities in the proposed public reserves and to ensure no adverse impact on the watercourses on the land.

The proposal represents the maximum density reasonable given the constraints of the site. A reduction in density would be contrary to regional and local strategies for Moonee Beach.

5 FURTHER STUDIES

Coffs Harbour City Council has prepared a detailed developer contributions plan to support the Moonee DCP. The contributions plan is based on an assessment of the development potential possible under the DCP.

The contributions plan addresses the issues of:-

1. Transport and traffic management.
    - Provision of a collector road and associated infrastructure.
    - Traffic management measures, e.g. traffic calming devices.
    - Provision for bus service requirements along the collector road.
    - Pedestrian and bicycle ways.
    - Location of the access road into the subject site.

2. Provision of community facilities and services
    - Open space.
    - Community centre.

3. Conservation Management
    - Flood study.
    - Estuary management study.
    - Areas of high conservation value.
    - Stormwater management.

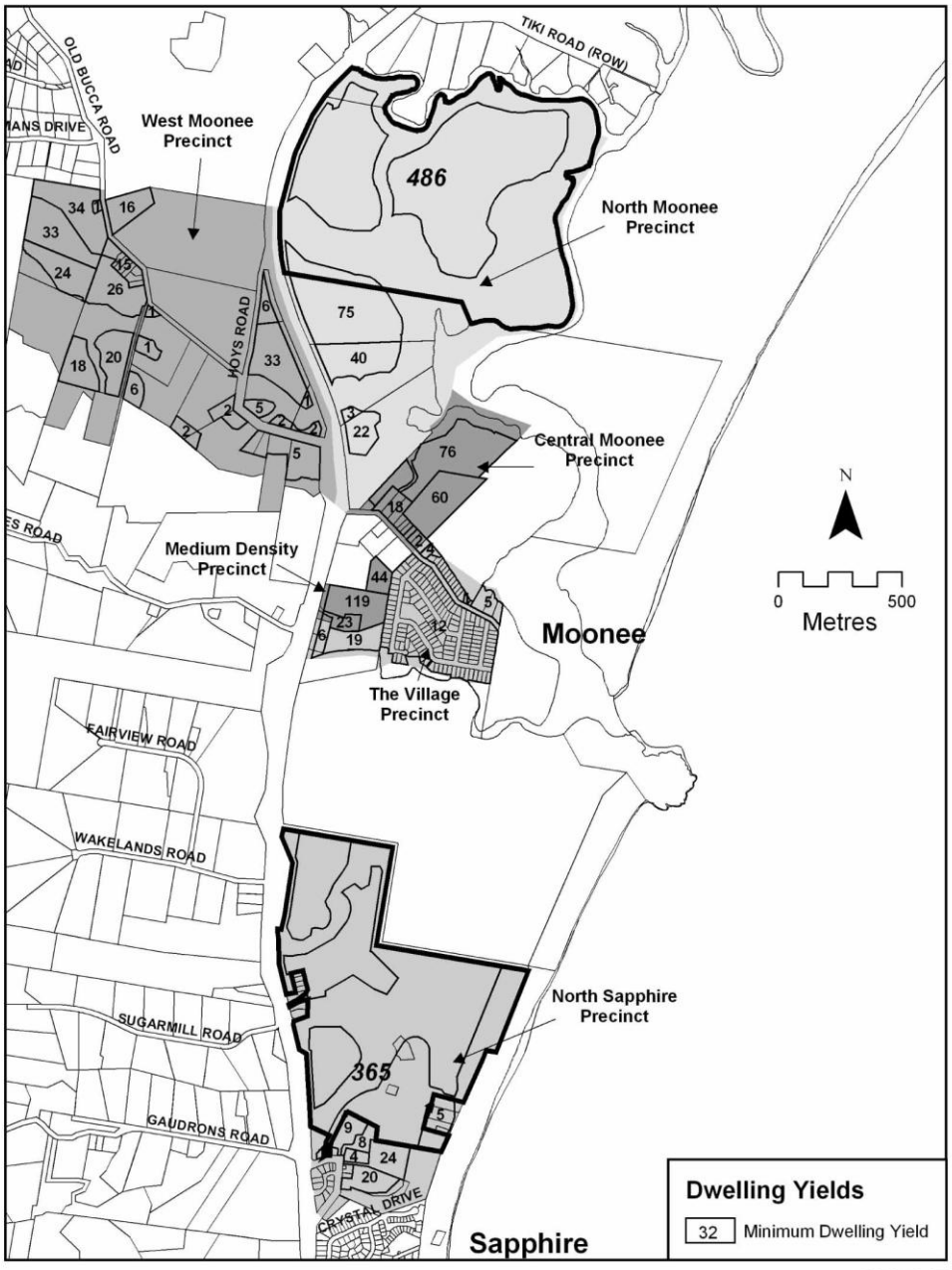
The preparation of the contributions plan involved an assessment of traffic management, community needs, flood liability and estuary management. The Department of Planning is requested to agree that, where a proposed development in Moonee is within the density prescribed in the DCP, revisitation of these studies is superfluous and unnecessary.

ANNEXURE A

Plan of Subdivision

ANNEXURE B

Extract from Moonee Development Control Plan



MAP 7
TARGET DENSITIES

PART 2 – PLANNING STRATEGY

MASTERPLAN

OBJECTIVE

- To provide an overall plan for the area.
- To encourage quality development whilst being sympathetic to the natural environment.

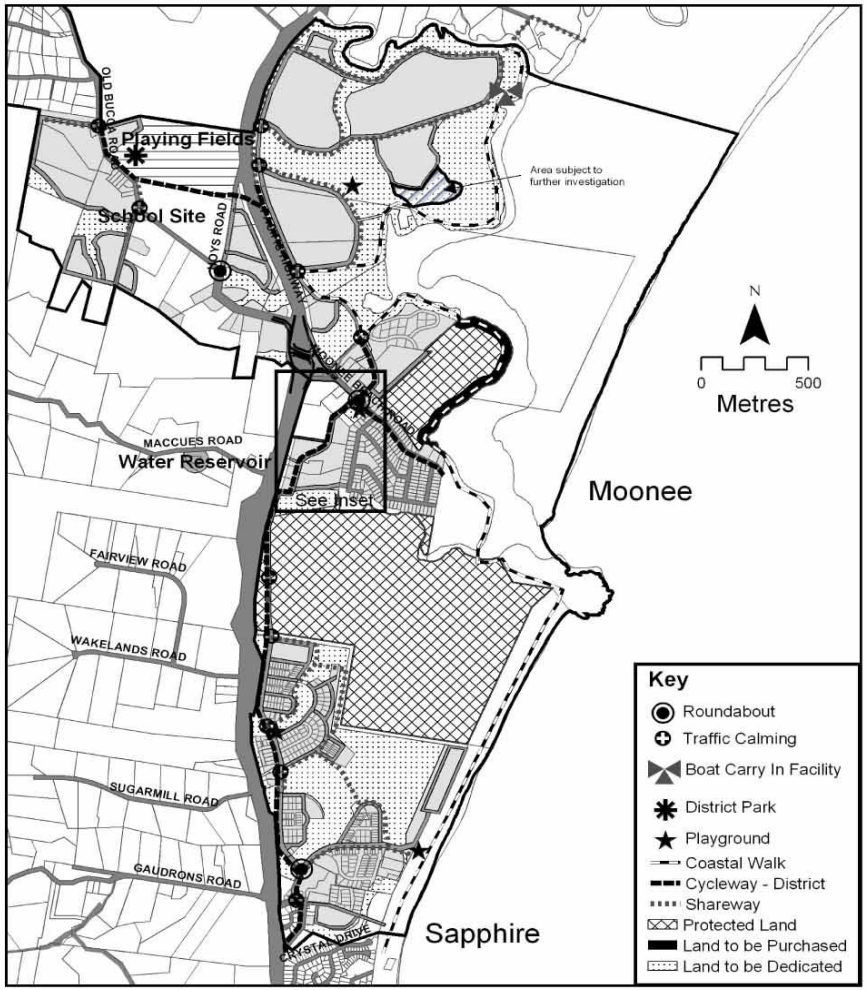
SPECIFIC STRATEGIES

Economic Sustainability

- A minimum dwelling yield of 1,686; an additional 4,558 people.
- Water is to be supplied by extending the existing water main network.
- Sewerage reticulation and pump stations are to be constructed by developers, and connected to the Moonee Water Reclamation Plant.
- Retail and commercial development is to provide district business services.
- Developers are to forward fund any works required ahead of Council's servicing plans.

Social Sustainability

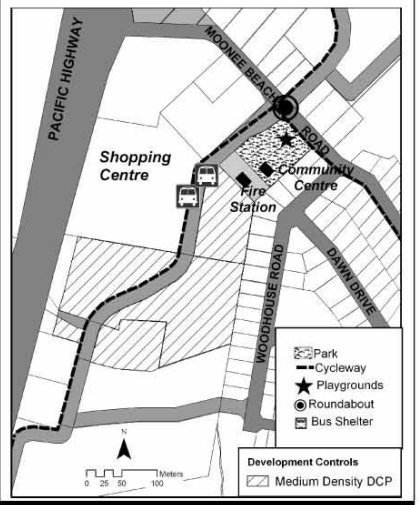
- A new multi purpose hall is to be provided in stages to reflect development progress.
- School facilities and fire station are to be provided in timely manner by State Government.
- Pedestrian paths and cycleways are to be constructed by the developer.
- A pedestrian and cycleway bridge is to be constructed over the Pacific Highway connecting residential areas to the school and sports facilities, through developer contributions.
- The collector road system will be provided through developer contributions paying for widening of local roads.
- The northern collector road will be funded through a local contribution applying to the properties it serves.
- Bus shelters to be provided so that all residential areas are no further than 400m from the nearest shelter.
- Playing fields are to be provided in Hoys Road adjacent to the proposed school.
- Children's playgrounds are to be provided so that all residential areas are no further than 500m from the nearest facility.
- A neighbourhood park to be provided adjacent to the shopping precinct.



SPECIFIC STRATEGIES

Environmental Sustainability

- Identified buffer areas for water quality protection shown on the Masterplan are to be dedicated as development occurs.
- Perimeter roads shall be provided that separate urban development from protected areas.
- The provision for bushfire asset protection zones shall not involve the clearing of native vegetation within conservation areas.
- Development is to demonstrate achievement of water quality targets specified in Council's Urban Stormwater Management Plan.
- Acoustic design will ensure highway traffic noise does not exceed acceptable levels within dwellings.
- A landscaped buffer is to be provided between the highway and residential areas, designed to incorporate essential service corridors, and associated access.



MOONEE RELEASE AREA

MAP 2

ANNEXURE C

Flora and fauna study - Impacts and Amelioration

JAMES WARREN & Associates Pty Ltd

ENVIRONMENTAL CONSULTANTS

FLORA AND FAUNA ASSESSMENT

LOT 5 DP 252223
PACIFIC HIGHWAY, MOONEE

AUGUST 2008

GEOFF SLATTERY & PARTNERS PTY LTD

4. Impacts and Amelioration

4.1 Impacts of the Proposed Development

4.1.1 Potential Impacts on Flora

The Proposed development will result in the loss of vegetation for the construction of houses, access roads, driveways and associated infrastructure. **FIGURE 11** shows the relationship of the development layout to vegetation communities occurring on the subject site.

The subject site covers approximately 11.29 hectares, the majority of which is covered with native plant communities. The layout of the site has been planned in a manner which will be sensitive to the conservation of vegetation on the site. Vegetation loss will be minimised and restricted to the most disturbed portions of the site. Major areas of vegetation (mostly Sclerophyll forest) occurring in the southern, central and north-eastern portions of the site are to be retained.

Approximately 21.7% of the total site area will be subject to urban development. A summary of vegetation types to be lost and their respective areas is shown in **TABLE 10**.

TABLE 10
IMPACTS ON SITE VEGETATION

VEGETATION COMMUNITIES			
Community	**Total Area (ha)**	**Area to be Lost (ha)**	**Area to be Retained (ha)**
1a	2.7995	0.0411	2.7584
1b	1.9076	0.7166	1.1910
1c	0.7900	0	0.7900
1d	0.3703	0.1519	0.2184
2a	0.8083	0	0.8083
2b	0.0991	0	0.0991
2c	1.1210	1.1210	0
2d	0.3241	0.0621	0.2620
3a	0.2324	0	0.2324
3b	0.8695	0	0.8695
4a	0.9617	0.1877	0.774
4b	1.0030	0.1653	0.8377
TOTAL	**11.2865**	**2.4457**	**8.8408**

In total approximately 2.45 hectares of vegetation will be lost to the proposed development, the majority of which is grasslands with scattered trees or disturbed communities.

All trees in the proposed residential development portion of the site have been located by survey. Impacts of the proposed development on trees within the development area are shown in **FIGURE 12**. Impacts on trees within the development area are listed in **TABLE 11**.

TABLE 11
IMPACTS OF THE PROPOSED DEVELOPMENT ON SURVEYED TREES

Tree survey no.	Scientific name	Common name	Retained?	Habitat tree?
27	*Eucalyptus robusta*	Swamp mahogany	No	No
28	*Eucalyptus robusta*	Swamp mahogany	No	No
29	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
30	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
31	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
32	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
33	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
34	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
35	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
36	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
37	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
38	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
39	*Melaleuca quinquenervia*	Broad-leaved paperbark	**Yes**	No
40	*Eucalyptus pilularis*	Blackbutt	No	No
41	*Eucalyptus pilularis*	Blackbutt	No	No
42	*Eucalyptus pilularis*	Blackbutt	No	No
43	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
44	*Eucalyptus robusta*	Swamp mahogany	**Yes**	No
45	*Eucalyptus resinifera*	Red mahogany	No	No
46	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
47	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
48	*Eucalyptus robusta*	Swamp mahogany	No	No
49	*Eucalyptus pilularis*	Blackbutt	No	No
50	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
51	*Eucalyptus pilularis*	Blackbutt	**Yes**	**Yes**
52	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
53	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
54	Dead		No	No
55	*Eucalyptus pilularis*	Blackbutt	No	No
56	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
57	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
58	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
59	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
60	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
61	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
62	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
63	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
64	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
65	*Eucalyptus pilularis*	Blackbutt	**Yes**	No

Tree survey no.	Scientific name	Common name	Retained?	Habitat tree?
66	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
67	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
68	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
69	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
70	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
71	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
72	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
73	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
74	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
75	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
76	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
77	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
78	*Corymbia intermedia*	Pink bloodwood	**Yes**	No
79	*Eucalyptus pilularis*	Blackbutt	No	No
80	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
81	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
82	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
83	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
84	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
85	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
86	*Eucalyptus pilularis*	Blackbutt	No	No
87	*Eucalyptus pilularis*	Blackbutt	No	No
88	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
89	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
90	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
91	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
92	*Eucalyptus resinifera*	Red mahogany	No	No
93	*Eucalyptus robusta*	Swamp mahogany	No	No
94	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
95	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
96	*Eucalyptus robusta*	Swamp mahogany	No	No
97	*Lophostemon suaveolens*	Swamp turpentine	No	No
98	*Eucalyptus pilularis*	Blackbutt	No	No
99	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
100	*Eucalyptus pilularis*	Blackbutt	No	No
101	*Eucalyptus pilularis*	Blackbutt	No	No
102	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
103	*Eucalyptus pilularis*	Blackbutt	No	No
104	*Eucalyptus resinifera*	Red mahogany	**Yes**	No
105	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
106	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
107	*Eucalyptus pilularis*	Blackbutt	No	No
108	*Eucalyptus resinifera*	Red mahogany	**Yes**	No
109	*Eucalyptus pilularis*	Blackbutt	No	No
110	*Eucalyptus pilularis*	Blackbutt	No	No
111	*Eucalyptus pilularis*	Blackbutt	No	No
112	*Eucalyptus pilularis*	Blackbutt	No	No
113	*Eucalyptus pilularis*	Blackbutt	No	No

Tree survey no.	Scientific name	Common name	Retained?	Habitat tree?
114	*Eucalyptus pilularis*	Blackbutt	No	No
115	*Eucalyptus pilularis*	Blackbutt	No	No
116	*Eucalyptus pilularis*	Blackbutt	No	No
117	*Eucalyptus pilularis*	Blackbutt	No	No
118	*Eucalyptus pilularis*	Blackbutt	No	No
119	*Eucalyptus pilularis*	Blackbutt	No	No
120	*Eucalyptus pilularis*	Blackbutt	No	No
121	*Eucalyptus pilularis*	Blackbutt	No	No
122	*Eucalyptus pilularis*	Blackbutt	No	No
123	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
124	*Callistemon salignus*	Willow bottlebrush	**Yes**	No
125	*Eucalyptus pilularis*	Blackbutt	**Yes**	No
126	*Eucalyptus pilularis*	Blackbutt	No	No
127	*Eucalyptus pilularis*	Blackbutt	No	No
128	*Eucalyptus pilularis*	Blackbutt	No	No
129	*Eucalyptus microcorys*	Tallowwood	No	No
130	*Eucalyptus pilularis*	Blackbutt	No	No
131	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
132	*Syncarpia glomulifera*	Turpentine	No	No
133	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
134	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
135	*Syncarpia glomulifera*	Turpentine	No	No
136	*Syncarpia glomulifera*	Turpentine	No	No
137	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
138	*Melaleuca quinquenervia* + *Callistemon salignus.*	Broad-leaved paperbark + Willow bottlebrush	No	No
139	*Casuarina glauca*	Swamp she-oak	No	No
140	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
141	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
142	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
143	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
144	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
145	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
146	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
147	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
148	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
149	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
150	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No

Tree survey no.	Scientific name	Common name	Retained?	Habitat tree?
151	*Melaleuca quinquenervia*	Broad-leaved paperbark	No	No
152	*Eucalyptus resinifera*	Red mahogany	No	No

Additional impacts on vegetation communities and plants include:

- Potential for degradation of retained areas of vegetation.
- Potential for degradation of retained areas of vegetation along Moonee and Cunningham's Creek.
- *Clearance of areas of the subject site represents a loss of habitat available for dispersal for plants and will reduce visits by pollination and dispersal vectors.*
- *Disturbance to the subject site creates opportunities for weeds to colonise. Weeds may be introduced to the Study site in construction materials or by vehicles. Occupation of the subject site creates opportunities for weeds to become established. Landscape species may escape to retained areas of vegetation.*
- *The removal of vegetation from the subject site represents the loss of organic material from the site.*
- *Residents may create walking tracks through bushland areas to gain access to Moonee Creek. This may result in direct loss of vegetation, change in vegetation structure and increased opportunities for weeds and disturbance adapted animal species.*
- *Occupation of the site may increase the risk of fire release into the surrounding bushland.*

4.1.2 Potential Impacts on Fauna

The proposed development will result in some loss of foraging, sheltering and breeding habitat for native fauna occurring in the locality. This loss may have a range of impacts including:

- Loss of forage habitat for nectarivorous and insectivorous fauna species, including the loss of autumn/winter flowering plants.
- Minor decrease in the size of local fauna populations and increased susceptibility to threatening processes acting in the locality.
- Minor decrease in the size of the prey base for carnivorous species.
- Increased fragmentation of habitat in the locality.
- Some decrease in the genetic base for local fauna populations.
- Loss of sheltering and breeding habitat for native fauna.
- Reduction in opportunities for movement through the site.
- *No identified hollow-bearing trees will be removed as a result of the proposed development however, the loss of sub-mature eucalypts represents a decrease in the future recruitment of hollows.*
- *Loss of eucalypts, paperbarks, banksias and flowering shrubs decrease the food supply for nectarivores.*
- *Animals may be killed or injured during the clearance of vegetation.*
- *Domestic dogs and cats prey on native fauna and may have significant impacts on the populations of native species.*
- *Development of the subject site may favour native and introduced disturbance adapted competitors. For example, Cane toads may out-compete other Amphibians and Reptiles, aggressive open country bird species (e.g. Noisy miner, Crow, Pied currawong) may out-compete other birds, and non-native mammals (Black rat and House mouse) may out-compete other native small mammals).*

- *Increased light, noise and activity may cause reclusive species to move away from habitat edges.*
- *The Proposed development will result in an increase in traffic on and to the subject site. This increases the likelihood of animals being killed or injured by vehicles.*
- *Adverse impacts on water quality in the creeks may occur as a result of residential development.*

4.1.3 The Coffs Harbour City Council Moonee Development Control Plan

The Moonee Development Control Plan (DCP) was adopted by Coffs Harbour City Council on the 22 September 2004. The DCP applies to the Moonee Release Area, in which the subject site occurs. Environmental mapping has been completed for the Moonee Release Area under the 2004 DCP.

FIGURE 13 shows the Moonee DCP environmental mapping in the context of the proposed development.

The proposed development will result in the loss of 0.27 hectares of vegetation which has been mapped as Very High Value Vegetation by Coffs Harbour City Council.

4.1.4 Potential Impacts on Threatened species

The possible impacts of the Proposed development on Threatened fauna species either recorded during the site survey or that are considered possible occurrences on the site are discussed below. More detailed discussion of impacts is provided within 7 part tests (i.e. Section 5.2).

Wallum froglet
Not recorded on the site. Suitable habitat does occur. The better suitable habitat (Swamp sclerophyll communities) will be retained.

Brown treecreeper
All habitat which may be suitable for this species will be retained. Overall, impacts on this species are considered to be relatively low.

Osprey
Known to be nesting in the area. No nests recorded from the subject site. Will forage along Moonee Creek. Unlikely to utilise Cunningham's Creek.

Glossy black-cockatoo
Observed flying over the site. Feed tree species present on the subject site however no evidence of feeding activity (i.e. chewed cones) recorded. No records of nesting activity. Large areas of foraging habitat known to occur to the south of Moonee Beach Road.

Regent honeyeater
Known to frequent stands of Swamp mahogany during winter. The majority of Swamp mahogany that occur on the site will be retained.

Black-necked stork
All habitat which may be suitable for this species will be retained. Overall, impacts on this species are considered to be relatively low.

Square-tailed kite
This species may occasionally utilise the subject site as part of a much larger home range. The impacts of the proposed development are considered to be low.

Masked owl
Known to occur in the area. Habitat and prey source known to occur on the subject site. Not known to be nesting in the area. There will be some loss of forage resource as a result of the development.

Powerful owl (as for Masked owl)

Barred cuckoo shrike
Possible occurrence but lack of well developed rainforest habitat would restrict its reliance on the site for foraging purposes.

Koala
Koala habitat on the site has been mapped by CHCC in the Blackbutt and Swamp sclerophyll communities. These habitats have been mapped as Secondary habitat (**FIGURE 14**). Six (6) hectares of Koala habitat has been mapped on the site. Only 0.27 hectares of this habitat will be lost as a result of the proposed development. It should be noted that some of the mapped Secondary Koala habitat consists of scattered eucalypts within grasslands on the site. A number of tree species present on the subject site have also been identified in the Coffs Harbour Koala Plan of Management (KPoM) as feed tree species. These are:

- Broad-leaved paperbark
- Blackbutt
- Red mahogany
- Tallowwood
- Swamp mahogany

Koala scats were found to the south-east of the site in vegetation fringing Moonee Creek Road.
The proposed development (mainly road construction) will contribute toward the loss of some Secondary Koala Habitat on the site.

The proposed development is likely to limit opportunities for Koala movement over the site, with movement restricted to retained vegetation along the creek lines. There is also the potential for Koalas to be injured or killed during clearing of vegetation on the site, or from vehicle strike within the developed urban areas. Urban development of the site also has the potential to increase risks to Koalas from straying dogs and drowning in swimming pools.

Grey-headed flying-fox
The proposed development will result in the loss of foraging habitat (mature Eucalypt, Melaleuca and other myrtaceous species) for this species and reduce the foraging efficiency of any individuals foraging in the Study area. There is no suitable roosting habitat for this species in the Study area. The Grey-headed flying-fox is likely to continue to forage in retained areas of vegetation on the site and will not be significantly affected by the proposed development.

Squirrel glider
Not recorded on the site. Squirrel gliders have been recorded to the near north and north-east of the subject site in eucalypt woodland, and also within scattered eucalypts within grasslands. This species is likely to utilise most of the sclerophyll and paperbark communities in the eastern portions of the site, including scattered eucalypts in grassland adjacent to these communities.

Loss of scattered trees within grasslands will result in a reduction of forage habitat for the Squirrel glider and diminish movement corridors. There is potential for increased disturbance to Squirrel gliders feeding and denning in vegetated areas proximate to the development and the further possibility of predation from cats. There is also the potential for direct mortality during construction.

Yellow-bellied glider
Known to occur in the near locality. Not recorded on the site. Loss of forested habitats may result in a reduction of forage habitat for the Yellow-bellied glider and diminish movement corridors. There is potential for increased disturbance to Yellow-bellied gliders feeding and denning in vegetated areas proximate to the development and the further possibility of predation from cats. There is also the potential for direct mortality during construction.

Common blossom bat
Known from the Moonee Nature Reserve. Not recorded on this site. The flowering eucalypts and paperbarks on the site are likely to be utilised. Roost habitat (mainly dense rainforest vegetation) does not occur on this site.

Common planigale
All habitat which may be suitable for this species will be retained. If present, may be impacted by predation by domestic pets, particularly cats.

Little bent-wing bat
The Little bent-wing bat forages on insects in forested habitats and roosts in caves, tunnels and similar structures. A cave at Dammerels Headland (to the north) is known to be an important wintering roost for the Little bent-wing bat and the Common bent-wing bat. The proposed development will result in the loss of some foraging habitat for this species in the open woodland environment of the site, and reduce the foraging efficiency of any individuals foraging in the Study area.

Common bent-wing bat (as for Little bent-wing bat)

Greater broad-nosed bat
This species may occasionally forage over the subject site and roost in hollow-bearing trees on and adjacent to the subject site. Forage and roost habitat will be retained on the subject skite and impacts are likely to be low.

Large-footed myotis
The Large-footed myotis forages over creeks and other water bodies. Known to forage along Cunningham's Creek. It roosts in caves, tunnels, under bridges and in tree-hollows. The proposed development will not affect foraging or potential tree hollow roost habitat for this species.

4.1.5 Potential Impacts on Endangered Ecological Communities

The proposed development will impact on one (1) of the Endangered Ecological Communities occurring on the site i.e. portions of Community 2c (Paperbark +/- Swamp mahogany and Red mahogany) (**FIGURE 11**). Although this community has been highly degraded by past clearing activities, the prevalence of scattered Paperbark trees indicates that it could be categorised as an EEC.

4.1.6 Corridor impacts

The NPWS Key Habitats and Corridors database shows several regional and sub-regional habitat corridors within the locality of the site. These are shown in **FIGURE 15**. The subject site itself does not occur within a mapped corridor. The Moonee Creek corridor occurs to the immediate east of the site.

Regardless of the site not being mapped as part of a regional or sub-regional corridor, the forested and waterway portions of the site will have corridor value for a variety of native fauna.

The Proposed development may contribute towards a reduction in the overall effectiveness of the site as a corridor due to habitat loss and fragmentation and a reduction in the width and length of the corridor value of the site due to edge effects.

Retention of existing habitat along the western banks of Moonee Creek, in particular the 7A Zoned habitats (**FIGURE 5**) ensures that the site will continue to contribute to the important Moonee Creek Regional Corridor.

4.1.7 Impacts on Moonee Beach Nature Reserve

The proposed development has the potential to result in impacts on habitats within Moonee Beach Nature Reserve as a result of increased visitation to the reserve.
Nature Reserves, as opposed to National Parks, are managed for conservation purposes only and are not intended to provide for visitors. Impacts associated with increased visitation may include creation of informal pathways, trampling of vegetation, picking of wildflowers, increased disturbance of fauna, increased risk of fire, increased potential for dumping of rubbish and increased potential for invasion of exotic flora and fauna.

4.1.8 Impacts on Moonee Creek & Cunningham's Creek

The proposed development has the potential to result in impacts on habitats within Moonee Creek and Cunningham's Creek related to:

- Impacts on water quality and hydrology as a result of stormwater run-off from the proposed development.
- Increased visitation, with potential for trampling of intertidal vegetation, dumping of rubbish or refuse in creek habitats (particularly discarded fishing line, bait bags etc.), disturbance of fauna.

The policy of NSW Fisheries is for foreshore buffers to be established, with the width of the buffer to be extended for "ecologically sensitive areas". The proposed development layout allows for a buffer of at least 50m to Moonee Creek (7A Zone).

The Moonee Creek Estuary Processes Study (WBM 2005) notes that the Moonee Creek estuary is in a *"relatively healthy and near pristine condition".* This is due to the lack of urban pollutant input, buffering from native vegetation and a good natural flushing capacity. However future urban development within the Moonee Release Area is noted as likely to place increased pressure on the estuary system.

4.2 Amelioration

4.2.1 Introduction

This section discusses possible ameliorative measures and opportunities for enhancing the natural environment on the subject site, i.e. plant communities, fauna communities, Threatened species and conservation areas.

4.2.2 Amelioration for plant communities

The proposed development will provide an opportunity to restore native vegetation in currently disturbed areas of the site.

It is recommended that:

- A Vegetation Management Plan (VMP) is completed as a condition of consent. The VMP will provide guidelines controlling activities during the pre-clearing and clearing phases of the development.
- A Revegetation and Regeneration Plan should be completed as a condition of consent. This plan will provide for the creation of 0.6 hectares of Revegetation and 1.14 hectares of assisted

Regeneration. **FIGURE 16** shows the areas which will be subject to the Revegetation and Regeneration Plan. Implementation of these plans will ensure that the effective net loss of vegetation will be 0.31 hectares in the medium to long term.

4.2.3 Amelioration for fauna

While vegetation clearance for the proposed development will result in some loss of habitat for fauna utilising the site, this will be relatively minimal (0.3 hectares in the medium to long term), with the best quality habitat on the site being retained. The implementation of the Revegetation and Regeneration Plan (**FIGURE 16**) will replace the mapped Koala habitat lost to development as well as replacing habitat for a diversity of other species.

A Fauna Management Plan should be completed as a condition of consent. Implementation of this plan will ensure that site fauna are protected during clearing activities.

The Fauna Management Plan will include the following amelioration measures:

- Landowners should control dogs on the site. All animals should reside within fenced enclosures and be on a leash when outside of the enclosure. Cats should be banned from the site under the companion Animals Act (1998) to reduce likely impacts on local fauna.
- Appropriate disposal of rubbish and food scraps reduces opportunities for non-native predators and disturbance adapted competitors.
- Mature habitat trees should be retained where possible.
- A trapping program should be completed immediately prior to vegetation removal. All trapped animals should be re-located to a safe area of the site or other designated release area.
- A qualified fauna handler should be on site when clearing occurs.
- 40 km/hr speed limit to be imposed on internal access roads.

4.2.4 General amelioration measures

General Amelioration measures and amelioration measures to reduce impacts on Moonee and Cunningham's Creeks and Moonee Beach Nature Reserve include:

- *Stormwater management should aim to achieve no significant net change in volume or quality of the runoff into wetland areas on the site, and Moonee and Cunningham's Creeks.*
- *Restrictions should be placed on the use of fires during extended dry weather periods.*
- *Suitable measures (e.g. siltation fencing) be taken to prevent erosion of topsoil into Moonee and Cunningham's Creeks during construction.*

The Moonee Creek Estuary Processes Study (WBM 2005) also highlighted a number of management issues for Moonee Creek. Relevant issues include:

- Stabilisation of banks
- Enforcement of current regulations regarding recreational uses of the estuary, including dog walking and horse riding
- Preservation and enhancement of existing riparian vegetation and estuarine habitats
- Conservation of existing areas of native vegetation throughout the catchment.

These measures should be incorporated into management measures for the proposed development.