

**Project Outline
Preliminary Environmental Assessment
Stage 1 Project Application – Environmental Works
for
Proposed Residential Commercial and
Tourist Development
Lot 1 DP 374315 and Lot 4 DP 615261
Ocean Drive, Lake Cathie**

13922/13974

February 2007

Project Outline
Preliminary Environmental Assessment
Stage 1 Project Application – Environmental Works
for Proposed Residential, Commercial
and Tourist Development
Lot 1 DP 374315 and Lot 4 DP 615261,
Ocean Drive, Lake Cathie

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Date: February 2007

Table of Contents

Introduction	1
1.1 Introduction	1
1.2 Land Ownership and Project Team	2
1.3 Relevant Planning Provisions	3
Background	4
2.1 Background	4
2.2 Consultation	5
2.3 Specialist Studies	7
Site Analysis.....	9
Description of the Proposal	12
Project Approval for Stage 1 Environmental Works	15
5.1 Proposed Revegetation Works	16
Key Issues	17
Conclusion	22

List of Appendices

Appendix A – Correspondence Department of Planning, 18 January 2007

Appendix B – Annexures 1 to 8

Appendix C – Draft Vegetation Management Plan

Section 1

Introduction

1.1 Introduction

This application for a Residential, Commercial and Tourist Development on land at Lake Cathie (within the Port Macquarie-Hastings Local Government Area [PMHC]) is submitted pursuant to Part 3A of the Environmental Planning and Assessment Act, 1979 (EP&A Act).

The purpose of this submission is to:

- Provide an outline of the proposed Residential, Commercial and Tourist development and a Preliminary Environmental Assessment ; and
- Seek the Minister's authorisation to lodge a concept plan for the proposed development under Part 3A of the EP&A Act.
- Seek separate Director-General's Environmental Assessment Requirements (DGEARs) for:
 - The Concept Plan Application as outlined in Section 4 of this report.
 - The Stage 1 Project Application for the first Stage of the Proposed Environmental Works as outlined in Section 5 of this report.

The submission of this application pursuant to Part 3A of the EP&A Act follows advice from the Department dated 18 January 2007 (refer **Appendix A**) that the Minister had formed the opinion that the proposal is a Project to which Part 3A of the EP&A Act applies.

The key components of the concept plan are as outlined in Section 4 of this report including:

- Environmental works on the subject properties and adjoining crown reserve designed to protect and enhance Littoral Rainforest No.116 pursuant to the aims and objectives of SEPP No. 26.
- Low and medium density residential development consistent with the Lake Cathie Bonny Hills Urban Design Master Plan (UDMP) and the associated Development Control Plan (Area 14 DCP) currently being prepared by PMHC.

- A "Hilltop Village" comprising a 3-4 storey residential, commercial and tourist development consistent with the UDMP and Area 14 DCP.
- Open space works as outlined in the attached exhibits.

The subject properties are to be developed in stages as part of the overall implementation of the UDMP. The first stage of this project is proposed to be the Environmental Works which are proposed to be undertaken in accordance with the provisions of a Voluntary Planning Agreement between the proponents and the Department.

This submission includes the Stage 1 Project Application for environmental Works proposed to be undertaken on Lot 4/615261 and Lot 1/374315.

1.2 Land Ownership and Project Team

Landowners:	
Lot 4 DP 615261	Seawide Pty Ltd
Lot 1 DP 374315	Milland Pty Ltd
Crown Reserve No. R.210059 and R.82555	Crown Lands Office, State of NSW
Project Team:	
Proponent	King & Campbell Pty Ltd
Planning, Urban & Landscape Design, Overall Co-ordination	King & Campbell Pty Ltd
Ecological	Peter Parker Environmental Consultants Pty Ltd, Dr Peter Brennan (1)
Stormwater Quality Management	Jelliffe Environmental Pty Ltd (2)
Cultural Heritage	Jacqueline Collins
Bushfire	Australian Bushfire Protection Planners Pty Ltd
Planning Agreement	Lindsay Taylor Lawyers

- (1) PMHC have appointed Dr Stephen Phillips to undertake a peer review of the ecological assessments as part of the LES/ LEP process for the Lake Cathie-Bonny Hills UDMP area.
- (2) PMHC have appointed Dr Daniel Martens of Martens & Associates to augment previous Stormwater Management investigations through detailed groundwater monitoring and modelling.

1.3 Relevant Planning Provisions

The following planning instruments are relevant to the proposed development and will be considered in the Concept Design process:

- NSW Coastal Policy
- State Environmental Planning Policy No 26 – Littoral Rainforests
- State Environmental Planning Policy No 71 – Coastal Protection
- State Environmental Planning Policy (Major Projects) 2005
- State Environmental Planning Policy No 44 – Koala Habitat
- North Coast Regional Environmental Plan
- Hastings Local Environmental Plan 2001
- Hastings Urban Growth Strategy (HUGS) 2001
- Greater Lake Cathie and Bonny Hills Urban Design Master Plan

Section 2

Background

2.1 Background

PMHC adopted the Hastings Urban Growth Strategy (HUGS 2004) in October 2001 which identified the subject properties as part of the Area 14 Urban Investigation Area.

The site forms part of the PHMC Urban Investigation Area known as Area 14 and is included in the Lake Cathie-Bonny Hills Urban Design Master Plan adopted by PMHC in July 2004. An excerpt from Council's Urban Design Master Plan being the Future Development Area Concepts Plan is included as Attachment 2.

The subject properties adjoin SEPP 26 Littoral Rainforest No. 116 on their eastern boundaries (with part of the rainforest being contained within Lot 4). The site is surrounded by existing residential areas or residentially zoned on the northern, western and southern boundaries of the properties (refer aerial photographs included as Attachment 3).

A rezoning application was lodged with PMHC by King & Campbell in February 2005 (refer **Annexure 7**). PMHC have arranged a peer review of that application and as a result of the review additional ecological and groundwater investigations are currently being undertaken.

The rezoning application includes a design-based approach to the determination of an appropriate buffer to the SEPP 26 Littoral Rainforest and an indicative Structure Plan which was prepared in accordance with the abovementioned Future Area Development Concepts Plan. Attachments 4, 5 & 6 provide detail of the proposed SEPP 26 Littoral Rainforest buffer design and the footprint and conceptual road layout for the proposed residential, commercial and tourist development.

PMHC are currently completing the LES, draft LEP and DCP for the Area 14 UIA as the next phase in the implementation of the Lake Cathie UDMP.

A Part 3A Concept Plan Application was lodged with the Department by Luke & company on behalf of the adjoining southern landowner (St Vincent's Foundation) in September 2006 (your reference MP06_0085).

2.2 Consultation

Extensive consultation with Council, State Government stakeholders and the community, including on-site inspections, has been undertaken in relation to the project.

The initial on site inspection and meeting of 26 June, 2002 was attended by:

- Hastings Council Councillors and staff;
- Members of the HUGS Implementation Advisory Committee;
- Planning NSW (now Department of Planning);
- DLWC (now Department of Natural Resources);
- Coastal Council (now Department of Planning); and
- Members of consultant team for the draft LES.

(NPWS were invited but unable to attend the on-site inspection)

The following consultation was undertaken in relation to the rezoning of the properties:

- Department of Urban Affairs and Planning - 10 May, 2002, letter from the Department to confirm that an environmental study for the rezoning will be required;
- Planning NSW – 26 August, 2002, letter from the Department confirming the inclusion of land within 100 metres of the SEPP 26 Littoral Rainforest could be included within Hastings Urban Growth Strategy Urban Investigation Area;
- Department of Land and Water Conservation – 18 April, 2002, letter detailing the matters to be addressed in an Environmental Study;
- Coastal Council – 6 May, 2002, letter detailing the matters to be addressed in an Environmental Study;
- NSW National Parks and Wildlife Service – 29 March, 2002, letter in relation to Environmental Study requirements;

In relation to the buffer treatment to the SEPP 26 Littoral Rainforest, the following consultation has occurred with Port Macquarie-Hastings Council and the Department of Planning:

- 13 February 2004 – Council correspondence regarding the possible acquisition of the buffer to the SEPP 26 Littoral Rainforest;

- 16 March 2004 – Meeting with Department of Planning officers – Don Geering (Manager Integrated Policy) and Craig Munnings (Senior Policy Advisor Cabinet/Legislation for the Office of Minister Assisting the (then) Minister for Infrastructure and Planning) to discuss an acceptable merit-based solution to the proposed treatment of the buffer to the eastern edge of the SEPP 26 Littoral Rainforest;
- July 2004 – April 2005 – Consultation and meetings with Port Macquarie-Hastings Council regarding the proposed buffer treatment, possible acquisition of the buffer area by Council, preparation of the Area 14 DCP, urban design issues with respect to the proposed hilltop village and stormwater quality management issues;
- 4 May 2005 – Correspondence with head office Department of Infrastructure Planning and Natural Resources seeking confirmation that a merit-based SEPP 26 buffer design based on scientific analysis was acceptable;
- 12 July 2005 – Written advice from DIPNR confirming that land uses within 100 metres of the SEPP 26 boundary may be negotiated provided the proposed uses meet the objectives of SEPP 26;
- October 2005 – Meeting with Department of Planning's North Coast Regional Office where the proposed buffer design, scientific analysis and proposed weed management/ bush regeneration measures on the eastern side of the SEPP 26 rainforest were discussed.
- 11 May 2006 – Site inspection and stakeholders' meeting attended by Department of Planning (Head Office and Regional office), PMHC Officers, Consultants for PMHC, Consultants for Landowners and Seawide Pty Ltd. Meeting held to review King & Campbell Rezoning Application and to consider the way forward with PMHC's LES.
- 14 November 2006 – Meeting with Department of Planning's Don Geering and Jim Clark to discuss the proposed buffer design, Stage 1 Environmental Works, use of a Planning Agreement and to arrange a stakeholders' meeting.
- A stakeholders meeting was held on the 13 December, 2006 at the Department of Planning's Bridge Street office, with the following in attendance:
 - Mr Don Geering, Acting Manager Integrated Policy;
 - Mr Jim Clark, Department of Planning, North Coast Office;
 -

- Dr Daniel Martens of Martens and Associates;
- Dr Stephen Phillips, ecologist;
- Mr Luke Nicholls, PMHC Director of Development and Environment and Mr Peter Cameron, PMHC Area 14 coordinator;
- Mr Peter Parker, Ecologist;
- Dr Lindsay Taylor and Mr James Lonsdale of Lindsay Taylor Lawyers; and
- Mr Anthony Thorne and Mr Andrew Campbell of King & Campbell;
- Mr Graham Cunning, Seawide Pty Ltd.

At this meeting the following was agreed to in principle:

- A Local Environmental Study (LES) to be completed by Council;
- Subject to confirmation of the applicability of Part 3A, King & Campbell are to prepare a Concept Application providing appropriate details of future development;
- A Planning Agreement is to be prepared by Lindsay Taylor Lawyers in relation to works to be undertaken at the rezoning stage;
- Lindsay Taylor Lawyers were to document the legal process associated with the preparation of the above documentation; and
- The LES, Concept DA and Planning Agreement are to be publicly exhibited concurrently and subsequently adopted simultaneously.

2.3 Specialist Studies

This preliminary environmental assessment has been based on a number of specialist studies prepared and submitted to PMHC in relation to the Rezoning Application:

Peter Parker Environmental Consultants Pty Ltd

- Ecological Assessment - Flora and Fauna, SEPP 26 Buffer Design

Dr Peter Brennan

- Expert on Edge Effects and the Littoral Rainforest – SEPP 26 Buffer Design

Jelliffe Environmental Pty Ltd

- Stormwater Quality Management

Australian Bushfire Protection Planners Pty Ltd

- Bushfire Risk Assessment

Jacqueline Collins - Consultant Archaeologist

- Cultural Heritage Assessment

King & Campbell Pty Ltd

- Overall co-ordination, planning and infrastructure

In addition, PMHC have arranged a peer review of the Rezoning Application. This review has resulted in additional ecological and groundwater monitoring and modelling currently being undertaken by Dr Stephen Phillips of Biolink and Dr Daniel Martens of Martens & Associates.

Section 3

Site Analysis

The site and the physical attributes it exhibits and surrounding land uses are identified on Attachment 3. These features are as follows:

- The site (Lot 4 and Lot 1) is zoned Rural 1(a1) under the provisions of Hastings LEP 2001.
- The site has an approximate 1,100 metre frontage to Littoral Rainforest No 116 which is zoned Environmental Protection 7(f1) – Coastal.
- Approximately 3.6ha of Littoral Rainforest No 116 is sited within the property boundary of Lot 4.
- Apart from the Littoral Rainforest (which forms the eastern boundary of the site), all adjoining land to the north, south and west of the site is zoned Residential 2(a1) under the provisions of Hastings LEP 2001.
- Existing adjoining land uses include the following:
 - To the north is the southern extent of Lake Cathie township which includes the recently developed Endeavour Park Estate. Ocean Drive forms the northern boundary to Lot 4 and is the primary traffic route between Port Macquarie, Lake Cathie, Bonny Hills and Laurieton;
 - To the south and west is residentially zoned land held in the ownership of the St Vincent's Foundation, which is subject to a Concept Plan Application currently with the Department of Planning. The existing Sewerage Treatment Plant is sited to the south of this adjoining lot, approximately 450m south of Lot 1;
 - To the east is Littoral Rainforest No 116 which in turn adjoins the coastline incorporating Rainbow Beach and Middle Rock. Middle Rock is a popular surfing location and access to this area is gained through the Littoral Rainforest from Middle Rock Road. The SEPP 26 Littoral Rainforest in the vicinity of Middle Rock carpark is currently undergoing work associated with weed management and bush regeneration programmes.

- The subject site is currently vacant with evidence that the site is used to provide direct pedestrian beach access to the adjoining coastline of Rainbow Beach. This informal access arrangement has resulted in the creation of a defined pathway through the rainforest area.
- Existing vegetation within the study site includes:
 - Approximately 3.6ha of Littoral Rainforest;
 - Approximately 2.8 ha of native revegetation areas within Lot 4;
 - A Approximately 8,700m² of native vegetation within Lot 1;
 - The remainder of the subject property is cleared of vegetation.
- The native revegetation areas within Lot 4 were established to rehabilitate land cleared in 1994 referred to in DUAP's correspondence dated May 2002. The condition of these compensatory plantings were reviewed as part of the Flora and Fauna Survey.
- The western edge of the SEPP 26 Littoral Rainforest has a thin band of developing weeds adjacent to it. These weeds are dominated by Lantana. The eastern edge of the SEPP 26 Littoral Rainforest and frontal dunes are dominated by weed infestation – predominantly Bitou Bush.
- Attachment 3 also contains an historical aerial photograph (circa 1981) of the site and surrounding area. The following features are worth noting:
 - The aerial photograph pre-dates SEPP 26. The edge of the Littoral Rainforest is identical to the gazetted SEPP 26 boundary and the current edge of the rainforest.
 - An access track formally linking Middle Rock carpark with the existing beach access on the adjoining southern property. The rainforest appears to have successfully regenerated to obscure evidence of the former track.
 - The historical photograph shows evidence of previous occupation of Lot 1 and possible agricultural/horticultural activity adjacent to the rainforest edge.

- Apart from the compensatory revegetation areas established on Lot 4 in 1995 and referred to above, there has been no other significant change to existing vegetation since 1981.

- An existing drainage gully runs along part of the western boundary, leading to Duchess Creek.
- Levels on the site generally range between RL 4 m and RL 24 m AHD.
- The higher elevations on the site enable extensive views of the ocean and surrounding topographical features, including North Brother and Jolly Nose mountains. Conversely, the elevation of the site enables the site to be viewed from the northern and southern approaches along Ocean Drive.

Section 4

Description of the Proposal

The proposed Concept Plan contains the following components:

- **Environmental Works** (designed in accordance with the outcomes of ecological investigations – refer to Attachments 4, 5 and 6):
 - Retention of all native vegetation on the western side of SEPP 26 Rainforest and removal of existing weeds;
 - 40-60 metres of rainforest revegetation on the western side of the SEPP 26 Rainforest;
 - Fencing of the revegetation area and hedging with a spiky hedge;
 - A grassed area with scattered rainforest trees, cycleway/pathway and perimeter road incorporating on-street car spaces;
 - Stormwater quality measures to ensure consistency with Council's draft Integrated Water Cycle Management Plan;
 - Low impact boardwalk or similar pedestrian access along the existing track to the beach (subject to Department of Lands agreement as landowner);
 - Weed removal/rehabilitation works along the eastern edge of the SEPP 26 rainforest (subject to Department of Lands agreement as landowner).

As recently agreed at the Stakeholders meeting at the Department of Planning, a Voluntary Planning Agreement (VPA) will be prepared to provide for the revegetation and associated environmental works to be undertaken as the first stage of the development.

It is proposed to lodge the VPA in conjunction with the Environmental Assessment and draft Statement of Commitments for the Stage 1 Environmental Works.

The buffer treatment will occupy approximately 6.05 ha of the subject properties. Approximately 3.31 hectares of the SEPP 26 Littoral Rainforest are also located on Lot 4.

Section 5 of this report contains details of the project application for the first stage of the Environmental Works.

- **Low Density Residential:**

The Low Density component occupies approximately 17.86 hectares and at a density of 12-15 dwellings per hectare will result in the creation of 214-268 lots and associated dwellings. The Low Density Residential component is shown shaded pink on **Attachment 4**.

- **Medium Density Residential:**

The medium density component occupies approximately 2.75 ha and in accordance with the Lake Cathie and Bonny Hills Urban Design Master Plan (UDMP) assumes a 50/50 split between two and three storey buildings. At a density of 25 dwellings per hectare approximately 68 dwellings are proposed to be created. The Medium Density Recreational component is shown shaded crimson on **Attachment 4**.

- **Commercial / Residential / Tourist**

The Lake Cathie and Bonny Hills UDMP proposes the creation of a hilltop village centre located on the ridge-top that straddles the existing common boundary between Lot 4 and Lot 1. Height limits of 3-4 storeys are proposed to provide for ground floor commercial/tourist use within the hilltop village centre.

Based on commercial/tourist floor space at ground level with three storeys of residential/tourist uses above and basement carparking below, yields of approximately 26 ground level commercial / tourist units and approximately 120-140 medium-sized residential / tourist residential apartments above are expected. The hilltop village component is shown shaded blue on **Attachment 4**.

- **Open Space**

The proposed development provides for approximately 0.6 hectares of open space which includes a "hilltop park" adjoining the hilltop village main street, the final location of which is to be determined by Council's DCP; and

- **Urban Form Analysis**

The attached Urban Form Analysis (attached as **Annexure 8** in 6 sheets) provides conceptual analysis of some of the urban design components of the proposed development. The Indicative Structure Plan, SEPP 26 Buffer Design and Urban Form Analysis have been provided to PMHC as part of input into the Area 14 Development Control Plan currently being prepared by PMHC.

The Urban Form Analysis provides conceptual consideration of:

- The "overall" Structure Plan;
- A Section showing indicative details through the hilltop;
- The urban form within and adjacent to the main street of the hilltop village;
- Main street character; and
- Duplex and single dwelling typologies.

The Urban Form Analysis is considered to be a conceptual indication of how the hilltop village centre in particular and the surrounding residential areas may be developed. It is acknowledged that PMHC are preparing a Development Control Plan (DCP) for Area 14 and St Vincent's Foundation have lodged a Concept Application with the Department. It is expected that the ultimate urban design controls and yields will be determined through the completion of Council's DCP and through the Department's future assessment of applications.

Section 5

Project Approval for Stage 1 Environmental Works

As previously stated, separate DGEARs and Project Approval are sought for the first stage of the Environmental Works.

As indicated in the Concept Plan the Environmental Works for the subject Project include:

- (1) Retention of all native vegetation on the western side of SEPP 26 Rainforest and removal of existing weeds;
- (2) 40-60 metres of rainforest revegetation on the western side of the SEPP 26 Rainforest;
- (3) Fencing of the revegetation area and hedging with a spiky hedge;
- (4) A grassed area with scattered rainforest trees, cycleway/pathway and perimeter road incorporating on-street car spaces;
- (5) Stormwater quality measures to ensure consistency with Council's draft Integrated Water Cycle Management Plan;
- (6) Low impact boardwalk or similar pedestrian access along the existing track to the beach (subject to Department of Lands agreement as landowner);
- (7) Weed removal/rehabilitation works along the eastern edge of the SEPP 26 rainforest (subject to Department of Lands agreement as landowner).

The stage 1 Project Application applies to Items 1, 2 and 3 of the Environmental Works being the weed removal, revegetation and fencing works proposed to be undertaken on the western side of the SEPP 26 Littoral Rainforest.

Separate Project applications will be lodged for the remainder of the Environmental Works as follows:

- Works within Crown Reserves R.210059 and R82555 which are subject to obtaining landowner's consent from NSW Crown Lands (Items 6 and 7);
- Works associated with the future subdivision of the subject properties (Items 4 and 5) will be included in future project applications for those developments.

5.1 Proposed Revegetation Works

The proposed revegetation works are to be undertaken within the areas shown on **Attachments 4 and 5** and in accordance with the provisions of the Revegetation Management Plan (RMP) included in **Annexure 3**.

The objectives of the revegetation works are to provide protection to the adjoining SEPP 26 Littoral Rainforest utilising plant species identified from that rainforest community.

The RMP includes a plant species list which has been prepared in consultation with Ecologist Peter Parker and Bush Regenerator David Filipczyk.

The RMP outlines the following steps over a six (6) year timeframe:

- Seed collection and propagation from the adjoining SEPP 26 Littoral Rainforest;
- Planting within Spring or Summer when soil moisture levels are high;
- Preparatory works involving the removal of existing weed species and the fencing of revegetation areas with a 2 metre high fence;
- Planting works at a rate of one (1) plant for 2m² in accordance with the provisions of the RMP;
- Maintenance works over a period of five (5) years in accordance with the provisions of the RMP.

The Project Application for Stage 1 of the Environmental Works has been submitted to facilitate the early implementation of the revegetation measures well prior to the commencement of other development stages. This approach has been applied to protect and enhance the existing SEPP 26 Littoral Rainforest:

- Immediately improving the existing condition of the rainforest by the removal of the weeds along its western edge;
- Providing longer-term enhancement of the existing rainforest by increasing its width to length ratio;
- Ensuring that revegetation works are well established and fenced off prior to the commencement of other stages of the proposed residential, commercial and tourist project.

As previously stated, a Voluntary Planning Agreement (VPA) will be prepared to provide for the Environmental Works being undertaken as the first stage of the development. It is proposed to lodge the VPA with the Environmental Assessment and draft Statement of Commitments for the Stage 1 Environmental Works.

Section 6

Key Issues

The following provides a summary of the key issues and identifies the potential environmental impacts in relation to the development of the site:

- **Littoral Rainforest No 116**

The Littoral Rainforest is the most significant environmental feature of the site. It is one of the largest Littoral Rainforest remnants in the local area, is relatively weed free and not impacted by cattle grazing or other significant anthropocentric effects.

The rainforest stands out from many other remnants along the NSW coastline in its size, species diversity, small mammal assemblages and the virtual absence of rubbish dumping.

Potential environmental impacts include:

- Degradation of the forest and resultant changes to the forest type;
- The introduction of weed species;
- Loss of habitat for recorded Vulnerable Fauna species;
- The gradual clearing of the forest edges by adjoining residences; and
- The loss of Littoral Rainforest No 116 for future generations.

- **Edge Effects / Buffer Design**

Ecologist, Peter Parker and Dr Peter Brennan, an expert on edge effects and Littoral Rainforests, have advised that 'edge effects' can have negative impacts on remnant vegetation. These 'edge effects' can be placed in two categories; those stemming from changes in the micro-climate near the edges of the remnant and those that result from human activity in the cleared areas surrounding the remnant.

Dr Brennan advocates the use of 'buffers' as being an effective management tool to reduce or nullify the edge effects and thus ameliorate these negative impacts.

For buffers to be effective, their design should be specific to the ecology and physical environment of the site and should address potential effects from proposed land uses in the surrounding locality.

Potential environmental impacts include:

- Human intrusion in the form of unregulated clearing of forests by residents whose houses abut the forest. Such clearing usually takes the form of either clearing paths through the forest to create direct access to the beach adjoining their property or extending their yards that directly abut the forest.
- Such intrusions are particularly destructive to the rainforest as they either create breaks in the canopy or break down the closed edge of the forest facilitating greater invasion of the forest by weeds.
- The dumping of rubbish, either large items or garden waste, into the forest. Large items of rubbish will again damage the edge structure. Garden waste will transport seeds and propagules of weed species into the forest. This practice is again most common when residential properties directly abut the forest.
- Repeated forest fires can cause significant incremental damage to the rainforest. If the existing grasslands adjoining the rainforest are not kept low there is fire risk to the forest edge.
- Domestic and feral animals can prey on ground dwelling and ground utilising fauna in small rainforest remnants putting such remnants at risk. The buffer to residential development should include design features to minimise the likelihood of domestic animal incursion into the rainforest.
- Increased noise and light from residential development may negatively impact on some rainforest fauna. No such fauna species were detected in the survey and such effects will be reduced by the relatively high background noise levels created by the adjoining surf. Buffers should be designed to direct street lights away from the forest edge.

- Stormwater drainage impacts from residential developments have the potential to affect infiltration rates and increase the incidence of surface run-off.
- Wind and salt spray impacts – The existing western edge of the rainforest is on the lee side of the salt laden south-east and north-eastern winds and so is not obviously affected by salt spray.
- The construction of buildings taller than the rainforest canopy within 40 metres of the rainforest edge could cause some turbulence which would lead to an increase in salt deposition along the forest edge.

- **Public Access and Recreation Use**

The need to reconcile the protection of the sensitive coastal location with the need to provide public access. The existing informal public access to the beach has introduced weed to the edge of the rainforest area.

Potential environmental impacts include:

- The introduction of weed species into the Littoral Rainforest, with potential to alter the forest type;
- Uncontrolled public access may lead to removal of vegetation and an increase in the edge effects outlined above; and
- Non-provision of a controlled access may lead to an increase in uncontrolled access points with their associated vegetation removed and edge effects.

- **Visual Access and Scenic Qualities**

The retention of both the existing views from the site to the surrounding geographic features and the existing views to the rainforest from the adjoining coastline.

Potential environmental impacts include:

- The potential loss of views from the site to the surrounding geographic features through inappropriate development of the land; and
- The potential loss of the existing natural aesthetic qualities of the coastline (the Littoral Rainforest) due to a loss or thinning to the forest.

- **Cultural Heritage**

A mature Brush Box tree bearing an oval scar believed to have been produced through the removal of bark for an Aboriginal shield was identified within the SEPP 26 Littoral Rainforest area. In accordance with the assessment carried out by Jacqueline Collins (Consultant Archaeologist), this tree has a high level of Aboriginal heritage value and scientific significance. In addition, Duchess Creek may contain concealed evidence of Aboriginal occupation.

Potential environmental impacts include:

- The potential loss of cultural heritage for future generations.

- **Environmental Hazards**

Council mapping has identified class 4 and 5 Acid Sulfate Soils on the southern boundary of Lot 1. Also potential bushfire hazard with proximity of any urban development to the Littoral Rainforest.

Potential environmental impacts include:

- The potential presence of acid sulfate soils below the water table in areas to the south west of the site imposes the low risk of acid sulfate release if such soils are exposed or the water table is significantly lowered; and
- Impacts of bushfire hazard can include loss of, life, property and ecologically significant vegetation.

- **Water Quality / Ground Water / Topsoil and Surface Soil Erosion**

Jelliffe Environmental has concluded that the development of residential land within the study area would result in an increase in the export of pollutants from the site unless stormwater quality control measures are implemented.

Potential environmental impacts include:

- Change in the level of the water table under the rainforest may cause a change to the forest type; and
- Untreated/ uncontrolled surface runoff from the developed area could cause erosion and sedimentation within the rainforest and increase the level of nutrients, leading to weed species being introduced in to the rainforest.

Groundwater modelling and monitoring works are currently underway as part of the finalisation of the LES. PMHC have also prepared a draft Integrated Water Cycle Management Plan for the whole of area 14 which will apply to the subject Project.

- **Ecology / Wildlife and Habitat Corridors**

One (1) threatened plant species was identified, being the "rough shelled bush nut" and three (3) Vulnerable Fauna Species were identified on the site, being the "common blossom bat", the "grey headed flying fox" and the "little bent wing bat". Another two (2) are considered likely to occur.

Potential environmental impacts include:

- Loss of flora and fauna as a direct result of the loss of suitable habitat or changes to the habitat type.

Section 7

Conclusion

The proposed residential/ commercial/ tourist development will generate construction capital investment of approximately \$90 million.

The proposed development also incorporates significant environmental buffer works specifically designed to protect and enhance the existing SEPP 26 Littoral Rainforest adjoining the eastern boundary.

The subject properties have been identified in the Hastings Urban Growth Strategy 2001 (HUGS) as urban investigation areas in the Lake Cathie-Bonny Hills area. HUGS 2001 has been adopted by State and Local Government to provide a framework for the management of population growth in the PMHC local government area. The proposed development is consistent with HUGS 2001 and the subsequent Lake Cathie-Bonny Hills Urban Design Master Plan adopted in July 2004 and is important in achieving regional planning objectives with respect to future urban growth in the Port Macquarie Hastings LGA.